

# Using Bafa Bafa to Help Pre-Service Teachers Experience Microaggressions in the Classroom

Rebecca Dibbs, Kelly Lewis, Jennifer Moon, and  
Rebecca Steward

*Implementing an equity agenda in the classroom is both necessary and challenging for classes containing pre-service teachers. For this intervention, we chose to begin our History of Mathematics course for pre-service middle school teachers with a cultural simulation training exercise: Bafa Bafa. After participating in the exercise, pre-service teachers were asked to write a reflection paper and were later interviewed about their experiences in the course. Although participants found Bafa Bafa an uncomfortable experience, it was not an unsafe one, and the pre-service teachers agreed that this exercise helped them better understand, articulate, and notice experiences with microaggressions.*

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## Introduction: Preparing Culturally Responsive Teachers

The teaching of mathematics is a political activity (Gutiérrez, 2015), but much work remains to be done on equity for mathematics teacher educators (Gutiérrez, 2009). Mathematics classrooms can be ameliorated as white institutional spaces by helping teachers examine the ways in which the traditional mathematics classroom suppresses non-dominant voices (Battey & Leyva, 2016). We can help our preservice teachers begin to see mathematics as non-neutral by

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**Rebecca Dibbs** is an Associate Professor of mathematics education at Texas A&M University-Commerce. Her primary research focuses on inclusive mathematics education and undergraduate mathematics education.

**Kelly Lewis** is an independent scholar. Her primary research focuses on equity and inclusive mathematics education.

**Jennifer Moon** is a professor of mathematics at Trinity Valley Community College. Her primary research focuses on inclusive mathematics education.

**Rebecca Steward** is an instructor of mathematics at Texas A&M University-Commerce. Their primary research focuses on topology and mathematics education.

exposing them to ethnomathematics, out-of-school mathematics, and critical mathematics (Gutiérrez, 2009).

This process can begin by having pre-service teachers examine their privilege, which is defined as the advantages that accrue by virtue of being the member of a dominant group (Leonardo, 2004). In order to accomplish this and give pre-service teachers a common experience to generate discussion, we chose to implement the cultural simulation Bafa Bafa. Bafa Bafa is a cultural simulation invented by Gary Shirts in 1974 (Dukes et al., 2011). The goal of the simulation is to help participants understand the impact culture has on the behavior of people, improving cultural awareness if not cultural competence (Dukes et al., 2011). The simulation is designed for all participants to experience culture shock by having participants interact with a “culture” that has different communication styles and values (Dukes et al., 2011).

Bafa Bafa generally increases students’ motivation to learn more about other cultures, but a poorly facilitated activity may actually increase participants’ feelings of ethnocentrism (Bruschke et al., 1993). However, more recent studies have shown strong positive effects on cultural awareness and cultural competence from participants in the Bafa Bafa simulation (Wendorf Muhamad & Yang, 2019). Participants self-report a positive change in cultural awareness, but facilitators are warned to be prepared for strong reactions from some students (Sullivan & Duplaga, 1997). Bafa Bafa has generally been shown to be an effective tool for increasing cultural competency in public facing fields, such as nursing (Jarrell et al., 2008), music therapy (Donley, 2020), and psychology (Akimoto, 2016). Donley (2018) argues that the three stages to increasing cultural competence are self-examination, knowledge acquisition, and skill development and that Bafa Bafa is effective because it provides a scaffolded opportunity for self-reflection.

This self-reflection is needed because we cannot ignore the potentially negative stereotypes pre-service teachers may hold (McGee & Martin, 2011) and need to guide pre-service teachers to see that all households have culturally developed bodies of skills that contribute to the knowledge base (Civil, 2007). Ethnomathematics in pre-service teacher classes could help

students examine their privilege by seeing other cultures featured in the mathematics classroom besides the dominant one (Paris, 2012). This is crucial because current pre-service teachers are underprepared to teach in diverse classrooms (Roose et al., 2019; Taylor et al., 2016; Whitaker & Valtierra, 2018), and may hold unproductive, deficit-centered views of equity, such as attributing student achievement or lack thereof to characteristics of students' culture (McKenzie & Phillips, 2016; Turner et al., 2012). By preparing future teachers for diverse classrooms, we can begin to help departments gain the personnel and eventual leadership to advocate for the advancement of all students (Gutiérrez, 1996).

