

Illusion of Explanatory Depth and Global Citizenship Identification

Skylar Parkerson

Stephen Reysen

Department of Psychology
Texas A&M University-Commerce
Commerce, TX, 75429

Abstract

We examined the association between the illusion of explanatory depth and global citizenship identification. The illusion of explanatory depth is the belief that an individual has a greater depth of understanding about something than they truly do. Participants were asked to rate self-knowledge, perception of normative environment, global awareness, and global citizenship identification before and after answering and learning the answers to three sections of multiple choice items regarding global issues. Prior research exploring the illusion of explanatory depth shows that an individual's self-rating of their knowledge declines as they find they know less than they had previously believed. The results of the present study support this body of research and further show a drop in antecedents and global citizenship identification accompanies the drop in perceived knowledge.

Keywords: illusion explanatory depth, global citizen, global awareness, knowledge

The illusion of explanatory depth (IOED) is the belief that an individual has a greater depth of understanding about something than they truly do. For example, individuals have been shown to possess a metacognitive miscalibration such that they believe they know how a bicycle is designed but are unable to draw one (Lawson, 2006). IOED was first theorized by Wilson and Keil (1998) when they proposed that most people do not realize how little they are informed about most everyday objects. Since then much work has been conducted to continue to advance knowledge of how and why individuals compensate for their lack of knowledge.

Lawson (2006) demonstrated in her experiment that there was a connection between confidence and IOED, the more confident an individual was in their responses, the more they were affected by IOED. In doing this she showed that IOED can be seen as a kind of heuristic wherein individuals will maintain confidence in their previous explanations, because if they were wrong then it would mean that they were in some way the lesser for it. She also found that an individual's confidence increased between when they were asked if they understood a mechanism or procedure, and when they were asked to actually give their explanation. However, when an expert told them the actual function, their confidence would greatly drop, thus demonstrating that they were able to understand that they were previously incorrect, and also able to incorporate the new information as correct, even if they did not fully understand what was meant.

However, expertise in an area can also lead to IOED, as experts will be less likely to doubt their knowledge (Jee, Wiley, & Griffin, 2006). As Jee and colleagues (2006) proposed, this may be due to their belief that because they are recognized as experts they believe that they know most everything that there is to be known about their specific area and related areas. For instance, a sociologist might believe that they know quite a bit about cultural differences between countries, even if their area was related to economics. They may be very well informed, and they would be more likely to be correct than someone who was not a sociologist, but because of their degree of expertise they would be less inclined to doubt their knowledge, and thus may not keep up with new information, or check what they know against current academically certified material.

IOED is not necessarily bad in and of itself, it can be quite helpful to individuals, such as the fact that it is not necessary to understand how a car functions to drive. But IOED can also lead to people believing that they are capable of doing something which is not in fact within their abilities. As a person develops and matures they become better able to recognize their own limitations (Mills & Keil, 2004), but this may be due largely to experience, learning that there are unseen factors at work, or that they do not actually know everything.

Yet, they may still come to believe that they know much, or all, of a topic if they come to consider themselves an expert within an area (Jee et al., 2006). Thus, even though an individual may grow to understand that they do not know everything, they may still come to believe that their knowledge base encompasses far more than it actually does. Although, this would likely be because it is necessary for one to protect one's self-image as an expert (Lawson, 2006), or else they may have to admit that they are not as knowledgeable as they believe themselves to be. Thus, as an individual grows to be more of an expert within an area more credence is given to their statements about their area, or as Ylikosky and Kuorikosky (2010) put it, they have higher explanatory power. In the present study we examine the influence of IOED on global citizenship identification.

