

# In-Class Experiment Assesses Empathy for International Hunger and Poverty

*Nathan P. Hendricks<sup>1</sup> and Krystal Drysdale<sup>2</sup>*  
*Kansas State University*  
*Manhattan, KS*



## Abstract

Most of the world's poor work in agriculture. In addition, food expenditures comprise a substantial portion of the budget of those living in extreme poverty. As the future leaders in the agricultural industry, it is critical for students to appreciate the challenges of hunger and poverty internationally. We describe the use of an in-class experiment where students were randomly selected to receive different survey instruments with different background information that elicit their willingness to give to reduce international hunger and poverty. The first survey provided a picture of a young girl and her story about struggling with hunger and poverty. The second survey provided statistics on hunger and poverty, and the third survey provided no background information. Results were reported to the class indicating that students presented with an identifiable victim were more willing to give, providing the students an opportunity to reflect on their own response and how they may have responded in the alternative scenario. We found that 85% of the students agreed that the experiment helped them better understand what motivates people to participate in reducing international hunger and poverty.

## Introduction

Agriculture plays a critical role in improving the livelihoods of a large portion of the world's population that faces the challenges of hunger and poverty. The latest report by the FAO (2013) indicates that 868 million people (roughly 12% of global population) suffer from undernourishment, with continued micronutrient deficiencies affecting around 2 billion people (roughly 29% of global population). Childhood malnutrition remains the cause of death for more than 2.5 million children every year and more than 100 million children under the age of five are underweight. Agriculture plays a critical role not only because increasing production reduces the price of food for the urban poor who spend a majority of their income on food, but also for the rural poor whose primary source of employment is agriculture.

In fact, agriculture is the primary source of employment in the economies of many low-income countries and research shows that agricultural productivity growth results in substantial reductions in poverty. For example, Christiaensen et al. (2011) estimate that GDP (Gross Domestic Product) growth in agriculture results in greater reductions in poverty than an equal amount of GDP growth in other sectors of the economy. The Green Revolution is also often cited as an important driver of historical poverty reduction (Hazell and Ramasamy, 1991). Given the role of agriculture in the reduction of hunger and poverty, it is important for students in agriculture to appreciate the role they play in global food security.

Several previous studies have revealed a need to increase the exposure of students in agriculture to a global perspective (Brooks et al, 2006; Colyer, 1993; Henson and Noel, 1989; King and Martin, 1994; Mason et al., 1994; Place et al., 2004). The NACTA Journal devoted an entire special issue in September 2013 (volume 57, no. 3a) to the topic of globalization and the implications for teaching and learning. Most previous studies motivate the internalization of curricula on the basis that undergraduate careers are increasingly connected to global markets, and rightly so. Our emphasis is to help students recognize the potential role that they have in improving the livelihoods of the global poor. Many papers in the special issue of the NACTA Journal discuss the creation of effective study abroad programs (e.g., Barkley and Barkley, 2013; Sherk, 2013), but others discuss incorporating international issues into course content (e.g., Higgins, et al., 2013; Morgan and King, 2013). In this paper, we describe an in-class experiment designed to help give students a global perspective on hunger and poverty.

One prerequisite to students recognizing their potential in reducing global hunger and poverty is for them to empathize with the condition of the global poor. Some current research suggests a void in U.S. college

<sup>1</sup>Assistant Professor, Department of Agricultural Economics; Ph: 785-532-3740; Email: nph@ksu.edu

<sup>2</sup>Graduate Student, Department of Agricultural Economics; Ph: 785-532-6702; Email: kmd123@ksu.edu

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students' ability to express empathy, which refers to the "tendency to react to other people's observed experiences" (Konrath et al. 2011, p. 2). These authors examined empathy changes from 1979 to 2009 in undergraduate college students at conventional 4-year institutions in the United States. They found a significant decline in empathy after 2000. Some speculate that this reduction in empathy towards others is attributed to the environmental upbringing of a generation of students whom some consider the most self-concerned, competitive, confident, and individualistic cohort in recent history (Konrath et al., 2011; Twenge, 2006; Twenge et al, 2008; Mallan, 2009). Personal experience teaching undergraduates about global poverty also revealed a lack of empathy, where some students—though certainly not all—suggest the topic is not relevant to their lives.

We constructed an in-class experiment designed to assess and develop empathy in college students toward issues in international hunger and poverty and analyzed the effectiveness of the experiment. Replications of this experiment in agricultural classrooms – or in any course incorporating international poverty issues – can serve as a valuable instructional tool allowing students to become more self-aware of the factors that contribute to their empathy towards others affected by hunger and poverty.