There are several challenges with implementing an equity focus in the classroom. There is the potential for creating an emotionally heated space and avoiding uncomfortable emotions may lead to only a surface treatment of equity (Battey & Leyva, 2016). When equity is treated as a surface issue, there is the danger of pre-service teachers leaving with the belief that racism is located within a few prejudiced individuals (Battey & Leyva, 2016). Reflection assignments and mathematical autobiographies might be of limited efficacy to change students' beliefs (Gutiérrez, 2015), and white students may struggle to analyze their experiences through a racial lens, often raising unproductive white guilt (Leonardo, 2004).

Stand-alone multicultural education and diversity courses are not effective, particularly for pre-service STEM teachers (Barton, 2000; Jenks et al., 2001; Krummel, 2013; Ladson-Billings, 2000). This suggests that multicultural standards should be integrated throughout each content area, helping pre-service teachers better understand the issues of diversity within the context of their content and teaching them how to create a more culturally responsive pedagogy, a more culturally diverse curriculum, and a more culturally aware style of relating to students (Krummel, 2013; Ladson-Billings, 2000). However, when multicultural topics are addressed in STEM teacher education courses, they are often engaged only at surface levels because race and culture remain taboo topics in the United States (Jenks et al., 2001; Krummel, 2013). Classroom modeling of culturally relevant activities and experiences prepares pre-

service teachers to provide engaging learning experiences for their own students (d'Entremont, 2015).

Given that reflection papers and mathematical autobiographies are more to inform the teacher educator than they are effective equity exercises in their own right, there are a few characteristics of activities that may be effective for pre-service teachers. First, there should be an emerging awareness of stereotype threat, a situational predicament in which people are or feel themselves to be at risk of conforming to stereotypes about their social group, and how to manage it, particularly in the area of micro-aggressions. A micro-aggression is a statement, action, or incident regarded as an instance of indirect, subtle, or unintentional discrimination against members of a marginalized group such as a racial or ethnic minority (McGee & Martin, 2011). Also, pre-service teachers should move beyond reading about students who were othered to experiencing what it is like to be othered in society (Gutiérrez, 2015). For this reason, we decided to infuse ethnomathematics activities into a History of Mathematics course for pre-service teachers in an area of the country known for racial tensions. The activity we chose to implement first was Bafa Bafa, a cultural simulation.

The purpose of our initial intervention was to see how effective this activity would be as an initial equity activity for pre-service middle school mathematics teachers. The research question for this study was: To what extent was the Bafa Bafa simulation effective in creating a catalyst for change in our pre-service teachers beliefs? For our students, we argue this activity was uncomfortable, but not unsafe, and led to productive discussions and realizations later in the semester.

## **Background**

The History of Mathematics course was chosen as the pilot course for this intervention to increase pre-service teachers' intercultural awareness because of the natural interplay between students' cultural experiences and the history of mathematics; this course invites students to talk about content-specific cultural responsiveness and how to implement it in their future classrooms (Averill et al., 2009; Spader, 2015). Further, the

course at the research university is a terminal course with no set content to cover, so we had the luxury to make the choice to cover material in great depth and add an ethnomathematics component to the course without sacrificing needed content in a future course.

History of Mathematics, an upper-level content course, has an advantage over a stand-alone multicultural class because students are likely to have an established classroom community, particularly in smaller teacher preparation programs. This sense of classroom community is a major predictive factor of student success (Bahr et al., 2013; McKinney et al., 2006), and it is especially important for non-traditional and transfer students (Hehir, 2017; Townley et al., 2013). Students who experience success in a mathematics classroom report feeling like a part of a classroom community, and they internalize those successful classroom norms as representing the ideal mathematics classroom (Ulriksen et al., 2015). Students' perceptions of the strength of their classroom community are closely correlated with their perceptions of intellectual growth over the course (Bahr et al., 2013; McKinney et al., 2006). However, in mathematics classes, classroom communities are often based upon content authority (Lewis, 2016), and this can cause difficulties when other kinds of authority need to be valued in the discussion (Langer-Osuna & Engle, 2010).

