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## Development of a New Measure of Political Ideology

Vanessa M. Sinclair, *The University of Western Ontario*

Supervisor: Saklofske, Donald H., *The University of Western Ontario*

A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree  
in Psychology

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## Abstract

Ideology is central to political psychology, but despite recent renewed interest in studying political ideology, its measurement is inconsistent. Ideology scales are numerous and heterogeneous in content. Further, there is disagreement on whether ideology is unidimensional or multi-dimensional, and what the nature of these dimensions are. These inconsistencies limit the generalizability of conclusions made about ideology as it relates to political views and behaviour. There is a clear need for a conceptual model that is grounded in theory, and for a well-validated scale that organizes and quantifies ideology. Chapter 1 reviews the state of ideology measurement and identifies plausible dimensions supported by the literature. Chapter 2 involves the development of the new political ideology scale (NPIS) and two exploratory factor analyses (EFA) with samples of 426 postsecondary students and 239 Canadian adults, respectively, which explored the latent structure of the items. Chapter 3 involved three studies using confirmatory factor analysis (CFA) with samples of 484 (Time 1) and 388 (Time 2) Canadian adults, 522 postsecondary students, and 191 Canadian adults, respectively. These studies tested the fit of the refined item pool and established a three-factor structure of ideology comprising egalitarianism, traditionalism, and authoritarianism factors. Construct and criterion validity analyses were also conducted. The three factors were associated to varying degrees with personality traits; social dominance and right-wing authoritarianism; party affiliation and voting behaviour; support for normative and radical collective action; views on Canadian political policies; and perceptions of the COVID-19 virus, government response, and vaccination intentions. Chapter 4 involves a latent profile analysis (LPA) suggesting four patterns of scores, which were associated with different demographic features and views on collective action: a highly egalitarian, very anti-authoritarian and very progressive profile; an egalitarian, moderately authoritarian, and moderately progressive profile; a highly authoritarian, slightly anti-egalitarian, and highly traditional profile; and a very anti-egalitarian, moderately authoritarian, highly traditional profile. Chapter 5 involves an experimental study on persuasive messaging and ideology as it relates to COVID-19 vaccination intentions. The studies provide a foundation for a more cohesive study of ideology, and the scale has potential applications for any research requiring measurement of core political values.

## Keywords

Political ideology, attitudes, assessment, scale construction, factor analysis, latent profile analysis

## Summary for Lay Audience

A person's political orientation can be understood as a collection of interrelated attitudes towards how government and civil society should be organized. This network of beliefs, which can be called an 'ideology', is often thought to exist on a dimension of left- to right-wing, or from liberal-to-conservative. While these terms are among the most common identifiers for ideology, they are far from the only ones. Individuals may use a variety of other words to describe their political views, and many discrete policy positions cannot be easily placed on this spectrum. From a psychometric standpoint, there is also a clear need for a more nuanced model – a substantial number of political psychology researchers have found a singular dimension of ideology does not line up with their data. I reviewed the state of ideology measurement in contemporary political psychology as well as interdisciplinary research and hypothesized a handful of ideological value dimensions that might map on to individual's political views. To investigate, I generated an extensive preliminary measure of 70 statements and conducted two exploratory factor analyses (EFAs), a statistical technique used to identify the structure underlying a set of items and to reduce the model to the best-fitting set of dimensions. After this, three confirmatory factor analyses (CFAs) were conducted to test how well the hypothesized model mapped on to the data collected from three additional samples, which included 484 (at Time 1) and 388 (at Time 2) Canadian adults, 522 Canadian postsecondary students, and 191 Canadian adults. The new political ideology scale (NPIS) was found to have three dimensions: egalitarianism, traditionalism, and authoritarianism. I conducted additional analyses to provide further evidence for the structure and usefulness of the scale, including exploring its relationships with existing measures of political views, as well as conducting tests of its utility in predicting outcomes like party affiliation, voting behaviour, support for collective action, and responses to the COVID-19 pandemic. The NPIS is intended to serve as a conceptual model as well as a testing instrument for any researchers seeking to study core political values, their predictors, and their consequences.

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# Table of Contents

Abstract .....	ii
Summary for Lay Audience .....	iv
Acknowledgments.....	v
Table of Contents .....	vi
List of Tables .....	ix
List of Figures .....	xiv
List of Appendices .....	xv
Chapter 1 .....	1
1 Introduction .....	1
1.1 The State of Ideology Measurement in Political Psychology and Need for the Current Study .....	2
1.1.1 Left and Right .....	2
1.1.2 Issues with a Unidimensional Model of Ideology .....	4
1.1.3 Existing Multidimensional Measures of Ideology .....	7
Chapter 2.....	14
2 Development of the Political Ideology Scale.....	14
2.1 Hypothesized Factors.....	14
2.1.1 Egalitarianism/Antiegalitarianism .....	14
2.1.2 Progressivism/Traditionalism .....	14
2.1.3 Libertarianism/Authoritarianism.....	15
2.1.4 Radicalism/Moderatism .....	16
2.2 Scale Development .....	16
2.3 Exploratory Factor Analysis (Study 1) .....	20
2.3.1 Methods.....	20
2.3.2 Results and Discussion .....	24

2.4 Exploratory Factor Analysis (Study 2) .....	31
2.4.1 Methods.....	33
2.4.2 Results and Discussion .....	35
Chapter 3.....	49
3 Scale Validation .....	49
3.1 Confirmatory Factor Analysis and Scale Validation (Study 3) .....	52
3.1.1 Methods.....	54
3.1.2 Results and Discussion .....	59
3.2 Confirmatory Factor Analysis and Scale Validation (Study 4) .....	80
3.2.1 Methods.....	81
3.2.2 Results and Discussion .....	84
3.3 Confirmatory Factor Analysis and Scale Validation (Study 5) .....	103
3.3.1 Methods.....	103
3.3.2 Results and Discussion .....	106
Chapter 4.....	114
4 Latent Profile Analysis.....	114
4.1 Methods.....	114
4.1.1 Participants and Data Cleaning.....	114
4.1.2 Procedure .....	115
4.1.3 Measures .....	115
4.1.4 Data Analytic Decisions .....	115
4.2 Results and Discussion .....	116
Chapter 5.....	126
5 Experimental Analysis: Political Ideology and Vaccine Intentions.....	126
5.1 Political Ideology, Message Framing, and Vaccination Intentions .....	126
5.1.1 Fairness/Caring Appeal.....	127

5.1.2	Patriotic/In-Group Norms Appeal.....	128
5.1.3	Control .....	128
5.2	Methods.....	129
5.2.1	Participants and Data Cleaning.....	129
5.2.2	Procedure .....	129
5.2.3	Measures .....	129
5.3	Results and Discussion .....	131
5.3.1	Limitations .....	132
Chapter 6	.....	134
6	General Discussion and Conclusion .....	134
6.1	The New Political Ideology Scale as a Measure of Core Political Values .....	134
6.2	The Three Factors of the New Political Ideology Scale .....	136
6.2.1	The Three-Factor Model Compared to One- and Two-Factor Models...	137
6.3	Future Directions .....	141
References	.....	145
Appendices	.....	163



## List of Tables

Table 1: Initial item pool.....	17
Table 2: EFA 1 model fit indices.....	25
Table 3: Five-factor solution factor loadings in EFA 1.....	25
Table 4: Inter-factor correlations for EFA 1 five-factor solution.....	28
Table 5: Content of five-factor model in EFA 1.....	29
Table 6: EFA 2 item list.....	31
Table 7: EFA 2 model fit indices.....	35
Table 8: EFA 2 six-factor solution factor loadings.....	36
Table 9: Inter-factor correlations for EFA 2 six-factor solution.....	38
Table 10: Content and internal reliabilities of six-factor model in EFA 2.....	38
Table 11: EFA 2 five-factor solution factor loadings.....	40
Table 12: Inter-factor correlations for EFA 2 five-factor solution.....	42
Table 13: Content and internal reliabilities of five-factor model in EFA 2.....	42
Table 14: EFA 2 four-factor solution factor loadings.....	44
Table 15: Inter-factor correlations for EFA 1 four-factor solution.....	46
Table 16: Content and internal reliabilities of four-factor model in EFA 2.....	46
Table 17: Factor list for CFA and scale validation study 3.....	52
Table 18: Model fit indices for CFA 1, Time 1.....	60
Table 19: Factor loadings for CFA 1, Time 1.....	60

Table 20: Model fit indices for CFA 1, Time 2.....	64
Table 21: Factor loadings for CFA 1, Time 2.....	65
Table 22: Inter-factor correlations for CFA 1, Time 1 and 2.....	66
Table 23: Descriptive statistics for scale items in CFA 1, Time 1 and Time 2. ....	67
Table 24: Descriptive statistics for all study variables in scale validation study 3.....	69
Table 25: Summary of party affiliation and voting behaviour. ....	70
Table 26: Validation study 3 regression analysis for SDO-Dominance.....	71
Table 27: Validation study 3 regression analysis for SDO-Egalitarianism.....	72
Table 28: Validation study 3 regression analysis for RWA.....	72
Table 29: Validation study 3 regression analysis for left-right affiliation.....	72
Table 30: Validation study 3 regression analysis for patriotism.....	72
Table 31: Validation study 3 regression analysis for nationalism.....	73
Table 32: Validation study 3 regression analysis for conscientiousness.....	73
Table 33: Validation study 3 regression analysis for openness.....	73
Table 34: Validation study 3 regression analysis for political efficacy.....	75
Table 35: Validation study 3 regression analysis for likelihood of voting in federal election	75
Table 36: Validation study 3 parameter estimates for collective action participation.....	75
Table 37: Validation study 3 parameter estimates for party affiliation (with Liberal as reference group).....	76
Table 38: Validation study 3 parameter estimates for voting behaviour (with Liberal as reference group).....	76

Table 39: Validation study 3 regression analysis for perceived threat of COVID-19.....	78
Table 40: Validation study 3 regression analysis for psychological burden of COVID-19 ...	78
Table 41: Validation study 3 regression analysis for approval of COVID-19 restrictions.....	79
Table 42: Validation study 3 regression analysis for approval of punishments for violators of COVID-19 restrictions.....	79
Table 43: Scale factors and items for CFA and scale validation study 4 .....	80
Table 44: Descriptive statistics for scale items in validation study 4.....	85
Table 45: Model fit indices for CFA 2.....	86
Table 46: Factor loadings for CFA 2 .....	86
Table 47: Inter-factor correlations for CFA 2.....	88
Table 48: Descriptive statistics for all study variables in scale validation study 4.....	89
Table 49: Validation study 4 regression analysis for SDO-Dominance .....	90
Table 50: Validation study 4 regression analysis for SDO-Egalitarianism .....	90
Table 51: Validation study 4 regression analysis for RWA .....	91
Table 52: Validation study 4 regression analysis for left-right affiliation.....	91
Table 53: Validation study 4 regression analysis for normative collective action .....	92
Table 54: Validation study 4 regression analysis for non-normative collective action.....	93
Table 55: Validation study 4 regression analysis for left-right affiliation, political ideology scale, and normative collective action .....	94
Table 56: Validation study 4 regression analysis for SDO, RWA, political ideology scale, and normative collective action.....	94

Table 57: Validation study 4 regression analysis for left-right affiliation, SDO, RWA, political ideology scale, and normative collective action .....	95
Table 58: Validation study 4 regression analysis for left-right affiliation, political ideology scale, and non-normative collective action .....	95
Table 59: Validation study 4 regression analysis for SDO, RWA, political ideology scale, and non-normative collective action.....	96
Table 60: Validation study 4 regression analysis for left-right affiliation, SDO, RWA, political ideology scale, and non-normative collective action.....	97
Table 61: Means and SDs for policy items, and standardized regression coefficients (beta coefficients) for ideology on policy items after controlling for demographic variables. ....	99
Table 62: Descriptive statistics for scale items in validation study 5 .....	106
Table 63: Model fit indices for CFA 3.....	107
Table 64: Factor loadings for CFA 3 .....	107
Table 65: Inter-factor correlations for CFA 3.....	110
Table 66: Regression analysis for ideology scale and likelihood of receiving COVID-19 vaccine .....	111
Table 67: Regression analysis for ideology scale and willingness to receive a COVID-19 vaccine .....	111
Table 68: Regression analysis for left-right affiliation, ideology scale, and likelihood of receiving COVID-19 vaccine .....	112
Table 69: Regression analysis for left-right affiliation, ideology scale, and willingness to receive COVID-19 vaccine.....	112
Table 70: BLRT values for models with one through five profiles .....	118
Table 71: Comparison of VVV models with two, three, and four latent profiles.....	118

Table 72: Descriptive statistics of the four latent profiles ..... 121

Table 73: Observed versus expected cell counts for demographic variables across the four latent profiles ..... 123

Table 74: Means and standard deviations for the four latent profiles on SDO, RWA, and collective action ..... 124

## List of Figures

Figure 1: Scree plot and parallel analysis for EFA 1.....	24
Figure 2: Scree plot and parallel analysis for EFA 2.....	35
Figure 3: BIC values for all possible models with one to nine latent profiles.....	117
Figure 4: ICL values for all possible models with one to nine latent profiles .....	118
Figure 5: Latent model with two profiles .....	119
Figure 6: Latent model with three profiles .....	120
Figure 7: Latent model with four profiles.....	120

## List of Appendices

Appendix A: EFA 1 seven factor solution factor loadings. ....	163
Appendix B: EFA 1 six-factor solution factor loadings. ....	168
Appendix C: EFA 1 four-factor solution factor loadings. ....	172
Appendix D: Bivariate correlations for all variables for scale validation study 3, time 1. .....	175
Appendix E: Bivariate correlations for all variables for scale validation study 3, time 2. .....	176
Appendix F: Bivariate correlations for all non-policy item variables in validation study 4. .....	177
Appendix G: Zero-order bivariate correlations between policy items and ideology scale .....	178
Appendix H: Bivariate correlations between all study variables in validation study 5..	180
Appendix I: Scatterplots for effects of ideology factors and message condition on likelihood and willingness to receive COVID vaccines .....	181
Appendix J: Ethics Approval letters from Western University’s Office of Human Research Ethics for all samples.....	185

## Chapter 1

### 1 Introduction

Ideology is at the heart of political psychology. Understanding the core values that give rise to political behaviour has been of interest to researchers for decades. Nearly a century ago, scholars such as Thurstone (1931a) and Ferguson (1939) laid the groundwork for the empirical study of ideology with their research on social attitudes; in the mid-20<sup>th</sup>-century, Adorno et al.'s landmark work *The Authoritarian Personality* would shape the ideology discourse for years to follow. Despite claims about the 'end' of ideology (the most influential likely being Bell, 1960, and see also Shils, 1986b) or, less harshly, assertions that ideology exists only among the politically sophisticated (e.g., Converse, 1964; Kalmoe, 2020), ideology research has not disappeared. To the contrary: in recent years, it has undergone a renaissance (Jost, 2006).

Ideology can be defined as a system of core beliefs that is internally consistent and relatively stable. In the case of political ideology (as opposed to, for example, religious ideology), it reflects a vision about how society should function, gives meaning to the political environment, and facilitates political decision-making. While the precise definition of ideology has varied greatly (Jost, 2006), these attributes are largely unchallenged. Across interdisciplinary literature, ideology is held to be coherent (beliefs within the system do not blatantly contradict each other), contrasting (the belief system is distinct and meaningful), and stable (it does not change drastically over short intervals; Gerring, 1997, p. 25).

An overwhelming amount of evidence suggests individuals can and do use political value systems to guide their decisions, including those with lower political sophistication (Abramowitz & Saunders, 2008; Carney et al., 2008; Erikson & Tedin, 2003; Evans et al., 1996; Feldman, 2003; Jacoby, 1991; Jost et al., 2008; Kerlinger, 1984; Knight, 1999; Peffley & Hurwitz, 1985). Measuring ideology is of such great interest to researchers because these value systems predict policy views (Graetz & Shapiro, 2005, Sidanius et al., 1996); party affiliation and voting (Jost et al., 2008); prejudice (Conover



& Feldman, 1981; Duckitt et al., 2002; Jost et al., 2004) and racism (Sidanius et al., 1996); climate change attitudes and environmental behaviour (Jylhä & Akrami, 2015; Jylhä et al., 2016; Sinclair & Saklofske, 2018), and even lifestyles – ideology is so pervasive, it has been shown to predict music taste and bedroom décor (Carney et al., 2008). The relevant debate is not whether ideology exists, or whether the term is being abused (Kalmoe, 2020), but about finding the optimal way to measure it.

This dissertation describes the development and validation of a new measure of political ideology. To begin, the following section reviews the status of ideology measurement in political psychology, identifies unresolved issues, and outlines the need for a new scale.

## 1.1 The State of Ideology Measurement in Political Psychology and Need for the Current Study

### 1.1.1 Left and Right

‘Left’ and ‘right’, spatial metaphors representing political orientation, are likely the most ubiquitous terms for this purpose and are used in both academic and lay parlance. Left and right represent two ends of one spectrum and thus a unidimensional model of ideology. Roughly analogous are the terms ‘liberal’ and ‘conservative’. They are not perfect synonyms, however, particularly outside North America. For example, the term ‘liberal’ in Europe can conjure connotations of ‘classical liberalism’ and laissez-faire economic policies, such as beliefs about limited government and the “sanctity of private property”, which are favoured by American conservatives (Kerlinger, 1984, p. 16).

Left and right are widely believed to have originated with the 1789 French National Assembly based on the sides of the hall where Assembly members were seated. Those who supported the traditional monarchy gathered on the right, and those who opposed the monarchy gathered on the left (Bobbio, 1996; Caprara & Vecchione, 2018; Jost et al., 2009). This origin speaks to a defining attribute of left versus right: the left is associated with progress (in this historical example, revolution), and the right is associated with tradition or stability (Bobbio, 1996; Jost, 2006; Lipset et al., 1954).

The second defining quality of the left-right dimension is generally held to be their relative attitudes towards inequality (Jost, 2006). The left wing is associated with egalitarianism, and it opposes hierarchies, while the right accepts inequalities or views hierarchy as natural and inevitable (Bobbio, 1996). Political psychologists like John Jost, one of the most prolific researchers on ideology and its consequences, characterizes these two aspects as “resistance to change” and “acceptance of inequality” (Jost et al., 2007).

Many scales were developed in the 20<sup>th</sup> century to measure left-right or liberal-conservative attitudes, such as Eysenck’s R factor (1951; 1954), McClosky’s Classical Conservatism Scale (1958), Tomkins’ Polarity Scale (1964), and the Wilson and Patterson C Scale (1968; 1970). These scales have largely fallen out of favour due to psychometric validity problems, though the Polarity Scale has been called “lamentably underresearched” (Jost et al., 2003a, p. 346). Wilson and Patterson’s C scale, at its inception, was initially received positively, and a review of ideology measures by Azevedo (2020) suggests it was the most used ideology scale across the last century. However, researchers who tried to replicate Wilson and Patterson’s work found no fewer than 15 factors (Altemeyer, 1981; Boshier, 1972; Robertson & Cochrane, 1973), its average inter-item correlation was only about .13 (Altemeyer, 1981; Wilson & Patterson, 1968), and it was criticized for conflating political and non-political content (Jost et al., 2003a).

When researchers employ scales to measure left-right or liberal-conservative ideology, the measures used are collectively idiosyncratic, and individual scales are often unvalidated or the validation process reported only partially. In a review, Azevedo (2020) identified no fewer than 152 measures, plus 43 unnamed scales, the vast majority of which were developed in the previous two decades. Of these, less than half were psychometrically validated, some provided only partial reports of validation procedures, and the scales varied substantially in content and format (Azevedo, 2020). Thus, even if researchers are seeking to measure the same latent construct – an ideological orientation characterized by attitudes towards equality and resistance to change – the heterogeneity of these *ad hoc* instruments calls into question any cumulative conclusions made about the consequences of ideology (Azevedo, 2020).

When scales are not used – which is relatively often – psychologists often rely on a single-item self-report (along the left-right or liberal-conservative continuum; Federico et al., 2013; Jost et al., 2003a; Knight, 1999) as a symbolic measure of ideology. While this avoids the issue of measurement heterogeneity and allows for better comparability and generalizability across studies, there are statistical and theoretical problems with this approach. There are also issues with the concept of ideology as a unidimensional construct.

### 1.1.2 Issues with a Unidimensional Model of Ideology

From a statistical perspective, firstly, single items are subject to large degrees of measurement error (Ansolabehere et al., 2008), partially because they are prone to idiosyncrasies in question interpretation (Evans et al., 1996). Second, single items cannot identify an underlying value domain, which is made possible through examining consistency across a set of items (Evans et al., 1996) – but ideology is understood to be an interrelated set of beliefs or ‘core values’. Third, self-placement is frequently inaccurate – respondents are not always good at applying symbolic ideological terms to themselves. Asking participants to place themselves along a spectrum based on abstract terminology (i.e., left and right), assumes homogeneity among respondents’ interpretations. However, individuals differ in their understanding of left and right as they are defined and as they relate to policy content (Feldman & Johnston, 2013). Because of this, while it is true that symbolic ideology is a strong predictor of voting behaviour and party affiliation (Jost, 2006), it is probably not as useful for predicting less straightforward outcomes, like policy views. Ellis and Stimson (2007; 2009), for example, found that only a minority of self-identified conservatives possessed overall conservative policy positions. This is a problem for interpreting results derived from a single-item measure of symbolic ideology.

From a theoretical perspective, it is not at all clear that the two defining characteristics of the left-right continuum – attitudes towards equality and change – are so tightly correlated that they represent one dimension. Many researchers have found it more useful to assess egalitarianism (or, sometimes, ‘economic values’, both reflecting attitudes towards the fair distribution of economic resources) separately from resistance

to change (or ‘social values’, both characterized by one’s attitude towards the evolution of sociocultural norms). Achterberg and Houtman (2009), Ashton et al. (2005), Duckitt (2001), Heath et al. (1994), Knight (1999), and Treier and Hillygus (2009) all found a multidimensional model of political views to have better fit. While these two dimensions often correlate highly (Jost et al., 2003a), there are exceptions. Cochrane (2010), for example, found a non-significant correlation between economic and social ideology in the US. The strength of their correlation tends to vary as a function of political sophistication as well as the level of polarization in a country’s political institutions, such that when individuals are more sophisticated and institutions more polarized, the relationship is stronger (Carmines et al., 2012; Mirisola et al., 2007; Roccato & Ricolfi, 2005). The latter interaction is likely due to the constraint institutions place on the populace. To the extent that citizens can participate in politics, they are limited by the parties and politicians available to them, and their values can change to reflect this. Indeed, those who cannot find an ideological match among available candidates are more ambivalent about their affiliations (Carmines et al., 2012)

It would be a mistake to strive for model simplicity at the expense of accuracy. Even if egalitarianism and traditionalism often correlate highly, there are many circumstances where they do not. There may also be other distinct ideological dimensions. The most researched is likely authoritarianism.

### 1.1.2.1 Authoritarianism and Radicalism

Bobbio (1996) proposed ideology also incorporates a spectrum of liberty to authority and thus the character of both left-wing and right-wing attitudes can be altered by attitudes towards individual rights; the left loses social cohesion as liberty increases, while the right loses structured hierarchy (Bobbio, 1996, p. xvi). By this logic, there are movements of the libertarian right and left as well as the authoritarian right and left. Authoritarian individuals – citizens, rather than political leaders – tend to submit to authorities, potentially enabling and perpetuating anti-democratic political institutions (Altemeyer, 2006), while libertarian (anti-authoritarian) individuals emphasize individual freedom, and question or oppose entrenched authorities. For an interesting lay measure of this two-dimensional structure – authoritarianism versus liberty with left versus right –

see the ‘The Political Compass’, a publicly available non-academic resource (<https://www.politicalcompass.org/>).

The psychological literature has usually conceived of authoritarianism as inherently right-wing – that is, existing in combination with qualities like traditional values and aversion to change. However, many have also attempted to research the phenomenon of left-wing authoritarianism (LWA). At face value, LWA seems plausible. There seems to be little precluding a position of authoritarian obedience from existing in combination with egalitarian and progressive beliefs, although one caveat is that obedience to authorities implies hierarchies, which is difficult to square with the strongest interpretations of egalitarianism and the farthest left movements – such as anarchism, which opposes all hierarchies (Cohn, 2009). Interestingly, however, egalitarianism correlates negatively with authoritarianism in North America but positively in Russia (McFarland et al., 1996), suggesting that the nature of authoritarianism (i.e., whether it is right- or left-wing) could depend on the type of government historically in power.

Yet attempts to profile left-wing authoritarians, or to develop left-wing or non-polarized (left-right ‘agnostic’) authoritarianism scales, have been fraught with difficulties. Altemeyer (2006) has suggested left-wing authoritarians are so limited in number they are not even worth studying (and that the few he has met over his decades of research spend little time politically organizing). Rokeach and Eysenck are two researchers who attempted to create agnostic measures of authoritarianism. However, Rokeach’s scale (1956) and Eysenck’s T factor (1954/1999) both produced something arguably closer to cognitive rigidity or dogmatism. The T factor (toughmindedness-tendermindedness) was created to explain why extremists on both the left and right have been given to rigid or even violent methods. This dimension, Eysenck argued, was independent of left-right (Eysenck 1954/1999). However, evidence for its orthogonality has been mixed, with right-wingers usually scoring more highly on toughmindedness and dogmatism in the West (Jost et al. 2003b; Stone & Smith, 1993), and the program of research was largely abandoned (Jost et al., 2009). The construct might thus represent something qualitatively distinct from authoritarianism. Van Hiel et al. (2006) also referred to this rigidity in their ‘extremism theory.’

There is cutting-edge neuroscience suggesting extremism or dogmatism might represent its own dimension of ideology. Zamboni et al. (2009) utilized functional magnetic resonance imaging (fMRI) and multidimensional scaling to identify how respondents grouped political statements, and found evidence for individualism-collectivism, cultural liberalism-conservatism, and radicalism-moderatism factors. This final dimension resembles previous conceptions of LWA, dogmatism, extremism, or radicalism. For example, it contained content pertaining to the use of violence to further a political goal when necessary (Zamboni et al., 2009, p.25). Kerlinger (1984) defines radicalism as "...any set of beliefs, but usually beliefs of the extreme right and left, that is centered in opposition to existing sets of beliefs, institutions, governments, economic, political, and moral systems, or existing traditions; it espouses drastic thoroughgoing, revolutionary, even violent change and the ultimate supplanting of existing beliefs, institutions, and systems with government, institutions, and systems advocated by the radicals" (p. 19). In short, radicalism represents a desire to overturn the status quo by extreme actions.

### 1.1.3 Existing Multidimensional Measures of Ideology

A single left-right dimension has frequently been found to be insufficient (Feldman, 2013; Feldman & Johnston, 2013; Fleishman, 1988; Heath, 1986a; Luttbeg & Gant, 1985), even when political elites are polarized (Layman & Carsey, 2002). It is typically shown that at least two dimensions are necessary (Achterberg & Houtman, 2009; Ashton et al., 2005; Duckitt, 2001; Heath et al., 1994; Knight, 1999; Saribay et al., 2017; Treier & Hillygus, 2009). These are usually egalitarianism-versus-antiegaltarianism and progressivism-versus-traditionalism; as discussed above, they are also sometimes referred to as social and economic attitudes, reflecting attitudes towards the evolution of sociocultural norms and the fair distribution of wealth, respectively (Cochrane, 2010; Knight, 1999).

In addition to these two dimensions, authoritarianism is, arguably, an orthogonal dimension of ideology. Radicalism (or dogmatism, extremism, LWA, etc.) may also be distinct, though it is comparatively less researched than the preceding three. These are not novel constructs, and instruments exist to assess each of them. However, the existing

measures are not ideal for the purpose of measuring political ideology, as the following sections will discuss.

### 1.1.3.1 Measures of Authoritarianism

Contemporary understanding of authoritarianism is largely the product of a decades-long program of research by Robert Altemeyer (1981, 1988, 1998, 2006). Altemeyer felt that authoritarianism comprises conventionalism (essentially traditionalism) as well as authoritarian submission (obedience) and aggression towards authority-sanctioned targets (punitiveness), and that these three characteristics form one factor known as right-wing authoritarianism (RWA). However, it is increasingly reported that RWA is more appropriately measured as a three-factor model (Duckitt & Bizumic, 2013; Duckitt et al., 2009; Funke, 2005; Mavor et al., 2010). Even if a researcher wishes to measure the entire authoritarian syndrome, RWA is not an ideal scale. RWA's use of multi-barreled items forces its factors to spuriously coalesce (Duckitt & Bizumic, 2013; Mavor et al., 2010). Using the existing items – though multi-barreled – Mavor et al. (2010) investigated an alternative three-factor hypothesis, with factors labeled conventionalism, aggression, and authoritarian submission, ultimately finding this to be superior to a one-factor model in both an exploratory and confirmatory factor analysis.

Researchers may also be interested in exploring the factors separately. Duckitt and Bizumic (2013) found the three factors related to different motivational goals. The pattern of factor intercorrelations also differs between countries (Duckitt et al., 2009). To attempt to address the shortcomings of the RWA scale, Funke (2005) designed new items; however, this modified version does not seem to have caught on with researchers.

### 1.1.3.2 Measures of Egalitarianism and Traditionalism

Duckitt & Sibley (2012) have argued that RWA and Social Dominance Orientation (SDO) – a scale assessing general attitudes towards group dominance – were the “major impetus” for creating a two-dimensional model in political psychology (p. 1863). The instruments respectively do seem to represent attitudes towards security and traditionalism and towards anti-egalitarianism and intolerance; additionally, they predict support for different kinds of political parties (those that campaign on a platform of law,

order, and traditional values, versus those that support free-market economics and openly discriminatory policies; Duckitt & Sibley, 2012). But while it is tempting to use SDO and RWA as a sort of two-dimensional model of ideology, Duckitt and Sibley themselves expressed reservations about whether they are ideal for this purpose (2012, p. 1886).

Like RWA, SDO itself is multifactorial – Ho et al. (2015) have recently shown that SDO comprises SDO-Dominance (SDO-D) and SDO-Egalitarianism (SDO-E). SDO-D represents support for overt, aggressive intergroup dominance, while SDO-E represents opposition to the general principle of egalitarianism, and the desire to prevent some groups from obtaining resources (Ho et al., 2012; Ho et al., 2015). As such, the former has been shown to relate to support for wars and the persecution of immigrants, while the latter relates to more subtle hierarchy-legitimizing views and to self-identified political conservatism (Ho et al., 2012; Ho et al., 2015). Research in social dominance theory has been highly prolific and incredibly useful for understanding a myriad of intergroup relations outcomes (Ekehammar et al., 2004; Pratto et al., 1994; Sidanius & Pratto, 1999), but if one is interested in measuring the general ideological orientation towards egalitarianism, SDO is likely not the ideal instrument.

Moral Foundations Theory (MFT) has been suggested as a measure of ideology, though it was originally developed as a theory and measure of cultural value domains (Haidt et al., 2009; Smith et al., 2017). MFT proposes two ‘individualizing’ foundations (harm/care and fairness/reciprocity) and three ‘binding’ foundations (in-group/loyalty, authority/respect, and purity/sanctity; Haidt et al., 2009). Research suggests that self-described liberals tend to rely on the individualizing moral foundations for their decision-making, while conservatives rely more evenly on all five (Graham et al., 2009). Fairness and authority foundations, specifically, seem to be the best predictors of political ideology (Nilsson & Erlandsson, 2015). MFT researchers have recently proposed the existence of a ‘liberty’ foundation. A study of self-identified libertarians found they greatly value ‘negative liberty’ or independence, while relying comparatively less on the other five foundations (Iyer et al., 2012). However, MFT as a measure of ideology does not appear to be superior to existing measures. Kugler et al. (2014), for example, have argued that MFT’s binding values closely resemble RWA, and that differences in moral



foundations between liberals and conservatives are mediated by low SDO in liberals and high RWA in conservatives. The binding values also predict similar outcomes to RWA – for example, prejudice. In short, MFT does not seem to be an improvement over SDO and RWA. Recently, Zakharin & Bates (2021) have also found that two MFT domains – purity/sanctity and authority/respect – fit the data better when each are split into two factors.

### 1.1.3.3 Measures of Radicalism, Dogmatism, or LWA

One theoretical problem with the idea of radicalism or dogmatism as a dimension of ideology is that it may refer to the extremity of, or commitment to, a belief. That is, it may not characterize the form of the belief, but rather how firmly the belief is held. This can be measured in other ways, such as the Commitment to Beliefs scale (Maxwell-Smith & Esses, 2012). However, several scales have been created to attempt to measure dogmatism and radicalism, as well as left-wing variations of authoritarianism.

As discussed previously, many attempts to uncover LWA or a non-polarized authoritarianism have revealed something closer to radicalism or dogmatism. One instrument was Rokeach's D-scale (1956). In his conception, dogmatic individuals believed strongly in the veracity of their political views, they emphasized adherence to the party line, and much like authoritarians, they deferred to their chosen authority. Early findings suggested self-described communists scored highly on the D scale; however, attempts to replicate this with a broader sample revealed that D more often correlated with increases in right-wing attitudes. In later work, it was shown that fascists obtained the highest D scores and communists the lowest (DiRenzo, 1967; Stone, 1980). Because of this, it is difficult to make the case for the D scale as an orthogonal measure of radicalism or dogmatism, nor one of LWA.

Altemeyer (1996), Van Hiel et al. (2006), and Costello et al. (2021) have all developed measures of LWA. Altemeyer's LWA scale utilized the same structure as RWA – aggression, punitiveness, and conventionalism – but with tweaks to measure left-wing beliefs. Altemeyer's research failed to identify any left-wing authoritarians and led him to claim they were the 'Loch Ness monster' of ideology (1996). It is possible this is

because LWA exists only in niche samples. Alternatively, his conception of LWA may simply be a contradiction in terms – if conventionalism or resistance to change is a quality of the right, then it is hard to conceive of left-wing conventionalism. But given Altemeyer's RWA is better modeled as a three-factor scale rather than a unified one (e.g., Mavor et al., 2010), conventionalism may not be a necessary component of authoritarianism per se.

Van Hiel et al. (2006) discussed the issues with Altemeyer's LWA scale – notably the lack of clarity in the left-wing conventionalism concept – and devised their own instrument. Their scale contained items referring to 'left-wing authoritarian aggression' (e.g., "A revolutionary movement is justified in using violence because the Establishment will never give up its power peacefully"), and 'left-wing authoritarian submission' (e.g., "A revolutionary movement is justified in demanding obedience and conformity of its members," Van Hiel et al., 2006). However, their scale demonstrated low internal consistencies and its hypothesized two-dimensional structure was not found. Nonetheless, they argued it was successful in distinguishing self-described anarchists and 'extreme left-wingers' from other groups in their Western European sample (Van Hiel et al., 2006).

Costello et al.'s (2021) instrument was published after the studies in this dissertation were conducted, so it was not consulted in the initial review and development of the new ideology scale. Of the three LWA scales discussed here, it is the most thoroughly psychometrically validated. Costello et al. identified a tripartite structure of 'anti-hierarchical aggression, top-down censorship, and anti-conventionalism'. However, a review of the item content suggests it may face similar hurdles as Altemeyer's RWA. Items in the scale span a variety of topics, referencing the use of political violence (e.g., "Political violence can be constructive when it serves the cause of social justice"), rigidity (e.g., "I cannot imagine myself becoming friends with a political conservative,"), and attitudes towards censorship ("Getting rid of inequality is more important than protecting the so-called "right" to free speech"), and many of these items are confounded with other content, such as egalitarianism (for example, the aforementioned censorship item).

In the scale construction process, the authors wrote that they incorporated 12 constructs – aggression, submission, ‘anti or reverse-hierarchical sentiments’, conventionalism, ‘lethal partisanship’, prejudice towards those with different views, dogmatism, ‘difference-ism’, moral absolutism, susceptibility to threat, tough-mindedness, and rigidity (p. 10) – and it is not necessarily clear that this constellation of variables is an accurate operationalization of LWA. Adorno et al.’s (1950) F scale was criticized in part for its many heterogeneous attributes – in their view, authoritarianism comprised nine characteristics of conventionalism, submission to authority, aggression, ‘anti-intraception’ or anti-imagination, superstition and stereotyping, toughness, cynicism, ‘projectivity’ or projecting one’s own violent impulses onto the external world, and traditional sexual attitudes – because it was unclear why these qualities were assessed as a single score rather than disentangled (Peabody, 1966). Additionally, many F scale items were multi-barreled, and inter-item correlations were low (Altemeyer, 1981). Costello et al.’s (2021) LWA scale was significantly predictive of support for and desire to participate in anti-state violence at protests, suggesting it is a good measure of political extremism – but not necessarily authoritarianism, which should theoretically predict support for state-sanctioned violence, not subversive anti-authoritarian actions.

Costello et al.’s paper also includes the following methodology which is of particular relevance to the development of the ideology scale:

*“Given the online nature of our survey administration, we sought to measure political attitudes with improved ecological validity. To that end, participants viewed two empty graphs, with the poles of each x-axis labeled with opposing political beliefs and the poles of each y-axis labeled with a second set of opposing beliefs. Participants were instructed to place themselves within each graph by moving their mouse to the position that best represents their political ideology. We ventured that the resulting coordinate data could be decomposed (i.e., a continuous variable for placement on the y-axis and another for the x-axis) and would be useful as a measure of differing elements of political ideology. The first political compass assessed preferences for traditionalist vs. progressive moral values (i.e., social ideology; y-axis) and preferences for high vs. low governmental involvement in the economy (i.e., economic ideology; x-axis). The second political compass assessed preferences for a political system with substantial centralized state control vs. one that maximizes personal and political freedom and autonomy (y-axis) and symbolic identity (x-axis), with the former variable being a proxy for authoritarianism.” (2021, p. 19).*

In short, the authors sought to compare their LWA scale with, in their view, a more ecologically valid measure of political ideology – two political ‘compasses’, the former with a social and economic ideology axis, and the latter with an axis for freedom versus state control, which they used as a proxy for authoritarianism. It is unclear why the authors view this as a proxy for authoritarianism when it does not resemble their own LWA, with its tripartite structure of anti-hierarchical aggression, top-down censorship, and anti-conventionalism (Costello et al., 2021). There is little in the LWA scale that pertains to centralized state control or restrictions on freedom and autonomy beyond freedom of speech (in fact, the anti-conventionalism items, such as “Constitutions and laws are just another way for the powerful to destroy our dignity and individuality”, could be taken as pro-individual-autonomy and pro-freedom; Costello et al., 2021, p. 16). There is no supporting literature provided for the compasses, but it is interesting and encouraging that the axes they chose closely resembled the factors hypothesized here for the new ideology scale, and these were considered by the authors to be more ecologically valid than the standard unidimensional measure of ideology. It is also compelling that their LWA scale appears to be a valid and useful measure, even if it could be argued that the scale might be better characterized as radicalism or extremism rather than left-wing authoritarianism.

## Chapter 2

### 2 Development of the Political Ideology Scale

The previous review of existing measures of ideology suggests the potential for several factors: egalitarianism, traditionalism, authoritarianism, and radicalism. In this chapter, these hypothesized dimensions are outlined (each conceptualized as a single bipolar continuum), the item development process for the new scale is discussed, and the results of two exploratory factor analyses are examined.

#### 2.1 Hypothesized Factors

##### 2.1.1 Egalitarianism/Antiegalitarianism

As the previous chapter outlined, attitudes towards equality – ranging from a preference for inequality to an opposition to inequality – are consistently considered a characteristic of political ideology, with the right being more tolerant of inequality and the left opposing it (Bobbio, 1996; Jost, 2006). Egalitarianism refers to the preference for equality among all members of society; it does not imply a desire for everyone to be the ‘same’ nor for a homogenous culture. This can include equality of opportunities, resource distribution, and treatment from others. At the opposite pole, antiegalitarianism refers to the preference for unequal relations between individuals, implying a competitive and hierarchical society.

##### 2.1.2 Progressivism/Traditionalism

Alongside attitudes towards equality, resistance to change is another characteristic consistently ascribed to political ideology, with the right resisting change and the left accepting or seeking it (Jost, 2006). Here, these attitudes are referred to as progressivism versus traditionalism. Progressivism is the preference for social change. This entails pushing the boundaries of social norms and policies in new, non-traditional directions, with the aim of improving the perceived standard of life in society. At the opposite pole, traditionalism is the preference for conventional social standards. It implies a belief that traditional ways of knowing or doing things are better, and a general resistance to novel, perhaps untested ideas.

### 2.1.3 Libertarianism/Authoritarianism

Some theorists have proposed a dimension of liberty versus authoritarianism (e.g., Bobbio, 1996), while others have conceived of authoritarianism as a ‘syndrome’ or constellation of attributes (e.g., Adorno et al., 1950; Altemeyer, 2006). Here, it is hypothesized that libertarianism versus authoritarianism can be represented along either a single dimension or by two dimensions of authoritarian obedience and authoritarian punitiveness, as Altemeyer’s (2006) model has suggested. It is hypothesized that authoritarianism is distinct from (though may still correlate with) other dimensions of ideology, such as resistance to change and attitudes towards equality.

