

# Individual Differences and Campus Expression: Associated Constructs and Measures

A Toolkit

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## Introduction

Heterodox Academy aspires to create college classrooms and campuses that welcome diverse people with a wide spectrum of viewpoints and equip learners with the habits of heart and mind to engage in open inquiry and constructive disagreement. We see an academy eager to welcome professors, students, and speakers who approach problems and questions from different points of view, explicitly valuing the role such diversity plays in advancing the pursuit of knowledge, discovery, growth, innovation, and the exposure of falsehoods.

Achieving this vision will necessitate a culture shift in campus communities and the students, professors, administrators, and staff who compose them. We have identified five individual-level characteristics that would help to bring about this goal:

1. Increased empathy and perspective-taking
2. Increased curiosity
3. Increased open-minded cognition
4. Increased intellectual humility
5. Decreased self-censorship

This toolkit describes how we (a) identified these individual characteristics, (b) determined appropriate measures of these individual characteristics, and (c) validated these measures for use among undergraduate students. It also contains these measures so that campus stakeholders can use them to determine the specific individual characteristics that relate to open inquiry, viewpoint diversity, and constructive disagreement on their own campuses.

### **Improving the Campus Expression Climate**

This toolkit describes the second research project in a three-project research series that HxA is undertaking to identify ways of improving campus expression climate (i.e., how freely members of campus communities can express their opinions on their respective campuses).

1. The first project of this series was the creation of the [Campus Expression Survey \(CES\)](#), which measures campus expression climate, providing a means to empirically examine HxA's main outcome of interest. Since creating the CES in 2018, HxA has administered it in [2019](#), [2020](#), and [2021](#) to a representative sample of U.S. undergraduate students to monitor campus expression climate. Reports of the findings were published after each administration, along with the administration guide, which allows campus stakeholders to implement the survey and measure campus expression on their own campuses.
2. The second project is this toolkit. It identifies individual changes that interventions aiming to improve campus expression climate should target (i.e., increasing empathy and perspective-taking, curiosity, open-minded cognition, and intellectual humility; and decreasing self-censorship).
3. The third project is a \$150,000 grant to fund five research projects that examine interventions aiming to effect the changes identified in the second project.

## Using This Toolkit

Beyond describing this research, this toolkit is a practical collection of measures that professors and college administrators can use to identify the individual characteristics that relate to the expression climate on their own campuses.

The research in this toolkit examines relationships between these individual characteristics and campus expression climate across many campuses. We recommend that campus stakeholders examine these relationships on their own individual campuses, as campus-level variables may differ slightly. Knowing the relationships between these individual characteristics and the expression climate specific to one's own campus could help identify the intervention that is most effective for that particular campus.

## Selecting Individual Characteristics and Measures

In January 2020, HxA convened eight experts on open inquiry, viewpoint diversity, and constructive disagreement to discuss and identify individual characteristics that theoretically relate to these campus-level constructs and to select measures of these individual characteristics. These subject-matter experts (see acknowledgements on page 16) convened for one day to discuss, review, and whittle down many possible measures. Through this process, they selected the following individual characteristics and corresponding measures: empathy and perspective-taking, according to the Empathic Concern and Perspective-Taking subscales of the Interpersonal Reactivity Index (Davis 1980, 1983); intellectual humility, according to the Intellectual Humility Scale (Leary et al. 2017); curiosity, according to the Joyous Exploration, Deprivation Sensitivity, and Stress Tolerance subscales of the Five-Dimensional Curiosity Scale Revised (Kashdan et al. 2020); open-minded cognition, according to the Open-Minded Cognition Scale (Price et al. 2015); and self-censorship, according to the Willingness to Self-Censor Scale (Hayes et al. 2005).

## Validating Measures

After selecting these five measures, HxA examined their psychometric properties among undergraduate students. More than 1,500 undergraduate students ages 18 to 24 who were studying at four-year U.S. colleges and universities took part in this validation study by completing the five measures above via Qualtrics. After cleaning this data (e.g., removing the responses of respondents who failed Qualtrics' attention checks), 1,549 observations remained for analysis. We randomly divided this sample into two subsamples, subjecting one to an exploratory factor analysis ( $n = 776$ ) and the other to a confirmatory factor analysis ( $n = 773$ ).