### **Argument for and Description of Bafa Bafa**

To help our pre-service teachers understand how students who are underrepresented in the mathematics classroom experience a dominant culture, we conducted a three-part activity in the History of Mathematics class. First, we conducted a modified version of the Bafa Bafa simulation in class, including a debriefing discussion. This simulation is described later in this section. Second, we had students read Boysen (2012) and Sue et al. (2009), both of which are readings about microaggressions. We then asked students to write a paper reflecting upon the readings, Bafa Bafa, and their personal experiences in classrooms. The final part of the paper was to

outline what they could do in their own classroom to minimize micro-aggressions.

There were two reasons we chose to implement Bafa Bafa. First, many of our students were from rural areas and had limited experience interacting with people outside of their community. Second, we wanted to have a common experience for students to hopefully generate discussion. There were several reasons why we chose to implement this activity in a History of Mathematics course for pre-service middle school teachers. There is a large and growing diversity gap between the teaching population and their students (Boser, 2014). Since students are more likely to opt for pathways when they have teachers that they relate to (Wyss et al., 2012), we hoped to use this activity to introduce ethnomathematics and culturally responsive teaching. History of Mathematics seemed to be a natural fit since there already was a cultural element in the course. Since this course was co-taught by the first two authors, who are both mathematics educators, we hoped that students would be more likely to respond to this cultural simulation and other activities from us than they would in a more traditionally-taught course.

During the simulation, students were first divided into two groups, where each group is taken out of earshot of the other group. In our case we used the classroom and the hallway. Although Dibbs was the instructor of record for this course, Lewis was the main facilitator for this and all other ethnomathematics activities. Once separated, each group was given a handout of the Alpha culture or the Beta culture and explained that they were now members of the culture. To simulate the economy of the culture, students played a card game according to the values of each culture.

The Alpha culture was intended to be hierarchical and family oriented. Some students were randomly designated as elders and must be treated with respect by bowing to them. The elders were denoted by a small sticker on their name tag. In this group, students were told that their goal was to make sets of three matching cards, and that they could trade cards with other students to make sets. To trade, students were told to say “Bafa Bafa”, a respectful greeting in their culture, and then trade a pair of cards. The whole group would earn a small amount of extra

credit for each matching set the group managed to make during the time allowed. The Alpha culture also believed in personal contact, so students should stand close to each other and touch the shoulder of the other person when interacting with the person of the same gender.

The Beta culture was intended to be competitive and individualistic. No students were designated as elders, and they were told that the phrase “Bafa Bafa” is an insult. Students were told that the goal of the card game was to make as many matched sets as possible, and that the three students who made the most matched sets will receive extra credit. To trade cards, two students in the Beta culture would show each other one card in their hand. If a student had a card in their hand that matches the card the other student showed, they must give those cards to the other student. Sets of three matching cards were given to the facilitator and recorded. The Beta culture does not engage in physical contact in public. The Beta culture was also rules-driven, so when students made a mistake (such as not showing a card when trading or making physical contact), they were given a sticker to put on their name tag to signal that they broke a rule. No Beta would talk or speak to a person who had three stickers on their name tag. Table 1 summarizes the differences between the Alpha and Beta cultures.

**Table 1**  
*Differences Between Alpha and Beta Cultures*

<b>Alpha</b>	<b>Beta</b>
Hierarchical, Family oriented, Touch culture, Cooperative, Non-competitive, Close personal space. Bafa Bafa is a respectful greeting.	Competitive, Meritocracy, Flat non-hierarchical, In-group out-group, Respect only for achievement, Values negotiation, Values a trading language. Bafa Bafa is a terrible insult

To prepare for Bafa Bafa, we made four copies of a free set of cards for Go Fish to use as resources for students to trade with each other. We also made a set of nametags for students to wear and cut strips of stickers for the students in the Beta culture to hand out to other people who violated norms. Finally, we made handouts with the cultural norms for the Alpha and Beta cultures.