Along a libertarianism versus authoritarianism dimension, libertarianism is the preference for personal freedom. It implies a dislike of perceived coercion or control that impinges on individual autonomy, and thus a certain level of skepticism towards authorities. It is important to note that in common parlance, libertarianism is often taken to mean something closer to conservatism (particularly in the United States). Amongst the American libertarian movement, the term tends to imply laissez-faire economic policies and conservative social norms. Historically, libertarianism has been associated with the left wing; indeed, until the 20<sup>th</sup> century, the term was functionally synonymous with anarchism, a left-wing movement characterized by opposition to all hierarchy and a focus on collective interests (Cohn, 2009).

At the opposite pole, authoritarianism is the preference for authoritarian oversight over society. It implies submission, obedience, and deference to established authorities, such as the government and law enforcement. At its core, authoritarianism is about attitudes towards the role of authorities in enforcing societal standards (Feldman, 1989; Knight, 1999). This likely entails hostility towards ‘deviants’, as assessed in Altemeyer’s RWA scale (1981, 2006), but perhaps not necessarily. It is possible that this factor could be further divided into a pacifism-versus-aggression factor (containing content about punitiveness towards criminals and other perceived nonconformists, as well as hostility towards perceived threatening outsiders) in addition to libertarianism-versus-authoritarianism (containing content about the value of personal freedom, autonomy, and

privacy). The initial item pool contained both types of content to allow for the possibility of disentangling these factors.

#### 2.1.4 Radicalism/Moderatism

Many researchers have endeavored to develop scales assessing left-wing authoritarianism, dogmatism, or extremism. Zamboni et al.'s (2009) analysis indicated this could represent a unique dimension of ideology. Here, this construct is referred to as radicalism and is hypothesized to be the preference for revolutionary or even violent action towards enacting political change. It is also hypothesized that, like authoritarianism, it should be distinct from (though may correlate with) other dimensions of ideology, rather than being specific to the left or right.

Radicalism entails dogmatic and morally righteous thinking about the perceived correct social order. At the opposite pole, moderatism is hypothesized to be the preference for pragmatic, incremental approaches to politics. It entails greater flexibility with regards to competing viewpoints and a belief that there is not necessarily one correct way to do things.

## 2.2 Scale Development

Often, rather than assessing core values, ideology measures have relied on policy items (Evans et al., 1996). One problem with this approach is that policy items will need to be updated over time as discourses change, and they are also less likely to generalize to other nations with different political contexts. Another hurdle is that possessing a coherent set of policy views relies on a certain degree of political knowledge. As Kalmoe (2020) points out, while most people might have ideological leanings, for these to be expressed in the political domain depends on access to information. Measuring ideology as a collection of policy views is likely to create an illusion of 'ideological innocence' (as Kalmoe, 2020 describes it) in large swathes of the population. In short, a measurement of ideology should assess core political values (for example, how equitably to distribute resources) without referring to highly specific issues (such as the intricacies of one country's tax brackets). The items here were developed with this concern in mind. To

ensure the feasibility of the project, the scope of the scale development research was delimited to the Canadian context; participants in all studies were residents of Canada.

The initial scale was developed by generating a preliminary pool of 70 items thought to represent one of the four (or five, if authoritarianism were split) hypothesized factors, depicted in Table 1. A literature review of political attitude scales was conducted to aid in creating items. Some scales consulted included Social Dominance Orientation (Pratto et al., 1994; Ho, et al., 2012; Ho et al., 2015) and the Identification with All Humanity Scale (McFarland et al., 2012) for the Egalitarianism factor; Right-Wing Authoritarianism (Altemeyer, 2006) and Evans et al.'s Libertarian-Authoritarian Dimension (1996) for the Progressivism and Libertarianism factors; the Polarity Scale (1964) for Egalitarianism, Progressivism, and Libertarianism; and lastly, the Dogmatism Scale (Rokeach, 1956) and the New Left Scale (Gold et al., 1976) for the Radicalism factor. All items were newly devised for this measure.

A 7-point Likert scale was selected, as previous research has found reliability and validity to be highest at seven choices (Matell & Jacoby, 1971; Krosnick, 1999). As discussed, the items were intended to be general and abstract rather than policy-specific. A review panel of eight Masters- and Doctoral-level personality and social psychology students reviewed the initial item pool and provided constructive feedback. Based on their suggestions, revisions were made to ensure clarity and content validity. To attempt to address acquiescence bias, all factors contained approximately equal numbers of pro- and con-trait worded items. No explicit option was provided for 'no opinion' or 'don't know' (though in all studies, participants could opt not to answer any item if they wished), as evidence suggests data quality is equivalent when participants are not given this option, and a greater amount of useful data is collected (Krosnick, 1999; McClendon & Alwin, 1993; Schuman & Presser, 1981).

**Table 1: Initial item pool**

<b>Progressivism versus Traditionalism</b>	
+	-



- Sometimes to solve big social problems, we have to try brand new approaches.
- I admire people who are trying to make a difference by being active in political movements.
- In order to build a good society, we need to let go of past customs that are holding us back.
- I am quick to adopt new ideas and ways of thinking.
- Society can survive just fine without old-fashioned customs to guide it.
- Too many people accept the world as it is instead of trying to make it better.
- Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to certain groups.

- Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.
- I try my best to follow the traditions passed down by my culture or society.
- Changes in the social order are often shown later to be for the worse.
- There is nothing wrong with being old-fashioned.
- Rebelling against the political 'system' or 'establishment' is something kids should grow out of.
- Strange new trends in style or slang are usually just immature acts of rebellion.
- My grandparents' generation had the right ideas about how to live.
- These days, people are too willing to try out wild new ideas without any proof they will work.
- I don't trust activists and agitators trying to stir things up.

### **Egalitarianism versus Antiegalitarianism**

+

- In a fair world, the wealth gap should be as small as possible.
- Society is at its best when people cooperate with those around them.
- Resources should be distributed according to people's needs.
- A responsible society takes good care of its weakest members.
- Different cultural groups have more in common than they have differences.
- It is fair to tax people with large incomes more highly so that money is distributed more equitably.
- The role of the government is to ensure the wellbeing of its citizens.
- Our society would have a lot less conflict if we treated everyone more equally.
- No jobs should be looked down upon, because they all provide useful contributions to society.

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- In a fair world, it is natural that some people will end up with more resources and some with less.
- People should get used to competition, because it's an inevitable part of life.
- Inequality motivates people to work hard for success.
- Wealthy people shouldn't have to pay high taxes just because they're successful.
- It is fine that some people can pay for privileges others can't afford.
- Social inequality is inevitable, because some groups of people have good qualities that others do not.
- It would cause fewer problems if different groups of people lived separately and didn't have to interact.
- Life would be boring if we ensured everyone had the same standard of living.

### **Libertarianism versus Authoritarianism**

+

- All authority should be questioned rather than blindly followed.
- One of the worst things I could imagine would be living under a dictatorship.

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- Freedom must sometimes be sacrificed in the name of security.
- Without strong leaders, society as we know it would collapse.

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|--|--|
| <ul style="list-style-type: none"> <li>• It is not the place of the government to restrict freedom of speech.</li> <li>• What two consenting adults do in their own bedroom is not anyone else's business.</li> <li>• In school, kids should be taught to think critically about all of the information they receive.</li> <li>• Without personal freedom, society as we know it would collapse.</li> <li>• Children should be able to play and express themselves without too many strict rules.</li> <li>• I believe in letting others do as they please, and they should do the same for me.*</li> <li>• Rarely, if ever, has declaring war on another country been justified.*</li> <li>• Prisons should be places of rehabilitation, not of harsh punishment.*</li> </ul> | <ul style="list-style-type: none"> <li>• Government surveillance is only concerning if you have something to hide.</li> <li>• The role of the government is to maintain law and order.</li> <li>• Parents should be strict in disciplining their children, to teach them obedience.</li> <li>• Our country's leaders need to be tougher on citizens who hold dangerous views.*</li> <li>• Criminals should be harshly punished for the wellbeing of society.*</li> <li>• Good national leaders keep us safe by standing up to enemies who would do us harm.*</li> <li>• Our government must be prepared to use its full military might to protect us.*</li> <li>• There are some crimes that are so terrible, the criminal deserves the death penalty.*</li> <li>• It is often necessary for the police to use force to catch potential criminals.*</li> </ul> |
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### Radicalism versus Moderatism

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|--|--|
| +  | -  |
| <ul style="list-style-type: none"> <li>• Violence can be justified when pursuing a noble goal.</li> <li>• I have no faith in our current social system.</li> <li>• When I compromise with the other side in a political debate, I feel like I've sacrificed some integrity.</li> <li>• When people are trying to further a great cause, the ends justify the means.</li> <li>• I know that my political views are morally right.</li> <li>• Sometimes words aren't enough to create social change – there needs to be disruption.</li> <li>• Sometimes, creating great changes in society requires ruthlessness or brutality.</li> <li>• I wouldn't want to associate at all with someone whom I politically disagreed.</li> </ul> | <ul style="list-style-type: none"> <li>• It's best if political changes happen in small increments.</li> <li>• If people from opposing sides of the political spectrum took the time to listen, they'd see that they agree on a lot of things.</li> <li>• If you are hostile in a debate, you have already lost.</li> <li>• People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.</li> <li>• There are no moral or immoral political views, only differences of opinion.</li> <li>• Extremists of any political beliefs are threats to democratic society.</li> <li>• No single group in particular can be trusted to say what information should be censored.</li> <li>• Educators should be allowed to express their political views to students, even if some of those attitudes are unconventional or disagreeable.</li> </ul> |
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*Note: (\*) identifies items pertaining to freedom versus obedience, as opposed to pacifism versus punitiveness.*

## 2.3 Exploratory Factor Analysis (Study 1)

The first Exploratory Factor Analysis (EFA) investigated the factor structure of the preliminary items.

### 2.3.1 Methods

#### 2.3.1.1 Participants and Data Cleaning

Participants were undergraduate students at Western University recruited through the SONA subject pool. To conduct a factor analysis, the general recommendation is to obtain a sample size of either  $N = 200$  or a 5:1 participant-item ratio (Howard, 2016; Kahane et al., 2018; Yong & Pearce, 2013). For the 70-item scale, this would require a minimum of 350 participants. For the first EFA, 480 participants were recruited, ensuring minimum sample guidelines of 5:1 participant-to-item would be met after data cleaning.

A range of techniques recommended by Curran (2016) were employed to deal with careless responding and invalid data, including screening data for short response times, as well as calculating Mahalanobis D to identify multivariate outliers. First, 14 participants were excluded for not completing any part of the political ideology scale. Second, data were screened for short response times, an indicator of inattentive responding. A cut-off of two seconds per item, recommended by Huang et al. (2012), was used. The total survey (including other scales) contained 159 items; at two seconds per item, this suggests a minimum completion time of 318 seconds. Sixteen participants were excluded based on this criterion. Finally, Mahalanobis D was calculated in SPSS software. Tabachnick and Fidell (2007) recommend a conservative threshold value of .001 when using Mahalanobis D to flag data outliers. Using this criterion, 24 participants were excluded. This left a sample size of  $N = 426$ . Missing data in the EFA were handled with maximum likelihood estimation.

Of these participants, 265 (62.2%) were women, 159 (37.3%) were men, two (0.5%) identified as a gender not specified, and the age range was 17-33 years ( $M =$

18.45,  $SD = 1.38$ ). The sample was predominantly White: 231 participants identified their ethnicity as White, 52 as South Asian, 66 as Chinese, 16 as Southeast Asian, 13 as Black, 12 as Korean, 35 as Middle Eastern/West Asian, 5 as Japanese, 4 as Filipino, 3 as First Nations/Aboriginal, and 20 selected 'Other or not specified'.

### 2.3.1.2 Procedure

Participants were recruited via the SONA platform via Western University and completed the survey online via Qualtrics survey software. Items were presented in a randomized order to control for order effects. Participants were compensated with course credit.

### 2.3.1.3 Measures

The preliminary 70-item scale was administered, as well as a series of demographic questions. No other questionnaires were administered. It is worth noting here that a social desirability measure was not included in the battery of questionnaires in this study, nor in the following studies. There were two reasons for not including a measure of social desirability in the questionnaires. First, though relatively short measures of social desirability do exist (e.g., the 13-item version of the Marlow-Crowne; Reynolds, 1982), time and, in some studies, financial constraints meant that survey space was limited. Second, and more importantly, it has been demonstrated that social desirability scales do not improve the validity of personality measures (Connelly & Chang, 2015) and that they may not be assessing what researchers assume they are – a response bias resulting from the need for social approval. It is argued that instead, social desirability scales are more likely measuring a substantive trait (de Vries et al., 2014; McCrae & Costa, 1983), or that they measure neither response bias nor a substantive trait (Lanz et al., 2021).

### 2.3.1.4 Data Analytic Decisions

Howard (2016) suggests determining *a priori* the selection of factor analytic method, retention method, rotation method, and loading cut-offs to avoid committing

Type I errors. Except where specified, analyses were conducted in RStudio with the *psych* analysis package (<https://cran.r-project.org/web/packages/psych/psych.pdf>).

#### 2.3.1.4.1 Factor Analytic Method

Principal Components Analysis (PCA), Principal Axis Factoring (PAF), and Maximum Likelihood (ML) are the most common factor analytic methods for EFA. Howard (2016) recommends the use of PAF or ML over PCA. I opted here to use ML, as the model fit indices produced enable comparisons between model solutions; this is necessary to test the structure of the new scale, e.g., whether a four- or five-factor solution better represents the data.

#### 2.3.1.4.2 Factor Retention Method

Techniques to determine the ideal number of factors include the Kaiser criterion, scree plot, parallel analysis, and Velicer's Minimum Average Partial (MAP) test. In general, using one of the latter three techniques (or a combination) is advised instead of the Kaiser criterion, which arbitrarily suggests retaining factors with eigenvalues over 1 (Howard, 2016). A combination of parallel analysis and the scree plot were used to interpret the EFA due to concerns that MAP can underestimate the number of factors (Howard, 2016). Consideration was also given to comparisons of model fit.

An ideal model is one that would not be improved by an additional factor nor by removing a factor (Howard, 2016). The scree plot aids in interpreting this ideal by visualizing a break in the graph after which eigenvalues plateau. Parallel analysis aids in interpreting the scree plot by generating randomized datasets with the same number of items and possible range of observed values, then extracting eigenvalues from these random data sets. Here, the 95<sup>th</sup> percentile of each randomized data eigenvalue was plotted alongside the observed eigenvalues (see Figure 1). It is recommended that the number of factors retained is, *at most*, the number of factors with observed eigenvalues larger than those from the random data (Howard, 2016). In general, it is also recommended that factors have a minimum of three items (Yong & Pearce, 2013) and,

importantly, that the factor can be meaningfully interpreted (Worthington & Whittaker, 2006).

#### 2.3.1.4.3 Factor Rotation Method

An oblique factor rotation was selected over an orthogonal rotation, as orthogonal rotations do not permit correlations between rotated factors. It was considered unlikely that different aspects of political ideology would be entirely uncorrelated, given the high correlations often found between attitudes towards equality and resistance to change discussed earlier.

There are various oblique rotational methods, with the most common being direct oblimin and promax (Howard, 2016). Direct oblimin comprises multiple rotation techniques, which differ from each other in the extent factors are permitted to correlate (delta value). Direct quartimin rotation (which assigns a delta value of 0) is recommended in most circumstances and was employed here (Howard, 2016).

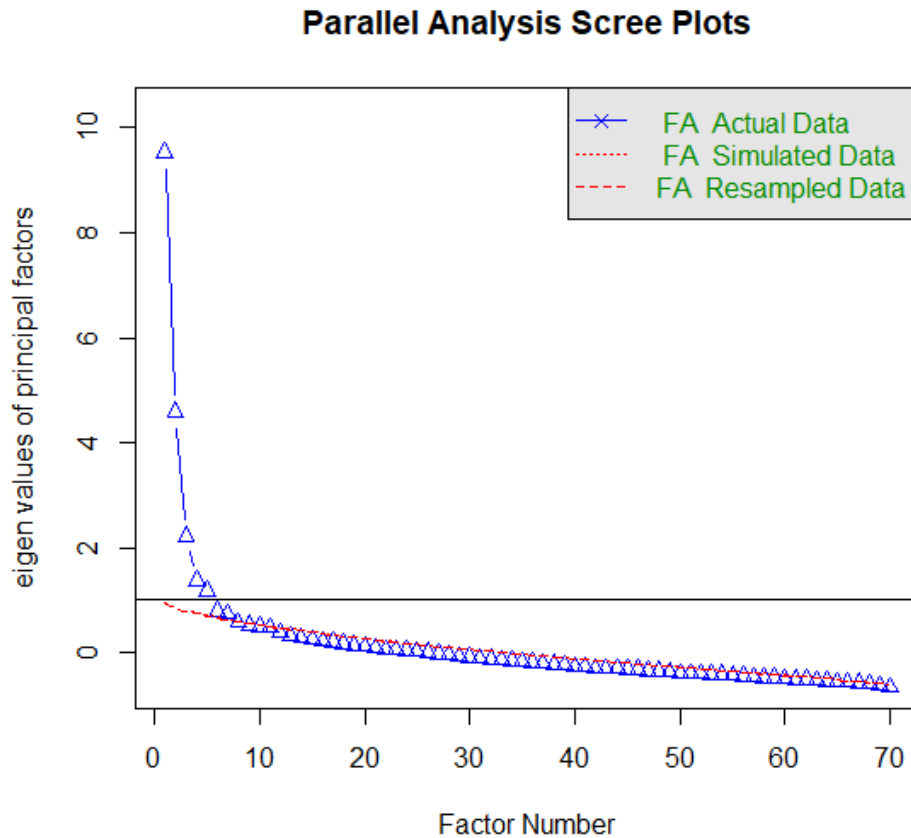
#### 2.3.1.4.4 Factor Loading Cut-off

There are various heuristics for determining appropriate factor loading cut-offs. Howard (2016) advises that a good item should have a factor loading  $\geq 0.40$ ; others, such as Tabachnick and Fidell (2007), suggest graded cut-offs of 0.32 ('poor'), 0.45 ('fair'), 0.55 ('good'), 0.63 ('very good'), and 0.71 ('excellent'), allowing for more flexibility in interpretation. Here, it was decided that items with loadings  $< 0.40$  were suboptimal and would be altered or removed.

Regarding items with primary and alternative factor loadings, based on Howard (2016)'s .40-.30-.20 rule, it was determined that items should a) load onto their secondary factor  $\leq .3$ , and b) demonstrate a discrepancy between primary and alternative factor loadings of  $\pm .2$ . For example, an item should be retained if its primary factor loading was .40 and its alternative factor loading was .20, as this satisfies all three criteria.

### 2.3.2 Results and Discussion

Interpretation of the scree plot (Figure 1) and parallel analysis supported investigating a seven-, six-, five-, and four-factor model.



**Figure 1: Scree plot and parallel analysis for EFA 1.**

Model fit indices for each solution can be found in Table 2. RMSEA and SRMR fit indices for all model solutions were good, with RMSEA < .05 (Kenny, 2015; MacCallum et al., 1996) and SRMR < .08 (Hu & Bentler, 1998). However, TLI did not reach an acceptable threshold ( $\geq .900$ ) for any of the solutions (Hu & Bentler, 1998; Kenny, 2015). Chi square was significant for all model solutions; however, this value is skewed greatly by sample size, and thus is almost always significant whenever sample size is  $\geq N = 400$  (Kenny, 2015; McDonald & Ho, 2002).

**Table 2: EFA 1 model fit indices.**

	$\chi^2$	(df)	BIC	RMSEA [95% CI]	TLI	SRMR
Seven-factor	2565.57*	1946	-9216.37	.027 [.024, .030]	.885	.040
Six-factor	2788.35*	2010	-9381.08	.030 [.027, .033]	.861	.040
Five-factor	3039.08*	2075	-9523.88	.033 [.031, .036]	.833	.040
Four-factor	3336.81*	2141	-9625.75	.036 [.034, .039]	.800	.040

Note: \* $p < .001$

The seven-, six-, and four-factor models were problematic, as they contained factors that had only one or two items with loadings  $\geq .40$ . In the seven-factor model, Factor 4 had only one adequate item, and factors 6 and 7 had only two. In the six-factor model, Factors 4, 5, and 6 had only two items. In the four-factor model, Factor 4 had one item. EFA factor loadings for the five-factor solution can be found below in Table 3. Factor loadings for the seven-, six-, and four-factor solutions can be found in the Appendices.

Factors were interpreted and items were selected for editing or removal based on the factor loadings obtained in the five-factor solution. The five-factor solution was selected for several reasons: a) it was one of two models hypothesized based on background theory (along with a four-factor model); b) it demonstrated superior model fit indices to the four-factor solution; and c) it was the only solution that did not produce a factor with less than three items.

**Table 3: Five-factor solution factor loadings in EFA 1.**

Item text	1	2	3	4	5
1 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.	-.19	<b>.47</b>	-.10	-.01	.07
2 I try my best to follow the traditions passed down by my culture or society.	.17	<b>.42</b>	.11	-.18	<b>.27</b>
3 Changes in the social order are often shown later to be for the worse.	-.05	<b>.53</b>	-.17	.06	.02
4 There is nothing wrong with being old-fashioned.	-.10	<b>.50</b>	.28	-.09	-.04
5 Rebellious against the political 'system' or 'establishment' is something kids should grow out of.	-.04	<b>.44</b>	-.19	-.09	-.04
6 Strange new trends in style or slang are usually just immature acts of rebellion.	.04	<b>.43</b>	-.18	-.14	.01



Item text	1	2	3	4	5
7 My grandparents' generation had the right ideas about how to live.	.08	<b>.52</b>	-.06	-.21	.14
8 These days, people are too willing to try out wild new ideas without any proof they will work.	-.02	<b>.46</b>	.04	-.07	.09
9 I don't trust activists and agitators trying to stir things up.	-.23	<b>.51</b>	.08	-.15	.05
10 Sometimes to solve big social problems, we have to try brand new approaches.					
11 I admire people who are trying to make a difference by being active in political movements.					
12 In order to build a good society, we need to let go of past customs that are holding us back.	.09	-.12	-.17	<b>.50</b>	.05
13 I am quick to adopt new ideas and ways of thinking.					
14 Society can survive just fine without old-fashioned customs to guide it.	.01	-.15	-.18	<b>.47</b>	-.14
15 Too many people accept the world as it is instead of trying to make it better.					
16 Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to some.	.01	-.07	.16	<b>.47</b>	.12
17 In a fair world, it is natural that some people will end up with more resources and some with less.	<b>-.58</b>	.15	.16	.15	.13
18 People should get used to competition, because it's an inevitable part of life.	<b>-.50</b>	-.04	.28	.08	.25
19 Inequality motivates people to work hard for success.	<b>-.42</b>	<b>.30</b>	-.03	<b>.22</b>	.14
20 Wealthy people shouldn't have to pay high taxes just because they're successful.	<b>-.54</b>	.21	.03	.01	.00
21 It is fine that some people can pay for privileges others can't afford.	<b>-.62</b>	.10	.02	.14	.10
22 Social inequality is inevitable, because some groups of people have good qualities that others do not.	<b>-.39</b>	<b>.40</b>	-.09	.03	.00
23 It would cause fewer problems if different groups of people lived separately and didn't have to interact.					
24 Life would be boring if we ensured everyone had the same standard of living.	<b>-.57</b>	.20	-.04	.09	.03
25 In a fair world, the wealth gap should be as small as possible.	<b>.72</b>	.07	.01	.12	.00
26 Society is at its best when people cooperate with those around them.					
27 Resources should be distributed according to people's needs.	<b>.61</b>	.19	.04	.30	.03
28 A responsible society takes good care of its weakest members.	<b>.44</b>	.02	<b>.31</b>	.22	.09
29 Different cultural groups have more in common than they have differences.					

Item text	1	2	3	4	5
30 It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	<b>.56</b>	-.07	.01	.10	.02
31 The role of the government is to ensure the wellbeing of all of its citizens.					
32 Our society would have a lot less conflict if we treated everyone more equally.	<b>.43</b>	-.05	.11	.15	.16
33 No jobs should be looked down upon, because they all provide useful contributions to society.					
34 Freedom must sometimes be sacrificed in the name of security.					
35 Without strong leaders, society as we know it would collapse.	.09	.11	.13	.02	<b>.44</b>
36 Government surveillance is only concerning if you have something to hide.					
37 The role of the government is to maintain law and order.					
38 Parents should be strict in disciplining their children, to teach them obedience.					
39 Our country's leaders need to be tougher on citizens who hold dangerous views.	.05	.12	-.03	-.04	<b>.40</b>
40 Criminals should be harshly punished for the wellbeing of society.	-.15	.07	-.20	-.21	<b>.44</b>
41 Good national leaders keep us safe by standing up to enemies who would do us harm.	-.03	.06	.08	.11	<b>.47</b>
42 Our government must be prepared to use its full military might to protect us.	-.21	.14	.02	-.11	<b>.51</b>
43 There are some crimes that are so terrible, the criminal deserves the death penalty.					
44 It is often necessary for the police to use force to catch potential criminals.					
45 All authority should be questioned rather than blindly followed.					
46 One of the worst things I could imagine would be to live under a dictatorship.					
47 It is not the place of the government to restrict freedom of speech.					
48 What two consenting adults do in their own bedroom is not anyone else's business.					
49 In school, kids should be taught to think critically about all of the information they receive.	-.01	-.14	<b>.45</b>	.17	.19
50 Without personal freedom, society as we know it would collapse.					
51 Children should be able to play and express themselves without too many strict rules.	.02	-.13	.05	<b>.49</b>	-.13
52 I believe in letting others do as they please, and they should do the same for me.					

Item text	1	2	3	4	5
53 Rarely, if ever, has declaring war on another country been justified.					
54 Prisons should be places of rehabilitation, not of harsh punishment.	.17	.04	.16	<b>.40</b>	<b>-.26</b>
55 Violence can be justified when pursuing a noble goal.					
56 I have no faith in our current social system.					
57 When I compromise with the other side in a political debate, I feel like I've sacrificed some of my integrity.	-.02	-.03	<b>-.45</b>	.17	.17
58 When people are trying to further a great cause, the ends justify the means.					
59 I know that my political views are morally right.	.13	<b>-.23</b>	-.04	.03	<b>.40</b>
60 Sometimes words aren't enough to create social change – there needs to be disruption.					
61 Sometimes, creating great changes in society requires ruthlessness or brutality.					
62 I wouldn't want to associate at all with someone whom I politically disagreed with.	.19	.02	<b>-.53</b>	.12	.11
63 It's best if political changes happen in small increments.					
64 If people from opposing sides of the political spectrum took the time to listen, they'd see that they agree on a lot of things.					
65 If you are hostile in a debate, you have already lost.					
66 People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.	.06	.10	<b>.42</b>	.18	.07
67 There are no moral or immoral political views, only differences of opinion.					
68 Extremists of any political beliefs are threats to democratic society.					
69 No single group in particular can be trusted to say what information should be censored.					
70 Educators should be allowed to express their political views to students, even if some of those attitudes are unconventional or disagreeable.					

*Note: Factor loadings are only shown for items that demonstrated at least one loading  $\geq 0.40$ . Primary factor loadings and alternative factor loadings ( $\geq .30$  and/or discrepancy  $\leq \pm .2$ ) are bolded.*

**Table 4: Inter-factor correlations for EFA 1 five-factor solution**

	1.	2.	3.	4	5
Factor 1	-				
Factor 2	-.36	-			
Factor 3	.14	-.14	-		
Factor 4	.26	-.17	.30	-	
Factor 5	-.13	.27	.16	.13	-

**Table 5: Content of five-factor model in EFA 1.**

Factor	Item text
1	<p>17 -<i>In a fair world, it is natural that some people will end up with more resources and some with less.</i></p> <p>18 -<i>People should get used to competition, because it's an inevitable part of life.</i></p> <p>20 -<i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i></p> <p>21 -<i>It is fine that some people can pay for privileges others can't afford.</i></p> <p>24 -<i>Life would be boring if we ensured everyone had the same standard of living.</i></p> <p>25 -<i>In a fair world, the wealth gap should be as small as possible.</i></p> <p>27 -<i>Resources should be distributed according to people's needs.</i></p> <p>30 -<i>It is fair to tax people with large incomes more highly, so that money is distributed more equitably.</i></p> <p>32 -<i>Our society would have a lot less conflict if we treated everyone more equally.</i></p>
2	<p>1 -<i>Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.</i></p> <p>3 -<i>Changes in the social order are often shown later to be for the worse.</i></p> <p>4 -<i>There is nothing wrong with being old-fashioned.</i></p> <p>5 -<i>Rebelling against the political 'system' or 'establishment' is something kids should grow out of.</i></p> <p>6 -<i>Strange new trends in style or slang are usually just immature acts of rebellion.</i></p> <p>7 -<i>My grandparents' generation had the right ideas about how to live.</i></p> <p>8 -<i>These days, people are too willing to try out wild new ideas without any proof they will work.</i></p> <p>9 -<i>I don't trust activists and agitators trying to stir things up.</i></p>
3	<p>49 -<i>In school, kids should be taught to think critically about all of the information they receive.</i></p> <p>57 -<i>When I compromise with the other side in a political debate, I feel like I've sacrificed some of my integrity.</i></p> <p>62 -<i>I wouldn't want to associate at all with someone whom I politically disagreed with.</i></p> <p>66 -<i>People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.</i></p>
4	<p>12 -<i>In order to build a good society, we need to let go of past customs that are holding us back.</i></p> <p>14 -<i>Society can survive just fine without old-fashioned customs to guide it.</i></p> <p>16 -<i>Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to some.</i></p> <p>51 -<i>Children should be able to play and express themselves without too many strict rules.</i></p>
5	<p>35 -<i>Without strong leaders, society as we know it would collapse.</i></p>

Factor	Item text
	39 -Our country's leaders need to be tougher on citizens who hold dangerous views.
	40 -Criminals should be harshly punished for the wellbeing of society.
	41 -Good national leaders keep us safe by standing up to enemies who would do us harm.
	42 -Our government must be prepared to use its full military might to protect us.

*Note: Only items satisfying the .40-.30-.20 rule are shown.*

*Note: Items with negative factor loadings are italicized.*

Factor 1 of the five-factor solution was interpreted as the hypothesized egalitarianism-antiegitarianism factor, with five pro- and six con-trait intended items loading highly; three of these had cross-listings on alternative factors. Interestingly, the items pertaining to equality between different groups did not load onto this factor, nor any other factor.

Factor 2 was interpreted as a traditionalism factor, with nine items loading highly, all of which were con-trait. None of the pro-trait items (intended to convey progressivism) loaded onto this factor. Several items intended to convey progressivism did not load highly onto any factors. These items were revised in the hopes of capturing the hypothesized construct more successfully in the next study.

Factor 3 somewhat resembled the hypothesized moderatism-radicalism factor. Three items intended as radicalism loaded highly onto this factor. Unexpectedly, an item intended as a libertarianism item – item 49 – loaded highly onto this factor in the opposite direction. Based on this content, this factor could be interpreted as dogmatism or rigidity. It was hoped that the next round of data collection, after revisions to the item list, would help to elucidate the nature of this factor.

The content of Factor 4 was unexpected: it contained two pro-trait items written for the hypothesized libertarianism-authoritarianism factor, and three pro-trait items written for the hypothesized progressivism-traditionalism factor. The emergent meaning of these items was difficult to interpret. Items 12, 14, and 16 address attitudes towards embracing new ideas and the rejection of outdated customs, while item 51 pertains to attitudes towards child-rearing (permissive, rather than strict and authoritative), and item

54 was meant to assess compassionate attitudes towards criminal justice. Combined, these could be said to represent an attitude of tender-mindedness, similar to Eysenck's T-factor (1954), or of universalism. The second EFA was conducted, in part, to help to determine whether this factor was replicable and thus a potential distinct dimension of ideology.

Factor 5 contained five con-trait items from the hypothesized libertarianism-authoritarianism dimensions, one pertaining to authoritarian obedience and four pertaining to authoritarian punitiveness, as well as one item (59) intended to convey radicalism. While this factor was clearly interpretable as authoritarianism, the lack of pro-trait (libertarianism) items was unexpected. It was also unclear whether this meant that the two hypothesized authoritarianism constructs are better assessed as a unified factor, or whether they might be disentangled with further revisions.

## 2.4 Exploratory Factor Analysis (Study 2)

Based on the results from the first EFA, the item list was edited. In the first EFA, 30 items satisfied the 40-30-20 rule, and as per the criteria described in conducting EFA 1, any that did not satisfy the 40-30-20 rule were not retained. Some of these items were removed entirely, while others were revised while retaining similar meanings. Items that were close to satisfying the 40-30-20 rule but fell short of this criterion were candidates for revision. Nineteen new items (either brand new, or revised versions of problematic items) were introduced in EFA 2. The second iteration of the scale thus contained a total of 49 items. See Table 6 for the full item list included in EFA 2.

**Table 6: EFA 2 item list.**

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1	In a fair world, the wealth gap should be as small as possible.
2	Resources should be distributed according to people's needs.
3	It is fair to tax people with large incomes more highly, so that money is distributed more equitably.
4	Our society would have a lot less conflict if we treated everyone more equally.
5	In a fair world, it is natural that some people will end up with more resources and some with less.
6	People should get used to competition, because it's an inevitable part of life.
7	Inequality motivates people to work hard for success.

- 8 Wealthy people shouldn't have to pay high taxes just because they're successful.  
9 It is fine that some people can pay for privileges others can't afford.  
10 Life would be boring if we ensured everyone had the same standard of living.  
11 *I would dislike being called old-fashioned.*  
12 *A healthy society is always progressing and evolving.*  
13 *Society needs activists and rebels to shake things up.*  
14 *Every new generation brings exciting new ideas.*  
15 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.  
16 Changes in the social order are often shown later to be for the worse.  
17 There is nothing wrong with being old-fashioned.  
18 Rebelling against the political 'system' or 'establishment' is something kids should grow out of.  
19 Strange new trends in style or slang are usually just immature acts of rebellion.  
20 My grandparents' generation had the right ideas about how to live.  
21 These days, people are too willing to try out wild new ideas without any proof they will work.  
22 *I don't trust activists trying to stir things up.*  
23 In school, kids should be taught to think critically about all of the information they receive.  
24 People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.  
25 *Extremists of any kind are threats to society.*  
26 *No single group or person should be able to censor information.*  
27 When I compromise with the other side in a political debate, I feel like I've sacrificed some of my integrity.  
28 I wouldn't want to associate at all with someone whom I politically disagreed with.  
29 *Sometimes, creating progress in society requires ignoring those who disagree.*  
30 *Violence can be justified when trying to improve society.*  
31 In order to build a good society, we need to let go of customs that are holding us back.  
32 *The government should not restrict anyone's freedom of speech.*  
33 Society can survive just fine without old-fashioned customs to guide it.  
34 Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to some.  
35 Children should be able to play and express themselves without too many strict rules.  
36 *Everyone should be able to do as they please, if they are not hurting anyone.*  
37 *Children should be given firm rules and boundaries.*  
38 *Government surveillance makes me feel safe and secure.*  
39 *Societal rules and customs exist for good reasons.*  
40 *Leaders of society should be questioned about their decisions, not blindly obeyed.*  
41 *Prisons should not be places of harsh punishment.*  
42 *National leaders should settle disputes between countries peacefully, not through war.*  
43 Without strong leaders, society as we know it would collapse.  
44 Our country's leaders need to be tougher on citizens who hold dangerous views.  
45 Criminals should be harshly punished for the wellbeing of society.  
46 Good national leaders keep us safe by standing up to enemies who would do us harm.  
47 Our government must be prepared to use its full military might to protect us.  
48 *The death penalty is justified if the criminal is a danger to society.*

*49 Police officers are justified in using force to carry out their duties.*

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*Note:* Italics indicate a new item written for Study 2 (either an altered item, or an entirely new addition).

## 2.4.1 Methods

### 2.4.1.1 Participants and Data Cleaning

The revised scale was administered as part of a broader study conducted by a colleague. The sample required for the colleague's broader study was comprised of white Canadian adults.

A total of 284 participants completed the revised scale, and  $N = 239$  remained after data cleaning. This satisfied the  $N \geq 200$  criteria for sample size for EFA, and a 5:1 participant-item ratio would be satisfied at  $N = 245$  (Howard, 2016). In addition to the techniques employed in EFA 1 – screening for short response times and multivariate outliers – this study also utilized written attention checks which, if failed, were taken to indicate careless responding, and resulted in participant exclusion. The attention check item read as follows: “It is important that you pay attention when completing the survey. Please check the middle option: ‘neither agree nor disagree.’” Missing data were handled with maximum likelihood estimation.

First, 19 participants were excluded for not selecting ‘Neither agree nor disagree’ on the attention check. Second, applying the same 2-second cut-off as Study 1, 13 participants were excluded for abnormally short response times. Finally, Mahalanobis D was calculated in SPSS software. Applying Tabachnick and Fidell's (2007) threshold of  $<.001$  when using Mahalanobis D, 13 participants were flagged as multivariate outliers. The remaining sample for analyses was  $N = 239$ , and of these, 153 (64.0%) were women, 83 (34.7%) were men, and 3 (1.3%) identified as neither male nor female, and the age range was 16-82 years ( $M = 47.71$ ,  $SD = 15.52$ ).

### 2.4.1.2 Measures

The revised 49-item scale was administered alongside the questionnaires of interest to the collaborator, which were not utilized in this study.



### 2.4.1.3 Procedure

Participants were recruited via a Qualtrics Panel survey as part of a broader study. Participants completed the study online via Qualtrics survey software and were compensated by Qualtrics Panel upon completion<sup>1</sup>. Items were presented in a randomized order to control for order effects.

### 2.4.1.4 Data Analytic Decisions

#### 2.4.1.4.1 Factor Analytic Method

Maximum Likelihood was the factor analytic method used for the EFA.

#### 2.4.1.4.2 Factor Retention Method

A combination of the scree plot and parallel analysis were used in interpreting the EFA to determine the ideal number of factors to extract, as well as comparisons of the model fit.

#### 2.4.1.4.3 Factor Rotation Method

Direct quartimin rotation (an oblique method) was used.

#### 2.4.1.4.4 Factor Loading Cut-off

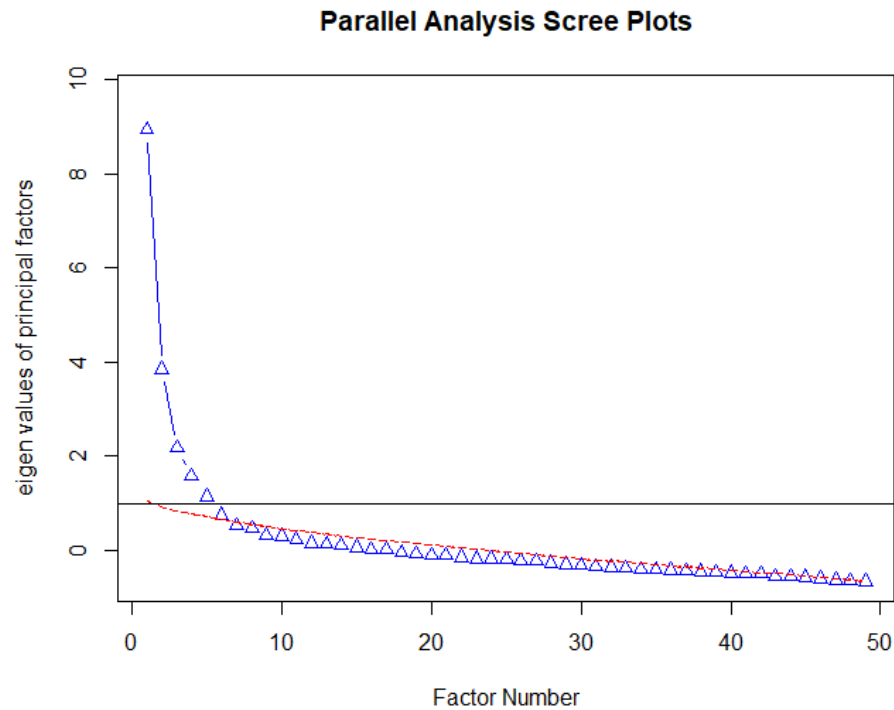
The .40-.30-.20 rule was employed such that a) items should load onto a primary factor  $\geq 0.40$ , b) items should load onto any alternative factors  $\leq .3$ , and c) items should demonstrate a discrepancy between primary and alternative loadings of  $\pm .2$ . Items that failed to meet these criteria were deleted or reworded.

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<sup>1</sup> Qualtrics Panel does not disclose the exact amount of money participants are compensated. The price-per-participant was \$5.00; a portion of this figure goes towards Qualtrics' processing fees.

## 2.4.2 Results and Discussion

Interpretation of the scree plot and parallel analysis supported investigating a six-, five-, and four-factor model and is depicted in Figure 2. There was a visible break in the scree plot between factors five and six. Six factors were greater than the suggested cut-off determined by the parallel analysis (95<sup>th</sup> percentile of the combined simulated data), indicating six was the maximum number of factors that should be extracted.



**Figure 2: Scree plot and parallel analysis for EFA 2.**

Table 7 depicts model fit indices for these solutions. For all models, RMSEA and SRMR indices indicated good model fit, but TLI was suboptimal (< .900).