Reysen, Larey, and Katzarska-Miller (2012) define global citizenship as awareness, caring, embracing diversity, promoting environmental sustainability and social justice, combined with a sense of responsibility to act for the betterment of the world. Following a social identity perspective (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), when a global citizen identity is salient, greater identification (i.e., felt psychological connection) with global citizens will predict adherence to the group's content. Indeed, greater global citizenship identification predicts greater endorsement of prosocial values and behaviors (e.g., intergroup empathy, helping, valuing diversity) (Reysen & Katzarska-Miller, 2013a). Reysen and Katzarska-Miller (2013a) further showed two variables that predict individuals' degree of identification with global citizens. The extent that valued others prescribe the identity (normative environment) and one's knowledge of, and connection to, the world (global awareness) predict identifying with global citizens. A wealth of subsequent research shows that perception of one's normative environment and global awareness are consistent predictors of global citizenship identification (Blake, Pierce, Gibson, Reysen, & Katzarska-Miller, in press; Blake & Reysen, 2014; Gibson & Reysen, 2013; Gibson, Reysen, & Katzarska-Miller, in press; Katzarska-Miller, Barnsley, & Reysen, 2014; Plante, Roberts, Reysen, & Gerbasi, 2014; Reysen & Katzarska-Miller, 2013b; Reysen, Katzarska-Miller, Salter, & Hirko, in press; Reysen et al., 2014).

In two studies, Reysen, Katzarska-Miller, Gibson, and Hobson (2013) examined the association between factual knowledge of the world, perceived knowledge of the world, and global citizenship identification. In Study 1, participants completed a factual knowledge test regarding the world (e.g., geography, religions, cultures) prior to rating antecedents (normative environment, global awareness) and global citizenship identification. Global awareness (perception of one's knowledge of the world) was a stronger predictor of global citizenship identification than actual knowledge of the world. Building upon this finding, the researchers manipulated participants' perceived knowledge of the world in Study 2. In the laboratory, participants were given a cover story suggesting the study regarded validation of a measure of one's world connectedness. Participants then completed the same factual knowledge test as in Study 1. Upon completion of the test, the experimenter randomly chose the participant's results. The results either showed the participant scoring high or low on the test, or in the control condition participants were told the result was not available at that time. Participants then completed measures regarding normative environment, global awareness, and global citizenship identification. The results showed that students informed they were knowledgeable about the world scored significantly higher than students who were told that were not knowledgeable about the world. Furthermore, higher scores (vs. low scores) predicted greater global citizenship identification through participants' perception of their normative environment and global awareness. Together, the studies show that individuals' perception that they are knowledgeable about the world is associated with one's perception of the normative environment, global awareness, and global citizenship identification.

Present Study

The purpose of the present study is to examine the relationship between IOED and global citizenship identification. Prior research (e.g., Lawson, 2006) shows that individuals tend to express high perceived knowledge of various issues. When asked to explain the issues in depth, their ratings of perceived knowledge tend to drop. Perception of knowledge has also been shown to predict global citizenship identification through individuals' perception of their normative environment and global awareness (Reysen et al., 2013).

Following a paradigm for studying IOED (Jee et al., 2006), we predicted that the drop in perception of one's knowledge of global issues should be mirrored by participants' perception of their normative environment, global awareness, and global citizenship identification.

Method

Participants and Procedure

Participants ($N = 187$, 72.7% women; $M_{\text{age}} = 23.47$, $SD = 8.33$) included undergraduate college students from Texas A&M University-Commerce participating for partial course credit. Participants rated their perceived knowledge of global issues, normative environment, global awareness, and global citizenship identification. Participants then responded to multiple choice items regarding a global issue (e.g., environmental sustainability), rated the variables again (i.e., perceived knowledge, normative environment, global awareness, global citizenship identification), received the answers to the multiple choice items, and rated the variables again. Participants followed this procedure (i.e., rate items, multiple choice, rate items, answers, rate items) for three global issues (i.e., environmental sustainability, globalization, and human rights issues). Lastly, participants reported demographic information and were debriefed. Unless noted otherwise, all measures use a 7-point Likert-type scale, from 1 = *strongly disagree* to 7 = *strongly agree* (see Table 1 for Cronbach's alpha for each measure at each rating time point).

Materials

Perception of knowledge. Participants' perception of their knowledge was assessed with two items ("How do you feel in your current knowledge about global issues?" "How confident are you in your knowledge about global issues?"). Both items used a 6-point Likert-type scale, from 1 = *little knowledge* to 6 = *very knowledgeable* (Item 1) and 1 = *not confident* to 7 = *very confident*.

Normative environment. Two items (e.g., "Most people who are important to me think that being a global citizen is desirable") were adopted from prior research (Reysen & Katzarska-Miller, 2013a) to assess participants' perception that valued others prescribe a global citizen identity.