To begin the activity, we randomly split the class into two groups. One group stayed in the classroom and the other group went out into the hall. Since this was an evening class, the group in the hall was not going to disturb other classes with their activity. The separation let both groups complete the first portion of the activity where they could not see each other. Each group had a facilitator who distributed the norm cards shown in Table 1. Once each group had a chance to ask questions about their norms, they were given 15 minutes to interact within their culture; this was enough time for all of the students to become familiar enough with the norms that they no longer needed to refer to their norm cards. In hindsight, it may be more effective to use purposeful grouping to place more students with privilege into the Alpha culture initially.

Once students had mastered the norms of their original cultures, we began switching students between cultures. We switched three students at a time and switched them back once all three students had been exiled by receiving three stickers from the Beta culture. It took about 25 minutes for us to complete the three switches we needed in order to have all students experience the other culture. We used the final thirty minutes of the class as a debriefing discussion. After the discussion, the two readings were distributed along with the paper prompt. Students had two weeks to read the articles and write their reflection paper.

## **Methods**

This study took place at a midsized, rural Hispanic-serving research university in the South with approximately 11,000 students; 40.6% of the student body were non-White and 60.3% were female. The university is in a region of the South which is considered to have a significantly higher than average level of racism and active hate groups (Chae et al., 2015). While there was not an overt racial tension displayed during class, students tended to self-select into racially homogeneous groups unless assigned to do otherwise by the instructor. To the best of our knowledge no participant had any direct involvement in hate

groups, but the prevalence of such groups is well known to all students in the area.

Our pre-service middle school mathematics teachers were all juniors and seniors enrolled in a mandatory History of Mathematics course. The students enrolled in the course are all pre-service middle school teachers. In this course there are 12 students with the following self-descriptive demographics: five white, two Hispanic, and five African American students; seven middle-class and five lower-income students; eight traditional and four non-traditional students. Two students are in interracial marriages, one student self-identifies as gay, and one student is a single mother. The descriptions the participants wrote of themselves for the study appear in Table 2.

**Table 2**  
*Participants' Self-described Labels*

<b>Pseudonym</b>	<b>Self-Described Labels</b>
Andrea	African-American, female, heterosexual
Ann	White, female, middle class, interracial marriage
Brandi	White, female, middle-class
Brillana	Mexican, female, heterosexual
Fana	African, female
Gayle	Black, female, gay, middle class
Holly	White, female, heterosexual, middle class, interracial marriage
Jillian	White, female, middle class
Karis	African-American, female, lower class
Kevious	African-American, male, heterosexual
Paige	White, female, lower class <sup>1</sup>
Yeny	Mexican-American, female, middle-class

We used several sources of data to measure the effectiveness of the Bafa Bafa simulation. During the debriefing discussion, one facilitator took notes on what was said and by whom. We also collected the post-activity reflection papers (Appendix 1) for analysis and interviewed each student at the end of the

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<sup>1</sup> These descriptions were written by the students. While we acknowledge that they are not using standard academic language for their descriptions, the language that they chose to use reflects their level of cultural awareness at the beginning of the semester. For this reason, we have not modified their descriptions.

semester (Figure 1). Lewis also kept a journal after she implemented each activity in the classroom, particularly Bafa Bafa, and she also conducted the end of semester interviews with students.

**Figure 1**

*Interview Questions*

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| <ol style="list-style-type: none"><li>1. Can you tell me a little about ethnomathematics?</li><li>2. What did you learn about other cultures in this course?</li><li>3. What were the most memorable activities this semester?</li><li>4. Why was that memorable?</li><li>5. Let's talk a little about Bafa Bafa. Can you tell me what you remember about the activity?</li><li>6. How did you feel during Bafa Bafa?</li><li>7. Did you ever feel unsafe during Bafa Bafa? Why or why not?</li><li>8. Do you feel like your beliefs and attitudes have changed throughout this semester?</li><li>9. What, if anything, do you attribute those changes to?</li><li>10. What else should we talk about today?</li></ol> |
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To analyze the data, we began by having the first two authors read over the observation notes and journal without making any attempt to code. The authorship team then discussed their initial impressions of the activity and each wrote a journal about how they saw the activity go as a facilitator and as an outside observer. These journals were used to create an initial coding dictionary that was applied to the reflection papers. We then refined our coding and had a graduate student recode four out of 12 reflection papers to check inter-rater agreement. Once an acceptable level of inter-rater agreement was reached, all reflection papers were spot checked by the research team to ensure that no new themes emerged. This coding dictionary was then used on the interviews, which were conducted during Week 12 of the semester after the third and final ethnomathematics activity had concluded.