**Table 7: EFA 2 model fit indices.**

	$\chi^2$	(df)	BIC	RMSEA [95% CI]	TLI	SRMR
Six-factor	1206.02*	897	-3706.37	.038 [.032, .043]	.885	.040
Five-factor	1347.66*	941	-3805.70	.042 [.037, .048]	.856	.040
Four-factor	1535.09*	986	-3864.71	.048 [.044, .053]	.815	.050

Note: \* $p < .001$

The sections below consider the six-, five-, and four-factor solutions one by one. Reliability coefficients were calculated for each factor (after reverse-coding items with negative factor loadings). Cronbach's alpha values are included in the tables depicting factor content.

#### 2.4.2.1 Six-factor solution

**Table 8: EFA 2 six-factor solution factor loadings.**

Item text	1	2	3	4	5	6
1 In a fair world, the wealth gap should be as small as possible.	-.15	<b>.74</b>	.07	.12	-.11	.07
2 Resources should be distributed according to people's needs.	.08	<b>.58</b>	-.01	.10	.01	.13
3 It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	.10	<b>.69</b>	-.07	-.02	.07	.04
4 Our society would have a lot less conflict if we treated everyone more equally.	.12	<b>.49</b>	-.02	-.12	-.02	.19
5 In a fair world, it is natural that some people will end up with more resources and some with less.	<b>.47</b>	<b>-.45</b>	.11	-.01	.15	.12
6 People should get used to competition, because it's an inevitable part of life.	<b>.51</b>	-.18	.20	-.10	.07	.03
7 Inequality motivates people to work hard for success.						
8 Wealthy people shouldn't have to pay high taxes just because they're successful.	.00	<b>-.71</b>	.12	-.02	-.06	.04
9 It is fine that some people can pay for privileges others can't afford.	<b>.46</b>	<b>-.37</b>	.01	-.12	.16	.08
10 Life would be boring if we ensured everyone had the same standard of living.	.09	<b>-.43</b>	-.16	.13	<b>.33</b>	<b>.27</b>
11 I would dislike being called old-fashioned.	-.01	.05	<b>-.60</b>	.07	-.15	.09
12 A healthy society is always progressing and evolving.	<b>.51</b>	.24	-.13	-.24	-.15	.20
13 Society needs activists and rebels to shake things up.	.07	.04	-.08	.09	<b>-.72</b>	.19
14 Every new generation brings exciting new ideas.						
15 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.						
16 Changes in the social order are often shown later to be for the worse.						
17 There is nothing wrong with being old-fashioned.	.03	-.01	<b>.71</b>	-.04	.17	-.08
18 Rebelling against the political 'system' or 'establishment' is something kids should grow out of.	.02	-.08	.10	.25	<b>.42</b>	.07
19 Strange new trends in style or slang are usually just immature acts of rebellion.	.05	-.03	.09	<b>.45</b>	.13	-.15

Item text	1	2	3	4	5	6
20 My grandparents' generation had the right ideas about how to live.	.10	-.04	<b>.56</b>	.30	.00	-.12
21 These days, people are too willing to try out wild new ideas without any proof they will work.						
22 I don't trust activists trying to stir things up.	-.02	.02	.17	.18	<b>.66</b>	.06
23 In school, kids should be taught to think critically about all of the information they receive.						
24 People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.	.03	.15	<b>.42</b>	-.04	.07	.16
25 Extremists of any kind are threats to society.						
26 No single group or person should be able to censor information.	-.05	.03	<b>.40</b>	.10	<b>-.25</b>	<b>.26</b>
27 When I compromise with the other side in a political debate, I feel like I've sacrificed some of my integrity.	.01	.05	<b>-.28</b>	<b>.43</b>	-.02	.10
28 I wouldn't want to associate at all with someone whom I politically disagreed with.	-.19	.01	-.29	<b>.53</b>	-.12	.05
29 Sometimes, creating progress in society requires ignoring those who disagree.						
30 Violence can be justified when trying to improve society.						
31 In order to build a good society, we need to let go of customs that are holding us back.	.02	.13	-.17	-.09	-.11	<b>.53</b>
32 The government should not restrict anyone's freedom of speech.						
33 Society can survive just fine without old-fashioned customs to guide it.	-.10	.13	<b>-.30</b>	.09	.09	<b>.47</b>
34 Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to some.						
35 Children should be able to play and express themselves without too many strict rules.						
36 Everyone should be able to do as they please, if they are not hurting anyone.	-.18	.04	.08	.01	-.15	<b>.58</b>
37 Children should be given firm rules and boundaries.	<b>.42</b>	.11	.02	.14	.06	<b>-.35</b>
38 Government surveillance makes me feel safe and secure.	<b>.51</b>	-.01	-.08	.12	.11	-.03
39 Societal rules and customs exist for good reasons.	<b>.41</b>	.03	.16	.03	.04	-.11
40 Leaders of society should be questioned about their decisions, not blindly obeyed.						
41 Prisons should not be places of harsh punishment.	-.21	-.01	-.10	<b>-.48</b>	-.04	.23
42 National leaders should settle disputes between countries peacefully, not through war.	.17	<b>.51</b>	.18	-.22	.03	.20
43 Without strong leaders, society as we know it would collapse.	<b>.64</b>	.00	.05	.18	-.12	-.13

Item text	1	2	3	4	5	6
44 Our country's leaders need to be tougher on citizens who hold dangerous views.	<b>.35</b>	.14	-.06	<b>.40</b>	<b>.27</b>	.00
45 Criminals should be harshly punished for the wellbeing of society.	.22	.02	.21	<b>.58</b>	.18	.00
46 Good national leaders keep us safe by standing up to enemies who would do us harm.	<b>.67</b>	.08	.06	.07	-.06	-.08
47 Our government must be prepared to use its full military might to protect us.	<b>.45</b>	-.04	<b>.26</b>	.18	.02	.07
48 The death penalty is justified if the criminal is a danger to society.	.14	-.02	.14	<b>.50</b>	.18	-.04
49 Police officers are justified in using force to carry out their duties.	<b>.50</b>	-.18	.05	.14	.01	-.06

*Note: Factor loadings are only shown for items that demonstrated at least one loading  $\geq 0.40$ . Primary factor loadings and alternative factor loadings ( $\geq .30$  and/or discrepancy  $\leq +/- .2$ ) are bolded.*

**Table 9: Inter-factor correlations for EFA 2 six-factor solution**

	1.	2.	3.	4	5	6
Factor 1	-					
Factor 2	-.07	-				
Factor 3	.25	-.15	-			
Factor 4	.08	-.16	.20	-		
Factor 5	.19	-.37	.28	.35	-	
Factor 6	.11	.18	-.16	-.17	-.25	-

**Table 10: Content and internal reliabilities of six-factor model in EFA 2.**

Factor	Item text	$\alpha$
1	6 -People should get used to competition, because it's an inevitable part of life. 12 -A healthy society is always progressing and evolving. 38 -Government surveillance makes me feel safe and secure. 39 -Societal rules and customs exist for good reasons. 43 -Without strong leaders, society as we know it would collapse. 46 -Good national leaders keep us safe by standing up to enemies who would do us harm. 49 -Police officers are justified in using force to carry out their duties.	.730
2	1 -In a fair world, the wealth gap should be as small as possible. 2 -Resources should be distributed according to people's needs. 3 -It is fair to tax people with large incomes more highly, so that money is distributed more equitably. 4 -Our society would have a lot less conflict if we treated everyone more equally.	.520

Factor	Item text	$\alpha$
	8 - <i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i>	
	42 -National leaders should settle disputes between countries peacefully, not through war.	
3	11 - <i>I would dislike being called old-fashioned.</i> 17 -There is nothing wrong with being old-fashioned. 20 -My grandparents' generation had the right ideas about how to live. 24 -People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.	.715
4	19 -Strange new trends in style or slang are usually just immature acts of rebellion. 28 -I wouldn't want to associate at all with someone whom I politically disagreed with. 41 - <i>Prisons should not be places of harsh punishment.</i> 45 -Criminals should be harshly punished for the wellbeing of society. 48 -The death penalty is justified if the criminal is a danger to society.	.714
5	13 - <i>Society needs activists and rebels to shake things up.</i> 18 -Rebelling against the political 'system' or 'establishment' is something kids should grow out of. 22 -I don't trust activists trying to stir things up.	.753
6	31 -In order to build a good society, we need to let go of customs that are holding us back. 36 -Everyone should be able to do as they please, if they are not hurting anyone.	.532

*Note: Items with negative factor loadings are italicized.*

Overall, while the six-factor model had the most optimal model fit indices, two factors (3 and 5) were not interpretable as ideological dimensions, and Factor 6 was also problematic. The nature of the factors was interpreted as follows.

For the factors that were interpretable and meaningful, Factor 1 contained some content that was intended to convey antiegalitarianism, traditionalism, and authoritarian obedience; as such, it was interpretable as a general conservatism factor. Factor 2 represented the hypothesized egalitarianism-antiegalitarianism factor, though unexpectedly, the item "National leaders should settle disputes between countries peacefully, not through war" also loaded highly. However, this factor had a low Cronbach's alpha value, indicating poor internal consistency. Factor 4 mixed content that was intended to convey traditionalism and authoritarian aggression; the overall meaning resembled Factor 1 (general conservatism), though with a more hostile valence.

For the factors that were difficult to interpret or otherwise problematic, Factor 3 did not appear to represent any meaningful dimension of ideology, but combined items that were semantically related (e.g., containing the word “old-fashioned”), or possibly that pertained to politeness or conventionalism. Factor 5 contained three items pertaining to activism and did not appear to represent a theoretically meaningful dimension of political ideology. Factor 6 contained only two items and had a poor Cronbach’s alpha coefficient. These two items appear to be capturing generally ‘liberal’ or progressive attitudes.

#### 2.4.2.2 Five-factor solution

**Table 11: EFA 2 five-factor solution factor loadings.**

Item text	1	2	3	4	5
1 In a fair world, the wealth gap should be as small as possible.	.09	<b>.78</b>	-.09	.04	.15
2 Resources should be distributed according to people’s needs.	.15	<b>.55</b>	.13	-.04	.15
3 It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	.04	<b>.65</b>	.18	-.07	.01
4 Our society would have a lot less conflict if we treated everyone more equally.	-.07	<b>.44</b>	.21	-.02	.20
5 In a fair world, it is natural that some people will end up with more resources and some with less.	.14	<b>-.53</b>	<b>.43</b>	.12	.03
6 People should get used to competition, because it’s an inevitable part of life.	.03	-.25	<b>.49</b>	.22	-.01
7 Inequality motivates people to work hard for success.	<b>.27</b>	<b>-.46</b>	<b>.34</b>	.06	.12
8 Wealthy people shouldn’t have to pay high taxes just because they’re successful.	-.05	<b>-.69</b>	-.07	.12	.06
9 It is fine that some people can pay for privileges others can’t afford.	.02	<b>-.47</b>	<b>.44</b>	.03	-.02
10 Life would be boring if we ensured everyone had the same standard of living.	<b>.31</b>	<b>-.54</b>	.06	-.18	.14
11 I would dislike being called old-fashioned.	-.06	.06	.01	<b>-.62</b>	.07
12 A healthy society is always progressing and evolving.	-.22	.18	<b>.58</b>	-.11	.18
13 Society needs activists and rebels to shake things up.					
14 Every new generation brings exciting new ideas.	-.19	.04	<b>.46</b>	-.08	<b>.33</b>
15 Even if society isn’t perfect, I’d prefer to avoid too many changes in how it works.	<b>.48</b>	-.13	-.08	.24	.00
16 Changes in the social order are often shown later to be for the worse.					
17 There is nothing wrong with being old-fashioned.	.12	-.02	.01	<b>.72</b>	-.06

Item text	1	2	3	4	5
18 Rebellng against the political ‘system’ or ‘establishment’ is something kids should grow out of.	<b>.49</b>	-.16	-.02	.08	-.04
19 Strange new trends in style or slang are usually just immature acts of rebellion.	<b>.52</b>	.00	-.06	.05	-.17
20 My grandparents’ generation had the right ideas about how to live.	<b>.36</b>	.01	.00	<b>.52</b>	-.06
21 These days, people are too willing to try out wild new ideas without any proof they will work.	<b>.41</b>	-.13	.06	.16	.01
22 I don’t trust activists trying to stir things up.	<b>.52</b>	-.12	-.03	.16	-.10
23 In school, kids should be taught to think critically about all of the information they receive.					
24 People shouldn’t try to force their beliefs on others, regardless of how strongly they hold them.	.08	.12	.05	<b>.42</b>	.19
25 Extremists of any kind are threats to society.					
26 No single group or person should be able to censor information.					
27 When I compromise with the other side in a political debate, I feel like I’ve sacrificed some of my integrity.	<b>.41</b>	.07	-.06	<b>-.34</b>	.10
28 I wouldn’t want to associate at all with someone whom I politically disagreed with.	<b>.41</b>	.09	<b>-.28</b>	<b>-.36</b>	.10
29 Sometimes, creating progress in society requires ignoring those who disagree.					
30 Violence can be justified when trying to improve society.					
31 In order to build a good society, we need to let go of customs that are holding us back.	-.09	.06	.11	-.21	<b>.54</b>
32 The government should not restrict anyone's freedom of speech.					
33 Society can survive just fine without old-fashioned customs to guide it.	.15	.05	-.03	<b>-.35</b>	<b>.42</b>
34 Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to some.	<b>-.32</b>	.12	<b>.40</b>	.05	<b>.32</b>
35 Children should be able to play and express themselves without too many strict rules.	-.11	.07	.00	-.03	<b>.48</b>
36 Everyone should be able to do as they please, if they are not hurting anyone.	.00	.00	-.11	.01	<b>.65</b>
37 Children should be given firm rules and boundaries.					
38 Government surveillance makes me feel safe and secure.	.23	-.06	<b>.46</b>	-.08	-.09
39 Societal rules and customs exist for good reasons.					
40 Leaders of society should be questioned about their decisions, not blindly obeyed.					
41 Prisons should not be places of harsh punishment.	<b>-.52</b>	-.06	-.07	-.07	.21
42 National leaders should settle disputes between countries peacefully, not through war.	-.12	<b>.44</b>	<b>.27</b>	.18	.19



Item text	1	2	3	4	5
43 Without strong leaders, society as we know it would collapse.	.21	.02	<b>.54</b>	.05	-.11
44 Our country's leaders need to be tougher on citizens who hold dangerous views.	<b>.59</b>	.09	.27	-.09	-.08
45 Criminals should be harshly punished for the wellbeing of society.	<b>.73</b>	.03	.09	.15	-.01
46 Good national leaders keep us safe by standing up to enemies who would do us harm.	.14	.06	<b>.62</b>	.07	-.08
47 Our government must be prepared to use its full military might to protect us.					
48 The death penalty is justified if the criminal is a danger to society.	<b>.62</b>	-.01	.02	.09	-.06
49 Police officers are justified in using force to carry out their duties.	.21	-.20	<b>.42</b>	.05	-.09

Note: Factor loadings are only shown for items that demonstrated at least one loading  $\geq 0.40$ . Primary factor loadings and alternative factor loadings ( $\geq .30$  and/or discrepancy  $\leq \pm .2$ ) are bolded.

**Table 12: Inter-factor correlations for EFA 2 five-factor solution**

	1.	2.	3.	4	5
Factor 1	-				
Factor 2	-.28	-			
Factor 3	.12	-.03	-		
Factor 4	.30	-.20	.17	-	
Factor 5	-.30	.28	.12	-.23	-

**Table 13: Content and internal reliabilities of five-factor model in EFA 2.**

Factor	Item text	$\alpha$
1	15 -Even if society isn't perfect, I'd prefer to avoid too many changes in how it works. 18 -Rebelling against the political 'system' or 'establishment' is something kids should grow out of. 19 -Strange new trends in style or slang are usually just immature acts of rebellion. 21 -These days, people are too willing to try out wild new ideas without any proof they will work. 22 -I don't trust activists trying to stir things up. 23 -In school, kids should be taught to think critically about all of the information they receive. 41 -Prisons should not be places of harsh punishment. 44 -Our country's leaders need to be tougher on citizens who hold dangerous views. 45 -Criminals should be harshly punished for the wellbeing of society.	.809

Factor	Item text	$\alpha$
	48 -The death penalty is justified if the criminal is a danger to society.	
2	1 -In a fair world, the wealth gap should be as small as possible. 2 -Resources should be distributed according to people's needs. 3 -It is fair to tax people with large incomes more highly, so that money is distributed more equitably. 4 -Our society would have a lot less conflict if we treated everyone more equally. 6 - <i>People should get used to competition, because it's an inevitable part of life.</i> 8 - <i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i>	.763
3	12 -A healthy society is always progressing and evolving. 38 -Government surveillance makes me feel safe and secure. 43 -Without strong leaders, society as we know it would collapse. 46 -Good national leaders keep us safe by standing up to enemies who would do us harm. 49 - Police officers are justified in using force to carry out their duties.	.676
4	11 - <i>I would dislike being called old-fashioned.</i> 17 -There is nothing wrong with being old-fashioned. 24 -People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.	.619
5	31 -In order to build a good society, we need to let go of customs that are holding us back. 35 -Children should be able to play and express themselves without too many strict rules. 36 -Everyone should be able to do as they please, if they are not hurting anyone.	.620

*Note: Items with negative factor loadings are italicized.*

The five-factor solution produced four factors that appeared to be theoretically meaningful and interpretable. Factor 1 combined content pertaining to traditionalism and authoritarianism, and the overall meaning was interpretable as a general conservatism factor. Factor 2 was again clearly interpretable as the proposed egalitarianism factor. Factor 3 contained authoritarianism content, particularly the authoritarian obedience items, with one notable exception: the item 'A healthy society is always progressing and evolving'. Factor 5 was interpreted as the same unexpected 'liberalism' factor that manifested in Study 1. While this dimension was not hypothesized, this factor's reoccurrence in a new sample with different demographic characteristics supported the inclusion of this factor in the scale going forward. All the above factors demonstrated good or fair internal consistency.

Factor 4 resembled the six-factor model's Factor 3 and did not have a clear interpretation. It contained two items with the words 'old-fashioned', and the item 'People shouldn't try to force their beliefs on others, regardless of how strongly they hold them'.

### 2.4.2.3 Four-factor solution

**Table 14: EFA 2 four-factor solution factor loadings.**

Item text	1	2	3	4
1 In a fair world, the wealth gap should be as small as possible.	.07	<b>.82</b>	.02	.00
2 Resources should be distributed according to people's needs.	.18	<b>.57</b>	.21	-.07
3 It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	.10	<b>.62</b>	.21	-.05
4 Our society would have a lot less conflict if we treated everyone more equally.	-.05	<b>.45</b>	<b>.32</b>	-.05
5 In a fair world, it is natural that some people will end up with more resources and some with less.	.21	<b>-.56</b>	<b>.37</b>	.12
6 People should get used to competition, because it's an inevitable part of life.	.13	<b>-.29</b>	<b>.44</b>	<b>.25</b>
7 Inequality motivates people to work hard for success.	<b>.31</b>	<b>-.46</b>	<b>.32</b>	.01
8 Wealthy people shouldn't have to pay high taxes just because they're successful.	-.10	<b>-.66</b>	-.07	.08
9 It is fine that some people can pay for privileges others can't afford.	.10	<b>-.52</b>	<b>.37</b>	.06
10 Life would be boring if we ensured everyone had the same standard of living.	.27	<b>-.52</b>	.05	-.25
11 I would dislike being called old-fashioned.	-.07	.03	.04	<b>-.63</b>
12 A healthy society is always progressing and evolving.	-.13	.13	<b>.66</b>	-.11
13 Society needs activists and rebels to shake things up.				
14 Every new generation brings exciting new ideas.	-.16	.04	<b>.61</b>	-.13
15 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.	<b>.46</b>	-.09	-.13	.20
16 Changes in the social order are often shown later to be for the worse.				
17 There is nothing wrong with being old-fashioned.	.14	.02	-.01	<b>.72</b>
18 Rebelling against the political 'system' or 'establishment' is something kids should grow out of.	<b>.49</b>	-.15	-.10	.05
19 Strange new trends in style or slang are usually just immature acts of rebellion.	<b>.55</b>	.00	-.20	.05
20 My grandparents' generation had the right ideas about how to live.	<b>.38</b>	.04	-.06	<b>.50</b>
21 These days, people are too willing to try out wild new ideas without any proof they will work.	<b>.43</b>	-.11	.01	.13
22 I don't trust activists trying to stir things up.	<b>.54</b>	-.11	-.14	.15

Item text	1	2	3	4
23 In school, kids should be taught to think critically about all of the information they receive.				
24 People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.				
25 Extremists of any kind are threats to society.				
26 No single group or person should be able to censor information.				
27 When I compromise with the other side in a political debate, I feel like I've sacrificed some of my integrity.	<b>.39</b>	.08	-.05	<b>-.41</b>
28 I wouldn't want to associate at all with someone whom I politically disagreed with.	<b>.35</b>	.13	<b>-.26</b>	<b>-.44</b>
29 Sometimes, creating progress in society requires ignoring those who disagree.				
30 Violence can be justified when trying to improve society.				
31 In order to build a good society, we need to let go of customs that are holding us back.				
32 The government should not restrict anyone's freedom of speech.				
33 Society can survive just fine without old-fashioned customs to guide it.	.05	.11	.15	<b>-.47</b>
34 Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to some.	<b>-.30</b>	.13	<b>.57</b>	.01
35 Children should be able to play and express themselves without too many strict rules.				
36 Everyone should be able to do as they please, if they are not hurting anyone.				
37 Children should be given firm rules and boundaries.				
38 Government surveillance makes me feel safe and secure.				
39 Societal rules and customs exist for good reasons.				
40 Leaders of society should be questioned about their decisions, not blindly obeyed.				
41 Prisons should not be places of harsh punishment.	-.59	-.03	.09	-.09
42 National leaders should settle disputes between countries peacefully, not through war.	-.08	<b>.46</b>	<b>.39</b>	.16
43 Without strong leaders, society as we know it would collapse.	<b>.35</b>	-.06	<b>.42</b>	.10
44 Our country's leaders need to be tougher on citizens who hold dangerous views.	<b>.68</b>	.05	.14	-.09
45 Criminals should be harshly punished for the wellbeing of society.	<b>.77</b>	.04	.00	.10
46 Good national leaders keep us safe by standing up to enemies who would do us harm.	.29	-.02	<b>.51</b>	.13
47 Our government must be prepared to use its full military might to protect us.				

Item text	1	2	3	4
48 The death penalty is justified if the criminal is a danger to society.	<b>.65</b>	-.01	-.08	.06
49 Police officers are justified in using force to carry out their duties.				

*Note: Factor loadings are only shown for items that demonstrated at least one loading  $\geq 0.40$ . Primary factor loadings and alternative factor loadings ( $\geq .30$  and/or discrepancy  $\leq +/- .2$ ) are bolded.*

**Table 15: Inter-factor correlations for EFA 1 four-factor solution**

	1.	2.	3.	4
Factor 1	-			
Factor 2	-.33	-		
Factor 3	.00	.08	-	
Factor 4	.37	-.27	.03	-

**Table 16: Content and internal reliabilities of four-factor model in EFA 2.**

Factor	Item text	$\alpha$
1	15 -Even if society isn't perfect, I'd prefer to avoid too many changes in how it works. 18 -Rebelling against the political 'system' or 'establishment' is something kids should grow out of. 19 -Strange new trends in style or slang are usually just immature acts of rebellion. 21 -These days, people are too willing to try out wild new ideas without any proof they will work. 22 -I don't trust activists trying to stir things up. 44 -Our country's leaders need to be tougher on citizens who hold dangerous views. 45 -Criminals should be harshly punished for the wellbeing of society. 48 -The death penalty is justified if the criminal is a danger to society.	.837
2	1 -In a fair world, the wealth gap should be as small as possible. 2 -Resources should be distributed according to people's needs. 3 -It is fair to tax people with large incomes more highly, so that money is distributed more equitably. 8 - <i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i> 10 - <i>Life would be boring if we ensured everyone had the same standard of living.</i>	.777
3	12 -A healthy society is always progressing and evolving. 14 -Every new generation brings exciting new ideas. 46 -Good national leaders keep us safe by standing up to enemies who would do us harm.	.578
4	11 - <i>I would dislike being called old-fashioned.</i>	.671

Factor	Item text	$\alpha$
	17 -There is nothing wrong with being old-fashioned.	
	33 - <i>Society can survive just fine without old-fashioned customs to guide it.</i>	

*Note: Items with negative factor loadings are italicized.*

The four-factor solution produced only two factors that were easily interpretable as ideological dimensions. Factor 1 resembled the factors in the six- and five-factor model that combined content pertaining to traditionalism and authoritarianism; the overall meaning was interpretable as a general conservatism factor. Factor 2 was again clearly interpretable as the proposed egalitarianism factor.

Factor 3 had poor reliability and the conceptual meaning was unclear. Two of the items were intended to convey progressive values, while the third was “Good national leaders keep us safe by standing up to enemies who would do us harm”. The overall impression was thus one of interventionism or even hostility, but the factor’s meaning was difficult to understand. Factor 4 seemingly combined items that were semantically related (e.g., those that included the word “old-fashioned”), or, possibly, that pertained to politeness or conventionalism.

#### 2.4.2.4 Revised scale

A factor pertaining to egalitarianism was found consistently across models, as was a factor resembling authoritarianism (though its exact content differed slightly between models). It was unclear from this analysis whether authoritarianism is best represented as single factor, or whether its content should be split between ‘punitiveness’ and ‘obedience’ factors.

Interestingly, most of the items written to convey extremism or radicalism did not load highly in any of the explored model solutions, or they demonstrated substantial cross-loadings. In other words, the initial EFAs did not provide sufficient evidence for its existence as a dimension of ideology.

The tentatively named ‘liberalism’ factor – while not one of the hypothesized dimensions – was consistent and was thus deemed worth exploring further as a potentially distinct factor of ideology.

Ultimately, a tentative four-factor structure of egalitarianism, traditionalism, authoritarianism, and liberalism was selected for further testing in Chapter 3. After completing EFA 2, 18 items were removed from the ideology scale, and the following four items were revised: “Societal rules and customs exist for good reasons” was changed to “Laws and rules are the best way to keep society functioning properly.” “Our government must be prepared to use its full military might to protect us” was revised to “Having a strong military is how our government keeps us safe.” “No single group or person should be able to censor information” was changed to “Governments and powerful individuals should not be able to censor information.” And lastly, “The government should not restrict anyone's freedom of speech” was changed to “Censoring individuals’ speech or expression is bad for society.”

## Chapter 3

### 3 Scale Validation

This chapter outlines the scale validation process across Studies 3-5. In each study, Confirmatory Factor Analysis (CFA) was used to assess the scale structure identified in the previous chapter, and tests of construct validity and criterion validity were conducted. After conducting EFA 2 and revising the scale, it was expected that the scale would contain egalitarianism, authoritarianism, and traditionalism factors; the existence of a radicalism factor was not supported by the initial validation studies. The unexpected 'liberalism' factor identified in the previous studies was also considered, though no specific hypotheses were made about the correlates of this factor due to a lack of clarity on its emergent meaning and no theoretical background supporting it.

Study 3 took place across two time points. Test-retest reliability was computed between Time 1 and Time 2, and I investigated the construct validity of the scale with measures of personality (HEXACO; Ashton & Lee, 2009), Right-Wing Authoritarianism (RWA; Altemeyer, 2006), Social Dominance Orientation (SDO; Pratto et al., 1994), self-reported political orientation (left to right), nationalism, and patriotism (Kosterman & Feshbach, 1989), and criterion validity with measures of political behaviour (party affiliation and voting behaviour), political efficacy (Kelly & Breinlinger, 1996; Morrell, 2005), and attitudes towards the COVID-19 virus and government pandemic response.

If the ideology scale is a valid measure of political beliefs, its factors should correlate highly with related constructs. That is, egalitarianism should correlate negatively with SDO, while traditionalism and authoritarianism should correlate positively with RWA. It should also relate to political affiliation in the expected directions (egalitarianism predicting more left-wing affiliation, and traditionalism more right-wing affiliation).

The 'ideology gap' in nationalism and patriotism is well-established and suggests both constructs are positively correlated with right-wing attitudes (Schatz et al., 1999; van der Toorn et al., 2014). Nationalism can be defined as an allegiance to, identification



with, and loyalty to one's nation-state. Given authoritarianism is characterized by a devotion to extant authorities and leaders, typically one's government, it was anticipated that nationalism and authoritarianism would be positively related. Further, nationalism implies a commitment to maintaining a national cultural identity and should thus correlate with traditionalism, given the traditionalism factor is characterized by the desire to conserve the status quo. Patriotism is closely related to nationalism (though they are not interchangeable) and is defined by feelings of attachment and devotion to one's country (Primoratz, 2020). Given its similarities to nationalism and the body of work demonstrating its relationship with right-wing views, it was anticipated the ideology scale would relate to patriotism similarly. However, it should be noted some research has alternatively suggested that in the Canadian context, patriotism has different connotations and may not correlate with nationalism (Esses et al., 2021).

Finally, the new scale should relate to personality traits in directions consistent with previous literature. There is a documented link between openness to experience and more left-wing beliefs (here, higher egalitarianism and lower traditionalism), and between conscientiousness and more right-wing beliefs (or lower egalitarianism and higher traditionalism; Carney et al., 2008).

Additionally, the ideology scale should be able to predict other political variables (criterion validity). Egalitarianism should positively predict identification with, and voting for, a more left-wing political party (e.g., the NDP) and negatively predict support for more right-wing parties (e.g., the Conservative party), and the opposite should be true of traditionalism. I also expected the authoritarianism factor would relate negatively to collective action, as those with authoritarian values should theoretically be less likely to challenge entrenched systems. Lastly, ideological polarization is present in attitudes towards COVID-19 and the measures taken to manage the pandemic, including mask-wearing, lockdowns, and vaccinations (Cakanlar et al., 2020; Chock and Kim, 2020), as well as to vaccination for other diseases (Baumgaertner et al., 2018). As such, it was hypothesized that more 'left-wing' views – higher egalitarianism and lower traditionalism – would relate to greater feelings of threat from the coronavirus, greater psychological burden, and a desire for more government restrictions to curb the pandemic. It was also

hypothesized that authoritarianism would correlate positively with the desire for greater restriction, as authoritarianism entails an expectation that governments will protect their citizens, and that they may employ strict measures to do so.

In Study 4, in addition to the second CFA, criterion validity was investigated with measures of political outcomes including attitudes towards collective action and a range of Canadian policy issues. Tests of incremental validity were also conducted to determine whether the new scale had predictive ability beyond the most common ways of measuring political attitudes – left-right political orientation, and the SDO and RWA scales. The sample collected in this study was used in Chapter 4 to conduct a latent profile analysis.

While left-wing or liberal attitudes are associated with greater support for collective action in general, Teixeira et al. (2020), who researched acceptance of normative and non-normative (radical) actions, did not find a relationship between left-right political orientation and the relative degree of support for different types of action. I hypothesized that authoritarianism, specifically, would relate to negative attitudes towards non-normative action, given that it directly challenges established social norms and, in some cases, laws. I also expected that egalitarianism would be positively related to both normative and non-normative collective action, while traditionalism would be negatively associated with both, as collective action is typically aimed at improving the standard of living for a group with fewer resources or privileges (though not always).

Regarding Canadian policy issues, broadly, I expected egalitarianism would correlate positively with support for policies in line with left-wing or liberal beliefs, including: support for First Nations/Indigenous rights, support for decriminalization (for example, of drug use) and reforming the police, support for expanding and increasing access to healthcare, support for protections for gender and sexual identity, support for policies that serve to redistribute wealth (such as increasing taxes on the wealthiest Canadians), support for pro-environmental policies, and opposition to military spending and violent intervention. Likewise, I expected traditionalism would correlate with these positions in the opposite direction (in line with right-wing or conservative beliefs).

Theoretically, authoritarianism would correlate positively with support for policies that are characterized by submission to the government or other centralized power and enforcement of the rule of law, such as increased military spending and military intervention, criminalization and policing, and support for government surveillance.

In Study 5, in addition to the third CFA, the scale's relationship to behavioural intentions regarding COVID-19 vaccination was tested, and tests of incremental validity conducted in relation to left-right affiliation. It was hypothesized that more 'left-wing' views – higher egalitarianism and lower traditionalism – would predict a greater intention to receive the COVID-19 vaccine. The sample collected for this study was also used in Chapter 5 to conduct the experimental analyses on COVID-19 vaccination attitudes involving a persuasive messaging intervention.

### 3.1 Confirmatory Factor Analysis and Scale Validation (Study 3)

Seven new items were created to bolster and distinguish the four factors identified in Chapter 2, which were tentatively named egalitarianism, traditionalism, authoritarianism, and liberalism. The scale was also tentatively named the New Political Ideology Scale (NPIS). Factor 1 (egalitarianism) was given three new items conveying non-economic egalitarian beliefs, Factor 2 (traditionalism) was given an item conveying resistance to progressive change, Factor 3 (authoritarianism) received two items conveying authoritarian nationalism, and Factor 4 (liberalism) received an item conveying a more proactive attitude towards protecting individual freedoms. This iteration of the NPIS had a total of 34 items. Table 17 below depicts the items and factor structure explored in the following study.

**Table 17: Factor list for CFA and scale validation study 3.**

Factor	Item text
Egalitarianism	1 In a fair world, the wealth gap should be as small as possible. 2 Resources should be distributed according to people's needs. 3 It is fair to tax people with large incomes more highly, so that money is distributed more equitably.

Factor	Item text
	<p>4 Our society would have a lot less conflict if we treated everyone more equally.</p> <p>5 <i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i></p> <p>6 <i>Life would be boring if we ensured everyone had the same standard of living.</i></p> <p>28 Everyone should have the right to access high quality healthcare.**</p> <p>29 People should be treated equally regardless of their appearance or identity.**</p> <p>30 We must have laws in place to prevent discrimination based on things like ethnicity and gender identity.**</p>
Traditionalism	<p>7 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.</p> <p>8 Rebellious against the political 'system' or 'establishment' is something kids should grow out of.</p> <p>9 Strange new trends in style or slang are usually just immature acts of rebellion.</p> <p>10 These days, people are too willing to try out wild new ideas without any proof they will work.</p> <p>11 I don't trust activists trying to stir things up.</p> <p>12 Our country's leaders need to be tougher on citizens who hold dangerous views.*</p> <p>13 Criminals should be harshly punished for the wellbeing of society.*</p> <p>14 The death penalty is justified if the criminal is a danger to society.*</p> <p>15 <i>Prisons should not be places of harsh punishment.*</i></p> <p>31 These days, we are going too far in trying to protect the interests of minority groups.**</p>
Authoritarianism	<p>16 Government surveillance makes me feel safe and secure.</p> <p>17 Without strong leaders, society as we know it would collapse.</p> <p>18 Good national leaders keep us safe by standing up to enemies who would do us harm.</p> <p>19 Police officers are justified in using force to carry out their duties.</p> <p>20 Laws and rules are the best way to keep society functioning properly.</p> <p>21 Having a strong military is how our government keeps us safe.</p> <p>32 The needs of our own country's citizens must come first, not those of other countries.**</p> <p>33 <i>I have sometimes felt ashamed of my country.**</i></p>
Liberalism	<p>22 In order to build a good society, we need to let go of customs that are holding us back.</p>

Factor	Item text
	23 Society can survive just fine without old-fashioned customs to guide it.
	24 Children should be able to play and express themselves without too many strict rules.
	25 Everyone should be able to do as they please, if they are not hurting anyone.
	26 Governments and powerful individuals should not be able to censor information.
	27 Censoring individuals' speech or expression is bad for society.
	34 We must continue to create and improve laws that protect individual rights and freedoms.**

*Notes: Con-trait items are italicized.*

*Items with an asterisk(\*) were originally composed for the Authoritarianism factor, but are listed under Factor 2 based on the results from Study 2.*

*Items with a double asterisk (\*\*) are new to this study.*

### 3.1.1 Methods

#### 3.1.1.1 Participants and Data Cleaning

The scale was administered as part of a larger battery of measures in a study conducted by a colleague, which required a sample comprised of Canadian adults. At Time 1, there were 519 participants. At Time 2, 446 participants completed the study (a retention rate of 85.93%).

This study employed attention check items as well as screening for short response times and multivariate outliers. The attention check item read as follows: “It is important that you pay attention when completing the survey. Please check the middle option: ‘neither agree nor disagree.’” Participants were excluded for not selecting ‘Neither agree nor disagree’ on the attention check, for short response times (less than two seconds per item), and for multivariate outliers (at a threshold of  $<.001$ ). At time 1, the total sample after data cleaning for the CFA was  $N = 484$ ; at time 2, the sample size after data cleaning was  $N = 388$ .

At Time 1, 216 (44.60%) participants were women, 257 (53.10%) were men, seven (1.40%) identified as a gender not specified, and four (0.08%) declined to answer. The age range was 18-69 years ( $M = 30.85$ ,  $SD = 10.09$ ). The sample predominantly

identified as White ( $N = 284$ ; 58.67%). Of those who were non-White, 31 (6.40%) identified as South Asian, 84 (17.35%) as Chinese, 32 (6.61%) as Black, seven (1.45%) as Middle Eastern or West Asian, 11 (2.27%) as Filipino, 25 (5.17%) as Southeast Asian, seven (1.45%) as Korean, three (0.62%) as Japanese, 14 (2.89%) as Aboriginal or First Nations, and 15 (3.10%) as an ethnic group not specified. Participants could select multiple ethnicities; 25 (5.17%) identified as multiracial (i.e., selected at least two options).

At Time 2, 162 (41.80%) were women, 217 (55.90%) were men, 7 (1.80%) identified as neither male nor female, and two declined to respond (0.05%). The age range was 18-67 years ( $M = 30.59$ ,  $SD = 10.04$ ). The sample again predominantly identified as White ( $N = 234$ ; 60.31%). Of those who were non-White, 26 (6.70%) identified as South Asian, 69 (17.78%) as Chinese, 18 (4.64%) as Black, five (1.29%) as Middle Eastern or West Asian, 11 (2.84%) as Filipino, 18 (4.64%) as Southeast Asian, eight (2.06%) as Korean, three (0.78%) as Japanese, nine (2.32%) as Aboriginal or First Nations, 12 (3.09%) as an ethnic group not specified, and 21 (5.41%) as multiracial.

### 3.1.1.2 Procedure

Participants were recruited at Time 1 via the Prolific survey platform. A follow-up notification was sent via Prolific participants after 2 weeks prompting them to complete part 2. Participants completed both part 1 and part 2 of the study online via Qualtrics survey software. Both questionnaires took approximately 20 minutes to complete. Participants were compensated via Prolific upon completion of both part 1 and part 2 with 2.35 British pounds (for a total of 4.70 British pounds), equivalent to a rate slightly higher than the Canadian federal minimum wage at the time of writing. Items and measures were presented in a randomized order to control for order effects.

### 3.1.1.3 Measures

#### 3.1.1.3.1 SDO

SDO<sub>7</sub> (Ho et al., 2015; Pratto et al., 1994) is a 16-item scale assessing the preference for hierarchical group relations. Recent research suggests the scale is best measured as a two-factor model with SDO-Egalitarianism and SDO-Dominance, indicating the preference for anti-egalitarian policies and for intergroup dominance, respectively (Ho et al., 2015). Items are assessed on a 7-point Likert-type scale with higher scores indicating a belief in hierarchical group relations. Example items on the SDO-D factor include “Some groups of people are simply inferior to other groups,” and on the SDO-E, “We shouldn’t try to guarantee that every group has the same quality of life.” Internal reliability for the SDO-D was  $\alpha = .84$ , and for the SDO-E was  $\alpha = .89$ .

#### 3.1.1.3.2 RWA

RWA assesses authoritarian attitudes, conceived as a combination of conventionalism, authoritarian aggression, and authoritarian submission (Altemeyer, 2006). The RWA is a 20-item scale assessed on a 9-point Likert-type scale, with higher scores indicating more authoritarianism (Altemeyer, 2006). Example items on the RWA scale include “It is always better to trust the judgment of the proper authorities in government and religion than to listen to the noisy rabble-rousers in our society who are trying to create doubt in people’s minds,” and “There are many radical, immoral people in our country today, who are trying to ruin it for their own godless purposes, whom the authorities should put out of action.” Internal reliability for the RWA was  $\alpha = .95$ .

#### 3.1.1.3.3 HEXACO-60

Openness to experience and conscientiousness were assessed with 10-item subscales from the HEXACO-60. Higher scores on these HEXACO subscales indicate higher openness and conscientiousness, respectively. Internal reliabilities for conscientiousness ( $\alpha = .80$ ) and openness ( $\alpha = .80$ ) were very good.

#### 3.1.1.3.4 Patriotism and Nationalism

Patriotism and nationalism were assessed with Kosterman and Feshbach's (1989) patriotism and nationalism scales, modified to refer to Canada rather than the United States. Example items on the patriotism scale include "Although at times I may not agree with the government, my commitment to Canada always remains strong." and on the nationalism scale, "Generally, the more influence Canada has on other nations, the better off they are." Higher scores on these scales indicate greater patriotism and nationalism, respectively. Internal reliability for the patriotism scale was  $\alpha = .92$ , and for nationalism was  $\alpha = .84$ .