### Methods

The experiment was conducted in a course with 124 enrolled students at Kansas State University. The course is titled "Contemporary Issues in Global Food and Agricultural Systems" and is mostly comprised of students in the College of Agriculture. The course is required of all students majoring in Agribusiness or Agricultural Economics but several non-majors were also enrolled. A wide range of topics are covered in the course from global supply and demand for food, environmental and natural resources, international trade, and international development.

Prior to the section of the course on international development, students were informed that they could receive extra credit for completing an online survey. The experiment consisted of three separate surveys similar in design to those of Small et al. (2007) and made available to students online via Qualtrics software. The students were divided among the three survey instruments based on the first letter of their last name. Students were informed that their responses were anonymous, but that aggregate results would be reported in class. Although students received extra credit for completing the survey, their names could not be linked to particular survey responses.

The first page of all three surveys involved a series of demographic questions (surveys are available from the authors upon request). The second page of questions presented a hypothetical scenario aimed at revealing students' empathy toward international poverty and hunger. We proxy the empathy of students by their willingness to donate time or money or support policies that fund international agricultural development.

For example, Barraza and Zak (2009) found a strong correlation between empathy, generosity to strangers and donations to charity. Future versions of the experiment could include an empathy scale component such as that used by Davis (1983) as an alternative measure of empathy. On the second page of questions, students were given different information depending on which survey they received as discussed below. The third page of questions included open-ended questions to assess their motivations and current generosity toward reducing international hunger and poverty.

The survey design in our experiment was inspired by Small et al. (2007)—though they did not conduct their experiments in a classroom setting for educational purposes. Students in the first survey group, referred to as the "Rokia group", were presented with an identifiable victim, Rokia, a 7 year old girl from Mali, Africa. The students were informed that "Rokia is desperately poor, and faces a threat of severe hunger or even starvation. Her life will be changed for the better as a result of your financial gift." A fictional picture of Rokia was also included. The language used to describe Rokia was taken directly from Small et al. (2007). Following the information about Rokia, students were asked the following three questions:

1. How much money would you be willing to donate today? Any money that you donate will go to Rokia.
2. How much time would you be willing to donate to a food drive that would directly benefit Rokia and her community?
3. Would you support a U.S. policy that invests in agricultural research in Sub-Saharan Africa to increase agricultural production and reduce hunger? The policy would cost the average taxpayer \$5.

For the first question, students could select \$0, \$1, \$2, \$3, \$4, or \$5. For the second question, students could select 0, 0.5, 1, 2, or 3 hours. For the third question, students could select yes or no.

The second group, referred to as the "statistical group," was provided with a statistical description of numerous hunger and poverty issues in Sub-Saharan Africa with no mention of the girl Rokia. Students were then asked the following questions:

1. How much money would you be willing to donate today to help reduce hunger in Sub-Saharan Africa?
2. How much time would you be willing to donate to a food drive that would directly benefit communities in Sub-Saharan Africa?
3. Would you support a U.S. policy that invests in agricultural research in Sub-Saharan Africa to increase agricultural production and reduce hunger? The policy would cost the average taxpayer \$5.

The key difference in the wording of the donation questions for the statistical survey group was that the

donations would benefit Sub-Saharan Africa in general, rather than directly benefitting Rokia and her community.

The final group, referred to as the “control group,” was given questions identical to those posed to the statistical group; however, it was not paired with any accompanying information about poverty or hunger.

Preceding this line of questioning was an explicit “Cheap Talk Script” indicating that people tend to overstate their generosity when posed with a hypothetical situation versus an actual donation request.

### The Cheap Talk Script

We are now going to ask how much you would donate in a hypothetical scenario. The experience from previous surveys is that people often state a higher willingness to donate than what one is actually willing to donate to this cause. Accordingly, it is important that you make each of your upcoming selections like you would if you were actually facing these exact choices in real life, i.e., noting that a donation means that you would have less money available for other purchases.

Cheap talk scripts were originally proposed by Cummings and Taylor (1999) to reduce the hypothetical bias of people who indicate a larger value for a good when presented with a hypothetical scenario than when they actually have to pay for the good. Tonsor and Shupp (2011) find a similar cheap talk script to be effective in an online experiment.