There were several steps taken to ensure the trustworthiness of the analysis. We performed member checks for each interview by writing a one-page explanation of the themes in

each interview; this document was then emailed to the participant with a request for feedback. A graduate student also performed spot checks on 20% of the codes; the inter-rater agreement was 82% (acceptable for qualitative research). The multiple data sources (observation notes, reflection papers, and interviews) provided triangulation of the findings.

**Table 3**  
*Coding Dictionary*

<b>Code</b>	<b>Definition</b>	<b>Example</b>
Uncomfortable	Passages where a participant indicated discomfort during Bafa Bafa or other activities	It was uncomfortable to not know what was going on [in the other culture] – Kevious
Safety	Passages where a participant indicated their level of emotional safety during Bafa Bafa	I never felt unsafe during Bafa Bafa. I did feel frustrated. Even now, I remember that. –Holly
Microaggression	Passages where participants mentioned microaggressions	My husband is Mexican, and I’ve never got along well with my mother-in-law. I think I may be doing microaggressions to her, because when she gets mad at me, it’s always for something I thought was really small. –Ann
Belief Change	Any beliefs that participants indicated changed throughout the semester	I don’t know that I changed any beliefs, but I fell more open to the idea of new ones. –Paige
Belief Attribution	What participants attributed and belief changes to	I think the journals and discussion boards were what got me thinking. Especially the one about Ken and Bart. –Yeny

## **Findings**

In this activity, we wanted the students to have an experience where they were part of the non-dominant culture, particularly for the students who may not have had such an

experience in their previous school career. We then wanted to tie that experience to the mathematics classroom to help our pre-service teachers realize that the mathematics classroom is not culture-free. Additionally, since this activity was embedded into a History of Mathematics course, we wanted the pre-service middle school teachers to begin to think about how to apply both their experience and the History of Mathematics in their future classroom.

After discussing the activity and debriefing, we will discuss students' reactions to the readings, their reflection papers, the interviews, and the rest of the semester. Overall, the pre-service teachers found Bafa Bafa a powerful but uncomfortable common experience that sparked meaningful reflections and provided opportunities for future discussions.

### **Bafa Bafa and Debriefing**

Students in the Alpha culture who visited the Beta culture found the experience to be quite disconcerting. They found it upsetting to be punished without understanding the rules of the dominant culture and to be exiled just as soon as they began to grasp that the new culture operated on different rules from their original culture. We found that the students who visited the Beta culture tended to gravitate toward each other almost to the point of self-segregation because they wanted to avoid exile and understood the norms of their own culture.

When the Beta students visited the Alpha culture, things were generally less tense, since the Alpha culture was designed to be more tolerant of errors. However, if the Beta students were rude to the elder Alpha student, the Beta students found themselves punished. Beta students found such actions more understandable given the cultural lens they were working from in this activity. The biggest challenge for the Beta students was in the game itself since the Alpha culture was less competitive; they were less likely to initiate the game play and trade cards.

Once all the students had a chance to experience the other culture, we began discussions within each culture about their experiences. We spent ten minutes debriefing each group about what happened during their trip to the other culture. All the

Alpha students discussed how quickly they were exiled and that it was uncomfortable to not know what to do. Three of the students in the Alpha culture talked about how this activity could relate to ELL students without any prompting from the facilitator. In the Beta culture, they mostly discussed the experiences of Holly, who had accidentally insulted the Alpha elder and how that experience differed from the rest of the Alpha visits.