#### 3.1.1.3.5 Left-right political orientation

Left-right political orientation was assessed with a single item measured on a 7-point Likert-type scale, with 1 representing "Very liberal/left-wing" and a 7 representing "Very conservative/right-wing".

#### 3.1.1.3.6 Political Efficacy

Political efficacy was assessed with a combination of two 4-item efficacy scales from Morrell (2005) and Kelly and Breinlinger (1996). Example items on the political efficacy scale include "Every individual can have an impact on the political process" (Morrell, 2005) and "I feel that I have a pretty good understanding of the important political issues facing our country" (Kelly & Breinlinger, 1996). Higher scores indicate greater perceptions of political efficacy. The total eight-item scale had an internal reliability of  $\alpha = .78$ .

#### 3.1.1.3.7 Political Participation

Political participation was assessed using a series of items written for this study. Three items asking if respondents had voted in the last federal, provincial, and municipal elections were summed to create the voting behaviour scale. The internal reliability of the voting behaviour items was  $\alpha = .67$ . The three items intended to convey collective action



did not demonstrate adequate reliability ( $\alpha = .37$ ). As such, I investigated one item – “In the past year, have you participated in a protest, rally, march, or demonstration (other than a workplace strike) regarding an issue you were concerned about?” – to assess the question about participation in collective action. This variable was dummy coded such that 1 = “Yes” and 0 = “No”.

### 3.1.1.3.8 Coronavirus Threat and Impact Questionnaire

Perceived threat, psychological burden, and attitudes towards government restrictions were assessed using subscales from Conway et al.’s (2020) Coronavirus Threat and Impact Questionnaire. The perceived threat subscale contained three items, such as “I am stressed around other people because I worry I’ll catch the coronavirus.” The psychological scale contained two items, including “I have become depressed because of the coronavirus.” The punishment scale and restriction scale also contained two items each, including “I want my Federal government to severely punish those who violate orders to stay home,” and “I support Federal government measures to restrict the movement of citizens to curb the spread of Coronavirus (COVID-19),” respectively. All items were measured on a 7-point Likert-type scale ranging from “1 - Strongly disagree” to “7 - Strongly agree”. Internal reliabilities were  $\alpha = .89$  for the perceived threat subscale,  $\alpha = .83$  for the restriction scale,  $\alpha = .93$  for the punishment scale, and  $\alpha = .89$  for the psychological scale.

### 3.1.1.4 Data Analytic Decisions

#### 3.1.1.4.1 Factor Analytic Method

CFA was conducted in R with the lavaan package with Maximum Likelihood (ML) estimation. Lavaan defaults to listwise deletion for missing data, except where missing values are missing completely at random or missing at random, in which case full information maximum likelihood estimation are provided. Latent factors were standardized to a mean of 0 and a variance of 1, so as not to sacrifice the test of the factor loading for each factor’s first indicator item.

Some researchers have recommended treating Likert scale responses as ordinal data for the purposes of CFA, while others have suggested that when there are at least five response options, maximum likelihood models with continuous data perform equally well (Rhemtulla et al., 2012). As an exploratory measure, the models in this study were also tested using an ordinal approach. However, this method did not produce substantial improvements in model fit; specifically, compared to the standard model, while it led to improvements on some indices (CFI and TLI) it worsened fit on others (chi square, RMSEA, and SRMR). As such, the continuous models with ML estimation are presented here and in all CFAs going forward.

#### 3.1.1.4.2 Factor Loading Cut-off

Based on Byrne (2010) and Hair et al. (2006), it was determined that items with loadings  $\leq 0.55$  would be candidates for revision or deletion. While higher cut-offs (e.g., 0.60 or 0.70) are sometimes recommended for well-established scales, 0.55 was selected given the scale was novel.

### 3.1.2 Results and Discussion

#### 3.1.2.1 CFA Time 1

The first model tested the four-factor structure with all 34 items. Except for SRMR, model 1 demonstrated inadequate fit indices. The first modification (model 2) was to move 4 items (12, 13, 14, and 15) from the traditionalism factor to the authoritarianism factor, where they were originally hypothesized; however, model fit indices were not improved by this modification. Model 3 tested a five-factor model splitting the authoritarianism items into obedience and punitiveness factors, as originally hypothesized. This did not improve model fit substantially. Unexpectedly, Factor 2 (traditionalism) demonstrated a very high correlation with authoritarian punitiveness (.899), but less highly with Obedience (.686).

Model 4 tested a revised four-factor model with the authoritarianism factor reduced only to the authoritarian obedience items, while the punitiveness items that were

not removed were included with Factor 2. Model fit was slightly improved but still inadequate. The decision was also made to eliminate the unexpected ‘liberalism’ factor, as only two items demonstrated sufficient factor loadings. Several items were also removed due to poor factor loadings, and items 13 and 15 were eliminated, as they had similar loadings on the authoritarianism and traditionalism factors – suggesting they were not useful for distinguishing between the two concepts.

Model 5 tested a three-factor model. Factor 2 contained both the traditionalism and authoritarian punitiveness items, while Factor 3 contained authoritarian obedience items. Overall, model fit was greatly improved with a three-factor model compared to the four- and five-factor models; however, there was little theoretical justification to include the punitiveness items on the traditionalism factor. Model 6 thus tested a three-factor model with the original hypothesized structure (i.e., the traditionalism items on Factor 2, and the authoritarianism items on Factor 3). Given that model fit was still unsatisfactory, the modification indices were explored. The most impactful modification was identified to be allowing correlation of residual variance between items 3 and 5, both of which refer to taxes; given the semantic similarity of these items, allowing their residuals made theoretical sense. This improved the fit of model 7 substantially. Tables 18 and 19 below depict the model fit indices and the factor loadings from the CFAs conducted with Time 1 data.

**Table 18: Model fit indices for CFA 1, Time 1.**

	$\chi^2$	(df)	BIC	RMSEA [95% CI]	CFI	TLI	SRMR
1. Four-factor	1940.892*	521	55200.28	.075 [.071, .079]	.747	.727	.080
2. Four-factor	1994.211*	561	55253.60	.076 [.073, .080]	.737	.717	.081
3. Five-factor	1837.142*	517	55108.57	.073 [.069, .076]	.765	.745	.076
4. Four-factor	1443.753*	428	50015.23	.070 [.066, .074]	.788	.770	.074
5. Three-factor	792.338*	186	22499.18	.082 [.076, .088]	.839	.818	.068
6. Three-factor	840.605*	186	33690.27	.085 [.079, .091]	.826	.804	.076
<b>7. Three-factor</b>	<b>660.613</b>	<b>185</b>	<b>33516.46</b>	<b>.073 [.067, .079]</b>	<b>.874</b>	<b>.857</b>	<b>.079</b>

Note: \* $p < .001$

**Table 19: Factor loadings for CFA 1, Time 1.**

Factor	Item	Factor Loadings						
		Model						
		1	2	3	4	5	6	7

Factor	Item	Factor Loadings						
1	1 In a fair world, the wealth gap should be as small as possible.	.67	.66	.66	.67	.63	.63	.63
	2 Resources should be distributed according to people's needs.	.53	.52	.53	.53	-	-	-
	3 It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	.72	.73	.72	.71	.73	.75	.61
	4 Our society would have a lot less conflict if we treated everyone more equally.	.62	.60	.62	.62	.60	.59	.67
	5 <i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i>	-.64	-.66	-.64	-.63	-.66	-.67	-.51
	6 <i>Life would be boring if we ensured everyone had the same standard of living.</i>	-.55	-.56	-.55	-.54	-	-	-
	28 Everyone should have the right to access high quality healthcare.	.57	.56	.57	.57	.57	.56	.60
	29 People should be treated equally regardless of their appearance or identity.**	.56	.54	.56	.56	.55	.54	.60
	30 We must have laws in place to prevent discrimination based on things like ethnicity and gender identity.**	.52	.51	.54	.55	.55	.53	.59
	2	7 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.	.64	.66	.66	.64	.64	.65
8 Rebellious against the political 'system' or 'establishment' is something kids should grow out of.		.63	.66	.66	.63	.65	.66	.66

Factor	Item	Factor Loadings						
	9 Strange new trends in style or slang are usually just immature acts of rebellion.	.64	.65	.65	.63	.64	.65	.65
	10 These days, people are too willing to try out wild new ideas without any proof they will work.	.56	.56	.56	.55	.56	.55	.54
	11 I don't trust activists trying to stir things up.	.73	.75	.75	.73	.75	.76	.76
	12 Our country's leaders need to be tougher on citizens who hold dangerous views.*	.35	*	*	.35	-	-	-
	13 Criminals should be harshly punished for the wellbeing of society.*	.72	*	*	.71	-	-	-
	14 The death penalty is justified if the criminal is a danger to society.*	.67	*	*	.67	.62	*	*
	15 <i>Prisons should not be places of harsh punishment.*</i>	-.58	*	*	-.58	-	-	-
	31 These days, we are going too far in trying to protect the interests of minority groups.	.66	.59	*	.66	.70	.71	.72
	19 Police officers are justified in using force to carry out their duties	*	*	*	.59	.60	*	*
	21 Having a strong military is how our government keeps us safe.	*	*	*	.64	.63	*	*
	32 The needs of our own country's citizens must come first, not those of other countries.	*	*	*	.57	.56	*	*
3	12 Our country's leaders need to be tougher on citizens who hold dangerous views.	*	.40	.38 (P)	*	-	-	-

Factor	Item	Factor Loadings						
	13 Criminals should be harshly punished for the wellbeing of society.*	*	.75	.76 (P)	*	-	-	-
	14 The death penalty is justified if the criminal is a danger to society.	*	.69	.70 (P)	*	*	.64	.63
	15 <i>Prisons should not be places of harsh punishment.</i>	*	-.59	-.62 (P)	*	-	-	-
	16 Government surveillance makes me feel safe and secure.	.52	.47	.56 (O)	.56	.56	.51	.52
	17 Without strong leaders, society as we know it would collapse.	.59	.53	.67 (O)	.68	.67	.56	.56
	18 Good national leaders keep us safe by standing up to enemies who would do us harm.	.59	.51	.64 (O)	.64	.65	.57	.58
	19 Police officers are justified in using force to carry out their duties.	.56	.57	.58 (P)	*	*	.58	.57
	20 Laws and rules are the best way to keep society functioning properly.	.68	.61	.71 (O)	.71	.69	.65	.65
	21 Having a strong military is how our government keeps us safe.	.72	.68	.66 (P)	*	*	.72	.72
	31 These days, we are going too far in trying to protect the interests of minority groups.	*	*	.63 (P)	*	*	*	*
	32 The needs of our own country's citizens must come first, not those of other countries.	.54	.56	.57 (P)	*	*	.55	.55
	33 <i>I have sometimes felt ashamed of my country.</i>	-.40	-.36	-.43 (O)	-.43	-	-	-
4	22 In order to build a good society, we need to let go of customs that are holding us back.	.61	.60	.61 (P)	.61	-	-	-

Factor	Item	Factor Loadings						
	23 Society can survive just fine without old-fashioned customs to guide it.	.50	.51	.51	.51	-	-	-
	24 Children should be able to play and express themselves without too many strict rules.	.44	.45	.45	.45	-	-	-
	25 Everyone should be able to do as they please, if they are not hurting anyone.	.42	.43	.43	.43	-	-	-
	26 Governments and powerful individuals should not be able to censor information.	.31	.31	.31	.31	-	-	-
	27 Censoring individuals' speech or expression is bad for society.	.17	.17	.16	.16	-	-	-
	34 We must continue to create and improve laws that protect individual rights and freedoms.**	.28	.27	.27	.27	-	-	-

Notes: Con-trait items are italicized.

An asterisk (\*) indicates items that were relocated from Factor 2 to Factor 3 during model testing.

(-) indicates an item was removed.

(P) and (O) indicate the Authoritarianism Obedience and Punitiveness factors in the tests of the five-factor model.

### 3.1.2.2 CFA Time 2

The three-factor models were tested with the data from Time 2. Modification indices for the second three-factor model suggested the same modification as in Time 1 – that is, to allow correlated residuals for items 3 and 5. This again made a substantial improvement in model fit.

**Table 20: Model fit indices for CFA 1, Time 2.**

	$\chi^2$	(df)	BIC	RMSEA [95% CI]	CFI	TLI	SRMR
1. Three-factor	671.358*	186	25492.717	.082 [.075, .089]	.863	.845	.064
<b>2. Three-factor</b>	<b>642.996*</b>	<b>186</b>	<b>25464.355</b>	<b>.080 [.073, .086]</b>	<b>.871</b>	<b>.854</b>	<b>.069</b>
<b>3. Three-factor</b>	<b>522.001</b>	<b>185</b>	<b>25492.103</b>	<b>.069 [.062, .075]</b>	<b>.905</b>	<b>.892</b>	<b>.072</b>

Note: \* $p < .001$

**Table 21: Factor loadings for CFA 1, Time 2.**

Factor	Item	Factor Loadings		
		1	2	3
1 (E)	1 In a fair world, the wealth gap should be as small as possible.	.72	.72	.71
	2 Resources should be distributed according to people's needs.	-	-	-
	3 It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	.72	.73	.62
	4 Our society would have a lot less conflict if we treated everyone more equally.	.60	.59	.64
	5 <i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i>	-.70	-.71	-.59
	6 <i>Life would be boring if we ensured everyone had the same standard of living.</i>	-	-	-
	28 Everyone should have the right to access high quality healthcare.	.62	.61	.66
	29 People should be treated equally regardless of their appearance or identity.**	.52	.51	.58
	30 We must have laws in place to prevent discrimination based on things like ethnicity and gender identity.**	.61	.60	.66
	2 (T)	7 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.	.73	.75
8 Rebellious against the political 'system' or 'establishment' is something kids should grow out of.		.71	.73	.73
9 Strange new trends in style or slang are usually just immature acts of rebellion.		.64	.66	.66
10 These days, people are too willing to try out wild new ideas without any proof they will work.		.63	.63	.63
11 I don't trust activists trying to stir things up.		.82	.84	.84
12 Our country's leaders need to be tougher on citizens who hold dangerous views.*		-	-	-
13 Criminals should be harshly punished for the wellbeing of society.*		-	-	-
14 The death penalty is justified if the criminal is a danger to society.*		.64	*	*
15 <i>Prisons should not be places of harsh punishment.*</i>		-	-	-
31 These days, we are going too far in trying to protect the interests of minority groups.		.73	.74	.74
19 Police officers are justified in using force to carry out their duties.		.62	*	*
21 Having a strong military is how our government keeps us safe.		.64	*	*
32 The needs of our own country's citizens must come first, not those of other countries.	.58	*	*	
3 (A)	12 Our country's leaders need to be tougher on citizens who hold dangerous views.	-	-	-



Factor	Item	Factor Loadings		
	13 Criminals should be harshly punished for the wellbeing of society.*	-	-	-
	14 The death penalty is justified if the criminal is a danger to society.	*	.67	.67
	15 <i>Prisons should not be places of harsh punishment.</i>	-	-	-
	16 Government surveillance makes me feel safe and secure.	.51	.48	.48
	17 Without strong leaders, society as we know it would collapse.	.69	.62	.62
	18 Good national leaders keep us safe by standing up to enemies who would do us harm.	.69	.66	.66
	19 Police officers are justified in using force to carry out their duties.	*	.58	.58
	20 Laws and rules are the best way to keep society functioning properly.	.72	.68	.68
	21 Having a strong military is how our government keeps us safe.	*	.74	.74
	32 The needs of our own country's citizens must come first, not those of other countries.	*	.61	.61
	33 <i>I have sometimes felt ashamed of my country.</i>	-	-	-

*Notes: Con-trait items are italicized.*

*An asterisk (\*) indicates items that were relocated from Factor 2 to Factor 3 during model testing.*

Ultimately, the final three-factor model, which had the hypothesized structure (egalitarianism, traditionalism, and authoritarianism factors) and which allowed correlated residuals between items 3 and 5 was selected.

Table 22 below depicts the factor correlations of the final model at Time 1 (above diagonal) and Time 2 (below diagonal). Table 23 shows the descriptive statistics of the individual items of the final scale at Times 1 and 2.

**Table 22: Inter-factor correlations for CFA 1, Time 1 and 2.**

	1.	2.	3.
1. Egalitarianism		-.72	-.37
2. Traditionalism	-.71		.82
3. Authoritarianism	-.49	.80	

**Table 23: Descriptive statistics for scale items in CFA 1, Time 1 and Time 2.**

	Mean (SD)	
	Time 1	Time 2
1 In a fair world, the wealth gap should be as small as possible.	5.56 (1.41)	5.61 (1.42)
It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	5.75 (1.30)	5.77 (1.37)
Our society would have a lot less conflict if we treated everyone more equally.	5.82 (1.26)	5.98 (1.10)
<i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i>	2.60 (1.70)	2.44 (1.60)
Everyone should have the right to access high quality healthcare.	6.65 (.72)	6.67 (.56)
People should be treated equally, regardless of their appearance or identity.	6.50 (.87)	6.55 (.71)
We must have laws in place to prevent discrimination based on things like ethnicity and gender identity.	6.13 (1.18)	6.23 (.96)
2 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.	3.54 (1.57)	3.51 (1.64)
Rebelling against the political 'system' or 'establishment' is something kids should grow out of.	3.16 (1.72)	3.04 (1.57)
Strange new trends in style or slang are usually just immature acts of rebellion.	2.95 (1.52)	2.84 (1.43)
These days, people are too willing to try out wild new ideas without any proof they will work.	4.28 (1.67)	4.04 (1.61)
I don't trust activists trying to stir things up.	3.67 (1.73)	3.57 (1.76)
These days, we are going too far in trying to protect the interests of minority groups.	3.19 (1.89)	2.94 (1.75)
3 Government surveillance makes me feel safe and secure.	3.37 (1.68)	3.32 (1.58)
Without strong leaders, society as we know it would collapse.	4.87 (1.55)	4.66 (1.60)
Good national leaders keep us safe by standing up to enemies who would do us harm.	5.33 (1.29)	5.18 (1.35)
Laws and rules are the best way to keep society functioning properly.	5.40 (1.32)	5.29 (1.34)
Having a strong military is how our government keeps us safe.	3.69 (1.78)	3.64 (1.68)
The death penalty is justified if the criminal is a danger to society.	4.16 (2.03)	4.03 (2.04)

*Note: Con-trait items are italicized.*

### 3.1.2.2.1 Scale Modifications

As before, items were excluded for poor factor loadings, high cross-loadings, or because of the elimination of Factor 4 ('liberalism'), and two were excluded due to being highly skewed; specifically, "everyone should have the right to access high quality healthcare" and "people should be treated equally, regardless of their appearance or identity" demonstrated very high means and low standard deviations. After completing the tests of reliability and validity below, the NPIS was later revised with the addition of four additional con-trait items to bolster the traditionalism and authoritarianism factors, with the revised version of the scale tested in CFA 2. One item with an unsatisfactory factor loading was reworded, as were the two highly skewed items. The revised NPIS can be seen at the beginning of section 3.2 in Table 43.

### 3.1.2.3 Reliability and Validity Analyses

#### 3.1.2.3.1 Internal Consistency

At Time 1, Cronbach's alpha was  $\alpha = .793$  for egalitarianism,  $\alpha = .823$  for traditionalism, and  $\alpha = .783$  for authoritarianism, indicating very good internal reliability across all three subscales. Reliabilities were also good at Time 2, with Cronbach's alphas of  $\alpha = .812$  for egalitarianism,  $\alpha = .868$  for traditionalism, and  $\alpha = .806$  for authoritarianism.

#### 3.1.2.3.2 Test-Retest Reliability

Total scores were calculated for each factor by calculating the mean of the subscale items (after reverse-coding con-trait items) at Time 1 and 2. Test-retest reliabilities were very good or excellent for Egalitarianism (.87), Traditionalism (.89), and Authoritarianism (.90). However, it is important to note that this study involved a relatively short time interval of two weeks.

### 3.1.2.3.3 Construct Validity

The data were examined for multivariate outliers on variables of interest (HEXACO, SDO, RWA, patriotism, and nationalism). A total of 39 participants were excluded from the Time 1 data (which included SDO and RWA) for a sample of  $N = 421$ , and 10 from the Time 2 data (which included HEXACO, political affiliation variables, patriotism, and nationalism) for a sample of  $N = 378$ .

Tables 24 and 25 show descriptive and summary statistics. Not included in the table is the dichotomous variable for participation in a protest or demonstration. In total, 301 (79.60%) respondents indicated they had not participated in a demonstration, and 77 (20.4%) indicated they had. Bivariate correlations between all study variables can be found in the Appendix. For the purposes of analysis, gender was coded as 0 = male and 1 = female, and ethnic identity was coded as 0 = White and 1 = Ethnic minority (including multiracial identity).

**Table 24: Descriptive statistics for all study variables in scale validation study 3.**

	Mean (SD)		Range	
SDO-D ( $n = 421$ )	2.43 (1.07)		1.00-5.88	
SDO-E ( $n = 421$ )	2.29 (1.04)		1.00-5.50	
RWA ( $n = 421$ )	3.05 (1.49)		1.00-7.60	
C-19 Threat ( $n = 482$ )	4.63 (1.55)		1.00-7.00	
C-19 Burden ( $n = 482$ )	3.83 (1.79)		1.00-7.00	
C-19 Restrict ( $n = 482$ )	6.01 (1.12)		1.00-7.00	
C-19 Punish ( $n = 482$ )	5.03 (1.56)		1.00-7.00	
Conscientiousness ( $n = 378$ )	4.86 (0.57)		2.80-6.20	
Openness ( $n = 378$ )	4.57 (0.64)		2.80-6.00	
Patriotism ( $n = 378$ )	4.98 (1.06)		1.09-7.00	
Nationalism ( $n = 378$ )	3.63 (1.01)		1.00-7.00	
Left-right political orientation ( $n = 378$ )	2.94 (1.48)		1.00-7.00	
Political efficacy ( $n = 378$ )	4.59 (0.93)		1.25-7.00	
Voting behaviour ( $n = 378$ )	1.53 (1.11)		0.00-3.00	
	Time 1	Time 2	Time 1	Time 2
Egalitarianism ( $n = 421$ ); ( $n = 378$ )	6.07 (0.73)	6.04 (0.80)	2.71-7.00	2.86-7.00
Traditionalism ( $n = 421$ ); ( $n = 378$ )	3.33 (1.20)	3.31 (1.27)	1.00-6.67	1.00-6.67
Authoritarianism ( $n = 421$ ); ( $n = 378$ )	4.38 (1.11)	4.33 (1.15)	1.17-7.00	1.17-6.83

**Table 25: Summary of party affiliation and voting behaviour.**

	Identify with (%)	Voted for (%)
	( <i>n</i> = 359)	( <i>n</i> = 263)
Liberal Party	138 (38.40%)	134 (51.00%)
Conservative Party	54 (15.00%)	31 (11.80%)
New Democratic Party	133 (37.00%)	76 (28.90%)
Green Party	29 (8.10%)	18 (6.80%)
People's Party	5 (1.40%)	4 (1.50%)

### 3.1.2.3.3.1 Convergent validity

I expected that the egalitarianism factor would be negatively related to SDO-D and SDO-E, that both traditionalism and authoritarianism would be positively related to RWA, and that authoritarianism would be positively related to patriotism and nationalism. Left-right affiliation (such that high scores indicate more right-wing beliefs) should be related negatively with egalitarianism, and positively with traditionalism and authoritarianism. conscientiousness and openness to experience are personality domains known to be related to higher and lower conservatism (right-wing) beliefs, respectively. Conscientiousness could thus be related positively to traditionalism and authoritarianism and negatively to egalitarianism, while openness could be positively related to egalitarianism and negatively to traditionalism and authoritarianism.

To determine the relationship between the subscales of the New Political Ideology Scale with these constructs, I calculated multiple regressions in SPSS software, controlling for gender, age, and ethnic identity. Tables 26 through 33 depict the results of the multiple regression analyses. Significant predictors are bolded.

The tests of convergent validity overall showed results in the expected directions, and there were also some unanticipated relationships. Egalitarianism was strongly, negatively related to both SDO-D and SDO-E, but unexpectedly, traditionalism was also (positively) related to SDO-E, and both traditionalism and authoritarianism with SDO-D. As expected, both traditionalism and authoritarianism were strongly related to RWA, as was egalitarianism (negatively and weakly).

Left-right affiliation was related to all three dimensions of ideology in the expected directions; that is, more right-wing or conservative identification was associated with lower egalitarianism scores, and higher traditionalism and authoritarianism scores. Authoritarianism had the weakest association with left-right affiliation; this makes theoretical sense given the variables typically associated with the left-right dimension are acceptance of inequality and resistance to change (Bobbio, 1996; Jost et al., 2003a).

As expected, authoritarianism was strongly, positively related to both patriotism and nationalism. Traditionalism was positively related to nationalism, though less strongly than authoritarianism. Unexpectedly, egalitarianism also showed a small positive correlation with both patriotism and nationalism.

Interestingly, only authoritarianism was related to conscientiousness (positively), and only traditionalism was related to openness (negatively). It is possible that the well-documented relationship between openness and left- or liberal-leaning attitudes is driven by the non-traditional, creative, or adventurous qualities associated with being high in openness to experience. The relationship between conscientiousness and authoritarianism also makes sense, given that individuals high in conscientiousness tend to be dutiful and orderly, but it is less clear why conscientiousness was unrelated to traditionalism. It is possible that assessing personality with the Five Factor Model of personality could have produced a different pattern of results, given that it is more widely used than HEXACO.

**Table 26: Validation study 3 regression analysis for SDO-Dominance**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.693	.473
<b>Age</b>	<b>-.137</b>	<b>-3.596</b>	<b>&lt;.001</b>		
Gender	.022	.600	.549		
Ethnicity	-.067	-1.738	.083		
<b>Egalitarianism</b>	<b>-.339</b>	<b>-7.500</b>	<b>&lt;.001</b>		
<b>Traditionalism</b>	<b>.331</b>	<b>5.615</b>	<b>&lt;.001</b>		
<b>Authoritarianism</b>	<b>.171</b>	<b>3.426</b>	<b>.001</b>		

*Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher SDO-D = greater social dominance*

**Table 27: Validation study 3 regression analysis for SDO-Egalitarianism**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.754	.562
Age	.021	.607	.544		
<b>Gender</b>	<b>-.068</b>	<b>-1.995</b>	<b>.047</b>		
Ethnicity	-.022	-.629	.530		
<b>Egalitarianism</b>	<b>-.467</b>	<b>-11.314</b>	<b>&lt;.001</b>		
<b>Traditionalism</b>	<b>.537</b>	<b>6.825</b>	<b>&lt;.001</b>		
Authoritarianism	-.025	-.541	.589		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher SDO-E = greater social dominance

**Table 28: Validation study 3 regression analysis for RWA**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.799	.633
<b>Age</b>	<b>-.067</b>	<b>-2.110</b>	<b>.036</b>		
Gender	-.008	-.266	.790		
Ethnicity	.021	.652	.515		
<b>Egalitarianism</b>	<b>-.095</b>	<b>-2.510</b>	<b>.012</b>		
<b>Traditionalism</b>	<b>.498</b>	<b>10.146</b>	<b>&lt;.001</b>		
<b>Authoritarianism</b>	<b>.307</b>	<b>7.392</b>	<b>&lt;.001</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher RWA = greater authoritarianism

**Table 29: Validation study 3 regression analysis for left-right affiliation**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.719	.509
Age	-.039	-.976	.330		
Gender	-.026	-.661	.509		
Ethnicity	.074	1.854	.065		
<b>Egalitarianism</b>	<b>-.370</b>	<b>-7.658</b>	<b>&lt;.001</b>		
<b>Traditionalism</b>	<b>.317</b>	<b>5.294</b>	<b>&lt;.001</b>		
<b>Authoritarianism</b>	<b>.117</b>	<b>2.399</b>	<b>.017</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher L-R affiliation = more right-wing beliefs

**Table 30: Validation study 3 regression analysis for patriotism**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.605	.356
<b>Age</b>	<b>.141</b>	<b>3.124</b>	<b>.002</b>		

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
Gender	.019	.432	.666		
Ethnicity	-.005	-.107	.915		
<b>Egalitarianism</b>	<b>.168</b>	<b>3.029</b>	<b>.003</b>		
Traditionalism	.061	.891	.374		
<b>Authoritarianism</b>	<b>.594</b>	<b>10.599</b>	<b>&lt;.001</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 31: Validation study 3 regression analysis for nationalism**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.697	.477
Age	-.104	-2.546	.011		
Gender	-.042	-1.042	.298		
Ethnicity	.010	.237	.813		
<b>Egalitarianism</b>	<b>.192</b>	<b>3.858</b>	<b>&lt;.001</b>		
<b>Traditionalism</b>	<b>.371</b>	<b>5.997</b>	<b>&lt;.001</b>		
<b>Authoritarianism</b>	<b>.485</b>	<b>9.622</b>	<b>&lt;.001</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 32: Validation study 3 regression analysis for conscientiousness**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.283	.065
Age	.069	1.260	.208		
<b>Gender</b>	<b>.154</b>	<b>2.865</b>	<b>.004</b>		
<b>Ethnicity</b>	<b>-.164</b>	<b>-2.991</b>	<b>.003</b>		
Egalitarianism	-.103	-1.550	.122		
Traditionalism	-.118	-1.423	.156		
<b>Authoritarianism</b>	<b>.163</b>	<b>2.420</b>	<b>.016</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 33: Validation study 3 regression analysis for openness**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.471	.209
Age	.128	2.549	.011		
Gender	.003	.067	.946		
<b>Ethnicity</b>	<b>-.147</b>	<b>-2.911</b>	<b>.004</b>		
Egalitarianism	.082	1.338	.182		
<b>Traditionalism</b>	<b>-.286</b>	<b>-3.768</b>	<b>&lt;.001</b>		
Authoritarianism	-.090	-1.450	.148		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)



### 3.1.2.3.3.2 Divergent validity

The relationship between the egalitarianism factor with RWA, and that between SDO and the traditionalism and authoritarianism factors, should be lower than their relationships with their theoretically similar concepts. However, traditionalism's relationship to SDO-E and SDO-D was roughly as strong as egalitarianism's, indicating there was room for improvement in distinguishing the egalitarianism factor. RWA showed the expected pattern of effects – that is, egalitarianism's relation to RWA was much weaker than RWA's relation to traditionalism and authoritarianism.

### 3.1.2.3.4 Criterion Validity

#### 3.1.2.3.4.1 Political Participation

The new scale should be able to predict political behaviours such as party affiliation, voting behaviour, political efficacy, and participation in collective action. I had originally hypothesized that a radicalism or dogmatism factor would relate to both efficacy and participation; however, this factor did not manifest. Theoretically, traditionalism and authoritarianism could also have a negative correlation with participation in collective action. Authoritarianism could also relate positively to political efficacy, as the efficacy scale conveys trust in political authorities and their institutions, and both authoritarianism and traditionalism should relate negatively to participation, as collective action can involve challenging authority (anti-authoritarianism), and the traditionalism factor includes content about distrust in activism and a general resistance to change. Political efficacy and political participation are shown below in Tables 34 and 35. Seven participants were excluded from the voting behaviour analyses for self-reporting as ineligible to vote in Canada.

Party affiliation should reflect the same pattern as left-right affiliation; that is, supporting a right-wing party (Conservative Party of Canada or People's Party of Canada) should be negatively related to egalitarianism and positively with traditionalism and authoritarianism. The NDP is generally seen as Canada's most left-wing party, in comparison with the Liberal party (left-of-center) and the Conservative party (right-of-

center). Perceptions of the Green Party are less consistent, but the party's focus on environmental issues means it is likely perceived by most as left or left-of-center.

**Table 34: Validation study 3 regression analysis for political efficacy**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.268	.056
Age	.064	1.177	.240		
Gender	-.044	-.823	.411		
<b>Ethnicity</b>	<b>-.175</b>	<b>-3.165</b>	<b>.002</b>		
Egalitarianism	.074	1.102	.271		
<b>Traditionalism</b>	<b>-.178</b>	<b>-2.140</b>	<b>.033</b>		
Authoritarianism	.097	1.433	.153		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 35: Validation study 3 regression analysis for likelihood of voting in federal election**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.294	.073
<b>Age</b>	<b>.226</b>	<b>4.136</b>	<b>&lt;.001</b>		
Gender	.009	.169	.866		
Ethnicity	-.098	-1.768	.078		
Egalitarianism	.029	.434	.665		
Traditionalism	-.104	-1.254	.211		
Authoritarianism	-.011	-.156	.876		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

I investigated the probability of participating in collective action with a binary logistic regression, and self-reported party affiliation and of past voting behaviour in the federal election with a multinomial logistic regression in SPSS software – again controlling for gender, age, and ethnic identity. The results are shown below in Tables 36 through 38. The number of participants who identified with or voted for the People's Party of Canada were too small to include in the multinomial logistic regression (N = 5 and N = 4, respectively), so respondents who identified this choice were excluded.

**Table 36: Validation study 3 parameter estimates for collective action participation**

Predictor	B	Wald	Exp(B)	p
Age	-.286	.966	.751	.326
<b>Gender</b>	<b>-.049</b>	<b>7.827</b>	<b>.952</b>	<b>.005</b>

Predictor	<i>B</i>	Wald	Exp( <i>B</i> )	<i>p</i>
Ethnicity	.424	1.896	1.529	.169
Egalitarianism	.225	.678	1.252	.410
Traditionalism	-.306	2.767	.736	.096
Authoritarianism	-.069	.184	.933	.668

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 37: Validation study 3 parameter estimates for party affiliation (with Liberal as reference group)**

Predictor	Liberal Party vs.	<i>B</i>	Wald	Exp( <i>B</i> )	<i>p</i>
Age	NDP	.004	.065	1.004	.798
	Green	-.020	.585	.981	.444
	Conservative	.004	.030	1.004	.862
<b>Gender</b>	NDP	-.115	.154	.891	.694
	Green	-.203	.190	.816	.663
	<b>Conservative</b>	<b>.887</b>	<b>3.969</b>	<b>2.428</b>	<b>.046</b>
Ethnicity	NDP	-.075	.060	1.197	.655
	Green	.968	3.119	2.632	.077
	Conservative	.180	.200	.928	.806
<b>Egalitarianism</b>	<b>NDP</b>	<b>.822</b>	<b>7.186</b>	<b>2.275</b>	<b>.007</b>
	Green	-.453	.946	.636	.331
	<b>Conservative</b>	<b>-1.409</b>	<b>21.048</b>	<b>.244</b>	<b>&lt;.001</b>
Traditionalism	NDP	-.303	2.779	.738	.095
	Green	-.220	.508	.802	.476
	Conservative	.164	.459	1.179	.498
<b>Authoritarianism</b>	<b>NDP</b>	<b>-.543</b>	<b>9.997</b>	<b>.581</b>	<b>.002</b>
	<b>Green</b>	<b>-1.023</b>	<b>13.288</b>	<b>.360</b>	<b>&lt;.001</b>
	Conservative	.270	1.045	1.310	.307

Notes: By default in SPSS, Female and Non-White were set to reference groups  
Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 38: Validation study 3 parameter estimates for voting behaviour (with Liberal as reference group)**

Predictor	Liberal Party vs.	<i>B</i>	Wald	Exp( <i>B</i> )	<i>p</i>
Age	NDP	-.001	.002	.999	.966
	Green	.007	.057	1.007	.812
	Conservative	.005	.043	1.005	.836
Gender	NDP	-.167	.269	.846	.604
	Green	-.571	.915	.565	.339
	Conservative	.428	.636	1.534	.425
Ethnicity	NDP	.450	1.651	1.569	.199
	Green	-.737	1.209	.478	.272
	Conservative	-.381	.559	.683	.455
<b>Egalitarianism</b>	NDP	.421	1.727	1.523	.813

Predictor	Liberal Party vs.	<i>B</i>	Wald	Exp( <i>B</i> )	<i>p</i>
	Green	-.862	2.132	.422	.144
	<b>Conservative</b>	<b>-1.292</b>	<b>12.556</b>	<b>.275</b>	<b>&lt;.001</b>
Traditionalism	NDP	.019	.009	1.019	.925
	Green	-.161	.148	.851	.701
	Conservative	.534	2.833	1.705	.092
<b>Authoritarianism</b>	NDP	-.247	1.939	.781	.164
	<b>Green</b>	<b>-1.289</b>	<b>11.888</b>	<b>.275</b>	<b>.001</b>
	Conservative	.132	.155	1.141	.694

*Notes: By default in SPSS, Female and Non-White were set to reference groups Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)*

Lower traditionalism was correlated with higher political efficacy, and none of the factors predicted a significantly increased likelihood of participating in collective action or an increased likelihood of voting. However, the ideology factors showed interesting relationships with party affiliation and voting behaviour. Higher egalitarianism was linked to an increased likelihood of identifying with and voting for the Liberal Party versus the Conservative party. It also predicted an increased likelihood of identifying with the New Democratic Party rather than the Liberal Party – over twice as likely. High authoritarianism predicted a decreased likelihood of identifying with the NDP or Green Party, and a decreased likelihood of voting for the Green Party. Given that these parties receive less mainstream attention, win fewer seats, and may be seen to have fringe positions, it makes theoretical sense that anti-authoritarianism would relate to support for them – or said another way, that higher authoritarianism predicts support for mainstream parties, who hold more political power.

While higher egalitarianism greatly increased the likelihood of NDP affiliation versus Liberal affiliation, and slightly for Liberal affiliation versus Conservative affiliation, only the latter was true for voting behaviour in the last federal election. However, party affiliation and actual votes cast are not always the same – for example, in cases of strategic voting (i.e., trying to prevent a less-preferred party from winning by voting for a second-choice party). It is possible that many who identified with the NDP voted for the Liberal party in the last election as a strategic vote.

There was no relationship between ideology and collective action. However, collective action was assessed here with a single item asking about involvement in protest

or demonstrations. A better measure was considered necessary to capture a potential relationship between the ideology scale and collective action participation and was investigated in the next validation study.

### 3.1.2.3.4.2 Coronavirus Attitudes

I hypothesized that higher egalitarianism and lower traditionalism would be associated with greater perceived threat and burden from the coronavirus, and greater approval of measures to implement pandemic restrictions and punish those who disobey them. Authoritarianism was expected to relate positively to approval of pandemic restrictions and punishments for those who disobey them, but no predictions were made regarding authoritarianism and perceived threat or psychological burden from the virus. Tables 39 through 42 below depict the results of the regression analyses investigating these questions.

**Table 39: Validation study 3 regression analysis for perceived threat of COVID-19**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.351	.112
Age	.049	1.067	.286		
<b>Gender</b>	<b>.128</b>	<b>2.826</b>	<b>.005</b>		
<b>Ethnicity</b>	<b>.102</b>	<b>2.213</b>	<b>.027</b>		
<b>Egalitarianism</b>	<b>.320</b>	<b>5.820</b>	<b>.000</b>		
Traditionalism	.034	.495	.621		
Authoritarianism	.108	1.876	.061		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 40: Validation study 3 regression analysis for psychological burden of COVID-19**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.305	.081
Age	-.047	-1.000	.318		
<b>Gender</b>	<b>.204</b>	<b>4.408</b>	<b>.000</b>		
Ethnicity	-.073	-1.558	.120		
<b>Egalitarianism</b>	<b>.157</b>	<b>2.807</b>	<b>.005</b>		
Traditionalism	-.026	-.362	.717		
Authoritarianism	.017	.292	.770		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 41: Validation study 3 regression analysis for approval of COVID-19 restrictions**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.424	.169
Age	.003	.066	.947		
Gender	-.013	-.289	.773		
<b>Ethnicity</b>	<b>.117</b>	<b>2.608</b>	<b>.009</b>		
<b>Egalitarianism</b>	<b>.370</b>	<b>6.959</b>	<b>.000</b>		
Traditionalism	-.064	-.956	.340		
<b>Authoritarianism</b>	<b>.230</b>	<b>4.124</b>	<b>.000</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 42: Validation study 3 regression analysis for approval of punishments for violators of COVID-19 restrictions**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.427	.172
Age	-.024	-.546	.585		
Gender	-.042	-.968	.333		
<b>Ethnicity</b>	<b>.144</b>	<b>3.221</b>	<b>.001</b>		
<b>Egalitarianism</b>	<b>.244</b>	<b>4.594</b>	<b>.000</b>		
Traditionalism	.044	.652	.515		
<b>Authoritarianism</b>	<b>.333</b>	<b>5.974</b>	<b>.000</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

Higher egalitarianism was associated with greater perceived threat from COVID-19, as were female gender and ethnic minority status. Contrary to hypotheses, traditionalism was unrelated. Egalitarianism and authoritarianism were both strongly related to approval of government restrictions, and punishments for those who disobey restrictions. Egalitarianism appears to be the main ideological driver of COVID-19 attitude polarization, at least regarding attitudes towards the severity of the crisis. Regarding the government response to the crisis, both egalitarianism and authoritarianism contributed. Regardless of whether authoritarian individuals felt personally threatened by COVID-19, they were nonetheless in favour of government restrictions to curb the pandemic, and they were highly in favour of punishing those who flouted pandemic restrictions.