For 776 respondents, we conducted an exploratory factor on each of these scales using oblimin rotation. These results indicated that the three subscales from the Five-Dimensional Curiosity Scale Revised and the Intellectual Humility Scale performed well, with high factor loadings and no cross-loadings; the two subscales from the Interpersonal Reactivity Index, the

Open-Minded Cognition Scale, and the Willingness to Self-Censor Scale, however, each had two or three negatively valenced items that did not load well onto their respective factors or loaded onto other factors.

After adjusting these scales based on results from this exploratory factor analysis, these scales were subject to a confirmatory factor analysis. These adjustments included removing three items from the Empathic Concern Subscale, two items from the Perspective-Taking Subscale, and two items from the Willingness to Self-Censor Scale. They also included separating the positive and negative items from the Open-Minded Cognition Scale to create the two subscales of Open-Minded Cognition and Close-Minded Cognition, respectively. Results of this confirmatory factor analysis showed excellent fit statistics for every subscale (CFIs > .97, TLIs > .95, SRMRs < .03, and RMSEAs ≤ .09).

This work demonstrated the psychometric properties of these five measures specifically among traditional U.S. undergraduate students. According to the results, the Joyous Exploration, Deprivation Sensitivity, and Stress Tolerance subscales of the Five-Dimensional Curiosity Scale Revised and the Intellectual Humility Scale demonstrated good psychometric properties. In the Empathic Concern and Perspective-Taking subscales of the Interpersonal Reactivity Index, the Open-Minded Cognition Scale, and the Willingness to Self-Censor Scale, negative items tended not to fit well with other items in their respective measures. When using these measures, researchers will need to decide between optimizing measure cohesiveness, in which case they would remove these negative items, and optimizing measure breadth, in which case they would use these measures as they are.

## Associations of Individual Characteristics with Classmates' Campus Expression

After identifying individual characteristics that theoretically relate to campus expression climate, selecting their corresponding measures, and validating those measures, we then used the measures to examine the empirical relationship between each of these individual characteristics and campus expression climate.

HxA contracted Strobel Consulting to administer two versions of a survey to undergraduate students who clustered into colleges or universities. They specifically emailed professors about the study and asked them to make the survey available to their students. Professors who made the survey available to their students received \$250 for doing so, and the students who took the survey each received \$5. As an important goal of this study was to predict campus expression climate from classmates' empathy and perspective-taking, intellectual humility, curiosity, open-minded cognition, and self-censorship, half the students in each class completed these measures along with some CES items while the other half did vice versa.

These recruitment methods yielded 1,842 responses by students from 34 universities, which reduced to 1,786 after removing observations with failed attention checks and too much missing data. Looking at the association between these individual characteristics and campus expression climate within persons, we modeled campus expression climate as a function of these individual characteristics using a 2-level model that nested students within classes both as separate simple regression models and together in one model. These simple regression models showed effects from each of these individual characteristics whereas the multiple predictor model showed that only self-censorship had effects above the other individual characteristics. We also modeled campus expression climate as a function of their classmates' average ratings on these individual characteristics, finding again that self-censorship predicted campus expression climate above the other individual characteristics. These results indicate that (1) each of these individual characteristics relate to students' own campus expression, and that (2) students' self-censorship relates to their own campus expression, and to that of their classmates, beyond the other individual characteristics.

# Empathy and Perspective-Taking

(Davis 1980, 1983)

Empathy is a person's reaction to the experiences that they observe from someone else, currently defined as consisting of multiple dimensions including empathic concern and perspective-taking. Empathic concern is feeling warmth, sympathy, and concern for those in unfortunate circumstances. Perspective-taking is spontaneously taking on someone else's perspective.

## Interpersonal Reactivity Index (Empathic Concern and Perspective-Taking Subscales)

Each of these subscales consists of seven items. Respondents answer each of these questions on a five-point scale that ranges from *Does not describe me well* (1) to *Describes me very well* (5). Reverse-score items 4, 14, and 18 (Empathic Concern) as well as items 3 and 15 (Perspective-Taking) of this measure.

### Empathic Concern

2. I often have tender, concerned feelings for people less fortunate than me.
4. Sometimes I don't feel very sorry for other people when they are having problems.<sup>R</sup>
9. When I see someone being taken advantage of, I feel kind of protective towards them.
14. Other people's misfortunes do not usually disturb me a great deal.<sup>R</sup>
18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.<sup>R</sup>
20. I am often quite touched by things that I see happen.
22. I would describe myself as a pretty soft-hearted person.