Once each culture had discussed their experiences within their group, we brought the class together for the last 15 minutes of class to discuss the activity. After disclosing the group norms, each group talked about how excluded they felt in the new culture. The Alpha group talked about how they began to self-segregate to avoid exile, and we led the class to a discussion of how cultural norms of the dominant culture can lead to institutional racism. We ended class with a discussion on how this activity may have parallels for their future classrooms, particularly for their ELL students. Since this activity was conducted on a Thursday, we gave students until the following Tuesday to write and turn in their reflection papers. Although students found Bafa Bafa to be an uncomfortable activity, no one reported feeling unsafe, and this activity helped set the tone for the rest of the semester.

## **Uncomfortable**

Overall, students found Bafa Bafa to be an uncomfortable experience. For students like Yeny, Bafa Bafa reminded her of being an ELL student. In her reflection paper, she wrote

This activity reminded me of what it was like after moving here from Mexico. I only knew a little English, and in Bafa Bafa, we only knew a few words, so it was hard to communicate and made me think of elementary school.

Gayle, who was originally in the Beta culture, reported a similar experience to Yeny when she visited the Alpha culture in her reflection paper:

I could tell right away that the Alpha culture had different rules than we did. I noticed right away that they didn't have stickers, and I wasn't punished when I made mistakes. It was easier to play with Kevious [the other visiting Beta] though, because he knew my rules. I just didn't have a way to ask the Alphas for help.

Kevious, too, found it difficult to assimilate the rules of the Alpha culture when he visited. As he mentioned in his interview:

I knew that the other culture wasn't playing by the same rules as us. It was uncomfortable to not know what was going on, when only Gayle and I didn't know. It was like being the new kid at school, because everyone knows how the classroom works except you, only worse.

Holly, who visited the Beta culture, agreed in her interview with Gayle and Kevious that it was an uncomfortable experience, mostly because she did not understand the rules in the culture she visited:

I didn't like visiting the other culture. I didn't understand how they played the card game. It was frustrating...no one was mean to me or anything, but no one tried to help Ann and I either. We started to play with each other, with our rules [from the Alpha culture], because we knew how to play that way.

## **Safety**

When implement Bafa Bafa, we were concerned that we might accidently inflict more classroom trauma upon our students. During the end of the semester interviews, we asked students to tell us if they felt that Bafa Bafa may have exacerbated any existing tensions in the classroom. Although no student felt that Bafa Bafa was more tense than the daily classroom activities, participants indicated some parts of the activities were less comfortable for those students who were not white female students. Kevious, the only male student in the class, explained in his interview, "As the only man in class I was

uncomfortable with how one group stood close to each other, but I didn't feel like my classmates were treating each other differently other than how the rules said to." Andrea, who was rarely outspoken in class, had more to say in her end of semester interview about whether she felt safe during Bafa Bafa:

No, I didn't feel unsafe. Though it did leave a weird impression. Because last semester was the first class we were together, but we were in groups. So, we didn't all work with each other, this was my first interaction with some of my classmates. I don't know how they feel about me, but it was good to work as a whole class...I don't think anyone used the activity to single anyone out or do microaggressions on purpose.

In addition to Bafa Bafa, students read two papers about microaggressions before they were asked to write their reflection papers about the activity. The responses to the reading in the reflection papers were generally positive; all of the students discussed the reading in their reflection papers, and nine of them mentioned something in the reading that they hadn't known before. Seven of the students were able to tie the reading on microaggressions to their life or their future teaching careers. The students reacted to the readings along racial lines. For example, Ann discussed in her reflection paper how her interactions with her mother-in-law may be driven by microaggressions:

My husband is Mexican, and I've never got along well with my mother-in-law. I think I may be doing microaggressions to her, because when she gets mad at me, it's always for something I thought was really small. After doing the reading, I think I may be saying more than I mean to her.

Some, like Paige, thought of microaggressions as something they needed to avoid in their future classrooms:

As teachers, we have a lot of power over how are [*sic*] students feel. We need to carefully watch what we say and how [we say it] to all of our students, because we never want

them to feel excluded like I did during Bafa Bafa. The readings were long, but I was glad to get some ideas of the kind of things I could say without meaning to be mean that could be a microaggression and really hurt my relationships with my students.