## 3.2 Confirmatory Factor Analysis and Scale Validation (Study 4)

Table 43 below depicts the scale tested in validation study 4, following the modifications made based on validation study 4.

**Table 43: Scale factors and items for CFA and scale validation study 4**

Factor	Item text
Egalitarianism	<ul style="list-style-type: none"> <li>-In a fair world, the wealth gap should be as small as possible.</li> <li>-It is fair to tax people with large incomes more highly, so that money is distributed more equitably.</li> <li>-Our society would have a lot less conflict if we treated everyone more equally.</li> <li>-<i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i></li> <li>-Having equal access to healthcare is a human right.**</li> <li>-We must make sure people are given equal opportunities, regardless of their appearance or identity.**</li> <li>-We must have laws in place to prevent discrimination based on things like ethnicity and gender identity.</li> </ul>
Traditionalism	<ul style="list-style-type: none"> <li>-Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.</li> <li>-Rebelling against the political 'system' or 'establishment' is something kids should grow out of.</li> <li>-Strange new trends in style or slang are usually just immature acts of rebellion.</li> <li>-These days, people are too willing to try out wild new ideas without any proof they will work.</li> <li>-I don't trust activists trying to stir things up.</li> <li>-These days, we are going too far in trying to protect the interests of minority groups.</li> <li>-<i>Protests and other collective actions are necessary to achieve a better society.*</i></li> <li>-<i>Younger generations should work to change our outdated political system.*</i></li> </ul>
Authoritarianism	<ul style="list-style-type: none"> <li>-I appreciate government surveillance because it protects our country from threats.**</li> <li>-Without strong leaders, society as we know it would collapse.</li> <li>-Good national leaders keep us safe by standing up to enemies who would do us harm.</li> <li>-Laws and rules are the best way to keep society functioning properly.</li> <li>-Having a strong military is how our government keeps us safe.</li> </ul>

Factor	Item text
	<i>-I dislike it when the government restricts our freedoms to supposedly 'keep us safe'.*</i>
	<i>-I'm fine with disobeying authorities when they are acting unfairly.*</i>

*Note: Con-trait items are italicized.*

*\*Proposed new items*

*\*\*Modified wording*

### 3.2.1 Methods

#### 3.2.1.1 Participants and Data Cleaning

Participants were recruited via a combination of Western University's SONA undergraduate sample pool and the university's email Mass Recruitment system. Participants were students at Western University. Those recruited from the SONA sample pool were psychology undergraduate students, and those recruited using the email Mass Recruitment system were Western students from any department. The combined sample had 670 participants.

The data were screened for incomplete responses, short response times, and multivariate outliers. Participants were excluded if they failed to complete the political ideology scale, if their response time averaged less than two seconds per item, and for being multivariate outliers on the political ideology scale (at a threshold of  $< .001$ ). Sample size after data cleaning was  $N = 522$ . Of these, 331 (63.40%) were women, 159 (30.50%) were men, 11 (2.10%) identified as neither male nor female, and 21 (4.02%) declined to answer. The age range was 17-74 years ( $M = 22.30$ ,  $SD = 6.29$ ). The sample predominantly identified as White ( $N = 294$ , 56.30%). Of those who were not White, 53 (10.20%) identified as South Asian, 94 (18.00%) as Chinese, 13 (2.50%) as Black, 26 (5.00%) as Middle Eastern or West Asian, four (0.80%) as Filipino, 16 (3.10%) as Southeast Asian, 9 (1.70%) as Korean, five (1.00%) as Japanese, eight (1.50%) as Aboriginal or First Nations, and 25 (4.80%) as an ethnic group not specified. Participants could select multiple ethnicities, and 36 (6.90%) identified as multiracial (i.e., selected at least two options).



### 3.2.1.2 Procedure

All participants completed the questionnaires online via Qualtrics. Items and measures were presented in a randomized order to control for order effects. The questionnaires took approximately 20-30 minutes to complete. Participants recruited via SONA were compensated with course credit, and those recruited via email were compensated with the option to enter a draw for one of four University food services gift cards (one \$20.00 gift card, or one of three \$10.00 gift cards).

### 3.2.1.3 Measures

#### 3.2.1.3.1 SDO

The SDO<sub>7</sub> (Ho et al., 2015; Pratto et al., 1994), a 16-item scale assessing the preference for hierarchical group relations, was administered again in Study 4. Higher scores on SDO-D and SDO-E indicate greater social dominance. Internal reliabilities for the two SDO factors were  $\alpha = .82$  for SDO-D, and  $\alpha = .89$  for SDO-E.

#### 3.2.1.3.2 RWA

The RWA scale, a 20-item measure of authoritarianism combining conventionalism, authoritarian aggression, and authoritarian submission, was administered again in Study 4. Higher scores on RWA indicate greater authoritarianism. Internal reliability for the RWA was  $\alpha = .93$ .

#### 3.2.1.3.3 Left-right Political Orientation

Left-right political orientation was assessed with a single item measured on a 7-point Likert-type scale, with 1 representing “Very liberal/left-wing” and a 7 representing “Very conservative/right-wing”.

### 3.2.1.3.4 Canadian Political Issues

Forty-three items pertaining to issues relevant to Canadians were written. I reviewed sources including the political platforms of the major Canadian federal parties as well as the issues discussed on the Institute for Research on Public Policy and major news networks to generate these items. The items were categorized as follows: Indigenous rights, crime and policing, healthcare, gender and sexual identity, economics, immigration, education, military and foreign aid, voting and political campaigning, environment and sustainability, COVID-19 responses, telecommunications and surveillance, and one item about Canada's ties to the British monarchy. Agreement with the statements was assessed with a 7-point Likert-type scale, with 1 representing "No, strongly oppose", and 7 representing "Yes, strongly support".

### 3.2.1.3.5 Collective action

A questionnaire assessing attitudes towards various types of collective action was adapted from an inventory created by Teixeira et al. (2020). The scale contains 12 items, six of which pertain to normative collective action and six of which pertain to non-normative collective action. Normative collective actions are those which are 'system-sanctioned', legal, and relatively non-disruptive; examples include organizing and participating in a strike, distributing flyers, and holding information-sharing sessions. Non-normative actions are radical, disruptive, and, in some cases, illegal; examples include vandalizing buildings with protest messages, blocking access to buildings, and spreading negative rumours about a high-status group or other target. Teixeira et al. (2020) suggests the necessity of distinguishing normative from non-normative actions, as they are perceived differently and may also have different effects on the political process.

Items were scored on a 7-point Likert-type scale with a 7 indicating an action was perceived as "completely acceptable" and a 1 indicating an action was perceived as "completely unacceptable". Internal reliability for the normative items was  $\alpha = .88$ , and for the non-normative items was  $\alpha = .79$ .

### 3.2.1.4 Data Analytic Decisions

#### 3.2.1.4.1 Factor analytic method

CFA was conducted in R with the lavaan package with Maximum Likelihood estimation. Lavaan defaults to listwise deletion for missing data, except where missing values are missing completely at random or missing at random, in which case full information maximum likelihood estimations are provided. Latent factors were standardized to a mean of 0 and a variance of 1, so as not to sacrifice the test of the factor loading for each factor's first indicator item.

#### 3.2.1.4.2 Factor loading cut-off

As before, based on Byrne (2010) and Hair et al. (2006), items with loadings < 0.55 were candidates for revision or deletion.

### 3.2.2 Results and Discussion

#### 3.2.2.1 Confirmatory Factor Analysis

CFA 2 demonstrated strong support for a three-factor structure of the new ideology scale. The first model tested the three-factor model (with egalitarianism, traditionalism, and authoritarianism factors) with all 22 items. While this model was tested first without allowing for correlated residuals between the items suggested in CFA 1, investigating the modification indices revealed this again to be the most impactful modification on model fit; as such, all models reported here include this correlation.

The model was revised thereafter by removing problematic items one at a time. As outlined in the data analytic plan, items with weak factor loadings were removed. As well, items 12 and 13 – which had low variance and extremely high means (> 6.50) – were removed. Table 44 shows descriptive statistics for all scale items, Table 45 depicts model fit indices for all models tested, and Table 46 shows factor loadings for all items in all models tested. Prior to testing revised three-factor models, a two-factor model (not shown in Table below) was also tested combining the traditionalism and authoritarianism

items (excluding items 18, 21, and 22) into one factor. The two-factor model demonstrated poorer model fit than the corresponding three-factor version (model 4) across all indices;  $\chi^2 = 876.001$  (151),  $p < .001$ ; RMSEA = .096, CI [.090, .102]; CFI = .841; TLI = .820; SRMR = .078.

**Table 44: Descriptive statistics for scale items in validation study 4**

	Mean (SD)
E 6 <i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i>	5.37 (1.77)
7 <i>In a fair world, the wealth gap should be as small as possible.</i>	5.22 (1.70)
8 <i>It is fair to tax people with large incomes more highly, so that money is distributed more equitably.</i>	5.48 (1.64)
9 <i>Our society would have a lot less conflict if we treated everyone more equally.</i>	5.84 (1.30)
12 <i>Having equal access to health care is a human right.</i>	6.52 (0.94)
13 <i>We must make sure people are given equal opportunities, regardless of their appearance or identity.</i>	6.50 (0.88)
14 <i>We must have laws in place in order to prevent discrimination based on things like ethnicity and gender identity.</i>	6.19 (1.21)
T 1 <i>Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.</i>	2.97 (1.58)
2 <i>Rebelling against the political 'system' or 'establishment' is something kids should grow out of.</i>	2.78 (1.53)
3 <i>Strange new trends in style or slang are usually just immature acts of rebellion.</i>	2.58 (1.38)
4 <i>These days, people are too willing to try out wild new ideas without any proof they will work.</i>	3.88 (1.63)
5 <i>I don't trust activists and agitators trying to stir things up.</i>	3.34 (1.62)
15 <i>These days, we are going too far in trying to protect the interests of minority groups.</i>	2.57 (1.73)
16 <i>Protests and other collective actions are necessary to achieve a better society.</i>	2.46 (1.27)
17 <i>Younger generations should work to change our outdated political system.</i>	2.41 (1.32)

A 10	Without strong leaders, society as we know it would collapse.	4.66 (1.55)
11	Good national leaders keep us safe by standing up to those who would do us harm.	4.93 (1.35)
18	I appreciate government surveillance because it protects our country from threats.	3.77 (1.55)
19	Laws and rules are the best way to keep society functioning properly.	5.09 (1.40)
20	Having a strong military is how our government keeps us safe.	3.33 (1.66)
21	<i>I dislike it when the government restricts our freedoms to supposedly keep us safe.</i>	3.97 (1.70)
22	<i>I'm fine with disobeying authorities if they are acting unfairly.</i>	5.17 (1.45)

Note: Con-trait items are italicized. Means presented here are after reverse coding.

**Table 45: Model fit indices for CFA 2**

	$\chi^2$	(df)	BIC	RMSEA [95% CI]	CFI	TLI	SRMR
1.	903.418*	205	36938.270	.081 [.075, .086]	.860	.842	.085
2.	727.993*	185	34897.089	.075 [.069, .081]	.887	.872	.078
3.	633.991*	166	33070.151	.073 [.067, .080]	.900	.886	.076
4.	586.380*	148	31205.361	.075 [.069, .082]	.904	.889	.073
5.	540.719*	131	30055.802	.077 [.071, .084]	.904	.888	.070
<b>6.</b>	<b>461.633*</b>	<b>115</b>	<b>28757.532</b>	<b>.076 [.069, .083]</b>	<b>.914</b>	<b>.898</b>	<b>.063</b>

Note: \* $p < .001$

**Table 46: Factor loadings for CFA 2**

Factor	Item	Factor Loadings					
		Model					
		1	2	3	4	5	6
1 (E)	<i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i>	.65	.65	.65	.65	.67	<b>.70</b>
	In a fair world, the wealth gap should be as small as possible.	-.66	-.66	-.66	-.66	-.67	<b>-.71</b>
	It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	-.70	-.70	-.70	-.70	-.73	<b>-.76</b>
	Our society would have a lot less conflict if we treated everyone more equally.	-.64	-.64	-.64	-.64	-.62	<b>-.57</b>

Factor	Item	Factor Loadings					
	Having equal access to health care is a human right.	-.70	-.70	-.70	-.70	-	-
	We must make sure people are given equal opportunities, regardless of their appearance or identity.	-.63	-.63	-.63	-.63	-.60	-
	We must have laws in place in order to prevent discrimination based on things like ethnicity and gender identity.	-.74	-.74	-.74	-.74	-.72	<b>-.68</b>
2 (T)	Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.	.71	.72	.72	.71	.72	<b>.72</b>
	Rebelling against the political 'system' or 'establishment' is something kids should grow out of.	.79	.80	.79	.79	.79	<b>.80</b>
	Strange new trends in style or slang are usually just immature acts of rebellion.	.64	.64	.64	.64	.64	<b>.63</b>
	These days, people are too willing to try out wild new ideas without any proof they will work.	.56	.55	.56	.56	.56	<b>.56</b>
	I don't trust activists and agitators trying to stir things up.	.79	.79	.80	.80	.80	<b>.80</b>
	These days, we are going too far in trying to protect the interests of minority groups.	.75	.75	.75	.76	.75	<b>.75</b>
	<i>Protests and other collective actions are necessary to achieve a better society.</i>	-.68	-.68	-.68	-.68	-.68	<b>-.68</b>
	<i>Younger generations should work to change our outdated political system.</i>	-.64	-.64	-.65	-.65	-.64	<b>-.64</b>
3 (A)	Without strong leaders, society as we know it would collapse.	.53	.55	.56	.52	.52	<b>.51</b>
	Good national leaders keep us safe by standing up to those who would do us harm.	.51	.52	.54	.52	.51	<b>.51</b>
	I appreciate government surveillance because it protects our country from threats.	.43	.45	.45	-	-	-

Factor	Item	Factor Loadings					
	Laws and rules are the best way to keep society functioning properly.	.54	.55	.56	.53	.52	<b>.51</b>
	Having a strong military is how our government keeps us safe.	.74	.72	.72	.76	.77	<b>.78</b>
	<i>I dislike it when the government restricts our freedoms to supposedly keep us safe.</i>	.14	-	-	-	-	-
	<i>I'm fine with disobeying authorities if they are acting unfairly.</i>	-.35	-.36	-	-	-	-

Notes: Con-trait items are italicized.

Factor correlations are depicted below in Table 47. Correlations between egalitarianism and traditionalism, as well as between traditionalism and authoritarianism, were high. Egalitarianism and authoritarianism were moderately correlated.

**Table 47: Inter-factor correlations for CFA 2**

	1.	2.	3.
1. Egalitarianism	-		
2. Traditionalism	.85	-	
3. Authoritarianism	.52	.76	-

Based on the results of the CFA, five items were removed, and the three-factor NPIS with 17 items – four authoritarianism items, five egalitarianism items, and eight traditionalism items – was used in subsequent tests of scale reliability and validity.

### 3.2.2.2 Reliability and Validity Analyses

#### 3.2.2.2.1 Internal Consistency

Internal reliability coefficients for egalitarianism ( $\alpha = .83$ ) and traditionalism ( $\alpha = .88$ ) were excellent. Internal reliability for authoritarianism ( $\alpha = .69$ ) approached acceptability.

#### 3.2.2.2.2 Construct Validity

Table 48 depicts descriptive statistics for variables of interest other than the 43 Canadian political issue items. Bivariate correlations can be found in the Appendix.

**Table 48: Descriptive statistics for all study variables in scale validation study 4.**

	Mean (SD)	Range
SDO-D ( <i>n</i> = 514)	2.30 (1.06)	1.00-5.75
SDO-E ( <i>n</i> = 514)	2.18 (1.11)	1.00-5.63
RWA ( <i>n</i> = 513)	2.92 (1.27)	1.00-9.00
Left-right political orientation ( <i>n</i> = 506)	2.82 (1.50)	1.00-7.00
Normative collective action ( <i>n</i> = 514)	6.12 (0.93)	2.67-7.00
Non-normative collective action ( <i>n</i> = 514)	2.50 (1.13)	1.00-6.00
Egalitarianism ( <i>n</i> = 522)	5.62 (1.18)	1.00-7.00
Traditionalism ( <i>n</i> = 522)	2.87 (1.20)	1.00-7.00
Authoritarianism ( <i>n</i> = 522)	4.50 (1.08)	1.00-7.00

### 3.2.2.2.1 Convergent and divergent validity

Relationships between the NPIS factors with SDO, RWA, and left-right political orientation were once again examined with multiple regressions, controlling for demographic factors. Results are shown below in Tables 49 through 52.

First, age and ethnicity predicted SDO, RWA, and left-right political affiliation in an unanticipated direction. That is, in this sample, older age was associated with lower SDO and RWA, and more left-wing affiliation, though older age is generally associated with conservatism because with increasing age, individuals are more likely to shift from liberal to conservative viewpoints than the reverse (Peterson et al., 2020). However, it is important to note that the sample was, on average, in their early twenties, as they were university students. Findings on age differences in SDO, RWA, and political affiliation might typically reflect differences between younger adults and middle-aged or older adults, rather than differences in samples comprised almost entirely of young adults. Here, SDO and RWA were also lower in participants who identified as white than those who identified as an ethnic minority, and the reasons for this are unclear.

The findings from the convergent validity analyses were mixed. Egalitarianism was highly predictive of SDO-E and SDO-D, and the relationship with the former was stronger. However, like in Study 3, traditionalism was also highly predictive of SDO-D. The traditionalism factor appears to be tapping into an attitude towards group-based dominance rather than simply conventionalism. This confound may also drive the high factor correlation between egalitarianism and traditionalism.



Traditionalism was strongly predictive of RWA, as anticipated. Authoritarianism was also predictive of RWA, but only weakly; unexpectedly, its relationship with RWA was weaker than the relationship between Egalitarianism and RWA.

The NPIS was strongly related to left-right political affiliation after controlling for age, gender, and ethnicity. Relationships between egalitarianism and traditionalism with political affiliation were in the expected directions; that is, egalitarianism predicted more left-wing affiliation, while traditionalism predicted more right-wing affiliation. Authoritarianism was related to more right-wing affiliation, but less strongly so than traditionalism. This suggests that the authoritarianism factor is not left-right ‘agnostic’, but rather, that elements of authoritarianism are tied to right-wing or conservative attitudes. Still, since the relationship between left-right affiliation and authoritarianism was weaker than with egalitarianism and traditionalism, there are presumably some individuals who identify as left-wing that nonetheless score moderately or even highly on authoritarianism.

**Table 49: Validation study 4 regression analysis for SDO-Dominance**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.718	.510
Age	<b>-.094</b>	<b>-2.849</b>	<b>.005</b>		
Gender	.032	.946	.345		
Ethnicity	<b>.075</b>	<b>2.305</b>	<b>.022</b>		
Egalitarianism	<b>-.291</b>	<b>-6.269</b>	<b>&lt;.001</b>		
Traditionalism	<b>.444</b>	<b>8.488</b>	<b>&lt;.001</b>		
Authoritarianism	.034	.897	.370		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher SDO-D = greater social dominance

**Table 50: Validation study 4 regression analysis for SDO-Egalitarianism**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.744	.548
Age	.040	1.255	.210		
Gender	<b>-.151</b>	<b>-4.608</b>	<b>&lt;.001</b>		
Ethnicity	.044	1.403	.161		
Egalitarianism	<b>-.443</b>	<b>-9.937</b>	<b>&lt;.001</b>		
Traditionalism	<b>.313</b>	<b>6.238</b>	<b>&lt;.001</b>		

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
<b>Authoritarianism</b>	<b>-.074</b>	<b>-2.025</b>	<b>.043</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher SDO-E = greater social dominance

**Table 51: Validation study 4 regression analysis for RWA**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.799	.634
Age	<b>-.117</b>	<b>-4.101</b>	<b>&lt;.001</b>		
Gender	.015	.499	.618		
Ethnicity	<b>.123</b>	<b>4.369</b>	<b>&lt;.001</b>		
Egalitarianism	<b>-.179</b>	<b>-4.474</b>	<b>&lt;.001</b>		
Traditionalism	<b>.579</b>	<b>12.818</b>	<b>&lt;.001</b>		
<b>Authoritarianism</b>	<b>.074</b>	<b>2.248</b>	<b>.025</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher RWA = greater authoritarianism

**Table 52: Validation study 4 regression analysis for left-right affiliation**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.743	.547
Age	-.059	-1.839	.067		
Gender	-.048	-1.454	.147		
Ethnicity	-.044	-1.411	.159		
<b>Egalitarianism</b>	<b>-.352</b>	<b>-7.872</b>	<b>&lt;.001</b>		
<b>Traditionalism</b>	<b>.359</b>	<b>7.111</b>	<b>&lt;.001</b>		
<b>Authoritarianism</b>	<b>.127</b>	<b>3.464</b>	<b>.001</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher L-R affiliation = more right-wing beliefs

### 3.2.2.2.3 Criterion Validity and Incremental Validity

To test whether the NPIS predicted outcomes like attitudes towards collective action and support for various Canadian political policies (criterion validity), as well as whether it explains more variance in these outcomes than commonly used measures like left-right affiliation, SDO, and RWA (incremental validity), a series of regression analyses were conducted with these outcomes and the ideology scale alone (controlling for demographic variables), and a series of regression analyses were run including either left-right affiliation at step one or SDO and RWA at step one, as well as with all three, followed by the inclusion of the ideology scale. An improvement in the model is

indicated by a significant F change score, which indicates a large difference in the variance explained in the model including the scale versus the model without.

### 3.2.2.2.3.1 Collective action

Results from the criterion validity analyses for normative and non-normative collective action are depicted in Tables 53 and 54. Traditionalism had the strongest relationship with attitudes towards normative collective action. Specifically, highly traditional individuals found normative collective actions, like strikes or petitions, less acceptable. This could be because they recognize – or at least fear – that normative collective action will be a pathway to the social changes they find undesirable (while non-normative action may be comparatively less successful, but still perceived as threatening). Supporting this idea is the finding that normative collective action seems to produce better results than non-normative action (Teixeira et al., 2020).

Authoritarianism showed the only significant relationship with attitudes towards non-normative collective action. Authoritarians’ strong dislike of radical action is likely due to its system-challenging, rebellious quality, regardless of whether the actions are effective for the desired goal. Interestingly, Teixeira et al. (2020) found no relationship in their study between liberal-conservative or left-right identification on support for normative versus non-normative protest; for overarching, unidimensional political ideology, the topic of the protest likely matters much more than whether the strategy is normative or radical.

**Table 53: Validation study 4 regression analysis for normative collective action**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.544	.287
Age	.030	.762	.446		
Gender	-.101	-2.448	.015		
<b>Ethnicity</b>	<b>-.150</b>	<b>-3.814</b>	<b>.000</b>		
<b>Egalitarianism</b>	<b>.115</b>	<b>2.045</b>	<b>.041</b>		
<b>Traditionalism</b>	<b>-.485</b>	<b>-7.692</b>	<b>.000</b>		
<b>Authoritarianism</b>	<b>.101</b>	<b>2.211</b>	<b>.028</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

**Table 54: Validation study 4 regression analysis for non-normative collective action**

	$\beta$	$t$	$p$	$R$	Adjusted $R^2$
				.446	.189
Age	.029	.687	.492		
Gender	-.085	-1.942	.053		
Ethnicity	-.012	-.275	.784		
Egalitarianism	.006	.099	.921		
Traditionalism	-.131	-1.940	.053		
<b>Authoritarianism</b>	<b>-.366</b>	<b>-7.488</b>	<b>.000</b>		

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

### 3.2.2.2.3.2 Incremental validity in predicting attitudes towards collective action

Results from the incremental validity analyses for normative and non-normative collective action are depicted in Tables 55-60. Demographic variables and left-right political orientation alone explained about 14%. The ideology scale, demographic variables, and left-right political orientation together explained about 29% of the variance in attitudes towards normative collective action ( $R^2$  change = .153).

F change was significant in all regression models. The NPIS thus provided a large improvement in explaining attitudes towards collective action, both normative and non-normative, compared to a single-item measure of political ideology or to SDO and RWA combined. For normative action, the NPIS explained 15.3% more variance in attitudes compared to left-right affiliation alone ( $R^2$  change = .153), but compared to SDO and RWA, only 1.4% more variance ( $R^2$  change = .014), and to all three conventional ideology measures combined, only 2.9% more ( $R^2$  change = .029). For non-normative action, compared to left-right affiliation, the NPIS explained 9% more variance ( $R^2$  change = .090), compared to SDO and RWA, explained 15.3% more variance ( $R^2$  change = .153), and compared to all three conventional measures together, explained 9.1% more variance ( $R^2$  change = .091). The scale thus appears to be particularly useful when studying niche or fringe political attitudes is of interest (like radical collective action). Its usefulness in predicting attitudes towards non-normative action could be because, unlike RWA, the authoritarianism construct in the NPIS is distinct from traditionalism; in RWA, its double- and triple-barreled items prevents these constructs from being disentangled.

**Table 55: Validation study 4 regression analysis for left-right affiliation, political ideology scale, and normative collective action**

	$\beta$	t	p	R	Adjust. R <sup>2</sup>	F change	p
				.377	.135		
Age	.002	.041	.967				
Gender	-.010	-.214	.830				
<b>Ethnicity</b>	<b>-.196</b>	<b>-4.532</b>	<b>.000</b>				
<b>Left-right</b>	<b>-.311</b>	<b>-6.952</b>	<b>.000</b>				
				<b>.546</b>	<b>.288</b>	<b>35.262</b>	<b>&lt;.001</b>
Age	.033	.819	.413				
<b>Gender</b>	<b>-.097</b>	<b>-2.356</b>	<b>.019</b>				
<b>Ethnicity</b>	<b>-.149</b>	<b>-3.759</b>	<b>.000</b>				
Left-right	.063	1.094	.274				
<b>Egalitarianism</b>	<b>.139</b>	<b>2.330</b>	<b>.020</b>				
<b>Traditionalism</b>	<b>-.505</b>	<b>-7.599</b>	<b>.000</b>				
<b>Authoritarianism</b>	<b>.093</b>	<b>1.995</b>	<b>.047</b>				

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher L-R affiliation = more right-wing beliefs

**Table 56: Validation study 4 regression analysis for SDO, RWA, political ideology scale, and normative collective action**

	$\beta$	t	p	R	Adjust. R <sup>2</sup>	F change	p
				.595	.346		
Age	-.050	-1.317	.188				
<b>Gender</b>	<b>-.079</b>	<b>-1.973</b>	<b>.049</b>				
<b>Ethnicity</b>	<b>-.086</b>	<b>-2.252</b>	<b>.025</b>				
<b>SDOD</b>	<b>-.224</b>	<b>-3.978</b>	<b>.000</b>				
SDOE	-.051	-.907	.365				
<b>RWA</b>	<b>-.382</b>	<b>-7.217</b>	<b>.000</b>				
				<b>.610</b>	<b>.360</b>	<b>4.380</b>	<b>.005</b>
Age	-.028	-.715	.475				
<b>Gender</b>	<b>-.091</b>	<b>-2.247</b>	<b>.025</b>				
<b>Ethnicity</b>	<b>-.093</b>	<b>-2.441</b>	<b>.015</b>				
<b>SDOD</b>	<b>-.206</b>	<b>-3.542</b>	<b>.000</b>				
SDOE	-.009	-.143	.886				
<b>RWA</b>	<b>-.335</b>	<b>-5.331</b>	<b>.000</b>				
Egalitarianism	-.009	-.157	.875				
<b>Traditionalism</b>	<b>-.197</b>	<b>-2.776</b>	<b>.006</b>				
<b>Authoritarianism</b>	<b>.133</b>	<b>3.006</b>	<b>.003</b>				

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher SDO-D and SDO-E = greater social dominance; higher RWA = greater authoritarianism

**Table 57: Validation study 4 regression analysis for left-right affiliation, SDO, RWA, political ideology scale, and normative collective action**

	$\beta$	t	p	R	Adjust. R <sup>2</sup>	F change	p
				.602	.354		
Age	-.049	-1.284	.200				
Gender	-.067	-1.676	.094				
Ethnicity	-.076	-1.978	.048				
Left-right	.116	2.273	.023				
<b>SDOD</b>	<b>-.243</b>	<b>-4.290</b>	<b>.000</b>				
SDOE	-.069	-1.226	.221				
<b>RWA</b>	<b>-.434</b>	<b>-7.555</b>	<b>.000</b>				
				.619	.383	5.147	.002
Age	-.025	-.651	.515				
<b>Gender</b>	<b>-.082</b>	<b>-2.052</b>	<b>.041</b>				
<b>Ethnicity</b>	<b>-.083</b>	<b>-2.179</b>	<b>.030</b>				
<b>Left-right</b>	<b>.154</b>	<b>2.793</b>	<b>.005</b>				
<b>SDOD</b>	<b>-.213</b>	<b>-3.690</b>	<b>.000</b>				
SDOE	-.013	-.225	.822				
<b>RWA</b>	<b>-.369</b>	<b>-5.815</b>	<b>.000</b>				
Egalitarianism	.038	.635	.526				
<b>Traditionalism</b>	<b>-.224</b>	<b>-3.128</b>	<b>.002</b>				
<b>Authoritarianism</b>	<b>.114</b>	<b>2.584</b>	<b>.010</b>				

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher L-R affiliation = more right-wing beliefs; higher SDO-D and SDO-E = greater social dominance; higher RWA = greater authoritarianism

**Table 58: Validation study 4 regression analysis for left-right affiliation, political ideology scale, and non-normative collective action**

	$\beta$	t	p	R	Adjust. R <sup>2</sup>	F change	p
				.383	.140		
Age	.017	.391	.696				
<b>Gender</b>	<b>-.100</b>	<b>-2.251</b>	<b>.025</b>				
Ethnicity	-.052	-1.208	.228				
<b>Left-right</b>	<b>-.391</b>	<b>-8.786</b>	<b>.000</b>				
				.491	.230	19.620	<.001
Age	.008	.196	.845				
<b>Gender</b>	<b>-.098</b>	<b>-2.292</b>	<b>.022</b>				
Ethnicity	-.028	-.685	.494				
<b>Left-right</b>	<b>-.303</b>	<b>-5.072</b>	<b>.000</b>				
Egalitarianism	-.094	-1.517	.130				
Traditionalism	-.016	-.228	.820				
<b>Authoritarianism</b>	<b>-.331</b>	<b>-6.839</b>	<b>.000</b>				

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher L-R affiliation = more right-wing beliefs

**Table 59: Validation study 4 regression analysis for SDO, RWA, political ideology scale, and non-normative collective action**

	$\beta$	t	p	R	Adjust. R <sup>2</sup>	F change	p
				.275	.064		
Age	.010	.224	.823				
Gender	.007	.150	.881				
Ethnicity	-.007	-.153	.879				
SDOD	-.106	-1.572	.117				
<b>SDOE</b>	<b>.225</b>	<b>3.346</b>	<b>.001</b>				
<b>RWA</b>	<b>-.289</b>	<b>-4.558</b>	<b>.000</b>				
				<b>.481</b>	<b>.217</b>	<b>32.117</b>	<b>&lt;.001</b>
Age	.025	.578	.564				
Gender	-.050	-1.110	.268				
Ethnicity	-.027	-.648	.518				
SDOD	.037	.581	.562				
<b>SDOE</b>	<b>.247</b>	<b>3.705</b>	<b>.000</b>				
RWA	.017	.245	.806				
<b>Egalitarianism</b>	<b>.129</b>	<b>1.987</b>	<b>.048</b>				
<b>Traditionalism</b>	<b>-.234</b>	<b>-2.981</b>	<b>.003</b>				
<b>Authoritarianism</b>	<b>-.351</b>	<b>-7.190</b>	<b>.000</b>				

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher SDO-D and SDO-E = greater social dominance; higher RWA = greater authoritarianism

**Table 60: Validation study 4 regression analysis for left-right affiliation, SDO, RWA, political ideology scale, and non-normative collective action**

	$\beta$	t	p	R	Adjust. R <sup>2</sup>	F change	p
				.435	.177		
Age	-.005	-.113	.910				
Gender	-.037	-.811	.418				
Ethnicity	-.058	-1.324	.186				
<b>Left-right</b>	<b>-.470</b>	<b>-8.144</b>	<b>&lt;.001</b>				
SDOD	-.033	-.509	.611				
<b>SDOE</b>	<b>.294</b>	<b>4.610</b>	<b>&lt;.001</b>				
RWA	-.078	-1.208	.228				
				<b>.532</b>	<b>.268</b>	<b>20.666</b>	<b>&lt;.001</b>
Age	.011	.257	.797				
Gender	-.065	-1.500	.134				
Ethnicity	-.056	-1.353	.177				
<b>Left-right</b>	<b>-.346</b>	<b>-5.815</b>	<b>.000</b>				
SDOD	.050	.799	.425				
<b>SDOE</b>	<b>.256</b>	<b>3.973</b>	<b>.000</b>				
RWA	.088	1.282	.200				
Egalitarianism	.033	.511	.610				
<b>Traditionalism</b>	<b>-.154</b>	<b>-1.992</b>	<b>.047</b>				
<b>Authoritarianism</b>	<b>-.314</b>	<b>-6.587</b>	<b>.000</b>				

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher L-R affiliation = more right-wing beliefs; higher SDO-D and SDO-E = greater social dominance; higher RWA = greater authoritarianism

### 3.2.2.2.4 Canadian policy issues

Table 61 below shows means and standard deviations of policy items as well as regression coefficients (betas) between all policy items and the three ideology factors after controlling for demographic variables (age, gender, and ethnicity). Zero-order bivariate correlations between policy items and the NPIS can be found in the appendix. Zero-order correlations demonstrated significant relationships between all policy items and at least one NPIS factor, except for attitudes towards Bitcoin, which was not significantly correlated with any. The correlations between egalitarianism and traditionalism with policy items tended to be larger than those with authoritarianism, and in the case of attitudes towards mandatory vaccination, authoritarianism showed no relationship, while egalitarianism and traditionalism did. Interestingly, egalitarianism was unrelated to attitudes towards government monitoring of phone and internet



communication, while traditionalism and authoritarianism predicted support for it. This contrasts with attitudes towards government regulation of misinformation on social media, support for which was positively correlated with egalitarianism and negatively correlated with traditionalism and authoritarianism. It is possible that those on the right (that is, those lower in egalitarianism and higher in traditionalism) believe that the intent of censorship is often to quash right-wing dissent – this is particularly likely given what is known about right-wing attitudes and belief in conspiracy theories (e.g., van der Linden et al., 2020).

When accounting for demographic variables in the regression analyses, while egalitarianism and traditionalism were significant predictors of most policy attitudes (with a handful of exceptions), authoritarianism was predictive only for some. This is interesting, given that egalitarianism and traditionalism are commonly considered the main characteristics that distinguish left- from right-wing political attitudes, while authoritarianism is not, and there is ongoing debate regarding whether authoritarianism is inherent to the right wing or can exist on ‘both sides’. Authoritarianism significantly predicted the following: opposing the cancellation of pipelines protested by First Nations/Indigenous communities ( $B = -.094, p = .014$ ), believing drug use should be a criminal offence ( $B = .163, p < .001$ ), opposing the reallocation of funding from police departments to social programs ( $B = -.163, p < .001$ ), wanting Canada to remain under the British monarchy ( $B = -.166, p = .001$ ), opposing an increased tax on the wealthiest Canadians ( $B = -.139, p < .001$ ), opposing a Universal Basic Income ( $B = -.120, p = .005$ ), supporting a citizenship test for immigrants to Canada ( $B = -.094, p = .014$ ), supporting deportation of immigrants who commit crimes ( $B = .122, p = .009$ ), supporting public funding of Catholic schools ( $B = .124, p = .014$ ), supporting increased military spending ( $B = .253, p < .001$ ), and supporting allowing private organizations to donate to political campaigns ( $B = .236, p < .001$ ).

It is noteworthy that most of these beliefs can be considered conservative or right-wing, and accordingly were all linked with higher traditionalism and lower egalitarianism in this study. This suggests that at the very least, even if it can present among both left-

and right-leaning people, authoritarianism is more likely to manifest alongside other right-wing (less egalitarian and more traditional) attitudes.

It is also interesting that, after controlling for demographic variables, authoritarianism showed negligible relationships with attitudes towards unrestricted free speech, mandatory vaccination, government monitoring of internet communications, and government regulation of social media. If anti-authoritarianism is characterized by a critical stance towards authority and a dislike of government oversight, it should be predictive of attitudes like these; someone low in authoritarianism should oppose any limits on free speech, as well as requirements for medical procedures, and government oversight and regulation of communication channels like the internet.

**Table 61: Means and SDs for policy items, and standardized regression coefficients (beta coefficients) for ideology on policy items after controlling for demographic variables.**

	M (SD)	Egal.	Trad.	Auth.
Support Canadian government investing more money in infrastructure for First Nations/Indigenous communities	5.76 (1.51)	.351***	-.323***	-.002
Support canceling pipelines opposed by First Nations/Indigenous communities	5.01 (1.86)	.239***	-.418***	-.094*
Support criminalizing drug use	2.96 (1.76)	-.156**	.290***	.163***
Support criminalizing sex work	2.48 (1.62)	-.151**	.421***	.003
Support re-allocating funding from police departments to social programs	4.93 (1.79)	.263***	-.349***	-.163***
Support voting rights for convicted criminals	5.09 (1.72)	.092	-.371***	-.085
Support publicly-run (rather than privately-run) prisons	5.59 (1.37)	.255***	-.165*	.062
Support unrestricted freedom of speech	4.06 (1.80)	-.076	.270***	-.032
Support increasing privatization of Canadian healthcare	2.74 (1.76)	-.181**	.283***	.076
Support option for medically assisted suicide/euthanasia for terminally ill patients	5.59 (1.69)	.146*	-.217**	.011
Support increased spending on mental health care	6.11 (1.12)	.305***	-.294***	.075

	M (SD)	Egal.	Trad.	Auth.
Support legal abortion	6.25 (1.46)	.062	-.380***	.013
Support covering prescription medication under a universal health plan	6.10 (1.23)	.367***	-.221***	.103*
Support allowing transgender athletes to compete with the gender category they identify with	4.48 (2.12)	.190**	-.271***	-.042
Support including gender identity in Canadian anti-discrimination laws	5.81 (1.62)	.325***	-.361***	.043
Support same-sex parents having same adoption rights as heterosexual parents	6.33 (1.40)	.270***	-.249***	.079
Support ending ties to the British monarchy	4.49 (1.64)	.100	-.231**	-.166**
Support increasing tax rate on wealthiest Canadians	5.43 (1.75)	.776***	.056	-.139***
Support raising federal minimum wage	5.22 (1.64)	.335***	-.207**	-.071
Support raising tax rate on corporations	5.38 (1.58)	.463***	-.222***	-.039
Support establishing Universal Basic Income	4.93 (1.83)	.403***	-.183**	-.120**
Support classifying Bitcoin as legal currency	3.57 (1.48)	-.042	-.046	-.025
Support required citizenship test for immigrants to Canada	4.79 (1.55)	-.054	.159*	.264***
Support deportation of immigrants if they commit a crime	3.06 (1.69)	.082	.328***	.122**
Support establishing limit on tuition increases	6.15 (1.23)	.386***	-.132*	.080
Support continuing providing public funding to Catholic schools	3.53 (1.89)	-.081	.221**	.124*
Support required military service	1.96 (1.42)	-.102	.291***	-.065
Support increasing military spending	3.13 (1.63)	-.083	.343***	.253***
Support increasing foreign aid spending	5.47 (1.41)	.275***	-.079	-.074
Support establishing a limit on money politicians can receive from a single donor	4.34 (1.44)	.258***	-.130*	.098*
Support establishing proportional representation voting system	4.91 (1.53)	.207**	-.166*	-.034
Support allowing political party or campaign donations from private organizations	3.54 (1.63)	-.127*	.184*	.236***
Support increasing regulations on businesses to reduce carbon emissions	5.89 (1.35)	.391***	-.295***	.055

	M (SD)	Egal.	Trad.	Auth.
Support banning disposable plastic	5.26 (1.63)	.219***	-.288***	.077
Support banning hydraulic fracking	4.79 (1.44)	.180*	-.303***	.080
Support a tax on meat consumption	3.53 (1.83)	.226***	-.115*	-.107*
Support subsidizing production of renewable energy infrastructure	5.77 (1.35)	.213***	-.381***	.089
Support increasing spending on public transportation	5.54 (1.28)	.307***	-.196**	-.020
Support mandatory COVID-19 vaccination	5.06 (1.85)	.182**	-.198**	.098
Support mandatory mask-wearing during COVID-19 pandemic	6.38 (1.26)	.279***	-.274***	.080
Support allowing Internet Service Providers to selectively control speed of access to websites based (net non-neutrality)	1.94 (1.37)	-.084	.350***	-.023
Support allowing Canadian government to monitor phone, email, and internet traffic	2.46 (1.40)	.053	.119	.066
Support allowing Canadian government to regulate social media to prevent spread of misinformation	4.51 (1.78)	.246***	-.041	-.039

\*p < .05; \*\*p < .01; \*\*\*p < .001

#### 3.2.2.2.4.1 Incremental validity in predicting attitudes towards Canadian policies

The scale offered an advantage over the combination of all three conventional ideology measures (left-right orientation, SDO, and RWA combined); that is, the F change value was statistically significant. This was the case for all but eight of the 43 policy items.