Global awareness. Four items (e.g., "I understand how various cultures of this world interact socially") were adopted from prior research (Reysen & Katzarska-Miller, 2013a) to assess participants' perception of their awareness of knowledge and connection to others in the world.

Global citizenship identification. Two items (e.g., "I strongly identify with global citizens") were adopted from prior research (Jenkins, Reysen, & Katzarska-Miller, 2012; Reysen & Katzarska-Miller, 2013a) to assess participants' perceived psychological connection with the category global citizen.

Global issues questions and answers. We adopted (Reysen et al., 2013) three sets of multiple choice questions and answers related to three global issue topics (environmental sustainability, globalization, human rights).

Results

Repeated Measures

To examine whether ratings of perceived knowledge, normative environment, global awareness, and global citizenship identification changed across the multiple ratings we conducted a series of repeated measures analyses. Perceived knowledge, $F(6, 181) = 52.85$, $p < .001$, $\eta_p^2 = .22$, normative environment, $F(6, 181) = 18.50$, $p < .001$, $\eta_p^2 = .09$, global awareness, $F(6, 181) = 35.99$, $p < .001$, $\eta_p^2 = .16$, and global citizenship identification, $F(6, 181) = 32.45$, $p < .001$, $\eta_p^2 = .15$, all showed significant change across the measurement time points (see Table 1 for means and standard deviations). Within-subjects contrasts showed that each subsequent mean was significantly different ($p < .05$) from the prior time point mean (see Figure 1). The predicted decrease in ratings was found for all of the assessed measures. Furthermore, this downward linear trend was significant for perceived knowledge, $F(1, 186) = 83.33$, $p < .001$, $\eta_p^2 = .31$, normative environment, $F(1, 186) = 31.49$, $p < .001$, $\eta_p^2 = .15$, global awareness, $F(1, 186) = 56.45$, $p < .001$, $\eta_p^2 = .23$, and global citizenship identification, $F(1, 186) = 63.82$, $p < .001$, $\eta_p^2 = .26$. We also examined whether the number of multiple choice items students correctly answered influenced the results. Overall, students' success on the 15 multiple choice items ($M_{\text{correct}} = 5.99$, $SD = 2.15$) did not change the direction or significance of the results (when examining the repeated measures with number of items correct as a covariate).

Mediation

To examine whether the change in participants' perceived knowledge influenced global citizenship identification through normative environment and global awareness, we conducted mediation analyses.

First, we conducted a path analysis using structural equation modeling, and second we examined the mediation using Hayes' (2013) PROCESS macro. Although other statistical methods exist to examine mediation in longitudinal data (see Selig & Preacher, 2009), we used difference scores due to the lack of a large sample size needed to conduct mediation with other approaches (e.g., cross-lagged panel model). We constructed a difference score by subtracting ratings at time 1 from time 7. We then constructed a path model (bootstrapping with 5,000 iterations and 95% confidence intervals) with perception of knowledge predicting the mediators (normative environment and global awareness), and the mediators predicting global citizenship identification. To control for participants' initial (Time 1) ratings on the measures, we allowed each Time 1 rating to covary with that variable's difference score. Furthermore, similar to research by Reysen and Katzarska-Miller (2013a), we allowed the disturbance terms of the mediators to covary. The path model showed relatively appropriate fit, $\chi^2(13, N = 187) = 49.43, p < .001$; RMSEA = .123, CI{.088; .160}, NFI = .936, CFI = .951.

The change (difference) in ratings of perceived knowledge from the beginning (Time 1) to the end of the study (Time 7) predicted normative environment change ($\beta = .37, p < .001, CI = .199$ to $.512$) and global awareness change ($\beta = .42, p < .001, CI = .266$ to $.555$). Global awareness change ($\beta = .57, p < .001, CI = .424$ to $.708$) predicted global citizenship identification change, while normative environment change did not ($\beta = .10, p < .001, CI = -.066$ to $.282$). The change in perceived knowledge indirectly influenced global citizenship identification change ($\beta = .34, p < .001, CI = .195$ to $.506$) through the mediators (see Figure 2 for depiction of model).