Karis, one of the students of color, found the readings enlightening for a different reason. She had not heard of microaggressions before and found the vocabulary to be freeing:

I never had a word for it before, but after doing the reading, I know that I experience microaggressions all the time. Like last semester, when we were in pre-calc, we worked in groups, and someone would always be asking if people agreed with me when I said an answer. They didn't do that when someone white said the answer first. Now there is maybe a way to talk about this with my classmates, because there is a word for it.

We also analyzed the journals and discussion boards, which students wrote semi-anonymously throughout the semester. None of the reflection papers, the journals, or the end of the semester interviews indicated a student felt unsafe during the Bafa Bafa activity.

### **Beyond Bafa Bafa**

For the remainder of the semester after Bafa Bafa, we conducted two other ethnomathematics activity days, including a privilege walk and a selection of activities from various educational blogs. Additionally, students completed biweekly journals about ethnomathematics, microaggressions, and power (Dibbs et al., 2019) and made significant cultural responsiveness gains as measured by a pre- and post- semester survey (Lewis, 2016). In our end of semester interviews, we asked students, what, if anything, they attributed any changes in beliefs and attitudes to throughout the semester. Seven of the students mentioned Bafa Bafa in some way. However, as Brandi explained, Bafa Bafa was not necessarily the cause of her change, but rather a catalyst:

Maybe it was because we did it first, but the thing I think helped the most was Bafa Bafa. It was really uncomfortable, but the activity and the reading made me aware that I might have an attitude. That made me more ready to, like, think about the journal prompts.

Yeny thought Bafa Bafa was important for the class because it gave them a common experience to talk about, “When we had discussion boards or class discussions about social justice and mathematics, Bafa Bafa usually came up because it was a common experience that we could use to talk to our white classmates that they understood.” Andrea agreed, explaining, “Bafa Bafa gave me a way to frame my experiences, especially the reading we did with it.” Not all students thought that Bafa Bafa was a contributing factor in their change. For Gayle, the journals were much more important than any single activity:

For me, the most important thing we did was the journals and discussion boards. It was easier to be out with my classmates online, and I think they were more open to asking LGBTQ+ questions to me online than they would have been in class.

For students who did mention Bafa Bafa as being important, we followed up and asked if they felt that Bafa Bafa caused any changes in their beliefs. None of the students believed Bafa Bafa changed their beliefs, but they thought the activity held value, nevertheless. Jillian explained in her interview that, “No, but I think Bafa Bafa made me open to the idea of change. I think if I changed at all, it was because of the journals and the discussion boards.” Fana agreed with Jillian when she stated, “No, I don’t think any one thing made me change. But without Bafa Bafa I may not have paid as much attention to the other stuff.”

## **Discussion**

Bafa Bafa was an important activity for this class to begin the development of culturally responsive teachers. Culturally responsive teachers must have faith in the intellectual capabilities of all students and view learning as having

intellectual, academic, personal, social, ethical, and political dimensions (Aguirre & Zavala, 2013). However, a prerequisite to developing this awareness is convincing pre-service teachers that mathematics is not culture-free (Aguirre & Zavala, 2013).

For our students, Bafa Bafa was uncomfortable. Participants noticed that visiting another culture led to reminders of being culturally isolated in the past, and even students who had not been culturally marginalized before found it easier to try to self-isolate rather than become ostracized by the other culture. This feeling of discomfort led our students to have opinions and led to a productive discussion. Coupled with the readings and the reflection, students began to engage with the idea that the Bafa Bafa simulation of trading we did could not be separated from the Alpha and Beta cultures. This planted the seed for later ethnomathematics activities in the course.

Although students found the activity uncomfortable, no student reported feeling unsafe, or that Bafa Bafa caused a level of ostracization beyond the regular classroom environment. We asked students to discuss their feelings in the class debriefing, reflection, and end of semester interviews. No student reported safety concerns. We made sure that the instructor was not a member of the interviewing team, but it is still possible that students did not disclose feelings of lack of safety due to the lack of anonymity in their feedback. While this is a potential limitation of this project, all available evidence suggests that this was not an issue.