As with the tests of incremental validity for the collective action variables, incremental validity was also assessed in relation to left-right affiliation alone, as well as to SDO and RWA. For attitudes towards medical euthanasia or physician-assisted suicide, attitudes towards legal abortions, and support for providing continued public funding for Catholic schools, the NPIS did not significantly surpass SDO and RWA in variance explained, though it was an improvement over left-right affiliation.

Unsurprisingly, these attitudes were strongly predicted by RWA, potentially due to the fact the RWA scale taps into religious attitudes; some RWA items, for example, refer to

religious authorities and “God’s laws” (Altemeyer, 2006). It may be that these items are polarized more along religious lines than they are along political lines (though of course, these are often related).

Additionally, the scale did not explain significantly more variance than SDO and RWA for support for mandatory military service. Support for this position was correlated highly with SDO-Dominance and RWA (but not SDO-Egalitarianism). Curiously, this was not the case for the item assessing support for increasing military spending, which the NPIS predicted substantially better – explaining approximately 15.40% more variance than left-right affiliation alone and 10.90% more variance than SDO and RWA.

Also curiously, the scale did not significantly improve prediction for attitudes towards net neutrality compared to the combination of SDO and RWA, but it was a significant improvement over using left-right affiliation. SDO-Dominance and RWA were strongly related to net neutrality attitudes – that is, increases in SDO-Dominance and RWA were linked with support for policies allowing selective, faster access to certain websites based on how much a company pays, or, said another way, opposition to a neutral internet.

The scale also did not improve prediction over SDO and RWA for attitudes towards Canadian government surveillance of telecommunications. In this case, very few of the variables entered showed a significant relationship with the item at all; only RWA was significant, and was linked to support for government surveillance, albeit weakly. The mean for this item was 2.46 ( $SD = 1.40$ ); respondents seemed generally opposed to surveillance of this type, and polarization was weak.

Lastly, the scale also did not improve predictive power beyond left-right affiliation or SDO and RWA for the item assessing attitudes towards classifying Bitcoin as legal currency. Given the weak correlations with all three ideology factors, it may simply be that this issue is not politically polarized.

### 3.3 Confirmatory Factor Analysis and Scale Validation (Study 5)

The sample collected for Study 5 was recruited for the purpose of conducting the experimental analyses described in Chapter 5, and recruitment occurred before the analyses in Study 4 were complete. As such, the 22-item scale tested in validation study 4 was used here, without modifications (i.e., without excluding any unsatisfactory items identified in the previous study).

#### 3.3.1 Methods

##### 3.3.1.1 Participants and Data Cleaning

Participants were recruited via the Prolific survey platform and compensated with £1.10 British pounds (roughly equivalent to \$1.90 Canadian dollars). The nature of the experimental portion of this study required recruiting a sample that had not yet received a COVID-19 vaccine; at the time of recruitment, vaccine rollouts to priority populations were commencing across Canada, but they were not yet widely available to all age groups. Prolific's extensive screening questions – which included a question asking whether participants had received a dose of a COVID-19 vaccine – enabled recruitment of only unvaccinated participants. The sample was thus comprised of Canadian adults over the age of 18 who had not yet received any doses of a COVID-19 vaccine. In total, 200 participants were recruited who fit these criteria.

Data were screened for incomplete responses, short response times, and multivariate outliers. However, no participants were found who failed to complete an essential portion of the questionnaires (i.e., the NPIS or the items pertaining to COVID-19 vaccination intentions), and no participants completed the study in an abnormally short period of time (<2 seconds per item). Nine participants were flagged as multivariate outliers.

Sample size after data cleaning was  $N = 191$ . Of these, 84 (44.00%) were women, 104 (54.50%) were men, and 3 (1.60%) identified as a gender not specified. The age

range was 18-68 years ( $M = 29.48$ ,  $SD = 9.81$ ). The sample predominantly identified as White ( $N = 111$ , 58.10%). Of those who were not White, 10 (5.20%) identified as South Asian, 33 (17.30%) as Chinese, 18 (9.40%) as Black, seven (3.70%) as Middle Eastern or West Asian, five (2.60%) as Filipino, eight (4.20%) as Southeast Asian, four (2.10%) as Korean, two (1.00%) as Aboriginal or First Nations, and four (2.10%) as an ethnic group not specified. Participants could select multiple ethnicities, and nine (4.70%) identified as multiracial (i.e., selected at least two options).

### 3.3.1.2 Procedure

Participants completed the study online via Qualtrics, which took approximately 10 minutes to complete. After reading the Letter of Information and consenting to participate, participants completed the questionnaires, as well as completed the experimental component of the study, which is outlined in Chapter 5. As part of the experimental portion of this study, participants were also presented with one of three vignettes containing information about the COVID-19 vaccine. These are described in detail in Chapter 5.

### 3.3.1.3 Measures

#### 3.3.1.3.1 Vaccination Intentions

Intentions to take a COVID-19 vaccine were assessed with two questions: “How likely or unlikely are you to choose to receive one of the COVID-19 vaccines in the future, when you are eligible to do so and doses are available?” and “How reluctant or willing are you to receive a COVID-19 vaccine in the future, when you are eligible to do so and doses are available?”. Both were measured on a 7-point Likert-type scale ranging from 1 (“extremely unlikely” or “extremely reluctant”) to 7 (“extremely likely” or “extremely willing”).

### 3.3.1.3.2 Left-right Political Orientation

Left-right political orientation was assessed with a single item measured on a 7-point Likert-type scale, with 1 representing “Very liberal/left-wing” and a 7 representing “Very conservative/right-wing”.

### 3.3.1.3.3 Contraindications

To control for the possibility that participants were unwilling to receive a vaccine because of a medical contraindication, I included the following yes-or-no question: “Has your healthcare provider advised that you should not receive a COVID-19 vaccine because of an existing medical issue (e.g., allergy to one of the vaccine components)?”. Two participants (1.00%) indicated that they were advised by their doctors they had medical contraindications to receiving the vaccine and were excluded from analyses including vaccination intentions.

### 3.3.1.4 Data Analytic Decisions

#### 3.3.1.4.1 Factor Analytic Method

CFA was conducted in R with the lavaan package with Maximum Likelihood estimation. Lavaan defaults to listwise deletion for missing data, except where missing values are missing completely at random or missing at random, in which case full information maximum likelihood estimations are provided. Latent factors were standardized to a mean of 0 and a variance of 1, so as not to sacrifice the test of the factor loading for each factor’s first indicator item.

#### 3.3.1.4.2 Factor Loading Cut-off

Based on Byrne (2010) and Hair et al. (2006), items with loadings  $< 0.55$  were candidates for revision or deletion.



### 3.3.2 Results and Discussion

#### 3.3.2.1 Confirmatory Factor Analysis

The first model tested the 22-item scale with three-factor structure and correlated residual between the two items which referenced attitudes towards taxes. As before, revisions were made item-by-item based on factor loadings or an examination of the item's descriptive statistics. Table 62 depicts descriptive statistics for all 22 items, Table 63 shows model fit indices for all models tested, and Table 64 contains factor loadings for all items in all models tested.

**Table 62: Descriptive statistics for scale items in validation study 5**

	Mean (SD)
E <i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i>	5.74 (1.43)
In a fair world, the wealth gap should be as small as possible.	5.41 (1.55)
It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	5.94 (1.24)
Our society would have a lot less conflict if we treated everyone more equally.	5.92 (1.15)
Having equal access to health care is a human right.	6.50 (.95)
We must make sure people are given equal opportunities, regardless of their appearance or identity.	6.47 (.84)
We must have laws in place in order to prevent discrimination based on things like ethnicity and gender identity.	6.15 (1.04)
T Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.	3.23 (1.41)
Rebelling against the political 'system' or 'establishment' is something kids should grow out of.	3.01 (1.52)
Strange new trends in style or slang are usually just immature acts of rebellion.	2.74 (1.47)
These days, people are too willing to try out wild new ideas without any proof they will work.	4.04 (1.60)
I don't trust activists and agitators trying to stir things up.	3.71 (1.70)
These days, we are going too far in trying to protect the interests of minority groups.	2.68 (1.64)
<i>Protests and other collective actions are necessary to achieve a better society.</i>	2.46 (1.26)
<i>Younger generations should work to change our outdated political system.</i>	2.51 (1.24)
A Without strong leaders, society as we know it would collapse.	4.82 (1.47)

	Mean (SD)
Good national leaders keep us safe by standing up to those who would do us harm.	5.08 (1.40)
I appreciate government surveillance because it protects our country from threats.	3.70 (1.65)
Laws and rules are the best way to keep society functioning properly.	5.31 (1.23)
Having a strong military is how our government keeps us safe.	3.57 (1.64)
<i>I dislike it when the government restricts our freedoms to supposedly keep us safe.</i>	3.83 (1.70)
<i>I'm fine with disobeying authorities if they are acting unfairly.</i>	5.04 (1.47)

*Note: Con-trait items are italicized. Means presented here are after reverse coding.*

**Table 63: Model fit indices for CFA 3**

	$\chi^2$	(df)	BIC	RMSEA [95% CI]	CFI	TLI	SRMR
1.	485.902*	205	13323.872	.085 [.075, .094]	.836	.815	.091
2.	400.572*	185	12570.351	.078 [.068, .089]	.869	.852	.080
3.	347.445*	166	11900.088	.076 [.064, .087]	.886	.869	.077
4.	303.581*	148	11319.653	.074 [.062, .086]	.897	.881	.074
5.	272.548*	131	10649.103	.075 [.063, .088]	.901	.885	.074
6.	253.319*	115	10201.692	.079 [.066, .093]	.897	.879	.076
7.	215.689*	100	9799.210	.078 [.064, .092]	.907	.888	.074
<b>8.</b>	<b>187.853*</b>	<b>86</b>	<b>9153.650</b>	<b>.079 [.063, .094]</b>	<b>.910</b>	<b>.891</b>	<b>.066</b>

*Note: \*p < .001*

**Table 64: Factor loadings for CFA 3**

Factor	Item	Factor Loadings							
		Model							
		1	2	3	4	5	6	7	8
1 (E)	6 <i>Wealthy people shouldn't have to pay high taxes just because they're successful.</i>	.63	.63	.63	.63	.63	.62	.66	<b>.66</b>
	7 <i>In a fair world, the wealth gap should be as small as possible.</i>	-.72	-.72	-.72	-.72	-.72	-.71	-.76	<b>-.75</b>
	8 <i>It is fair to tax people with large incomes more highly, so that money is distributed more equitably.</i>	-.79	-.79	-.79	-.79	-.79	-.78	-.82	<b>-.82</b>
	9 <i>Our society would have a lot less conflict</i>	-.62	-.62	-.62	-.62	-.62	-.64	-.61	<b>-.61</b>

Factor	Item	Factor Loadings							
		Model							
	if we treated everyone more equally.								
	12 Having equal access to health care is a human right.	- .65	- .65	- .65	- .65	- .65	-	-	-
	13 We must make sure people are given equal opportunities, regardless of their appearance or identity.	- .65	- .65	- .65	- .65	-	-	-	-
	14 We must have laws in place in order to prevent discrimination based on things like ethnicity and gender identity.	- .73	- .73	- .73	- .73	- .73	- .74	- .68	<b>-.69</b>
2 (T)	1 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.	.77	.77	.77	.76	.77	.77	.76	<b>.76</b>
	2 Rebelling against the political 'system' or 'establishment' is something kids should grow out of.	.69	.69	.69	.68	.69	.69	.69	<b>.69</b>
	3 Strange new trends in style or slang are usually just immature acts of rebellion.	.63	.63	.63	.65	.64	.64	.64	<b>.64</b>
	4 These days, people are too willing to try out wild new ideas without any proof they will work.	.54	.54	.54	.56	-	-	-	-
	5 I don't trust activists and agitators trying to stir things up.	.72	.72	.73	.73	.72	.72	.73	<b>.73</b>
	15 These days, we are going too far in trying to protect the interests of minority groups.	.65	.65	.65	.66	.65	.65	.66	<b>.65</b>
	16 <i>Protests and other collective actions are</i>	- .70	- .70	- .69	- .68	- .69	- .69	- .69	<b>-.69</b>

Factor	Item	Factor Loadings							
		Model							
	<i>necessary to achieve a better society.</i>								
	17 <i>Younger generations should work to change our outdated political system.</i>	-.53	-.53	-.53	-	-	-	-	-
3 (A)	10 Without strong leaders, society as we know it would collapse.	.59	.59	.60	.60	.60	.60	.60	<b>.62</b>
	11 Good national leaders keep us safe by standing up to those who would do us harm.	.62	.62	.66	.66	.66	.66	.65	<b>.68</b>
	18 I appreciate government surveillance because it protects our country from threats.	.67	.67	.67	.66	.67	.67	.67	<b>.66</b>
	19 Laws and rules are the best way to keep society functioning properly.	.68	.68	.67	.66	.66	.66	.66	<b>.69</b>
	20 Having a strong military is how our government keeps us safe.	.71	.71	.71	.71	.71	.71	.72	-
	21 <i>I dislike it when the government restricts our freedoms to supposedly keep us safe.</i>	-.02	-	-	-	-	-	-	-
	22 <i>I'm fine with disobeying authorities if they are acting unfairly.</i>	-.42	-.42	-	-	-	-	-	-

Notes: Con-trait items are italicized.

Modification indices for model 7 and subsequent exploration indicated problematically high cross-loadings for the item 'Having a strong military is how our government keeps us safe' on the traditionalism factor. Removing the item improved

model fit. Interestingly, while in the previous study item 18 (“I appreciate government surveillance because it protects our country from threats”) was excluded due to poor factor loadings, in this study, it demonstrated a high loading on the authoritarianism factor. The reasons for this are unclear but could potentially reflect differences in sample characteristics. Study 4 comprised a sample of university students, while this study recruited a more demographically representative sample of Canadian adults.

Another interesting difference, compared to the previous study, is the relative strength of the inter-factor correlations, shown below in Table 65. All factor correlations were smaller in comparison to Study 4; in particular, the size of the correlation between egalitarianism and authoritarianism shrank by .39. The relationship between egalitarianism and traditionalism also decreased by .18, and traditionalism and authoritarianism decreased by .23. A compelling explanation may be found in the literature on political sophistication. Ideology is more coherent as political sophistication increases (Choma & Hafer, 2009; Mirisola et al., 2007; Sidanius & Lau, 1989), potentially resulting in higher correlations between different dimensions. University-educated populations – like the sample in Study 4 – may have a higher degree of political sophistication due to receiving postsecondary education.

**Table 65: Inter-factor correlations for CFA 3**

	1.	2.	3.
1. Egalitarianism	-		
2. Traditionalism	.67	-	
3. Authoritarianism	.13	.53	-

Based on the results of the CFA, seven items were removed, and the three-factor scale with 15 items – four authoritarianism items, five egalitarianism items, and six traditionalism items – was used in subsequent tests of scale reliability and validity.

### 3.3.2.2 Reliability and Validity Analyses

#### 3.3.2.2.1 Internal Consistency

Internal reliability coefficients for Egalitarianism ( $\alpha = .83$ ), Traditionalism ( $\alpha = .85$ ), and Authoritarianism ( $\alpha = .75$ ) were good.

### 3.3.2.2.2 Criterion Validity

The outcome of interest in this study was behavioural intention to receive a COVID-19 vaccine. Theoretically, attitudes and intentions regarding the COVID-19 vaccine should be polarized along political lines in much the same way as attitudes towards the broader pandemic (Cakanlar et al., 2020; Chock and Kim, 2020) and vaccination in general (Baumgaertner et al., 2018); specifically, political attitudes characterized as conservative, or less egalitarian and more traditional, should predict negative attitudes towards the vaccine. The role of authoritarianism was less clear. To explore this question, a regression analysis was conducted, controlling for gender, age, and ethnic minority status, and filtering out participants who indicated a medical contraindication to the vaccine, in order to determine which factors predicted likelihood of and willingness to receive a COVID-19 vaccine. Table 66 and 67 depict the results of the regression analyses. Bivariate correlations between study variables can be found in the Appendix.

**Table 66: Regression analysis for ideology scale and likelihood of receiving COVID-19 vaccine**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.312	.067
Age	-.005	-.070	.945		
Gender	-.084	-1.129	.260		
Ethnicity	.008	.101	.920		
<b>Egalitarianism</b>	<b>.204</b>	<b>2.267</b>	<b>.025</b>		
Traditionalism	-.171	-1.745	.083		
Authoritarianism	.048	.612	.541		

*Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)*

**Table 67: Regression analysis for ideology scale and willingness to receive a COVID-19 vaccine**

	$\beta$	t	p	R	Adjusted R <sup>2</sup>
				.340	.086
Age	-.012	-.160	.873		
Gender	-.059	-.797	.426		
Ethnicity	.015	.203	.840		

<b>Egalitarianism</b>	<b>.320</b>	<b>3.597</b>	<b>.000</b>
Traditionalism	-.041	-.428	.669
Authoritarianism	-.017	-.213	.831

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White)

### 3.3.2.2.3 Incremental Validity

Another question of interest was whether the NPIS is more useful than left-right affiliation in predicting vaccine intentions. A stepwise regression was conducted for each outcome to investigate this question and assess incremental validity, depicted in Tables 68 and 69.

**Table 68: Regression analysis for left-right affiliation, ideology scale, and likelihood of receiving COVID-19 vaccine**

	$\beta$	t	p	R	Adjust. R <sup>2</sup>	F change	p
				.384	.128		
Age	.025	.341	.733				
Gender	-.107	-1.488	.138				
Ethnicity	.054	.734	.464				
<b>Left-right</b>	<b>-.404</b>	<b>-5.515</b>	<b>.000</b>				
				.396	.123	.657	.579
Age	.017	.228	.820				
Gender	-.122	-1.668	.097				
Ethnicity	.042	.556	.579				
<b>Left-right</b>	<b>-.372</b>	<b>-3.538</b>	<b>.001</b>				
Egalitarianism	.108	1.177	.241				
Traditionalism	.029	.263	.793				
Authoritarianism	.046	.591	.555				

Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher L-R affiliation = more right-wing beliefs

**Table 69: Regression analysis for left-right affiliation, ideology scale, and willingness to receive COVID-19 vaccine**

	$\beta$	t	p	R	Adjust. R <sup>2</sup>	F change	p
				.367	.115		
Age	.025	.332	.740				
Gender	-.077	-1.067	.287				
Ethnicity	.058	.783	.435				
<b>Left-right</b>	<b>-.385</b>	<b>-5.219</b>	<b>.000</b>				
				.409	.134	2.322	.077

	$\beta$	$t$	$p$	$R$	Adjust. $R^2$	F change	$p$
Age	.007	.097	.923				
Gender	-.094	-1.299	.196				
Ethnicity	.048	.645	.520				
<b>Left-right</b>	<b>-.341</b>	<b>-3.261</b>	<b>.001</b>				
<b>Egalitarianism</b>	<b>.235</b>	<b>2.568</b>	<b>.011</b>				
Traditionalism	.144	1.333	.184				
Authoritarianism	-.022	-.282	.779				

*Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher L-R affiliation = more right-wing beliefs*

Left-right affiliation was a significant predictor of both the likelihood of receiving and the willingness to receive a COVID-19 vaccine. Egalitarianism was a significant predictor of willingness to receive the vaccine as well. However, F change values after including the NPIS were not significant (though for willingness to receive the vaccine, they were approaching significance at  $p = .077$ ). Egalitarianism was not a significant predictor of likelihood of receiving a vaccine after left-right affiliation was included, and the F change value was not significant.



## Chapter 4

### 4 Latent Profile Analysis

In chapter 4, a latent profile analysis (LPA) was conducted to investigate the profiles that might emerge from the NPIS, and the nature of these profiles as they related to the other political variables included in this study. The aim of LPA is to identify groups of individuals in relation to a set of continuous variables – in this case, the three factors of the NPIS. LPA assumes that there are unobserved latent profiles in a group of respondents and identifies these profiles of individuals based on their patterns of scores a given scale (in this case, the three ideology subscales), such that their profile is thought to reflect observed covariance between the items. In turn, this allows for estimates of the prevalence of the respective profiles and comparisons between the profiles on other variables of interest. LPA is generally used in an exploratory fashion, especially when little or no previous research on the topic exists (Finch & Bronk, 2011). As such, in this study, the profiles were not specified *a priori* but rather were inferred from the results of the analysis.

#### 4.1 Methods

##### 4.1.1 Participants and Data Cleaning

The LPA was conducted with the sample used in the second scale validation study as it had a sufficiently large  $N$  to identify an appropriate number of latent profiles. Nylund et al. (2007) suggest a minimum sample size of  $N = 500$  and, after data cleaning, this sample retained  $N = 522$ . This also facilitated comparisons between the profiles on the other scales administered in validation study 4: SDO, RWA, and attitudes towards collective action. This sample was recruited via a combination of Western University's SONA undergraduate sample pool and the university's Mass Recruitment system. Information on data cleaning procedures and sample characteristics is described in the Methods section of validation study 4.

## 4.1.2 Procedure

All participants completed the questionnaires online via Qualtrics. Items and measures were presented in a randomized order to control for order effects. Timing and participation compensation are described in the Methods section of validation study 4.

## 4.1.3 Measures

Details on the questionnaires administered can be found in the Methods section of study 4. Scales included were the NPIS; SDO<sub>7</sub> (Ho et al., 2015; Pratto et al., 1994); RWA (Altemeyer, 2006); left-right political orientation (single item); a scale assessing attitudes towards collective action (Teixeira et al., 2020), and a range of single items regarding Canadian policy issues.

## 4.1.4 Data Analytic Decisions

The LPA was conducted in R with the *mclust* package. *Mclust* estimates model parameters using maximum likelihood estimation via the expectation-maximization (EM) algorithm.

### 4.1.4.1 Model selection criteria

Model selection criteria include the Bayesian Information Criterion (BIC), Integrated Completed Likelihood Criterion (ICL), and the Bootstrap Likelihood-Ratio Test (BLRT). The BIC is a model selection criterion developed by Schwarz (1978); lower BIC values indicate a better-fitting model. The ICL is like the BIC but imposes a penalty on model solutions with worse entropy values: the probability of respondents belonging to one profile, reflecting a clear delineation of groups (Bertoletti et al., 2015). Much like plotting eigenvalues in exploratory factor analysis, plotting the BIC and ICL on an elbow plot can be useful to visualize the relative gains in model fit acquired with each additional profile. This is useful as it is not uncommon for BIC values to improve continually with the addition of each profile (that is, BIC may overestimate the number of profiles; Nylund-Gibson & Choi, 2018).

The BLRT compares fit between  $k$  and  $k-1$  profile models; that is, it tests whether the addition of another profile improves model fit. Simulation studies by Nylund et al. (2007) as well as Tein et al. (2013) suggest that the BIC and BLRT are effective in determining the ideal number of profiles. A significant  $p$ -value associated with the BLRT is taken as support for the addition of a profile.

Also important is the interpretability and relative size of each profile. While here there was no *a priori* reason to expect a certain number of profiles or their characteristics, profiles should nonetheless be interpretable and meaningful, and they should be distinct from one another. Profiles containing 5% or less of the total sample may be spurious rather than theoretically meaningful, particularly if they are not easily interpretable; they may also not be generalizable to future samples (Masyn, 2013).

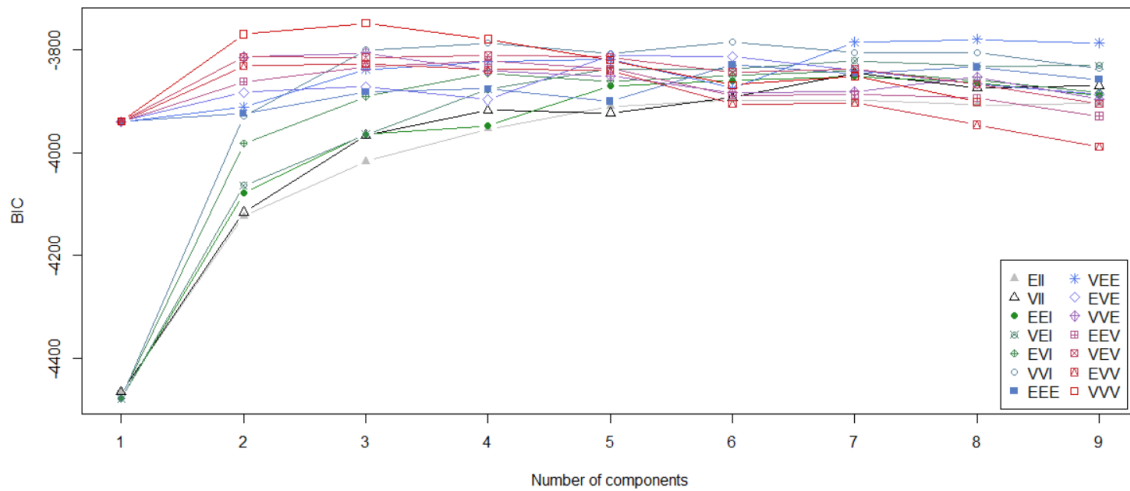
Following the selection of the appropriate number of profiles, a variable for profile membership was created to facilitate comparisons between groups including relative sizes, demographic differences, and mean scores on political variables of interest.

## 4.2 Results and Discussion

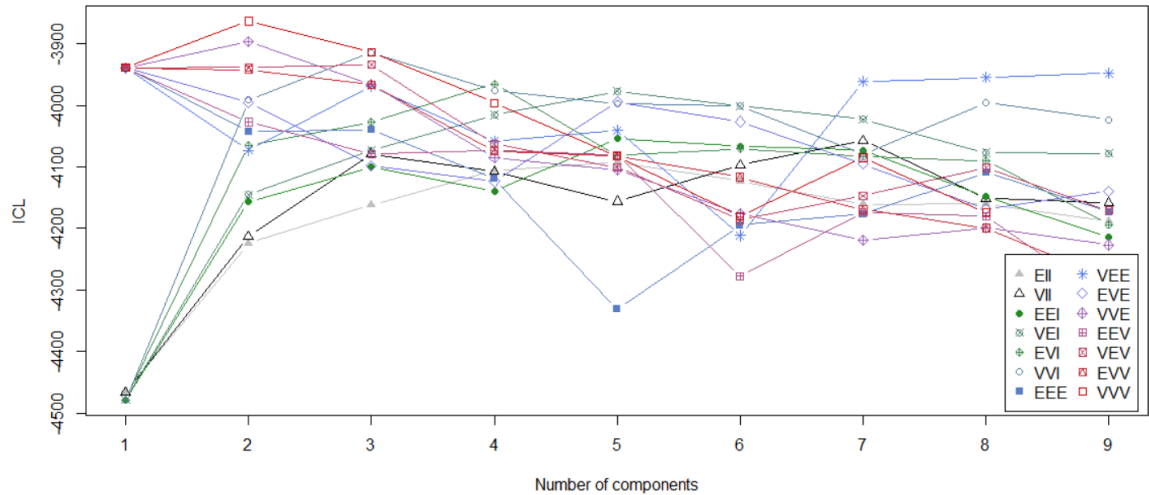
BIC and ICL values were calculated for models with one to nine profiles and different covariance structures. The *mclust* package supports modeling data as Gaussian mixture models differing in covariance structure regarding distribution (spherical, diagonal, or ellipsoidal patterns), volume (equal or variable), shape (equal or variable) and orientation (to coordinate axes, equal, or variable). Figure 2 from Scrucca et al. (2016) depicts an excellent two-dimensional visualization of the geometric structures of the possible models in *mclust*. There was no *a priori* reason to impose any constraints on the covariance structure of the model, so all models were tested.

Figures 3 and 4 below depict the elbow plots for BIC and ICL, respectively. The best-fitting model per BIC was an ellipsoidal model with variable volume, variable shape, and variable orientation (VVV) with three profiles (BIC = -3747.153); close behind were VVV models with two profiles (BIC = -3768.772) and four profiles (-3778.382).

Results from ICL were similar, but not identical, to BIC. Per ICL, the best fitting model was a VVV model with two profiles (ICL = -3863.409), second best was an ellipsoidal model with variable volume, variable shape, and equal orientation (VVE) with two profiles (ICL = -38.95.866), and third best was a VVV model with three profiles (ICL = -3913.332). Thus, taken together, BIC and ICL supported the selection of an unconstrained (VVV) model with two, three, or potentially four profiles.



**Figure 3: BIC values for all possible models with one to nine latent profiles**



**Figure 4: ICL values for all possible models with one to nine latent profiles**

The BLRT, shown below in Table 70, compared model fit for the VVV models with one through five profiles. The results of the BLRT suggested that a four-profile model is ideal – that is, four profiles offered a significant improvement in model fit over three profiles, but the fit was not significantly improved by the addition of a fifth profile.

**Table 70: BLRT values for models with one through five profiles**

Number of profiles	BLRT	<i>p</i>
1 vs 2	232.656	.001
2 vs 3	84.196	.001
3 vs 4	31.348	.007
4 vs 5	21.792	.184

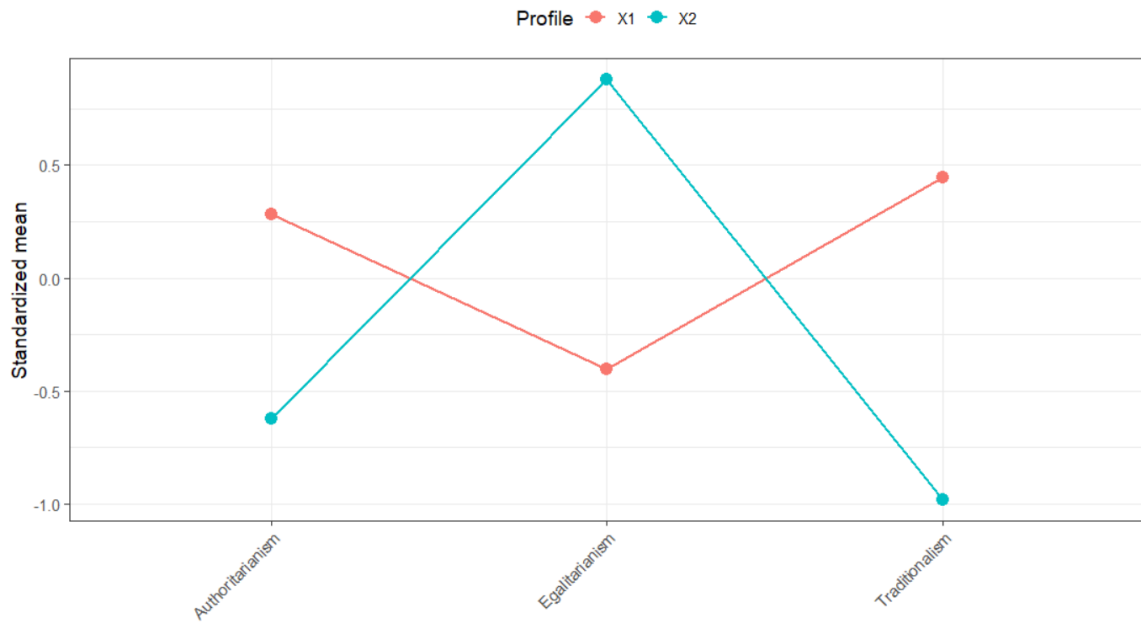
Table 71 below compares BIC, ICL, and profile size for VVV models with two, three, and four profiles. BIC and ICL values were similar in size.

**Table 71: Comparison of VVV models with two, three, and four latent profiles.**

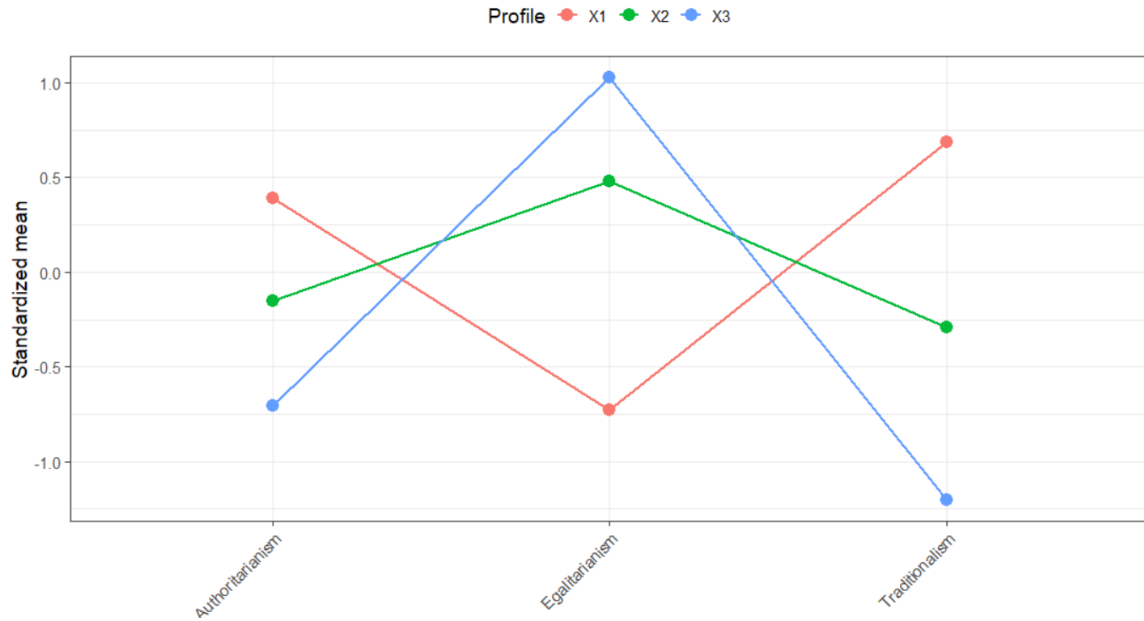
	<i>n</i>	df	BIC	ICL
Two-profile	351; 171	19	-3768.772	-3863.409
Three-profile	237; 167; 118	29	-3747.153	-3913.332
Four-profile	120; 118; 166; 118	39	-3778.381	-3995.913

While the BLRT supported selection of a four-profile model, when considered together with the BIC and ICL values, criteria were somewhat ambiguous. Two-, three-,

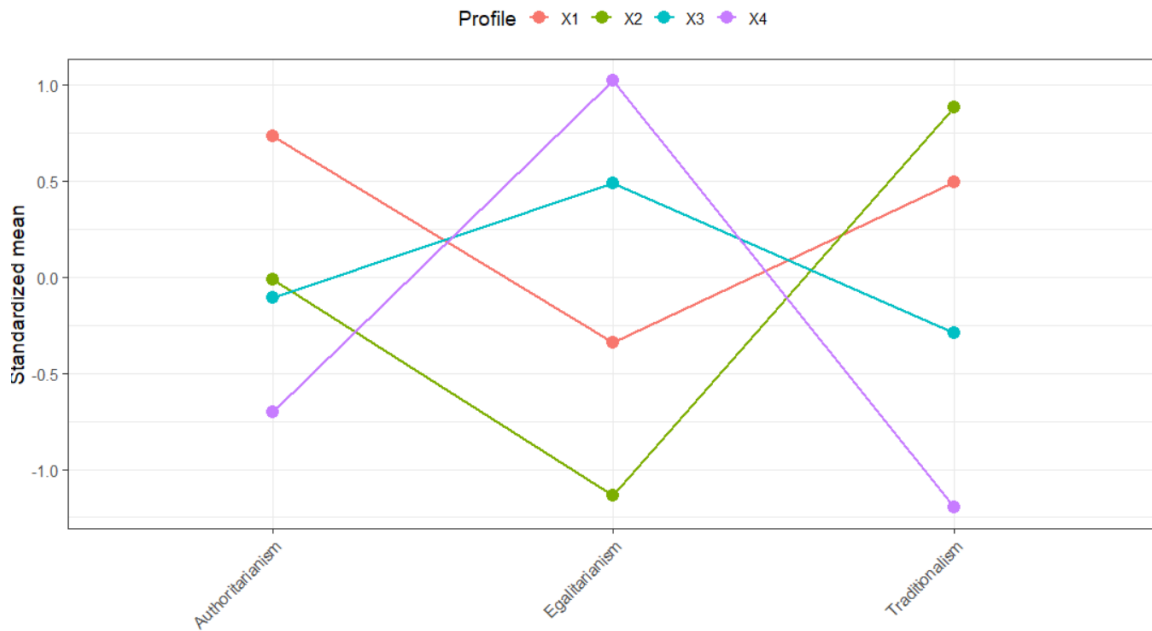
and four-profile models were plotted to facilitate interpretation and model selection. Indicators (the NPIS factors) were standardized to facilitate interpretation of profile plots. Figures 5 through 7 below depict the profiles for the two-, three-, and four-profile solutions.



**Figure 5: Latent model with two profiles**



**Figure 6: Latent model with three profiles**



**Figure 7: Latent model with four profiles**

Profiles in all models were interpreted. The two-profile model was readily understood as a group of left-leaning or ‘liberal’ individuals and a group of right-leaning or ‘conservative’ individuals. The three-profile model also contained a profile of liberals

and a group of conservatives, with the addition of a group of ‘centrists’ or ‘moderates’, who scored above average on egalitarianism but scored near the scale means for traditionalism and authoritarianism.

The four-profile model was retained for both statistical and theoretical reasons. First, the BLRT suggested that a four-profile model offered significant improvement over a three-profile model, and BIC values were very close in size between the two-, three-, and four-profile models. The relative sizes of the groups were adequate – none contained less than 5% of the total sample. The four profiles were also theoretically compelling and meaningful. The four-profile model illustrates two potentially ‘extreme’ groups and two more moderate groups that are also clearly distinct. These four groups were interpreted as a ‘progressive leftist’ group characterized by very high egalitarianism, very low authoritarianism, and very low traditionalism; a ‘moderate liberal’ group characterized by average authoritarianism, higher than average egalitarianism, and lower than average traditionalism; a ‘moderate conservative’ group characterized by very high authoritarianism, lower than average egalitarianism, and higher than average traditionalism, and a ‘reactionary/extreme conservative’ group characterized by average authoritarianism, very low egalitarianism, and very high traditionalism. These groups are referred to as ‘progressives’, ‘liberals’, ‘conservatives’, and ‘reactionaries’ hereafter. Table 72 below depicts the means, standard deviations, and *n* of each profile.

**Table 72: Descriptive statistics of the four latent profiles**

Profile	<i>n</i>	Mean (SD)		
		Egalitarianism	Traditionalism	Authoritarianism
Progressives	118	6.84 (.17)	1.54 (.34)	3.74 (1.16)
Liberals	166	6.19 (.39)	2.56 (.59)	4.39 (1.05)
Conservatives	120	5.09 (.64)	3.56 (.93)	5.41 (.60)
Reactionaries	118	4.14 (1.04)	3.96 (.70)	4.47 (.73)

A one-way ANOVA was conducted to test whether differences in these group means were significant. The overall ANOVA was significant for egalitarianism,  $F = 438.560$ ,  $p < .001$ ; traditionalism,  $F = 315.319$ ,  $p < .001$ ; and authoritarianism,  $F = 63.980$ ,  $p < .001$ . All post-hoc comparisons were significant as well, with one exception:



authoritarianism scores for reactionaries and moderate liberals were not significantly different.

The nature of the authoritarianism scores was interesting. If political ideology is conventionally viewed as a one-dimensional spectrum, the profiles identified here neatly illustrated this spectrum, but only for egalitarianism and traditionalism; that is, the progressives had the highest egalitarianism and lowest traditionalism, followed by the moderate liberals, then the moderate conservatives, and finally the reactionaries. However, the authoritarianism factor breaks from this convention. It did not follow the same pattern as traditionalism, even though these constructs are often considered ‘conservative’ and assessed together (in the RWA scale, for example, despite criticisms; e.g., Funke, 2005; Mavor et al., 2010). Here, the reactionary group had average authoritarianism scores – and their scores were not significantly different from the moderate liberals. The moderate conservatives, on the other hand, were the only highly authoritarian group.

It is also interesting to consider this finding in conjunction with the fact that the authoritarianism factor was a strong predictor of attitudes towards collective action in the scale validation studies. Taken together, this suggests that there could be differences between conservative groups that have been suggested before in literature on, for example, the ‘alt-right’. Forscher and Kteily (2020) found that the alt-right tend to be more suspicious of mainstream media institutions, and they demonstrate high enthusiasm for collective action (specifically, actions on behalf of White individuals). This new and more extreme arm of the right wing may be less authoritarian than their classic conservative counterparts and could be more willing to challenge existing institutions or engage in radical collective action. With that said, while this suggests interesting avenues for future research, from this preliminary analysis it is impossible to know whether these profile members identify as the alt-right, and the sheer size of the profile (around a fifth of the sample) is difficult to square with the idea that the alt-right is a small fringe movement. A note of caution is also necessary when comparing group means where the groups themselves have been produced by LPA. While these results suggest the LPA

method was successful in creating distinct groups, inferences made about a population based on the ANOVA results should be interpreted with caution.

The demographics of the profiles were also compared. Table 73 below depicts descriptive statistics for age, gender, and ethnic minority status for the four profiles. Chi-square values were significant for the categorical variables of gender,  $\chi^2_{(3)} = 48.805$ ,  $p < .001$ , and ethnicity,  $\chi^2_{(3)} = 12.404$ ,  $p = .006$ .