We also examined the mediation with Hayes' (2013) macro (bootstrapping with 5,000 iterations, 95% confidence intervals). The difference score of perceived knowledge was entered as the independent variable, normative environment and global awareness change as mediators, global citizenship identification change as the dependent variable, and Time 1 ratings as covariates. This model differs from the path model described above as the Time 1 ratings were allowed to covary with all the other variables in the model (rather than on specific difference scores). As in the path model, the mediation was significant. Global awareness was a significant mediator ($b = .35, CI = .226$ to $.514$), while normative environment change was not ($b = .00, CI = -.106$ to $.111$). Together, the results suggest that the association between the change in perceived knowledge and global citizenship identification was mediated by change in participants' global awareness.

Discussion

The purpose of the present study was to examine the relationship between IOED and global citizenship identification. We predicted, and found, that individuals express a high degree of perceived knowledge that then decreases when asked in depth questions concerning that knowledge base. As predicted, the decrease in perceived knowledge was matched by a decrease in antecedents (normative environment, global awareness) and global citizenship identification. Furthermore, the decrease in perceived knowledge was shown to predict the decrease in global citizenship identification through participants' decrease in perceived global awareness. Thus, asking specific questions about global issues (i.e., greater explanation) reduced participants' metacognitive perception of their knowledge of global issues, which predicted lower ratings of their perceived awareness of the world, which in turn, predicted lower identification with global citizens.

A wealth of empirical research has demonstrated the IOED effect across a variety of knowledge domains (e.g., Jee et al., 2006; Lawson, 2006; Mills & Keil, 2004; Wellman, 2011). In the present study, participants were asked to explain global issues through a series of multiple choice items on the topic. Regardless of how well participants scored on the multiple choice items, their perception of their knowledge tended to decrease. Supporting prior research examining IOED, participants' metacognitive perception of their knowledge of global issues was lower with each successive measurement. Following prior IOED explanations, participants are presumed to have realized that they know much less than they previously thought and adjusted their reported perception to match the now salient lack of knowledge about global issues. Perception of one's knowledge about global issues has also been closely linked with individuals' psychological connection to the world.

Reysen and Katzarska-Miller's (2013a) model of antecedents and outcomes of global citizenship identification shows that one's normative environment and global awareness are predictors of identifying with global citizens. When the perception of one's knowledge of global issues is manipulated in the laboratory, participants' perceived global awareness is reduced along with reduced global citizenship identification (Reysen et al., 2013).

Supporting this line of research concerning the connection between perceived knowledge and global citizenship identification, the results of the present study show that the reduction in perceived knowledge following an IOED paradigm predicts lower ratings of global awareness and lower ratings of global citizenship identification. Furthermore, the present results show that the association between the lower metacognitive perception of knowledge predicts global citizenship identification through the reduction in perceived global awareness.

Engendering global citizenship has become the focus of many educational institutions (see Reysen & Katzarska-Miller, 2013c). The results of the present research and those of Reysen and colleagues (2013) suggest that the illusion of knowledge of the world positively predicts identification. Shattering that illusion through false feedback (Reysen et al., 2013) or through requests to demonstrate one's knowledge (as in the present study) hinders identification with global citizens. Indeed, as shown by Reysen and colleagues (2013), the perception that one is globally knowledgeable is more important for predicting global citizenship identification than one's actual knowledge of the world. Despite the positive outcomes of holding onto the illusion of knowledge, I do not suggest that educating students, or the general population, concerning knowledge of the world is needless. Reysen and colleagues (2013) do find that factual knowledge is related to global citizenship identification. Furthermore, Reysen and colleagues (2012) and Blake and colleagues (in press) do find that college courses with a global focus increase global awareness and global citizenship identification. In other words, although individuals experience an illusion of knowledge, education with a global focus can increase factual knowledge that aids in bolstering one's sense of global awareness.

Although the results of the present study are in line with prior research on IOED and global citizenship, there are limitations to consider when interpreting the results. First, the present study is correlational. Thus, one cannot draw causal relations in the association between IOED and global citizenship identification. Second, the sample utilized in the present research was from a single university. Different populations (e.g., expert and novices) may show different results from those obtained in the present study. Third, the questions used in the present research were difficult for students to answer correctly as indicated by the low mean score on the multiple choice items. Future research may examine if easy questions result in a reverse in results, such that global citizenship identification increases with positive feedback concerning one's knowledge.