After the students completed the survey, the results were analyzed using Ordinary Least Squares (OLS) regression. We estimated three separate regressions where we model the following responses as different dependent variables in each regression: (i) amount of money willing to donate, (ii) amount of time willing to donate, and (iii) a binary variable equal to 1 if the student would vote yes for the policy and 0 otherwise. The regressions each take the form

$$y_i = \beta_0 + \beta_1 Rokia_i + \beta_2 Stats_i + \beta_3 Female_i + \beta_4 Rural_i + \beta_5 Travel_i + \epsilon_i,$$

where  $y_i$  denotes the response of student  $i$ ,  $Rokia_i$  equals 1 if the student was in the Rokia group and 0 otherwise,  $Stats_i$  equals 1 if the student was in the statistical group,  $Female_i$  equals 1 if the student was a female,  $Rural_i$  equals 1 if the student was from a rural background, and  $Travel_i$  equals 1 if the student had experienced some international travel for non-vacation purposes.

The purpose of the regressions was to statistically test if students responded differently depending on which survey they received. For example, the  $\beta_1$  coefficient represents the average additional willingness to give (or the additional probability of voting yes) of students in the Rokia group compared to students in the control group. The regression is also useful as a way of summarizing how willingness to give is associated with different demographic characteristics. It is not necessary to include the demographic control variables in the regression to obtain a causal estimate of the effect of

the different survey instruments since the students were randomly assigned to the survey groups. Including the demographic control variables did, however, improve efficiency and provided interesting results to see how these characteristics are correlated with willingness to give.

A 50 minute course period was used to present the results to the students after they had all completed the survey. Students were informed at this time that three different surveys had been distributed and the different surveys were shown to the students. At this point, students were smiling recognizing exactly how the results were likely to differ and were engaged in the exercise. The difference in responses between the survey groups were displayed graphically and regression results were also displayed with particular emphasis on the different responses by demographic characteristics. Students were periodically asked to reflect within small groups during the presentation of the results.

Following the in-class discussion of the experiment, we distributed a survey to assess the students’ perception of the effectiveness of the experiment in increasing student awareness and uncovering personal appreciation of international hunger and poverty issues.

### Results

All of the surveys were completed and returned. Table 1 provides summary statistics of a few key demographic characteristics of the class. Females comprised 41% of the students, and 69% of all students report growing up in a rural environment. Students were also asked to indicate the nature of any travel abroad. About 27% of the students had traveled abroad for non-vacation purposes. In response to their political affiliation, 62% of the students indicated that they consider themselves conservative, 30% as moderate, 5% as liberal, and 3% as another political affiliation. We chose not to include the political affiliation as a control variable in the regression since we suspected that it may be difficult to separately identify the effect of rural versus political affiliation on willingness to give. Other demographic characteristics were also collected in the survey but seemed to have minimal effect on willingness to give so they were omitted to simplify the analysis.

Figure 1 shows the average willingness to give across the survey groups. On average, students in the Rokia group were willing to donate \$3.60, while students in the statistical and control groups were only willing to donate \$2.70. Not surprisingly, the results suggest that an identifiable victim elicits stronger empathy than the response to sta-

	Percent of Responses
Female	41%
Geographic Background	
Urban	6%
Suburban	25%
Rural	68%
International Travel	
Non-vacation purposes	26%
Vacation purposes	20%
None	60%
Political Affiliation	
Liberal	4%
Moderate	30%
Conservative	61%
Other	3%

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tistical information. Interestingly, statistical information elicits no stronger empathy than providing no information at all.

Similar findings were revealed for students' willingness to donate their time and willingness to vote for a policy to fund international agricultural development. Students in the Rokia group were willing to donate 1.7 hours, while students in the statistical and control groups were only willing to donate 1.4 hours (see figure 2). The probability of students voting for the policy to fund international agricultural development was 0.9 for

the Rokia group, 0.65 for the statistical group, and 0.77 for the control group (Figure 3).