**Table 73: Observed versus expected cell counts for demographic variables across the four latent profiles**

	Age	Gender (n)		Ethnicity (n)	
	Mean (SD)	Male	Female	White	Ethnic minority
Progressives	22.70 (6.29)				
<i>Observed n</i>		13	95	76	42
<i>Expected n</i>		35.0	73.0	59.9	58.1
Liberals	22.66 (6.67)				
<i>Observed n</i>		39	116	82	84
<i>Expected n</i>		50.3	104.7	84.3	84.3
Conservatives	21.59 (5.56)				
<i>Observed n</i>		49	66	56	64
<i>Expected n</i>		37.3	77.7	60.9	59.1
Reactionaries	22.12 (8.01)				
<i>Observed n</i>		58	54	51	67
<i>Expected n</i>		36.3	75.7	59.9	58.1

Individuals who identified as an ethnic minority (non-White ethnic group in Canada) were proportionately over-represented in the conservative and reactionary profiles and underrepresented in the progressive profile. In keeping with previous literature, women were proportionately overrepresented in the two left-leaning (progressive and liberal) profiles and underrepresented in the two right-leaning (conservative and reactionary) profiles. Mean ages of the profiles were similar, likely in part because this sample was limited to university students.

Next, the profiles were compared on SDO-D, SDO-E, RWA, attitudes towards normative collective action, and attitudes towards non-normative collective action.

Profile means and standard deviations are shown below in Table 74.

**Table 74: Means and standard deviations for the four latent profiles on SDO, RWA, and collective action**

Profile	Mean (SD)				
	SDO-D	SDO-E	RWA	NormCA	Non-normCA
Progressives	1.36 (.41)	1.25 (.37)	1.78 (.55)	6.73 (.45)	3.05 (1.24)
Liberals	2.00 (.80)	1.79 (.72)	2.53 (.81)	6.40 (.66)	2.50 (1.11)
Conservatives	2.69 (.92)	2.42 (.97)	3.49 (1.15)	6.01 (.93)	2.09 (.93)
Reactionaries	3.26 (1.01)	3.39 (1.03)	4.05 (1.23)	5.48 (1.13)	2.41 (1.02)

*Notes: Gender (0 = man; 1 = woman); ethnicity (0 = White; 1 = non-White); higher SDO-D and SDO-E = greater social dominance; higher RWA = greater authoritarianism*

A one-way ANOVA revealed significant differences for all variables: SDO-E,  $F = 155.651$ ,  $p < .001$ ; SDO-D,  $F = 122.592$ ,  $p < .001$ ; RWA,  $F = 131.358$ ,  $p < .001$ ; normative collective action,  $F = 51.924$ ,  $p < .001$ ; and non-normative collective action,  $F = 16.710$ ,  $p < .001$ . Post-hoc tests indicated that differences between profiles were all significant at the  $p < .001$  level for SDO-E, SDO-D, and RWA. These differences were in theoretically expected directions; progressives scored significantly lower on SDO and RWA than liberals, who in turn scored lower on these than conservatives, who in turn scored lower on these than reactionaries. At a glance, this contradicts the finding that the conservative profile was the most authoritarian (while liberals and reactionaries did not differ), but it should be reiterated that the RWA scale conflates the constructs of traditionalism and authoritarianism with the use of double-barreled and triple-barreled items (as well as incorporates constructs like homonegativity and religiosity), making it impossible to directly compare to the authoritarianism factor in the NPIS (Funke, 2005; Mavor et al., 2010).

For collective action attitudes, post-hoc tests revealed significant differences between all profile comparisons for normative collection action at the  $p < .001$  level or, in the case of liberals versus conservatives and liberals versus progressives, at the  $p < .01$  level ( $p = .001$  and  $.004$ , respectively). For attitudes towards non-normative collection action, conservatives and reactionaries did not significantly differ from one another ( $p =$

.085), nor did liberals and reactionaries – in fact, they were functionally the same (2.50 and 2.41, respectively;  $p = 1.00$ ). All other comparisons were significant at either  $p < .001$  or, in the case of conservatives versus liberals, at  $p = .006$ .

Given what was found earlier with regards to authoritarianism and acceptance (or lack thereof) for non-normative collection action, and the fact that reactionaries and moderate liberals were similar on authoritarianism, their comparable attitudes towards non-normative action make sense. This further supports the notion that authoritarianism is a key driver for intolerance towards system-challenging forms of action. It is worth noting that for all groups, the average degree of acceptance for non-normative action was below the scale midpoint – that is, most respondents found these actions unacceptable, but they differed in how unacceptable they found them. Similarly, most respondents evidently found normative actions acceptable, but reactionaries less so than conservatives, conservatives less so than liberals, and liberals less so than progressives.

It is also worth noting the wider variance in attitudes towards non-normative action than normative action. Standard deviations for all profiles were higher for non-normative action, indicating more variance in the degree to which these actions were tolerated. Conversely, progressives and liberals did not exhibit a lot of variance in their attitudes towards normative actions; they were widely agreed on by respondents in these profiles to be highly acceptable. This was not the case for the reactionaries, who exhibited a wide degree of variance in attitudes towards normative actions.

## Chapter 5

### 5 Experimental Analysis: Political Ideology and Vaccine Intentions

The goal of this chapter was to employ the scale in the context of an experiment on the role of political ideology and message framing in influencing behavioural intentions to take a COVID-19 vaccine. I sought to investigate the independent and interactive contributions of the NPIS to politically relevant messaging as another aspect of the scale validation process, as well as to contribute to the body of literature on persuasive messaging. To these ends, this study applied the NPIS to investigate which ideological dimensions were relevant in predicting vaccine hesitancy, and the extent to which vaccine acceptance is influenced by persuasive messaging and its interactive effect with ideology.

#### 5.1 Political Ideology, Message Framing, and Vaccination Intentions

Ideological polarization is present in attitudes towards COVID-19 and towards the measures taken to manage the pandemic, including mask-wearing, lockdowns, and vaccinations (Cakanlar et al., 2020; Chock and Kim, 2020), as well as to vaccination for other diseases (Baumgaertner et al., 2018). However, there is growing research that this polarization can be mitigated with targeted message framing. Specifically, individuals with beliefs characterized by anti-egalitarianism and resistance to change (i.e., ‘conservatism’; e.g., Jost et al., 2003a) tend to be persuaded by messages emphasizing patriotism and adherence to in-group norms, while their more egalitarian, progressive counterparts (‘liberals’) are more influenced by messages emphasizing fairness and empathy (Kidwell et al., 2013; Graham et al., 2009). For example, targeted message framing is effective in shifting conservatives’ attitudes on issues such as environmental conservation (Kidwell et al., 2013; Wolsko et al., 2016), and COVID-19 preventive measures (e.g., mask-wearing; Cakanlar et al., 2020).

The literature on liberal-conservative ideology – characterized by individual differences in egalitarianism and resistance to change – suggests 1) a strong link between

polarization on the issue of COVID-19 vaccines and 2) the potential to shift attitudes by using messaging appealing to conservatives versus liberals. I made the following hypotheses: first, the scale factors egalitarianism and traditionalism should predict intentions to take a COVID-19 vaccine (positively and negatively, respectively). The role of authoritarianism is less clear from the literature, and no specific hypotheses were made. Additionally, I expected that egalitarianism and traditionalism would interact with message framing to predict intentions to take a COVID-19 vaccine. Specifically, messaging emphasizing fairness and compassionate reasons to take the vaccine should be particularly effective when egalitarianism is high or traditionalism is low; conversely, messaging emphasizing in-group norms and patriotic reasons to take the vaccine should be particularly effective when egalitarianism is low or traditionalism is high.

For comparative purposes, a single-item, self-reported political affiliation item (left to right) was also included. Theoretically, the fairness/caring prompt should be particularly effective on those who identify as more left-leaning, and the converse should be true for the patriotism/in-group norms prompt.

To test these hypotheses, three persuasive messages were written regarding the COVID-19 vaccine: a fairness/caring frame, a patriotic/in-group norms frame, and a neutral control emphasizing statistics on the vaccines' reported efficacies. At the time this study was conducted (April-May 2021), vaccine roll-out in Canada was nascent, with a significant portion of the population not yet eligible to receive one of the approved vaccines, and the messages were phrased accordingly. Below are the three appeals.

### 5.1.1 Fairness/Caring Appeal

*Do your part to keep others safe from COVID-19 – Take the COVID-19 vaccine*

*Did you know that taking a COVID-19 vaccine can make a difference for others, as well as yourself? By taking one of the COVID-19 vaccines – such as those made by Moderna, Pfizer, or AstraZeneca – when it's available to you, you are helping to protect the health and safety of everyone in Canada. That's because the more people choose to get vaccinated, the less likely it is the novel coronavirus will be able to continue spreading.*

*However, some people are not medically able to take the vaccine – so it is up to the rest of us to do our part. In other words, taking the COVID-19 vaccine is one way you can help care for the health and safety of others. You can do your part to end this pandemic for everyone by taking the vaccine when it's available to you.*

*Help keep everyone healthy!*

### 5.1.2 Patriotic/In-Group Norms Appeal

*Join your fellow Canadians in fighting COVID-19 – Take the COVID-19 vaccine*

*Did you know that the majority of Canadian citizens intend to take the COVID-19 vaccine? Most people in Canada want to do their part to fight COVID-19 by taking one of the COVID-19 vaccines – such as those made by Moderna, Pfizer, or AstraZeneca – as soon as it's available to them. That's because getting vaccinated against COVID-19 brings us one step closer to eliminating the novel coronavirus. In other words, Canadian citizens recognize their duty to combat the pandemic that is threatening the wellbeing of our country. You can assist in this fight by joining your fellow Canadians in taking the vaccine when it's available to you.*

*Help Canada defeat COVID-19!*

### 5.1.3 Control

*COVID-19 vaccines are evidenced-based, safe, and effective – Take the COVID-19 vaccine*

*Did you know that peer-reviewed scientific studies show the approved COVID-19 vaccines are effective in preventing COVID-19, the disease caused by the novel coronavirus? According to the Ontario Ministry of Health and based on ongoing research, the Moderna and Pfizer vaccines are over 90% effective at preventing symptomatic COVID-19, and the AstraZeneca vaccine is around 70% effective. Current evidence also suggests that it is extremely rare for individuals to develop serious side effects from any of these vaccines. Most side effects reported are minor and manageable – for example, pain at the injection site, headache, or mild fever. Currently, it is*

*recommended that healthy Canadians over the age of 16 (Pfizer) or 18 (Moderna and AstraZeneca) without medical contraindications should be offered a COVID-19 vaccine when doses are available.*

## 5.2 Methods

### 5.2.1 Participants and Data Cleaning

Participants were recruited via the Prolific survey platform and compensated with £1.10 British pounds (roughly equivalent to \$1.90 Canadian dollars). The sample was comprised of Canadian adults over the age of 18 who had not yet received any doses of a COVID-19 vaccine. In total, 200 participants were recruited who fit these criteria. Data cleaning procedures as well as sample characteristics are outlined in the Methods section of Study 5. Sample size after data cleaning was  $N = 191$ .

### 5.2.2 Procedure

Participants completed the study online via Qualtrics, which took approximately 10 minutes to complete. After reading the Letter of Information and consenting to participate, participants were randomly assigned to read one of the three message frames. Participants read the following prompt: “Below is a paragraph with some information about the COVID-19 vaccine. Please take the time to read this paragraph carefully. Please note that the “next” button will not display for 30 seconds, to give you time to read the paragraph.” Afterwards, participants read the message frame.

After reading the message frame, participants completed the section of the questionnaire assessing their intentions to take the COVID-19 vaccine, followed by the NPIS and demographic questions (including left-right political affiliation).

### 5.2.3 Measures

#### 5.2.3.1 New Political Ideology Scale

The version of the NPIS identified in Study 5 (15 items) was used.



### 5.2.3.2 Vaccination Intentions

Intentions to take a COVID-19 vaccine were assessed with two questions: “How likely or unlikely are you to choose to receive one of the COVID-19 vaccines in the future, when you are eligible to do so and doses are available?” and “How reluctant or willing are you to receive a COVID-19 vaccine in the future, when you are eligible to do so and doses are available?”. Both were measured on a 7-point Likert-type scale ranging from 1 (“extremely unlikely” or “extremely reluctant”) to 7 (“extremely likely” or “extremely willing”).

### 5.2.3.3 Contraindications

To control for the possibility that participants were unwilling to receive a vaccine because of a medical contraindication, I included the following yes-or-no question: “Has your healthcare provider advised that you should not receive a COVID-19 vaccine because of an existing medical issue (e.g., allergy to one of the vaccine components)?”. Two participants (1.00%) indicated that they were advised by their doctors they had medical contraindications to receiving the vaccine and were excluded from analyses.

### 5.2.3.4 Left-right Political Orientation

Left-right political orientation was assessed with a single item measured on a 7-point Likert-type scale, with 1 representing “Very liberal/left-wing” and a 7 representing “Very conservative/right-wing”.

### 5.2.3.5 Data Analytic Decisions

To assess whether ideology influenced COVID-19 vaccine intentions, as well as whether the ideology-congruent messaging was effective, the following analyses were conducted. The political ideology factor scores were calculated and were mean-centered. Experimental condition was dummy-coded such that two ( $k-1$ ) dummy variables were created to represent the three conditions, with the control condition as reference group.

Scatterplots were generated for egalitarianism, traditionalism, and authoritarianism by treatment group for both dependent variables (likelihood of and

willingness to receive a COVID-19 vaccine) as a visual exploration of interactive effects, which can be found in Appendix I. The scatterplots suggested the possibility of interactions in all cases. However, in conducting data cleaning as well as the analyses in Chapter 3, it was found that the outcome variables – likelihood of and willingness to receive a COVID vaccine – were highly skewed. Vaccine likelihood had a mean score of 6.39 (on the seven-point Likert scale), standard deviation of 1.35, and skewness value of -2.70; vaccine willingness had a mean score of 6.05, standard deviation of 1.68, and skewness of -1.84. In short, most of the sample indicated they strongly intended to take the COVID vaccine when it became available to them. As such, the decision was made to convert the 7-point variable to a binary outcome, in which scores from 1 and 4 would be coded as 0 ('Unlikely' and 'Unwilling') and scores from 5 to 7 would be coded as 1 ('Likely' and 'Willing'). In total, 19 participants were 'Unlikely' versus 172 'Likely' to receive the vaccine, and 30 participants were 'Unwilling' versus 161 'Willing' to receive the vaccine.

Ideology factor scores were mean centered for ease of interpretation, and condition variables were dummy-coded to create 2 ( $k-1$ ) dummy variables with the control condition as reference group. Interactive terms were created by computing the product of the mean centered ideology variables with dummy-coded condition variables.

Ideology, condition, and the ideology by condition interaction were regressed onto the two binary outcome variables: willingness to and likelihood of receiving a COVID-19 vaccine in the future. Interactive effects were included at step two of the regression, and main effects interpreted separately, given that the inclusion of interactions can alter the size of main effects in a model.

### 5.3 Results and Discussion

A binomial logistic regression was calculated for each model in SPSS to test for the existence of interaction effects between condition and the ideology variables on vaccine intentions, after controlling for the effects of age, gender, and ethnic minority identity. The interaction term (ideology by condition) was entered at Step 2. No significant interactive effects were found for ideology by condition on either outcome

variable, though the interaction between egalitarianism and the patriotic condition approached significance ( $p = .073$ ;  $\text{Exp}(B) = 3.296$ ).

As expected, and in line with results from the regression analyses in Chapter 3, a significant main effect was found for egalitarianism on likelihood ( $p = .012$ ;  $\text{Exp}(B) = 1.817$ ) and willingness ( $p = .001$ ;  $\text{Exp}(B) = 2.033$ ), suggesting more egalitarian individuals were twice as likely to report intentions to receive the vaccine. Significant main effects were also found for traditionalism on likelihood ( $p = .043$ ;  $\text{Exp}(B) = .628$ ) and willingness ( $p = .019$ ;  $\text{Exp}(B) = .633$ ), suggesting more traditional individuals were about two-thirds as likely to report intentions to receive the vaccine. No significant main effects were found for authoritarianism.

For comparative purposes and given left-right affiliation was a significant predictor of vaccine intentions in previous analyses, the experimental analyses were run using left-right affiliation as the ideological predictor variable instead of the NPIS factors. As expected, left-right affiliation had a significant main effect, and suggested individuals who identified as right-wing were about half as likely to express a likelihood of taking the vaccine ( $p < .001$ ;  $\text{Exp}(B) = .449$ ), or a willingness to ( $p < .001$ ;  $\text{Exp}(B) = .517$ ). However, no interactive effects between left-right affiliation and condition were found for either outcome. This suggests the lack of interaction effects was not a failing of the NPIS but might signify other limitations in the design.

### 5.3.1 Limitations

A total of 172 (90.10%) participants indicated they were at least slightly likely to receive a COVID-19 vaccine, with 140 (73.30%) indicating they were extremely likely to do so; similarly, 161 (84.30%) indicated they were at least slightly willing to receive the vaccine, and 123 (64.40%) were extremely willing. Thus, respondents were, overall, highly enthusiastic to receive a COVID-19 vaccine. More accurate results could potentially be obtained if a more proportional number of vaccine-hesitant respondents had completed the survey. By August 2021 (approximately 4 months after data collection), only approximately 16% of Canadians 12 years of age and older had not yet received at least one vaccine dose. Recruiting the vaccine-hesitant population in a

representative proportion with adequate study power would likely require a larger sample size than obtained here.

It is also possible that the messages were not sufficiently persuasive. Future studies using this framework could employ independent raters to assess the adequacy of the messages, especially insofar as they characterize patriotism and in-group norms or fairness and caring values. Another alternative could be to re-evaluate what ideological values might be tapped into with the messaging frames. For example, though prior researchers have successfully used patriotism framings in persuasive appeals, in this case it may be that the messaging would be more persuasive to right-leaning individuals if the framing emphasized the ways in which the pandemic has upset the status quo or stability of the system – thus appealing to this population’s presumed resistance to change.

## Chapter 6

### 6 General Discussion and Conclusion

#### 6.1 The New Political Ideology Scale as a Measure of Core Political Values

The introductory chapter outlined the following definition of political ideology: it is internally consistent and relatively stable, and it reflects a vision of how society should function, gives meaning to the political environment, and facilitates political decision-making. Operating under this definition, the NPIS is a satisfactory tool for the purpose.

The three factors of egalitarianism, traditionalism, and authoritarianism were found across the samples tested in the confirmatory factor analyses, and the factors themselves were internally consistent and theoretically meaningful. Scale scores were also demonstrably stable across time, based on the test-retest analyses conducted in chapter 3. Further, the intent of the scale was to tap into core political values – not support for specific political policies – that reflect general beliefs about how society should function. That is, the spirit of developing this instrument was to address attitudes towards questions like ‘How equally should resources be distributed?’ rather than support for a specific tax policy; or ‘Is it the government’s role to use force to exercise authority?’ rather than support for involvement in a specific war or ideas about precisely how much funding police departments should receive (as examples). If political ideology reflects a vision for how society should function on a broad level, the new scale arguably assesses these visions.

The scale also reflects and predicts the symbolic ideologies people use. It correlates highly with self-identification as left-wing or liberal versus right-wing or conservative. It also predicts political party affiliation. These types of symbolic descriptors are the terms most people will reach for if asked to describe their political views (even though, as some researchers point out, many people use them inaccurately, e.g., Ellis & Stimson, 2007; Kalmoe, 2020). Perhaps more important than the scale’s correlation with symbolic descriptors is its demonstrated link to intentions and behaviours. The scale was a strong predictor of voting behaviour – egalitarian individuals

were more likely to vote for a left-leaning party, and anti-authoritarian individuals were more likely to vote for a fringe party (the Green Party). The scale also predicted vaccination intentions, which, while not specifically a political outcome, are nonetheless politically polarized. In short, the NPIS captures individuals' broad political orientations, and it predicts their political decision-making.

Contentions about the end or the abuse of ideology usually center on arguments that the public does not understand ideological terminology like right-wing; that their belief systems are too disorganized to predict political behaviour, at least if they are politically unsophisticated; and that their belief systems are unstable (Kalmoe, 2020). To address the first issue, it is true that only a modest percentage of individuals accurately interpret terms like conservative (Ellis & Stimson, 2007) and they often rely on different criteria to define terms like left and right (Feldman & Johnston, 2013), but this is precisely why it is necessary to use measures that do not rely on symbolic terms. Instead, researchers should employ measures that attempt to assess core political values, such as the scale developed here.

Second, the contention that individuals' policy views are often disorganized is the reason it is inadvisable to construe ideology as an itemized collection of these same policy views. The complex and ever-changing nature of political policy does not lend itself to being used as an attitudinal measure. The development of the NPIS as a measure of core values implies that policy views are something *arising from* ideology – a downstream phenomenon – rather than equating to it or representing it. Researchers may disagree on the number and character of these values, but it is clear the general population has ideological inclinations. If they did not, it is doubtful the body of research on left-right or liberal-conservative orientation would be so productive (Carney et al., 2008; Jost et al., 2009); nor the literature on SDO (Ho et al., 2015; Pratto et al., 1994) and RWA (Altemeyer, 2006); nor would there have been evidence for the three-factor structure of egalitarianism, authoritarianism, and traditionalism, which proved useful here for predicting voting behaviour, support for collective action, and vaccination intentions (among other variables).

Lastly, ideology as measured by the new scale was stable. In chapter 3, test-retest reliability values (at two weeks) were between .87 and .90. Policy views may indeed be unstable, as Converse (1964), Ellis & Stimson (2012), and Kalmoe (2020) have pointed out, but core political values do not seem to be, at least in the short term. They may also be relatively stable in the long term. Block & Block (2006) noted that the traits that typify political orientation – at least along left and right lines – are apparent by preschool age. The instability noted by other scholars may reflect a difference in their operational definitions of ideology (symbolic ideology, core values, or policy views), and consequently a measurement problem.

## 6.2 The Three Factors of the New Political Ideology Scale

The factors identified in the development of the NPIS were egalitarianism, traditionalism, and authoritarianism. Initially, the hypothesized factors also included dogmatism or radicalism (versus moderatism), as well as two subfactors of authoritarianism – one capturing authoritarian obedience, and another authoritarian punitiveness, similar to the structure found in modern versions of the RWA scale (e.g., Duckitt et al., 2009; Mavor et al., 2010). The data did not support splitting the authoritarianism factor, nor did the hypothesized dogmatism factor manifest.

The final egalitarianism factor closely resembled the originally hypothesized construct and reflects attitudes about how resources should be distributed in society and how fairly others are treated. Two items written during the scale development process intended to capture attitudes about ‘equal access’ – towards healthcare and ‘opportunities’ more broadly – were ultimately removed from the egalitarianism factor due to their very high means and low variance. In other words, nearly all respondents agreed with these items, making them less useful for discriminating between people with high and low egalitarianism. Excluding these two items, the final egalitarianism factor had five items.

The traditionalism factor, like the egalitarianism factor, closely resembles the hypothesized construct, which was described as a general opposition to change, a dislike

of perceived ‘radical’ approaches, and value of traditional norms. It was the largest factor, with six items in the final version of the scale. The traditionalism factor had high inter-factor correlations with both egalitarianism and authoritarianism, which may indicate that other aspects of ‘conservatism’ – besides traditionalism or ‘resistance to change’ – are included in participants’ interpretations of the items. This limitation and some proposed modifications are further discussed in the future directions section.

It was hypothesized that there could have been an authoritarianism obedience or submission factor (versus freedom or liberty) and an authoritarianism aggression or punitiveness factor (versus pacifism). This hypothesis was largely based on the finding that the RWA scale contains both, in addition to conventionalism (e.g., Duckitt et al., 2009; Funke, 2005; Mavor et al., 2010). However, only one unified authoritarianism factor was identified – it was not statistically justified to separate the items written for these two constructs. One authoritarianism item – “I appreciate government surveillance because it protects our country from threats” – had varying factor loading strength across samples. The reasons for this are unclear, but future studies may reveal whether this item should remain in the scale. The final authoritarianism factor has five (or potentially four) items that appear to capture an attitude of deference to a ‘strong national leader’, belief in the rule of law and acceptance of the use of force by authorities, and a belief that strong authorities keep society safe and stable. Unlike egalitarianism and traditionalism, the authoritarianism factor had no reverse-coded items.

### 6.2.1 The Three-Factor Model Compared to One- and Two-Factor Models

The theoretical problems with using a single-item self-report of symbolic ideology (i.e., placing oneself on a scale from liberal-to-conservative) are well-documented. However, some scholars nonetheless argue that this dimension – if not a single item – are an adequate reflection of most people’s political views.

Yet, many other researchers disagree with a unidimensional approach for both theoretical and psychometric reasons. Some of the earliest research on ideology in political psychology argued for multiple dimensions – for example, Ferguson’s (1944)



humanitarianism, nationalism, and religionism; Eysenck's (1954) toughmindedness-tendermindedness and radicalism-conservatism, and Rokeach's (1973) national strength/order and international harmony/equality, to name a few. While these early scales have long since fallen out of favour, many still argue for the existence of multiple factors. In fact, Feldman (2013) has argued there are “virtually no cases[s]” where a unidimensional left-right model is the best fit to the data (p. 6). Many researchers have found that at least two dimensions are needed, often ‘social’ attitudes or traditionalism and ‘economic’ attitudes or egalitarianism – roughly analogous for their focuses on sociocultural norms and the distribution of economic resources, respectively (e.g., Achterberg & Houtman, 2009; Ashton et al., 2005; Duckitt, 2001; Feldman, 2013; Feldman & Johnston, 2013; Fleishman, 1988; Heath, 1986a; Heath, et al., 1994; Knight, 1999; Layman & Carsey, 2002; Luttbeg & Gant, 1985; Saribay et al., 2017; Treier & Hillygus, 2009).

Across the studies conducted here, there was no instance identified where a one- or two-factor model would have fit the data better than a model with three factors. In the EFAs conducted during scale development, the best-fitting solutions had four or more factors; when the scale was condensed and meaningless factors and items removed, three factors were selected. When a two-factor model was compared with the three-factor model in validation study 4 of chapter 3, the two-factor model showed worse fit across all indices (and given the worse fit of the two-factor model, it is exceedingly unlikely a one-factor model would have been adequate).

One point that should be acknowledged, however, are the relatively high inter-factor correlations – specifically between traditionalism and egalitarianism and between traditionalism and authoritarianism. It is likely that the traditionalism factor requires further modifications, a point which is elaborated in the future directions section. However, while high inter-factor correlations can indicate redundancy between the constructs, this is not necessarily true here. The average correlation between traditionalism and egalitarianism was  $|.74|$ , between traditionalism and authoritarianism was  $|.73|$ , and between egalitarianism and authoritarianism was  $|.48|$ . While the shared variance between traditionalism and the other factors is substantial, some would consider

it acceptable. Brown (2015) argues factor intercorrelations above .80-.85 should be questioned, and Meehl (1993) suggests these correlations should be lower than the factor reliabilities. However, modifications to the traditionalism factor are justified, and could potentially improve both the model fit and the utility of the scale.

The highest inter-factor correlations were also seen among samples of university students. This high correlation could represent the increased coherence and strength of ideology that is seen with higher levels of political sophistication (e.g., Choma & Hafer, 2009; Mirisola et al., 2007; Sidanius & Lau, 1989), given university students are more educated than the average person. Such a phenomenon does not indicate redundancy between the factors, but simply reflects a difference in the relationship between these factors across populations. As Gerring (1997) writes, neglecting to address how ideology manifests in politically ‘unsophisticated’ individuals equally as much as ‘sophisticated’ individuals “deprive[s] us of a way to talk about the political beliefs” of this population (p. 26). Those individuals engage with politics, just as university students do (or even more so).

Another finding that should be addressed is the result of the LPA. Alford et al. (2005) have argued that there exist two political phenotypes (importantly, not two dimensions or factors): a ‘contextualist’ group who are optimistic, antiauthoritarian, and empathetic, and an ‘absolutist’ group who are rigid, traditional, antiegalitarian, and punitive. The four profiles that emerged in the LPA appear to, roughly, represent a spectrum spanning one of these phenotypes to the other – two more contextualist, and two more absolutist – and proponents of a single ideological factor might contend this resembles a spectrum of liberals to conservatives. However, this would not be a wholly accurate interpretation of the LPA. For authoritarianism, the profiles did not show a smooth gradient from one extreme to the other. The ‘moderate conservative’ profile was substantially more authoritarian than the ‘moderate liberal’ profile and the ‘reactionary conservative’ profile. This suggests that, rather than being two variants of the same phenotype, moderate conservatives have a different character than far-right reactionaries, driven by their differing attitudes towards authority.

Some scholars use SDO and RWA as a sort of two-factor model of political attitudes (e.g., Duckitt's dual-process model, 2001). In some ways, using the NPIS is like using SDO and RWA to measure ideology, and the literature on SDO and RWA helped guide hypothesis formation and item development for the new scale. SDO is a measure of attitudes towards group-based hierarchy, and RWA is a measure of right-wing authoritarianism; together, they contain elements of anti-egalitarianism, traditionalism, and authoritarianism. However, as discussed in the introduction, both SDO and RWA are multifactorial themselves. SDO contains subfactors of SDO-Dominance and SDO-Egalitarianism (Ho et al., 2015), and only the latter resembles the egalitarianism factor in the NPIS – SDO-Dominance more closely resembles punitiveness, especially items such as “Some groups of people must be kept in their place.”

RWA, as discussed earlier, has been criticized for the double- and triple-barreled items that confound its three factors of conventionalism (traditionalism), authoritarian punitiveness, and authoritarian obedience. Recently, researchers have either explored the fit of a three-factor model or even endeavored to rewrite items to disentangle these factors, in either case finding better fit for the three-factor structure (Duckitt & Bizumic, 2013; Duckitt et al., 2009; Funke, 2005; Mavor et al., 2010). While this revised RWA may prove useful for researchers interested in the phenomenon of right-wing authoritarianism, for researchers seeking to measure overall political ideology, the NPIS is more appropriate. The authoritarianism factor identified here also does not conflate authoritarianism with other constructs; for example, RWA contains items referencing homonegativity, religiosity, and sexism (e.g., “God’s laws about abortion, pornography and marriage must be strictly followed before it is too late, and those who break them must be strongly punished,” and the reverse-coded “Homosexuals and feminists should be praised for being brave enough to defy ‘traditional family values’”). Even the revised RWA scale is ‘contaminated’ by other constructs – as White et al. (2020) point out, two of the four items intended to measure conventionalism reference a specific religious or social issue, leaving only two unconfounded items – insufficient for measurement purposes.

### 6.3 Future Directions

The fit indices of the final iteration of the three-factor scale tested here approached acceptability, but still left room for improvement. The first and most pressing direction for future research is to develop and test an improved version of the scale, likely with a handful of additional items to bolster the smallest factor (authoritarianism), and to better differentiate traditionalism as a resistance to change factor. The latter revision may potentially reduce traditionalism's high inter-factor correlations with egalitarianism and authoritarianism, which was a recurring problem throughout scale development. These intercorrelations may indicate that some items were conflating multiple aspects of conservatism – like punitiveness, or attitudes towards outgroups – with resistance to change.

In the time since the scale was developed and these studies were conducted, a new measure of interest has been published by White et al. (2020) called the 'Resistance to Change-Beliefs' scale. In their view, resistance to change is characterized by the desire for societal stability and avoidance of radical progress. Importantly, White et al. (2020) distinguish between *dislike* of change – a trait-like predisposition – and the *belief* that change is undesirable. This is an important distinction since one might personally dislike change but nonetheless view societal progress as beneficial. White et al. also point out that those who are resistant to change may accept some changes but prefer them to be “slow and organic” (p. 21). White et al.'s (2020) scale includes items like “Slow, gradual change helps prevent catastrophes and mistakes,” “Traditions reflect wisdom and knowledge,” and “The established way of doing things should be protected and preserved.” This research provides a starting point for ideas about how to modify the traditionalism factor of the NPIS so that it better capture resistance to change and is not conflated with other right-wing attitudes.

After improving the traditionalism factor, a second task is to investigate the scale outside the Canadian context, such as in the United States, as well as to test the measurement invariance of the scale across gender, ethnic group, age, and nationality. The program of research was delimited to the Canadian context, limiting the conclusions that can be drawn about its generalizability to other nations. To determine the robustness

of the findings, the geographic scope must be expanded. While the scale should ideally demonstrate measurement invariance across gender and age, there is a possibility that given this delimitation, the NPIS reflects core political values specific to a Canadian context; however, given that the research draws on theoretical background largely from a North American and Western European context, the three-factor structure may generalize to the United States or other Western nations. If the structure itself is stable, the patterns of intercorrelations between the factors may also differ from country to country; this has been shown with the three factors of RWA (Duckitt et al., 2009). In the former case, a modified NPIS could be developed to suit the needs of other cultural and national groups.

Another task is to use the scale to increase understanding of political stances that are not polarized solely along left-right lines. There are several potential research avenues. First, it would be useful to further explore the nature of far-right extremism, and how these fringe movements, like the alt-right, differ from more moderate conservatives. The latent profile analysis hints at one difference – lower authoritarianism – suggesting that far-right extremists may be more likely to oppose existing systems in the interest of advancing their goals. While it may be challenging, recruiting a sample of individuals who identify as far-right or alt-right, in addition to moderate conservatives, could help unpack these differences. For example, how do they describe their political identities (i.e., would this population use the term ‘alt-right’)? Are they more likely to engage in collective action than moderate conservatives? More urgently, are they predisposed to engaging in aggression or political violence?

Other complex political views include attitudes towards foreign policy, which researchers have noted are difficult to define along left-and-right lines (e.g., Hurwitz & Peffley, 1987). Researching foreign policy attitudes in relation to the factors of egalitarianism, traditionalism, and authoritarianism may provide insights. It is possible that egalitarians are less likely to support interventionist policies due to a desire to maintain peace. It is also possible that authoritarianism plays a role, since inherent to this construct is obedience and submission to a powerful leader, whose job is to guard the nation. That is, authoritarians would be likely to support interventionist policies, while anti-authoritarians may prefer isolationist policies. There may also be a role of political

sophistication, and specifically knowledge of foreign policy – a topic that is removed from most people’s lives. For example, those with greater knowledge of their nation’s military programs may show a stronger relationship between their political ideologies and their stances on foreign policy – anti-authoritarians who are politically knowledgeable may be even more strongly opposed to military interventions, and authoritarians who are knowledgeable may have even greater levels of support for them. And finally, there could be a non-linear relationship between relevant factors and foreign policy attitudes. A latent profile analysis and comparison may reveal, for example, that those in the extreme groups are most likely to oppose interventionist policies, while those in the moderate groups are more likely to support them.

Populism is a set of beliefs that centers the ‘common people’ and emphasizes a divide between the populace and corrupt ‘elites’ (Obradović et al., 2020). It is closely related to isolationist foreign policy stances as it prioritizes the needs and sovereignty of the nation’s citizens; it can be seen as the opposite of ‘globalism’, or the pursuit of an economically and politically interconnected world. Populist movements can manifest on both the left and right (Obradović et al., 2020), and are thus additional examples of movements not polarized along left and right lines which could be investigated with the NPIS. Given the ‘vertical opposition’ aspect of populism – that is, it emphasizes a conflict with political institutions and elites rather than other groups in the common population (Obradović et al., 2020) – it is likely that authoritarianism is a key predictor of support for populist movements. There may also be differences between right-leaning and left-leaning populist movements, even if they have a shared anti-authoritarian quality. For example, left-leaning populist movements are often described as socialist, while right-leaning populist movements are characterized as ethnonationalist (Obradović et al., 2020). Supporters of left-leaning populist movements are likely to be more egalitarian than those of right-leaning movements.

The NPIS presents new opportunities for research in political psychology. Too often, it is assumed that political behaviours can be understood through the lens of just one dimension of ideology. Here, it was shown that a model comprising three distinct core political values is superior to one- and two-dimensional models in terms of model

fit, as well as more useful than conventional measures of ideology in predicting a variety of political views, intentions, and behaviours. The NPIS should be further refined so that researchers with an interest in measuring ideology can make use of this instrument.

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## Appendices

Appendix A: EFA 1 seven factor solution factor loadings.

Item text	1	2	3	4	5	6	7
1 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.							
2 I try my best to follow the traditions passed down by my culture or society.			.43				
3 Changes in the social order are often shown later to be for the worse.							
4 There is nothing wrong with being old-fashioned.			.63				
5 Rebelling against the political 'system' or 'establishment' is something kids should grow out of.							
6 Strange new trends in style or slang are usually just immature acts of rebellion.							
7 My grandparents' generation had the right ideas about how to live.			.64				
8 These days, people are too willing to try out wild new ideas without any proof they will work.							
9 I don't trust activists and agitators trying to stir things up.							
10 Sometimes to solve big social problems, we have to try brand new approaches.	.54						
11 I admire people who are trying to make a difference by being active in political movements.	.52						
12 In order to build a good society, we need to let go of past customs that are holding us back.							
13 I am quick to adopt new ideas and ways of thinking.							
14 Society can survive just fine without old-fashioned customs to guide it.							
15 Too many people accept the world as it is instead of trying to make it better.	.43						
16 Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to some.	.64						

17	In a fair world, it is natural that some people will end up with more resources and some with less.	.60	
18	People should get used to competition, because it's an inevitable part of life.	.56	
19	Inequality motivates people to work hard for success.	.47	
20	Wealthy people shouldn't have to pay high taxes just because they're successful.		.80
21	It is fine that some people can pay for privileges others can't afford.	.53	
22	Social inequality is inevitable, because some groups of people have good qualities that others do not.	.51	
23	It would cause fewer problems if different groups of people lived separately and didn't have to interact.		
24	Life would be boring if we ensured everyone had the same standard of living.	.53	
25	In a fair world, the wealth gap should be as small as possible.	-.48	
26	Society is at its best when people cooperate with those around them.		
27	Resources should be distributed according to people's needs.		
28	A responsible society takes good care of its weakest members.		
29	Different cultural groups have more in common than they have differences.		
30	It is fair to tax people with large incomes more highly, so that money is distributed more equitably.		-.86
31	The role of the government is to ensure the wellbeing of all of its citizens.		
32	Our society would have a lot less conflict if we treated everyone more equally.		
33	No jobs should be looked down upon, because they all provide useful contributions to society.		
34	Freedom must sometimes be sacrificed in the name of security.		