To conclude, the present research showed that students hold an illusion of explanatory depth for global issues. When asked to demonstrate their knowledge of global issues through a series of multiple choice questions, their metacognitive perception of their degree of knowledge decreases. This decrease in perceived knowledge is mirrored by decreases in perception of global awareness and identification with global citizens. Furthermore, the decrease in perception of knowledge predicted the decrease in global citizenship identification through the decrease in perceived global awareness. Together, the results show an influence of IOED on global citizenship identification. Although the results suggest a positive outcome to endorsing an illusion of knowledge, greater research examining specific components of global education regarding factual knowledge and global citizenship is needed.

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Table 1: Means (Standard Deviations) and Alphas of Assessed Variables across Time

| Variable | T1 | T2 | T3 | T4 | T5 | T6 | T7 |
|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Perceived Knowledge | 3.14 (1.22) | 2.81 (1.26) | 2.32 (1.13) | 2.33 (1.17) | 2.36 (1.19) | 2.35 (1.24) | 2.28 (1.22) |
| Alpha | .92 | .94 | .92 | .94 | .94 | .96 | .96 |
| Normative Environment | 4.18 (1.46) | 4.03 (1.50) | 3.80 (1.57) | 3.72 (1.57) | 3.68 (1.58) | 3.67 (1.61) | 3.65 (1.66) |
| Alpha | .81 | .83 | .85 | .86 | .86 | .89 | .88 |
| Global Awareness | 4.44 (1.40) | 4.14 (1.51) | 3.90 (1.53) | 3.84 (1.57) | 3.74 (1.58) | 3.76 (1.64) | 3.72 (1.63) |
| Alpha | .87 | .91 | .91 | .92 | .92 | .93 | .92 |
| GC Identification | 3.97 (1.64) | 3.63 (1.66) | 3.29 (1.67) | 3.34 (1.70) | 3.20 (1.63) | 3.21 (1.66) | 3.10 (1.65) |
| Alpha | .95 | .94 | .95 | .94 | .95 | .96 | .95 |

Note. Perceived knowledge rated on 6-point scale, remaining measures on 7-point response scale. T = time point.