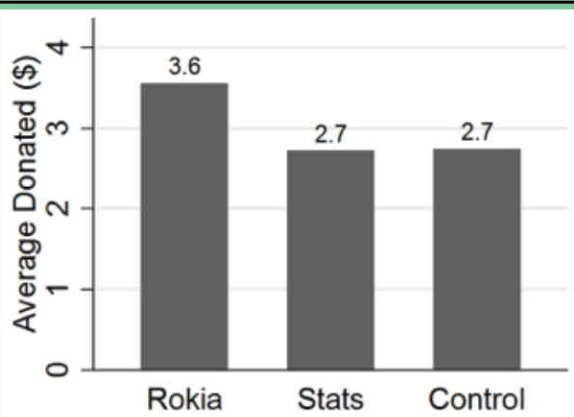
Most students were willing to vote for the policy that would cost the average taxpayer \$5, but few students were willing to donate \$5. There are several potential explanations for this discrepancy. Students may not consider themselves the "average taxpayer" and assume that taxpayers with higher incomes would bear the primary burden. Alternatively, students may perceive reducing global hunger and poverty as a public good such that their own donation provides small private satisfaction but a policy to essentially force a large group to donate provides substantial private satisfaction knowing that a larger reduction in hunger and poverty is possible.

Another interesting observation from the results is that students were more willing to vote for the policy when presented with the identifiable victim even though the policy was not targeted at benefiting Rokia or her community whereas the donations were phrased as specifically benefiting Rokia and her community. So it appears that the primary mechanism of increasing willingness to give is through creating empathy for those suffering from hunger and extreme poverty through an identifiable victim rather than through a desire to identify the beneficiary of giving.

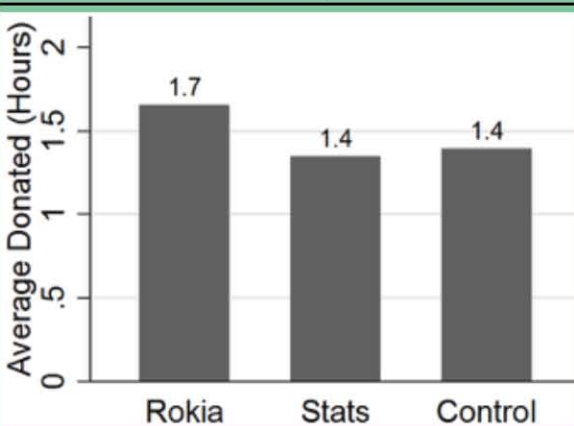
Table 2 displays the regression results. The effect of the Rokia group on willingness to donate money and vote for the policy was statistically significant at the 10% level indicating that the sample size of 124 is large enough to obtain fairly precise estimates. The effects of most of the demographic variables were not statistically significant, but the sign of the coefficients often conform to prior expectations. Females were more likely to donate money and time – regardless of which survey they received – consistent with the literature that finds females are more empathetic (e.g., see Davis 1983). Females, however, were less likely to vote for the policy but none of the coefficients for the female binary variable were statistically significant. Students from a rural background were less likely to donate money and were less likely to vote yes for the policy and the reduced likelihood of voting for the policy was statistically significant. Some students indicated that they were unwilling to vote for the policy to fund international agricultural development because they felt it would not be in the interest of agricultural producers in the United States.

Another interesting result is that non-vacation international travel was associated with greater willingness to give and vote for the policy, with a statistically significant effect on willingness to donate time. This suggests that study abroad opportunities may be an important method to develop empathy. Self-selection bias, however, may be a concern with this estimate – more empathetic students travel abroad. But one student wrote the following comment that indicates the effect for them was causal: "I spent some time in Africa recently, and that experience showed me just how much people

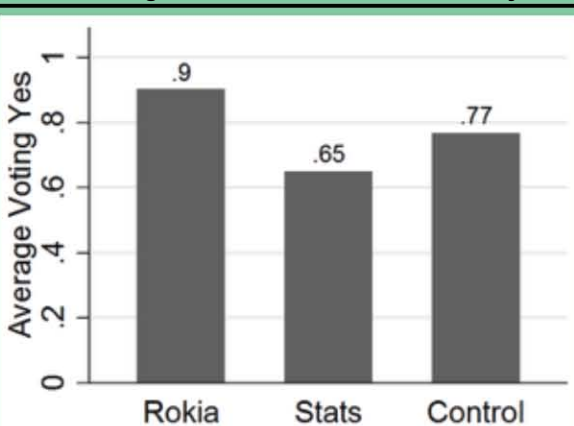
**Figure 1. Average Willingness to Donate Money for each Survey Group**