Additionally, the Bafa Bafa activity laid the foundation for later activities in the course by helping the pre-service teachers see that mathematics is not a culture-free activity. Bafa Bafa helped some students to see value in the readings, which helped them make connections later in the semester, and the simulation gave students a common experience to refer back to in class discussions and discussion boards. While not all students were equally successful in applying their experience from the simulation to their lives and future teaching careers, the pre-service teachers did realize that they needed more knowledge in order to be able to implement culturally-responsive pedagogy, which helped generate interest for ethnomathematics and equity related activities in the course.

We believe that the History of Mathematics course is the appropriate pre-service teacher content class in which to include discussions of equity. Since there is limited evidence that standalone culturally responsive teaching classes are effective, particularly for STEM teachers (Barton, 2000; Jenks et al. 2001; Krummel, 2013; Ladson-Billings, 2000), it makes sense to incorporate equity within at least one content class for pre-service mathematics teachers. History of Mathematics already has elements of exploring other cultures embedded into the course, and it is a recommended upper level elective for all pre-service middle and secondary school teachers (Bezuk et al., 2017). Since History of Mathematics is typically a terminal course with no set amount of content to cover, it may be more politically feasible to use this course to begin to incorporate equity ideas in more conservative departments. Our students have also reported enjoying History of Mathematics more when equity was incorporated, as the synergy between the two topics helped make it clear how learning mathematics history was relevant to their future classrooms.

Based upon our experiences with implementing this activity, we have several suggestions for incorporating Bafa Bafa into the classroom. First, whenever possible, make activities content relevant. We had discussed mathematics as a part of the development of trade languages after doing Bafa Bafa, so the activity provided a nice segue back into history content. When implementing this activity in the future, we could consider warning students who were easily triggered that the activity may be uncomfortable. We also found that it was helpful to give the students our prepared discussion questions and to allow students to talk within their culture groups before beginning the whole class discussion. Finally, we recommend that students complete a written post-activity reflection or discussion board since it allows for the continuation of discussion ideas in a format that more students feel comfortable participating in.

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## Appendix 1: Reflection Paper

**Directions:** write up a short paragraph in response to each of the following questions. You may *handwrite* your responses, using additional paper, if needed; or your response may be typed and emailed.

Answer at least 5 of the following questions related to the Alpha/Beta culture:

(3+ sentences)

1. Describe the culture you visited.
2. How did you feel visiting the other culture?
3. How did the other culture behave when they interacted with you – a visitor?
4. How did your culture behave when there were visitors?
5. Summarize the rules of the culture you visited.
6. How did the other culture compare to yours?
7. If you could have spent more time in the other culture, could you have found out more about their rules, etc.? Explain.

Answer at least 3 of the following questions related to real life

(3+ sentences)

8. During the simulation you were not able to find out the other culture's norms, rules, etc. What are some "hidden" rules of your culture?
9. Compare this activity to something you have experienced in your life.
10. What should you do during a stay in a foreign country (or in a situation where you are not the dominate culture) to make your experience positive, successful, and/or pleasurable?
11. What does this activity have to do with Ethnomathematics and why is it important to incorporate some Ethnomathematics into your classroom? (You may need to do a little research about "ethnomathematics".)

Answer at least 4 of the following questions:

(3+ sentences)

12. How can you use this activity to benefit you as a teacher?

13. How does this activity relate to math history? (In other words, imagine two cultures interacting together and needing to complete a business transaction.)
14. What did you learn from this activity and how can you use what you learned to help you in your everyday life (not related to teaching)?
15. Find out at least 1 “hidden” rule or norm you weren’t aware of from (at least) 2 other cultures that you often come in contact with. (For example, if you are Hispanic, you may want to ask African American and Caucasian friends (or search the on the Internet for) some of their norms, rules, etc.)

Answer **all** of the following questions:

(3+ sentences)

16. Summarize the two readings in at least a paragraph each
17. List four questions/comments you have about the readings
18. How, if at all, do the readings relate to the activity we did in class tonight?
19. How does the activity we did tonight relate to your life?
20. How does the activity we did tonight relate to your future classroom?