## Perspective-Taking

3. I sometimes find it difficult to see things from the “other guy’s” point of view.<sup>R</sup>
8. I try to look at everybody’s side of a disagreement before I make a decision.
11. I sometimes try to understand my friends better by imagining how things look from their perspective.
15. If I’m sure I’m right about something, I don’t waste much time listening to other people’s arguments.<sup>R</sup>
21. I believe that there are two sides to every question and try to look at them both.
25. When I’m upset at someone, I usually try to “put myself in their shoes” for a while.
28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

One study examined the construct validity of the Interpersonal Reactivity Index in two samples of students from an introductory psychology course. Specifically, it established the convergent and discriminant validity of this measure with 20 other measures that include two previously existing unidimensional measures of empathy. Our current research also examined the structure of this measure in two national samples of undergraduate students, finding that the reverse-scored items (items 3, 4, 14, 15, and 18) do not fit with the other items in their respective subscales.



## Intellectual Humility (Leary et al. 2017)

Intellectual humility is recognizing that one's personal beliefs can be fallible while being aware of limitations in the evidence supporting that belief and of one's limitations in obtaining and evaluating such evidence. High intellectual humility often involves openness to other perspectives, whereas low intellectual humility involves rigid insistence that one's own beliefs are correct along with disregard for other opinions and viewpoints.

### Intellectual Humility Scale

This measure consists of six items. Respondents answer each of these questions on a five-point scale that ranges from *Not at all like me* (1) to *Very much like me* (5). Scoring for all these items is positive.

1. I question my own opinions, positions, and viewpoints because they could be wrong.
2. I reconsider my opinions when presented with new evidence.
3. I recognize the value in opinions that are different from my own.
4. I accept that my beliefs and attitudes may be wrong.
5. In the face of conflicting evidence, I am open to changing my opinions.
6. I like finding out new information that differs from what I already think is true.

Initial validation of the Intellectual Humility Scale came from four studies, all of which used participants from the general population. Study 1 established the convergent and discriminant validity of this measure with 19 other scales or subscales and established the single-factor structure of these items in an exploratory and a confirmatory factor analysis. Our current research replicated the Study 1 finding about the factor structure of this measure using undergraduate student respondents. Studies 2, 3, and 4 found that this measure predicts people's responses to arguments and those making these arguments according to the

conceptual definition of intellectual humility: People who scored high on this measure, compared with those who scored low on it, were less certain that their religious views were correct and superior to other ones (Study 2), judged a political candidate who changed their opinion after learning more about the issue at hand more favorably (Study 3), and better differentiated between high-quality and low-quality arguments (Study 4).

## Curiosity (Kashdan et al. 2020)

Curiosity is the desire to attain information and experiences for the sake of those things themselves, consisting of multiple dimensions including joyous exploration, deprivation sensitivity, and stress tolerance. Joyous exploration is a pleasurable experience, involving intrigue, fascination, and love of learning. Deprivation sensitivity involves anxiety and frustration about not knowing information that one wants to know; one expends much effort to learn this information and those negative feelings persist until they do so. Stress tolerance is one's ability to tolerate the anxiety and risk that accompanies new experiences.

### **Five-Dimensional Curiosity Scale Revised (Joyous Exploration, Deprivation Sensitivity, and Stress Tolerance Subscales)**

Each of these subscales consists of four items. Respondents answer these questions on a seven-point scale that ranges from *Does not describe me at all* (1) to *Completely describes me* (7). Reverse-score the Stress Tolerance subscale of this measure.

#### **Joyous Exploration**

1. I view challenging situations as an opportunity to grow and learn.
2. I seek out situations where it is likely that I will have to think in depth about something.
3. I enjoy learning about subjects that are unfamiliar to me.
4. I find it fascinating to learn new information.

#### **Deprivation Sensitivity**

1. Thinking about solutions to difficult conceptual problems can keep me awake at night.
2. I can spend hours on a single problem because I just can't rest without knowing the answer.

3. I feel frustrated if I can't figure out the solution to a problem, so I work even harder to solve it.
4. I work relentlessly at problems that I feel must be solved.