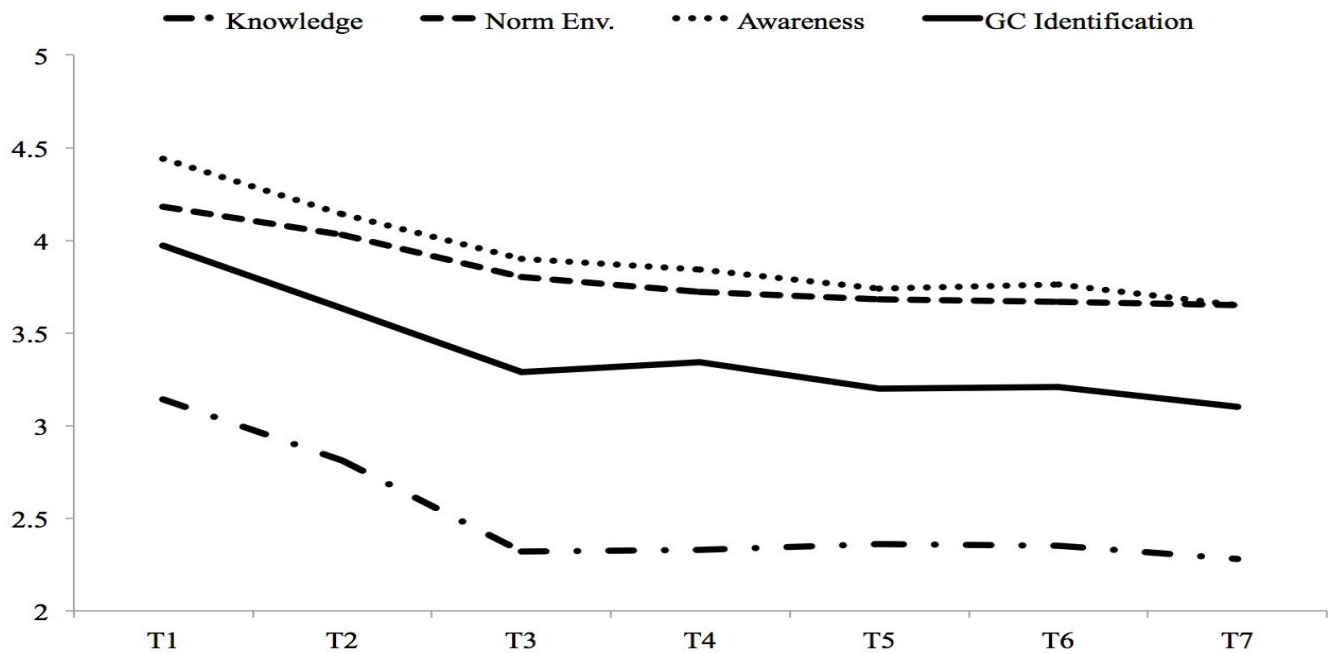


Figure 1: Ratings of Assessed Variables across 7 Time Points. Perceived Knowledge Rated on 6-Point Scale, Remaining Measures on 7-Point Response Scale

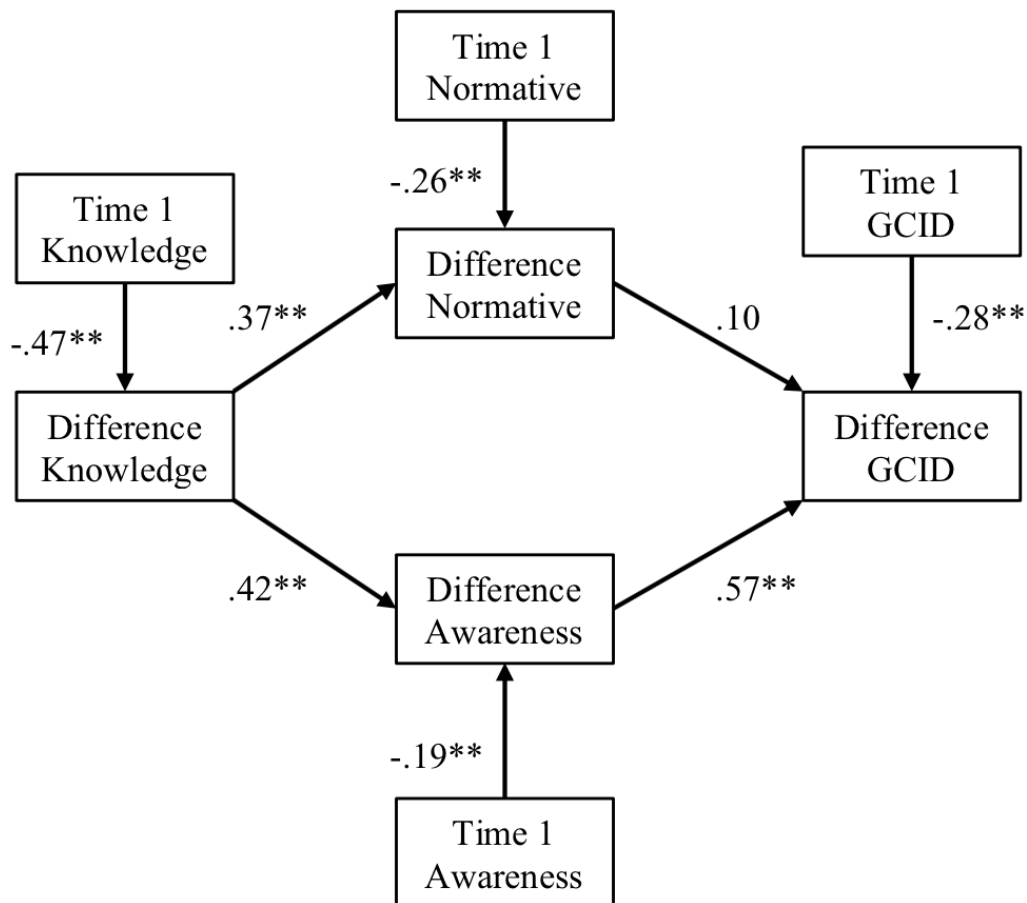


Figure 2: Path Model of Change (Difference between Time Points 1 and 7) of Perceived Knowledge Predicting Global Citizenship Identification Through Normative Environment and Global Awareness (Controlling for Time 1 Ratings). $** p < .001$