- 35 Without strong leaders, society as we know it would collapse.
- 36 Government surveillance is only concerning if you have something to hide.
- 37 The role of the government is to maintain law and order.
- 38 Parents should be strict in disciplining their children, to teach them obedience. .40
- 39 Our country's leaders need to be tougher on citizens who hold dangerous views.
- 40 Criminals should be harshly punished for the wellbeing of society. .46
- 41 Good national leaders keep us safe by standing up to enemies who would do us harm.
- 42 Our government must be prepared to use its full military might to protect us. .47
- 43 There are some crimes that are so terrible, the criminal deserves the death penalty.
- 44 It is often necessary for the police to use force to catch potential criminals.
- 45 All authority should be questioned rather than blindly followed.
- 46 One of the worst things I could imagine would be to live under a dictatorship.
- 47 It is not the place of the government to restrict freedom of speech.
- 48 What two consenting adults do in their own bedroom is not anyone else's business.
- 49 In school, kids should be taught to think critically about all of the information they receive. .41
- 50 Without personal freedom, society as we know it would collapse. .42
- 51 Children should be able to play and express themselves without too many strict rules. .41

- 52 I believe in letting others do as they please, and they should do the same for me. .40
- 53 Rarely, if ever, has declaring war on another country been justified.
- 54 Prisons should be places of rehabilitation, not of harsh punishment.
- 55 Violence can be justified when pursuing a noble goal.
- 56 I have no faith in our current social system.
- 57 When I compromise with the other side in a political debate, I feel like I've sacrificed some of my integrity. .42
- 58 When people are trying to further a great cause, the ends justify the means.
- 59 I know that my political views are morally right.
- 60 Sometimes words aren't enough to create social change – there needs to be disruption. .43
- 61 Sometimes, creating great changes in society requires ruthlessness or brutality.
- 62 I wouldn't want to associate at all with someone whom I politically disagreed with. .48
- 63 It's best if political changes happen in small increments.
- 64 If people from opposing sides of the political spectrum took the time to listen, they'd see that they agree on a lot of things.
- 65 If you are hostile in a debate, you have already lost.
- 66 People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.
- 67 There are no moral or immoral political views, only differences of opinion.
- 68 Extremists of any political beliefs are threats to democratic society. .44

- 69 No single group in particular can be trusted to say what information should be censored.
- 70 Educators should be allowed to express their political views to students, even if some of those attitudes are unconventional or disagreeable.
- 

*Note: Only factor loadings  $\geq 0.40$  are shown.*

## Appendix B: EFA 1 six-factor solution factor loadings.

Item text	1	2	3	4	5	6
1 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.		.43				
2 I try my best to follow the traditions passed down by my culture or society.		.43				
3 Changes in the social order are often shown later to be for the worse.		.48				
4 There is nothing wrong with being old-fashioned.		.47				
5 Rebelling against the political 'system' or 'establishment' is something kids should grow out of.		.41				
6 Strange new trends in style or slang are usually just immature acts of rebellion.		.41				
7 My grandparents' generation had the right ideas about how to live.		.51				
8 These days, people are too willing to try out wild new ideas without any proof they will work.		.45				
9 I don't trust activists and agitators trying to stir things up.		.48				
10 Sometimes to solve big social problems, we have to try brand new approaches.	.58					
11 I admire people who are trying to make a difference by being active in political movements.	.48					
12 In order to build a good society, we need to let go of past customs that are holding us back.						
13 I am quick to adopt new ideas and ways of thinking.						
14 Society can survive just fine without old-fashioned customs to guide it.						
15 Too many people accept the world as it is instead of trying to make it better.	.48					
16 Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to some.	.57					
17 In a fair world, it is natural that some people will end up with more resources and some with less.				.58		
18 People should get used to competition, because it's an inevitable part of life.				.56		
19 Inequality motivates people to work hard for success.				.44		
20 Wealthy people shouldn't have to pay high taxes just because they're successful.					.80	
21 It is fine that some people can pay for privileges others can't afford.				.51		

22	Social inequality is inevitable, because some groups of people have good qualities that others do not.	.45	
23	It would cause fewer problems if different groups of people lived separately and didn't have to interact.		
24	Life would be boring if we ensured everyone had the same standard of living.	.50	
25	In a fair world, the wealth gap should be as small as possible.	-.48	
26	Society is at its best when people cooperate with those around them.	.46	
27	Resources should be distributed according to people's needs.	.44	
28	A responsible society takes good care of its weakest members.	.54	
29	Different cultural groups have more in common than they have differences.	.40	
30	It is fair to tax people with large incomes more highly, so that money is distributed more equitably.		-.86
31	The role of the government is to ensure the wellbeing of all of its citizens.	.46	
32	Our society would have a lot less conflict if we treated everyone more equally.	.43	
33	No jobs should be looked down upon, because they all provide useful contributions to society.	.45	
34	Freedom must sometimes be sacrificed in the name of security.		
35	Without strong leaders, society as we know it would collapse.		
36	Government surveillance is only concerning if you have something to hide.		
37	The role of the government is to maintain law and order.		
38	Parents should be strict in disciplining their children, to teach them obedience.		
39	Our country's leaders need to be tougher on citizens who hold dangerous views.		
40	Criminals should be harshly punished for the wellbeing of society.		.48
41	Good national leaders keep us safe by standing up to enemies who would do us harm.		
42	Our government must be prepared to use its full military might to protect us.		.49



- 43 There are some crimes that are so terrible, the criminal deserves the death penalty.
- 44 It is often necessary for the police to use force to catch potential criminals.
- 45 All authority should be questioned rather than blindly followed.
- 46 One of the worst things I could imagine would be to live under a dictatorship.
- 47 It is not the place of the government to restrict freedom of speech.
- 48 What two consenting adults do in their own bedroom is not anyone else's business. .41
- 49 In school, kids should be taught to think critically about all of the information they receive. .51
- 50 Without personal freedom, society as we know it would collapse. .44
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- 52 I believe in letting others do as they please, and they should do the same for me.
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- 54 Prisons should be places of rehabilitation, not of harsh punishment.
- 55 Violence can be justified when pursuing a noble goal.
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- 62 I wouldn't want to associate at all with someone whom I politically disagreed with. .44
- 63 It's best if political changes happen in small increments.
- 64 If people from opposing sides of the political spectrum took the time to listen, they'd see that they agree on a lot of things.
- 65 If you are hostile in a debate, you have already lost.

- |    |   |     |
|----|---|-----|
| 66 | People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.   | .52 |
| 67 | There are no moral or immoral political views, only differences of opinion.   |     |
| 68 | Extremists of any political beliefs are threats to democratic society.  |     |
| 69 | No single group in particular can be trusted to say what information should be censored.  |     |
| 70 | Educators should be allowed to express their political views to students, even if some of those attitudes are unconventional or disagreeable. |     |
- 

*Note: Only factor loadings  $\geq 0.40$  are shown.*

## Appendix C: EFA 1 four-factor solution factor loadings.

Item text	1	2	3	4
1 Even if society isn't perfect, I'd prefer to avoid too many changes in how it works.			.43	
2 I try my best to follow the traditions passed down by my culture or society.			.59	
3 Changes in the social order are often shown later to be for the worse.			.43	
4 There is nothing wrong with being old-fashioned.			.40	
5 Rebelling against the political 'system' or 'establishment' is something kids should grow out of.			.46	
6 Strange new trends in style or slang are usually just immature acts of rebellion.			.41	
7 My grandparents' generation had the right ideas about how to live.			.59	
8 These days, people are too willing to try out wild new ideas without any proof they will work.			.46	
9 I don't trust activists and agitators trying to stir things up.			.49	
10 Sometimes to solve big social problems, we have to try brand new approaches.	.60			
11 I admire people who are trying to make a difference by being active in political movements.	.45			
12 In order to build a good society, we need to let go of past customs that are holding us back.				.43
13 I am quick to adopt new ideas and ways of thinking.				
14 Society can survive just fine without old-fashioned customs to guide it.				
15 Too many people accept the world as it is instead of trying to make it better.				
16 Sometimes what society needs are people who are brave enough to push new ideas, even if they seem troublesome to some.	.45			
17 In a fair world, it is natural that some people will end up with more resources and some with less.		.62		
18 People should get used to competition, because it's an inevitable part of life.	.40	.53		
19 Inequality motivates people to work hard for success.		.47		
20 Wealthy people shouldn't have to pay high taxes just because they're successful.		.56		
21 It is fine that some people can pay for privileges others can't afford.		.66		
22 Social inequality is inevitable, because some groups of people have good qualities that others do not.		.42		
23 It would cause fewer problems if different groups of people lived separately and didn't have to interact.				

24	Life would be boring if we ensured everyone had the same standard of living.	.60
25	In a fair world, the wealth gap should be as small as possible.	-.71
26	Society is at its best when people cooperate with those around them.	.49
27	Resources should be distributed according to people's needs.	-.58
28	A responsible society takes good care of its weakest members.	.47
29	Different cultural groups have more in common than they have differences.	-.40
30	It is fair to tax people with large incomes more highly, so that money is distributed more equitably.	-.58
31	The role of the government is to ensure the wellbeing of all of its citizens.	.45
32	Our society would have a lot less conflict if we treated everyone more equally.	-.41
33	No jobs should be looked down upon, because they all provide useful contributions to society.	
34	Freedom must sometimes be sacrificed in the name of security.	
35	Without strong leaders, society as we know it would collapse.	
36	Government surveillance is only concerning if you have something to hide.	
37	The role of the government is to maintain law and order.	
38	Parents should be strict in disciplining their children, to teach them obedience.	.42
39	Our country's leaders need to be tougher on citizens who hold dangerous views.	
40	Criminals should be harshly punished for the wellbeing of society.	
41	Good national leaders keep us safe by standing up to enemies who would do us harm.	
42	Our government must be prepared to use its full military might to protect us.	.46
43	There are some crimes that are so terrible, the criminal deserves the death penalty.	
44	It is often necessary for the police to use force to catch potential criminals.	
45	All authority should be questioned rather than blindly followed.	
46	One of the worst things I could imagine would be to live under a dictatorship.	
47	It is not the place of the government to restrict freedom of speech.	
48	What two consenting adults do in their own bedroom is not anyone else's business.	.47
49	In school, kids should be taught to think critically about all of the information they receive.	.62

50	Without personal freedom, society as we know it would collapse.	.46
51	Children should be able to play and express themselves without too many strict rules.	
52	I believe in letting others do as they please, and they should do the same for me.	
53	Rarely, if ever, has declaring war on another country been justified.	
54	Prisons should be places of rehabilitation, not of harsh punishment.	
55	Violence can be justified when pursuing a noble goal.	
56	I have no faith in our current social system.	
57	When I compromise with the other side in a political debate, I feel like I've sacrificed some of my integrity.	
58	When people are trying to further a great cause, the ends justify the means.	
59	I know that my political views are morally right.	
60	Sometimes words aren't enough to create social change – there needs to be disruption.	
61	Sometimes, creating great changes in society requires ruthlessness or brutality.	
62	I wouldn't want to associate at all with someone whom I politically disagreed with.	
63	It's best if political changes happen in small increments.	
64	If people from opposing sides of the political spectrum took the time to listen, they'd see that they agree on a lot of things.	
65	If you are hostile in a debate, you have already lost.	
66	People shouldn't try to force their beliefs on others, regardless of how strongly they hold them.	.51
67	There are no moral or immoral political views, only differences of opinion.	
68	Extremists of any political beliefs are threats to democratic society.	
69	No single group in particular can be trusted to say what information should be censored.	.50
70	Educators should be allowed to express their political views to students, even if some of those attitudes are unconventional or disagreeable.	

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*Note: Only factor loadings  $\geq 0.40$  are shown.*

Appendix D: Bivariate correlations for all variables for scale validation study 3, time 1.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1 Age	-												
2 Gender	.05	-											
3 Ethnicity	-.28***	-.08	-										
4 Egal.	-.11*	.18**	-.05	-									
5 Trad.	.12*	-.26***	.11*	-.61***	-								
6 Auth.	.00	-.14**	.22***	-.35***	.68***	-							
7 SDO-D	-.03**	-.15**	.06	-.58***	.63***	.50***	-						
8 SDO-E	.12	-.24***	.03	-.70***	.66***	.39***	.76***	-					
9 RWA	.00	-.20***	.17**	-.50***	.76***	.68***	.66***	.54***	-				
10 C19Threat	.00	.16**	.09*	.28***	-.10*	.05	-.13**	-.24***	-.04	-			
11 C19Burden	-.04	.24***	-.07	.22***	-.18***	-.09	-.13**	-.21***	-.18***	.38***	-		
12 C19Restrict	-.07	.03	.15	.34***	-.13*	.11*	-.12**	-.24***	-.10	.46***	.04	-	
13 C19Punish	-.07	-.07	.22***	.11*	.14**	.33***	.13**	-.02	.13	.36***	.043		-

\* $p < .05$ , \*\*  $p < .01$ , \*\*\* $p < .001$

Note: gender (0 = male; 1 = female); ethnicity (0 = white; 1 = ethnic minority)

Appendix E: Bivariate correlations for all variables for scale validation study 3, time 2.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1 Age	-													
2 Gen.	.075	-												
3 Ethn.	.31***	-.09	-											
4 Egal.	-.09	.22***	-.08	-										
5 Trad.	.15**	-.32***	.12*	-.65***	-									
6 Auth.	.10	-.16**	.22***	-.41***	.66***	-								
7 Cons.	.14**	.16**	-.17**	-.05	-.01	.06	-							
8 Open	.11*	.15**	-.25***	.30***	-.42***	-.36***	.14**	-						
9 L-R	.03	-.23***	.18**	-.64***	.65**	.50***	.00	-.35***	-					
10 Pat.	.19***	-.05	.07	-.15**	.39***	.60***	.26***	-.09	.24***	-				
11 Nat.	-.02	-.20***	.18***	-.26***	.57***	.66***	.06	-.21***	.35***	.61***	-			
12 Effi.	.09	.03	-.18***	.15**	-.17**	-.08	.21***	.41***	-.23***	.19***	.04	-		
13Vote	.23***	.07	-.21***	.10	-.12*	-.11*	.10	.16**	-.27***	.05	-.09	.24***	-	
14 Act	-.16**	-.11*	-.07	.20***	-.27***	-.23***	.05	.26***	-.20***	-.09	-.11*	.24***	.11*	-

\* $p < .05$ , \*\*  $p < .01$ , \*\*\* $p < .001$

Note: gender (0 = male; 1 = female); ethnicity (0 = white; 1 = ethnic minority)

Appendix F: Bivariate correlations for all non-policy item variables in validation study 4.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1 Age	-											
2 Gender	-.02	-										
3 Ethnicity	-.18***	-.09*	-									
4 Egal.	.13**	.32***	-.12**	-								
5 Trad.	-.03	-.35***	.17***	-.72***	-							
6 Auth.	-.11*	-.15**	.14**	-.33***	.54***	-						
7 L-R	-.12**	-.12**	.10*	-.67***	.69***	.45***	-					
8 SDO-D	-.16***	-.22***	.20***	-.63***	.68***	.39***	.57***	-				
9 SDO-E	-.03	-.40***	.15**	-.70***	.66***	.28***	.56***	.69***	-			
10 RWA	-.18***	-.18***	.27***	-.65***	.77***	.47***	.66***	.67***	.63***	-		
11 N CA	.08	.10*	-.23***	.42***	-.51***	-.21***	-.34***	-.51***	-.43***	-.56***	-	
12 N-N CA	.08	.01	-.08	.21***	-.32***	-.44***	-.38***	-.16***	-.05	-.25***	.11*	-

\* $p < .05$ , \*\*  $p < .01$ , \*\*\* $p < .001$

Note: gender (0 = male; 1 = female); ethnicity (0 = white; 1 = ethnic minority)



Appendix G: Zero-order bivariate correlations between policy items and ideology scale

	Egal.	Trad.	Auth.
Support Canadian government investing more money in infrastructure for First Nations/Indigenous communities	<b>.588***</b>	<b>-.580***</b>	<b>-.298***</b>
Support canceling pipelines opposed by First Nations/Indigenous communities	<b>.613***</b>	<b>-.683***</b>	<b>-.418***</b>
Support criminalizing drug use	<b>-.412***</b>	<b>.482***</b>	<b>.367***</b>
Support criminalizing sex work	<b>-.453***</b>	<b>.517***</b>	<b>.289</b>
Support re-allocating funding from police departments to social programs	<b>.619***</b>	<b>-.678***</b>	<b>-.464***</b>
Support voting rights for convicted criminals	<b>.377***</b>	<b>-.460***</b>	<b>-.325***</b>
Support publicly run (rather than privately-run) prisons	<b>.322***</b>	<b>-.268***</b>	<b>-.106*</b>
Support unrestricted freedom of speech	<b>-.284***</b>	<b>.314***</b>	<b>.148**</b>
Support increasing privatization of Canadian healthcare	<b>-.418***</b>	<b>.449***</b>	<b>.297***</b>
Support medically assisted suicide for terminally ill patients	<b>.302***</b>	<b>-.313***</b>	<b>-.156***</b>
Support increased spending on mental health care	<b>.530***</b>	<b>-.515***</b>	<b>-.210***</b>
Support legal abortion	<b>.413***</b>	<b>-.489***</b>	<b>-.254***</b>
Support covering prescription medication under a universal health plan	<b>.544***</b>	<b>-.482***</b>	<b>-.161***</b>
Support allowing transgender athletes to compete with the gender category they identify with	<b>.485***</b>	<b>-.524***</b>	<b>-.304***</b>
Support including gender identity in Canadian anti-discrimination laws	<b>.621***</b>	<b>-.619***</b>	<b>-.284***</b>
Support same-sex parents having same adoption rights as heterosexual parents	<b>.478***</b>	<b>-.474***</b>	<b>-.176***</b>
Support ending ties to the British monarchy	<b>.297***</b>	<b>-.376***</b>	<b>-.309***</b>
Support increasing tax rate on wealthiest Canadians	<b>.752***</b>	<b>-.539***</b>	<b>-.351***</b>
Support raising federal minimum wage	<b>.562***</b>	<b>-.536***</b>	<b>-.322***</b>
Support raising tax rate on corporations	<b>.646***</b>	<b>-.584***</b>	<b>-.324***</b>
Support establishing Universal Basic Income	<b>.606***</b>	<b>-.560***</b>	<b>-.370***</b>
Support classifying Bitcoin as legal currency	-.051	.007	.005
Support required citizenship test for immigrants to Canada	<b>-.282***</b>	<b>.374***</b>	<b>.379***</b>
Support deportation of immigrants if they commit a crime	<b>-.395***</b>	<b>.491***</b>	<b>.334***</b>
Support establishing limit on tuition increases	<b>.485***</b>	<b>-.401***</b>	<b>-.126**</b>
Support continuing providing public funding to Catholic schools	<b>-.284***</b>	<b>.336***</b>	<b>.285***</b>
Support required military service	<b>-.330***</b>	<b>.389***</b>	<b>.152**</b>
Support increasing military spending	<b>-.447***</b>	<b>.576***</b>	<b>.482***</b>

	Egal.	Trad.	Auth.
Support increasing foreign aid spending	<b>.382***</b>	<b>-.353***</b>	<b>-.225***</b>
Support establishing a limit on money politicians can receive from a single donor	<b>.376***</b>	<b>-.332***</b>	<b>-.254***</b>
Support establishing proportional representation voting system	<b>.341***</b>	<b>-.329***</b>	<b>-.189***</b>
Support allowing political campaign donations from private organizations	<b>-.309***</b>	<b>.354***</b>	<b>.364***</b>
Support increasing regulations on businesses to reduce carbon emissions	<b>.615***</b>	<b>-.575***</b>	<b>-.257***</b>
Support banning disposable plastic	<b>.436***</b>	<b>-.430***</b>	<b>-.165***</b>
Support banning hydraulic fracking	<b>.454***</b>	<b>-.504***</b>	<b>-.329***</b>
Support a tax on meat consumption	<b>.349***</b>	<b>-.342***</b>	<b>-.236***</b>
Support subsidizing production of renewable energy infrastructure	<b>.434***</b>	<b>-.462***</b>	<b>-.183***</b>
Support increasing spending on public transportation	<b>.414***</b>	<b>-.381***</b>	<b>-.208***</b>
Support mandatory COVID-19 vaccination	<b>.317***</b>	<b>-.300***</b>	<b>-.076</b>
Support mandatory mask-wearing during COVID-19 pandemic	<b>.497***</b>	<b>-.469***</b>	<b>-.172**</b>
Support allowing Internet Service Providers to selectively control speed of access to websites based (net non-neutrality)	<b>-.306***</b>	<b>.376***</b>	<b>.201***</b>
Support allowing Canadian government to monitor phone, email, and internet traffic	<b>-.050</b>	<b>.108*</b>	<b>.110*</b>
Support allowing Canadian government to regulate social media to prevent spread of misinformation	<b>.322***</b>	<b>-.269***</b>	<b>-.143***</b>

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

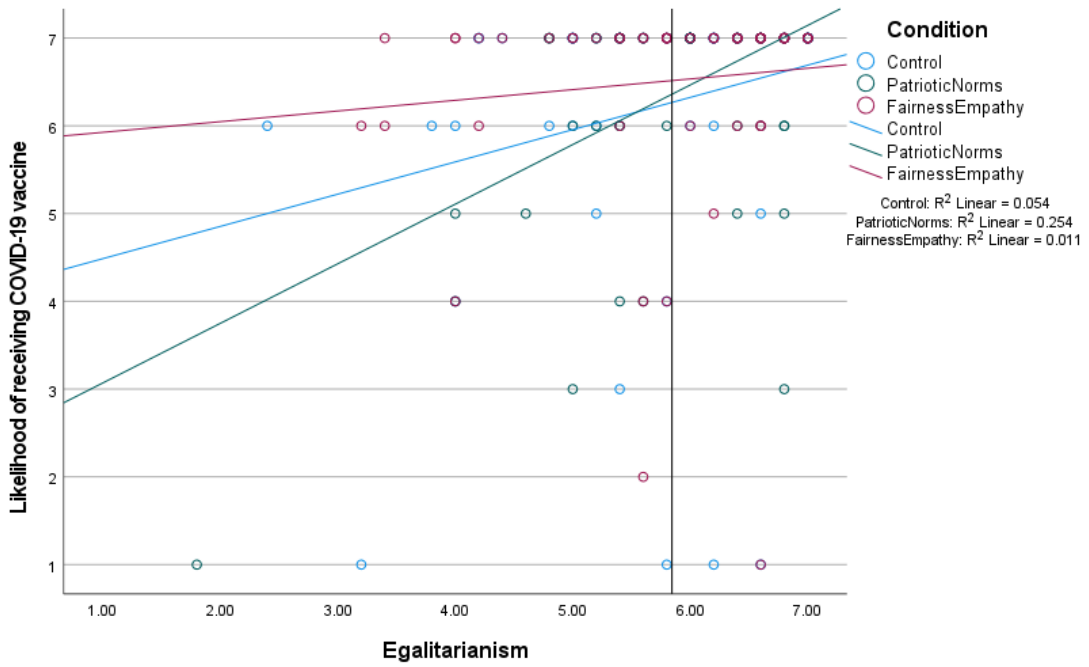
## Appendix H: Bivariate correlations between all study variables in validation study 5.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1 Age	-								
2 Gender	.035	-							
3 Ethnicity	-.32***	-.06	-						
4 Egal.	-.10	.27***	-.03	-					
5 Trad.	.17*	-.23**	.10	-.58***	-				
6 Auth.	.05	.02	.18*	-.12*	.41***	-			
7 L-R	.18*	-.28***	.10	-.62***	.71***	.27***	-		
8 Vax likely	-.07	.01	.02	.29***	-.25**	-.03	-.37***	-	
9 Vax willing	-.06	.04	.02	.33***	-.22**	-.08	-.35***	.83***	-

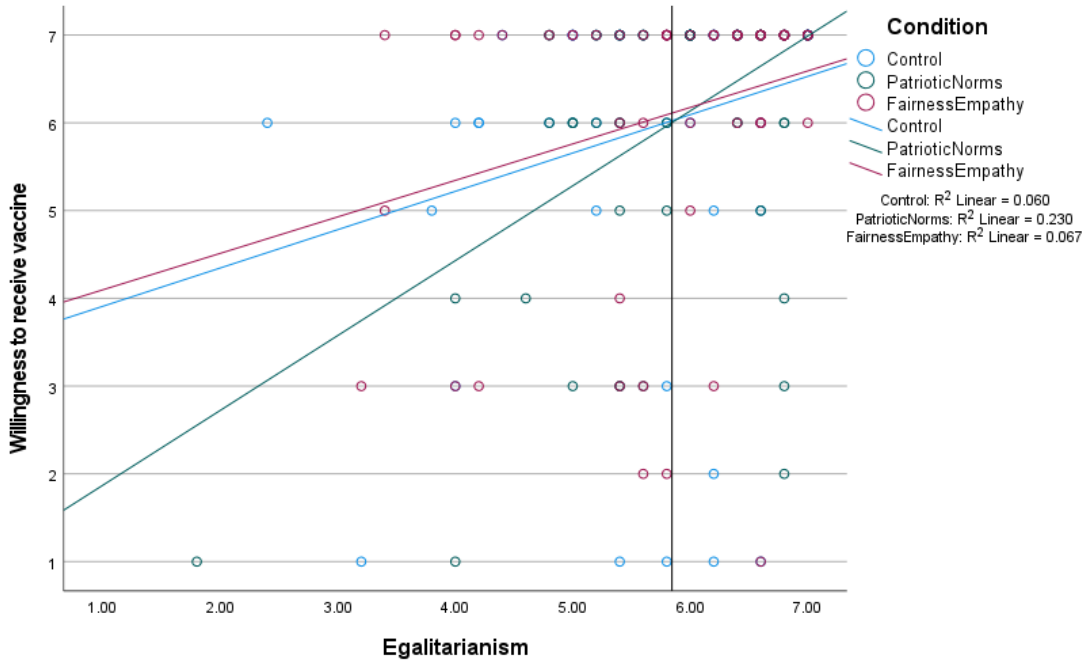
\* $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Note: gender (0 = male; 1 = female); ethnicity (0 = white; 1 = ethnic minority)

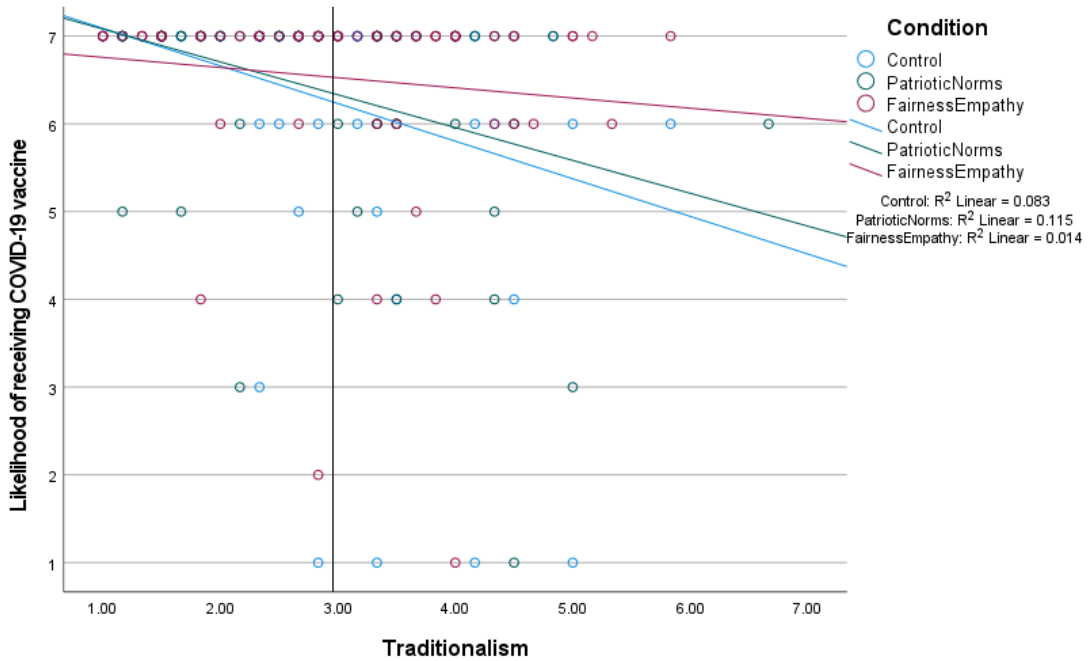
Appendix I: Scatterplots for effects of ideology factors and message condition on likelihood and willingness to receive COVID vaccines



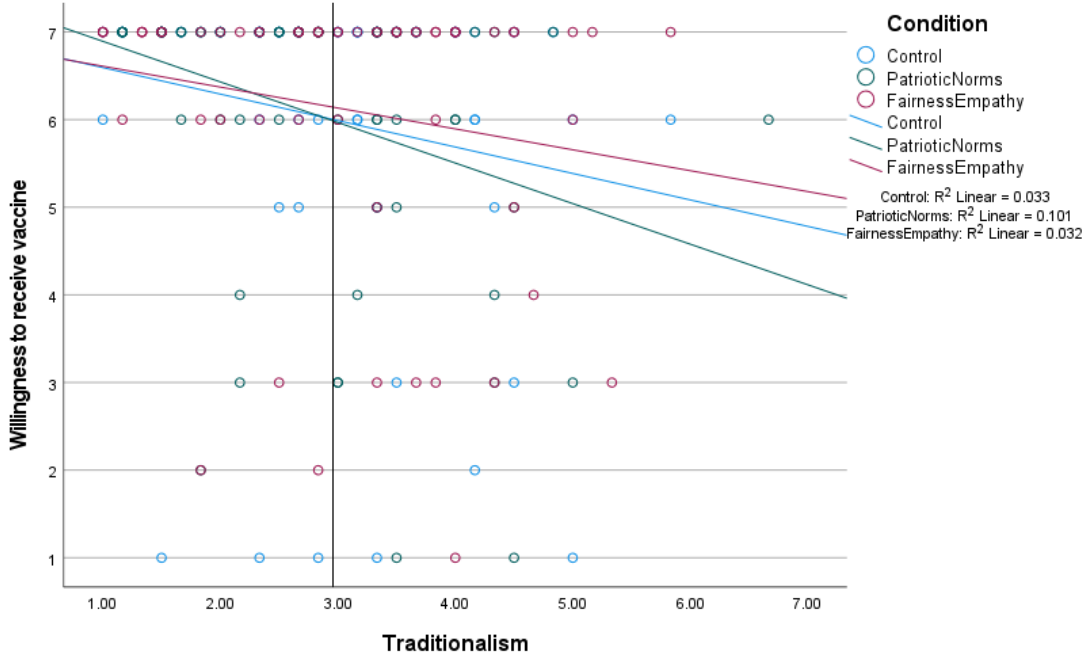
**Effects of egalitarianism and message condition on likelihood of receiving COVID-19 vaccine**



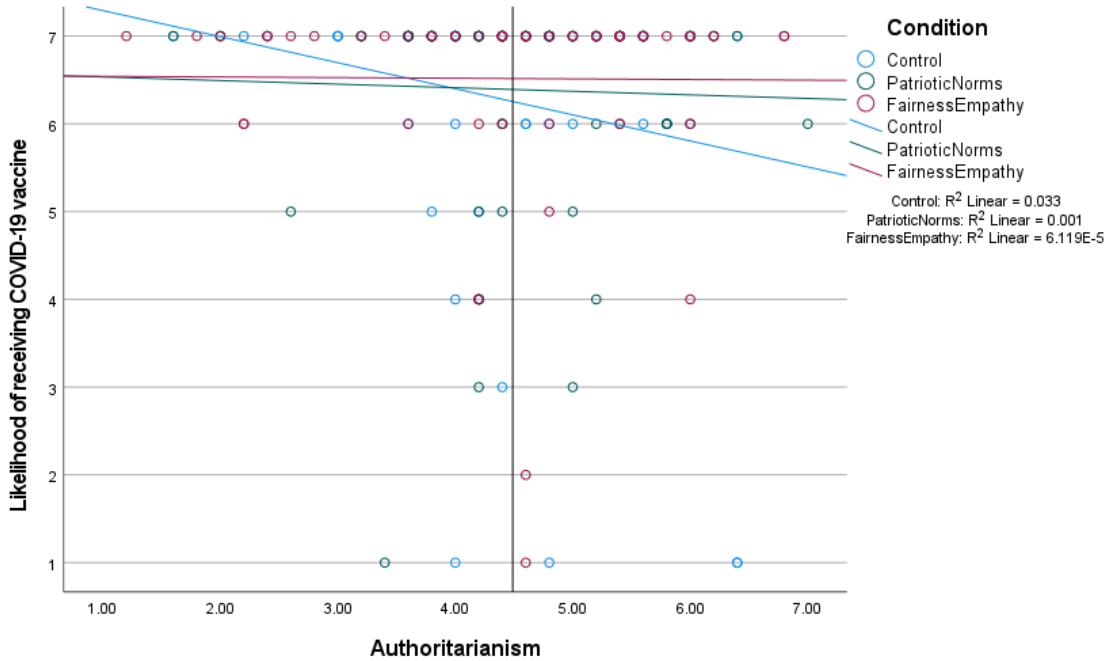
**Effects of egalitarianism and message condition on willingness to receive COVID-19 vaccine**



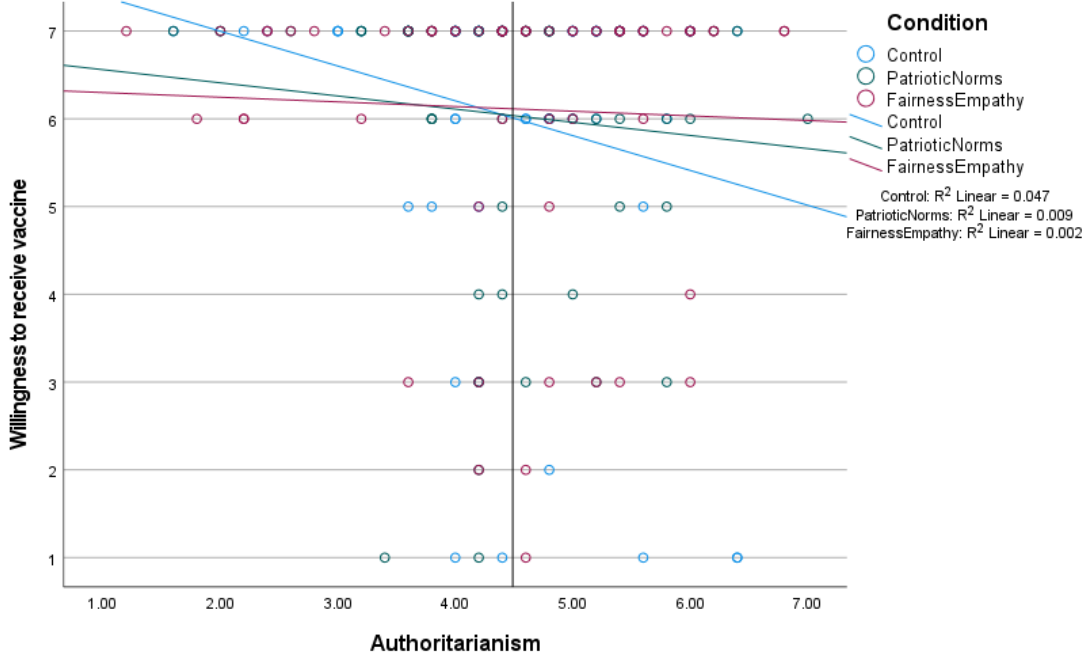
**Effects of traditionalism and message condition on likelihood of receiving COVID-19 vaccine**



**Effects of traditionalism and message condition on willingness to receive COVID-19 vaccine**



**Effects of authoritarianism and message condition on likelihood of receiving COVID-19 vaccine**



**Effects of authoritarianism and message condition on willingness to receive COVID-19 vaccine**

## Appendix J: Ethics Approval letters from Western University's Office of Human Research Ethics for all samples



**Date:** 22 November 2018  
**To:** Dr. Donald Saklofske  
**Project ID:** 113067  
**Study Title:** Developing a New Measure of Political Ideology  
**Application Type:** NMREB Initial Application  
**Review Type:** Delegated  
**Full Board Reporting Date:** 07/Dec/2018  
**Date Approval Issued:** 22/Nov/2018 17:19  
**REB Approval Expiry Date:** 22/Nov/2019

Dear Dr. Donald Saklofske

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

**Documents Approved:**

Document Name	Document Type	Document Date	Document Version
Debriefing - Section 2.9	Debriefing document	29/Oct/2018	1
Letter of Information - Section 4.3	Implied Consent/Assent	13/Nov/2018	2
SONA Recruitment - Section 3.1	Recruitment Materials	30/Oct/2018	1
Study Instruments - Section 2.5	Online Survey	30/Oct/2018	1

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

*Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).*





**Date:** 24 February 2020

**To:** Prof. Vicki Esses

**Project ID:** 112742

**Study Title:** Attitudes toward refugee claimants

**Application Type:** NMREB Amendment Form

**Review Type:** Delegated

**Full Board Reporting Date:** 06/Mar/2020

**Date Approval Issued:** 24/Feb/2020 14:24

**REB Approval Expiry Date:** 04/Dec/2020

---

Dear Prof. Vicki Esses,

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the amendment, as of the date noted above.

**Documents Approved:**

Document Name	Document Type	Document Date	Document Version
Debriefing_cleaned	Recruitment Materials	04/Oct/2019	1
LOI & Consent_cleaned	Implied Consent/Assent	10/Feb/2020	5
Questionnaires and Procedure_cleaned (2020-02-10)	Online Survey	10/Feb/2020	4
Recruitment	Recruitment Materials	04/Feb/2020	1

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

**Note:** *This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).*



**Date:** 8 May 2020

**To:** Prof. Vicki Esses

**Project ID:** 115712

**Study Title:** Immigrant Attitude Scale and New Political Ideology Scale Test-Retest

**Short Title:** Social Attitudes Survey

**Application Type:** NMREB Initial Application

**Review Type:** Delegated

**Full Board Reporting Date:** 05/Jun/2020

**Date Approval Issued:** 08/May/2020 16:00

**REB Approval Expiry Date:** 08/May/2021

Dear Prof. Vicki Esses

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

**Documents Approved:**

Document Name	Document Type	Document Date	Document Version
Debriefing - Section 2.10	Debriefing document	17/Mar/2020	1
Debriefing Time 2	Tracked Changes Document	29/Apr/2020	1
Letter of Information and Consent Wave 1	Implied Consent/Assent	13/Mar/2020	1
Letter of Information and Consent Wave 2	Implied Consent/Assent	13/Mar/2020	1
Recruitment	Recruitment Materials	17/Mar/2020	1
Test-Retest Questionnaires and Procedure	Online Survey	08/Apr/2020	1

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PIIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

**Note:** This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).



**Date:** 12 March 2021

**To:** Dr. Donald Saklofske

**Project ID:** 113067

**Study Title:** Developing a New Measure of Political Ideology

**Application Type:** NMREB Amendment Form

**Review Type:** Delegated

**Full Board Reporting Date:** 09/Apr/2021

**Date Approval Issued:** 12/Mar/2021 23:18

**REB Approval Expiry Date:** 22/Nov/2021

Dear Dr. Donald Saklofske,

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the amendment, as of the date noted above.

**Documents Approved:**

Document Name	Document Type	Document Date	Document Version
Mass email recruitment - Clean	Survey Panel Recruitment Script	20/Feb/2021	2
Debriefing - Section 2.9 - Clean	Recruitment Materials	20/Feb/2021	1
Letter of Information - Section 4.3 - Clean	Implied Consent/Assent	20/Feb/2021	2
Study Instruments - Section 2.5	Online Survey	26/Jan/2021	1
Letter of Information SONA version - Section 4.3	Implied Consent/Assent	03/Mar/2021	2
SONA Recruitment - Section 3.1	Recruitment Materials	03/Mar/2021	1
Debriefing SONA version - Section 2.9	Recruitment Materials	03/Mar/2021	1

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Ms. Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

**Note:** *This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).*



**Date:** 14 May 2021

**To:** Dr. Donald Saklofske

**Project ID:** 119210

**Study Title:** The influence of political ideology and message framing on intentions to take a COVID-19 vaccine

**Short Title:** Ideology, message framing, and vaccine intentions

**Application Type:** NMREB Initial Application

**Review Type:** Delegated

**Full Board Reporting Date:** 04/Jun/2021

**Date Approval Issued:** 14/May/2021 19:15

**REB Approval Expiry Date:** 14/May/2022

Dear Dr. Donald Saklofske

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. **All other required institutional approvals and mandated training must also be obtained prior to the conduct of the study.**

**Documents Approved:**

Document Name	Document Type	Document Date	Document Version
Study Instruments - Section 2.5	Online Survey	02/May/2021	1
Recruitment - Section 4.1	Recruitment Materials	02/May/2021	1
Debriefing - Section 2.10	Debriefing document	01/May/2021	1
Letter of Information - Section 5.5	Implied Consent/Assent	14/May/2021	2

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Ms. Katelyn Harris , Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

**Note:** This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

## Curriculum Vitae

**Name:** Vanessa Sinclair

**Post-secondary Education and Degrees:** Trent University  
Peterborough, Ontario, Canada  
2010-2014 B.Sc. (Honours), Psychology

Western University  
London, Ontario, Canada  
2015-2017 M.Sc., Psychology

Western University  
London, Ontario, Canada  
2017-2022, Ph.D., Psychology

**Related Work Experience** Teaching Assistant  
Western University  
2015-2021

Research and Data Analyst  
Western University  
2018-2021

Course Instructor (Limited Term)  
Western University  
2021

Lead Researcher  
Canadian Council for Rehabilitation and Work  
2021-Present

### **Publications:**

#### **Refereed Journal Publications**

Sinclair, V. M., Topa, G., & Saklofske, D. H. (2020). Personality correlates of compassion: A cross-cultural analysis. *Mindfulness*, 11(10), 2423-2432.  
<https://doi.org/10.1007/s12671-020-01459-7>

Palma, P. A., Sinclair, V. M., & Esses, V. M. (2020). Facts versus feelings: Objective and subjective experiences of diversity differentially impact attitudes towards the European Union. *Group Processes and Intergroup Relations*, 23(5), 726-734.  
<https://doi.org/10.1177/1368430219854805>

Plouffe, R., Dave, H. P., Wilson, C. A., Topa, G., Riggin, A., Lau, C., Sinclair, V. M., Saklofske, D. H., & Prince-Embury, S. (2020). Validity and cross-cultural invariance of the Resiliency Scale for Young Adults – Spanish Version. *European Journal of Psychological Assessment*. Advance online publication. <https://doi.org/10.1027/1015-5759/a000563>

Sinclair, V. M., & Saklofske, D. H. (2019). Is there a place in politics for compassion? The role of compassion in predicting hierarchy-legitimizing views. *Self and Identity*, 18(4), 425-442. <https://doi.org/10.1080/15298868.2018.1468354>

Babcock, S.\*, Li, Y.\*, Sinclair, V. M.\*, Thomson, C.\*, & Campbell, L. (2017). Two replications of an investigation on empathy and utilitarian judgment across socioeconomic status. *Scientific Data*, 4(160129). <https://doi.org/10.1038/sdata.2016.129>

### **Invited Submissions**

Sinclair, V. M., Feher, A., Wilson, C. A., Topa, G., & Saklofske, D. H. (2018). Researching personal strengths for creating positive lives and environments: An international perspective. *Acción Psicológica (Psychological Action)*, 15(2), 1-4. <https://doi.org/10.5944/ap.15.2.24319>

### **Book Chapters**

Sinclair, V. M., & Smith, M. M. (2020). Empathy, personality correlates of. In B. J. Carducci (Editor-in-Chief) & A. Di Fabio, D. H. Saklofske, & C. Stough (Vol. Eds.), *The Wiley-Blackwell encyclopedia of personality and individual differences: Models and theories*. Hoboken, NJ: John Wiley & Sons. <https://doi.org/10.1002/9781118970843.ch199>