**Stress Tolerance (reverse-score this entire subscale)**

1. The smallest doubt can stop me from seeking out new experiences.<sup>R</sup>
2. I cannot handle the stress that comes from entering uncertain situations.<sup>R</sup>
3. I find it hard to explore new places when I lack confidence in my abilities.<sup>R</sup>
4. It is difficult to concentrate when there is a possibility that I will be taken by surprise.<sup>R</sup>

Two studies examined the factor structure and construct validity of the Five-Dimensional Curiosity Scale Revised, both of which used participants from the general population. Confirmatory factor analyses supported the five-dimensional structure of this measure in both studies. Our current research tested and confirmed the structure of three of these subscales using undergraduate student respondents. These studies also established the convergent and discriminant validity of this measure with 55 other scales or subscales across both studies.

## Open-Minded Cognition (Price et al. 2015)

Open-minded cognition is willingness to consider various perspectives, values, attitudes, opinions, and beliefs, even if they contradict ones that a person currently holds. Open-minded people can accept many competing perspectives and process information without bias, whereas closed-minded people process information in a way that reinforces their current opinion or expectation.

### Open-Minded Cognition Scale (General Open-Minded Cognition Subscale)

This subscale consists of six items. Respondents answer each of these questions on a seven-point scale that ranges from *Strongly disagree* (1) to *Strongly agree* (7). Reverse-score the first three items of this measure.

1. I have no patience for arguments I disagree with.<sup>R</sup>
2. I often “tune out” messages I disagree with.<sup>R</sup>
3. I believe it is a waste of time to pay attention to certain ideas.<sup>R</sup>
4. I try to reserve judgment until I have a chance to hear arguments from both sides of an issue.
5. I am open to considering other viewpoints.
6. When thinking about an issue, I consider as many different opinions as possible.

Item selection and validation of the Open-Minded Cognition Scale occurred across six studies, all of which used participants from the general population. After compiling a pool of potential items for this measure, a series of exploratory principal components analyses progressively whittled down items that do not cohere with others and indicated that a single factor structure best fits these items (Study 1). Studies 2 and 3 involved confirmatory factor analyses that continued to progressively eliminate items that did not fit well with other items in this scale,

resulting in six items. Studies 4, 5, and 6 then established the convergent and discriminant validity of these remaining items with 35 other scales or subscales. Contrary to results from Studies 1, 2, and 3, our current research among undergraduate students found that these positively worded items fit together (i.e., open-minded cognition) and that these negatively worded items fit together (i.e., close-minded cognition).

## Self-Censorship (Hayes et al. 2005)

Self-censorship is withholding one's opinion from an audience who one believes to disagree with that opinion. This definition of self-censorship goes beyond a general reticence to speak one's mind in public and is specific to an audience who one believes will disagree with this opinion.

### Willingness to Self-Censor Scale

This measure consists of eight items. Respondents answer each of these questions on a five-point scale that ranges from *Strongly disagree* (1) to *Strongly agree* (5). Reverse-score items 4 and 8 of this measure.

1. It is difficult for me to express my opinion if I think others won't agree with what I say.
2. There have been many times when I have thought others around me were wrong but I didn't let them know.
3. When I disagree with others, I'd rather go along with them than argue about it.
4. It is easy for me to express my opinion around others who I think will disagree with me.<sup>R</sup>
5. I'd feel uncomfortable if someone asked my opinion and I knew that he or she wouldn't agree with me.
6. I tend to speak my opinion only around friends or other people I trust.
7. It is safer to keep quiet than publicly speak an opinion that you know most others don't share.
8. If I disagree with others, I have no problem letting them know.<sup>R</sup>

One study established that the Willingness to Self-Censor Scale measures self-censorship according to its definition above in a sample of students from an introductory communication course. This measure specifically predicted self-reported willingness to speak their opinion during a hypothetical conversation on a controversial topic. It did so better if this conversation were with people who disagree with this opinion, and it did so when controlling for shyness. This measure therefore examines self-censorship beyond shyness and is specific to an audience who would disagree with this opinion. Our current research, which examined the structure of this measure in two national samples of undergraduate students, found that the two reverse-scored items (items 4 and 8) do not fit with the other items in this measure.



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## About Heterodox Academy

Heterodox Academy (HxA) is a nonpartisan nonprofit that works to improve the quality of research and education by promoting open inquiry, viewpoint diversity, and constructive disagreement in institutions of higher learning. Our community is made up of more than 5,000 professors, educators, administrators, and students who come from a range of institutions — from large research universities to community colleges. They represent nearly every discipline and are distributed throughout 49 states and across the globe.

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great minds don't always think alike