**Figure 2. Average Willingness to Donate Time for each Survey Group**



**Figure 3: Probability of Voting Yes for a Policy to Fund International Agricultural Research for each Survey Group**



**Table 2. Regression Results**

Variable	Dependent Variable		
	Money Donated	Time Donated	Vote Yes
Rokia	0.79* (0.427)	0.24 (0.218)	0.13* (0.079)
Stats	0.016 (0.451)	0.02 (0.229)	-0.14 (0.099)
Female	0.34 (0.365)	0.31 (0.188)	-0.12 (0.080)
Rural	-0.25 (0.394)	0.03 (0.200)	-0.13* (0.074)
Non-Vacation	0.18	0.40*	0.13
International Travel	(0.464)	(0.228)	(0.083)
Intercept	2.74** (.495)	1.15** (0.235)	0.89** (0.083)
	0.054	0.071	0.106
Observations	124	124	124

\* and \*\* denote significance at P = 0.1 and 0.05 levels, respectively.  
Standard errors are in parentheses.

there need help. They are truly hungry in a way that we cannot understand. Prior to this experience, I probably would not have donated.” This student recognized that they previously lacked empathy – “in a way that we cannot understand” – but felt that the personal experience had changed his or her perspective.

At the end of the survey, we asked students to describe why they chose to give or not to give. Common responses of students in the statistical and control groups for why they chose not to give were that they did not have enough money, that there are already enough problems in the United States to deal with, that it would hurt U.S. agricultural interests, that it is not our responsibility, or that it was not affecting their own life. But in the Rokia group, the only reason that students stated they chose not to give was because they did not have enough money or not enough information on how the money would be used. When students were presented with the identifiable victim, they were unwilling to try to distance themselves from responsibility of an international concern. We ended the presentation of results in class by placing the fictional picture of Rokia on the screen again along with the statement, “Don’t forget that there is always a person behind the statistic.”

Following the experiment, students were asked a series of questions to assess the effectiveness of the experiment (Table 3). The majority of students agreed (73%), or strongly agreed (12%) that the experiment gave them a better understanding of what motivates people to be willing to assist in reducing international poverty. Roughly half of the students agreed or strongly agreed that the experiment had made them more likely to consider using their own resources to reduce international poverty and increased their interest in agricultural issues surrounding global poverty. A large majority of the students (88%) felt that it valuable for future students to participate in the experiment.

**Summary**

We propose the use of an in-class experiment to assess and develop empathy of students towards international hunger and poverty. One important result from the experiment is that instructors need to consider methods that help students make personal connections with international hunger and poverty in order to motivate student interest in the topic. Presenting statistics is simply not sufficient. Another important outcome is that the experiment can easily be replicated in other classrooms to effectively help students reflect on what impacts empathy towards those suffering from international hunger and poverty.

We do not conclude from the experiment that it is useless to expose students to statistics on global hunger and poverty. Rather, we suggest that statistics also be accompanied by stories, personal experiences, or videos that students can connect with more easily. A related implication is that university study abroad programs may want to make a particular effort to provide travel opportunities to low income countries. It could also be interesting in future work to determine if students are more responsive to different types of statistical information.

We think it is best for other instructors to actually conduct the experiment within their own classes, rather than simply presenting the results from our survey or results from Small et al. (2007). The experiment was effective primarily because students were able to reflect on their own response to the survey and considered how they may have responded differently if the framing had been different. Creating this opportunity for personal reflection may help students recognize that any lack of empathy may be due to the fact that they have not personally experienced hunger or extreme poverty and likely do not have a relationship with a person experiencing hunger or extreme poverty. Replications of the experiment could likely maintain the effectiveness of the experiment while reducing the time expended by eliminating the demographic questions and the regression analysis.

Given that agriculture plays a key role in the livelihoods of the global population that faces hunger and poverty, we think it is important for agricultural students to be aware and empathetic of the issues the global poor face. We found that this in-class experiment was effective in providing a platform for students to reflect on

**Table 3: Post-experiment Survey Responses**

Survey Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Blank
This exercise has given me a better understanding of what motivates people to be willing to assist in reducing international poverty.	11 (12%)	69 (73%)	14 (15%)	1 (1%)	0 (0%)	0 (0%)
After this exercise I am more likely to consider the value of using my own resources and talents to help reduce international poverty in the future.	5 (5%)	45 (47%)	40 (42%)	4 (4%)	1 (1%)	0 (0%)
This exercise has increased my interest in agricultural issues surrounding international poverty.	11 (12%)	39 (41%)	33 (35%)	8 (8%)	2 (2%)	2 (2%)
I feel that it would be valuable for future students to participate in the Rokia Experiment.	84 (88%)	6 (6%)				5 (5%)

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how they perceive global hunger and poverty and the factors that impact their perception. This represents a valuable activity for the future leaders of the food and agricultural sector.

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