

## Break the cycle annual project: Survey of past students. 2005-2011

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### Abstract

“Break the cycle” is a program that uses a relatively simple concept to cultivate the interests of eager students from diverse universities in different states in the USA and in different countries to use their creativity and seize the opportunity to learn the academic skills of research, public presentation and publication, while immersing them in the studies of children's environmental health and children's environmental health disparities. The goal of the program is to promote the students' interest in these subjects at the same time as imbue them with a sense of ownership and potential leadership in changing the world for the better. The track record of students and the diversity of student projects and publications over the years 2005-2011 is a testament to this effort. Furthermore, the analysis of their response to the questionnaire demonstrates the value of their experience and the impact the experience has had on their futures.

From the responses of the students to this survey, it can be seen that this is indeed a program with a focus on the promoting health equity for children who grow up in circumstances of social and economic disadvantage and provides a rich yield on its investment – indeed a positive cost-benefit ratio.

**Keywords:** Children, adolescents, child health, environment, disability, disadvantage, public health

### Introduction

Break the cycle program is a collaborative interdisciplinary research and training program involving university faculty, who mentor graduate and

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undergraduate students in academic tracks that focus on the impact of environmental factors on children’s health, particularly environmental health disparities. The target populations are communities where the environmental hazards are related to circumstances of social and economic disadvantage. Each student is required to develop a project that focuses on reducing or preventing environmental health-related illnesses or disorders of children who live in these communities. At the end of the project, the students present their studies and their findings at a national conference and are required to write papers that will then be published in a journal. Our budget allows us to provide for travel and lodging for the annual conference and a modest stipend for the student on completion of the project.

Break the Cycle is a joint program of the Southeast Pediatric Environmental Health Specialty Unit (PEHSU) and Innovative Solutions for Disadvantage and Disability (ISDD).

future for the children in such communities. Substantial evidence, across a variety of academic and public policy areas, supports the relationships and patterns depicted in the diagram. This is the societal challenge of Environmental Health Disparities. There is no question of the need to interrupt and modify this set of relationships in order to change the course to create advantages for the children to break out of the cycle. In the big picture, the task is great and the cost is high. However, that does not mean that we cannot make a difference. We feel that any interruption is positive and can make a big difference for an individual, for a family or for a community. Indeed, the expectation is that the student projects will have a ripple effect not only on the communities, but also on the careers of the students to prepare them to be better leaders and stewards of our collective future.

*Cycle of social and economic disadvantage and disability*

**Environmental health disparities**

The diagram in Figure 1 represents how adverse social and economic factors may play out in the environment of a child and the impact that these factors have on health, development, education and

We have conceptualized this vexing and complex developmental, educational, social, political and economic challenge as a cycle. The importance of this view is that multifactorial nature of this situation can more easily be approached, and includes the additional dimension of time.

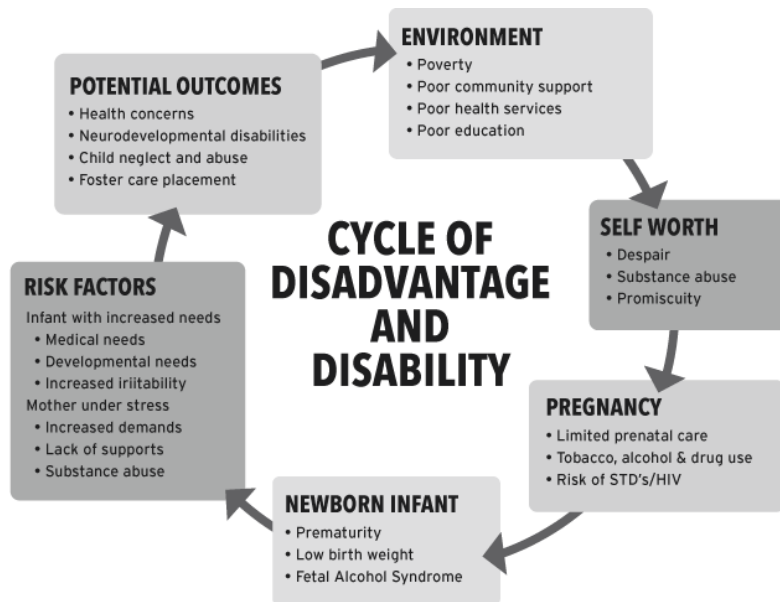


Figure 1. Cycle of disadvantage and disability.

## CYCLE OF ENVIRONMENTAL HEALTH DISPARITIES

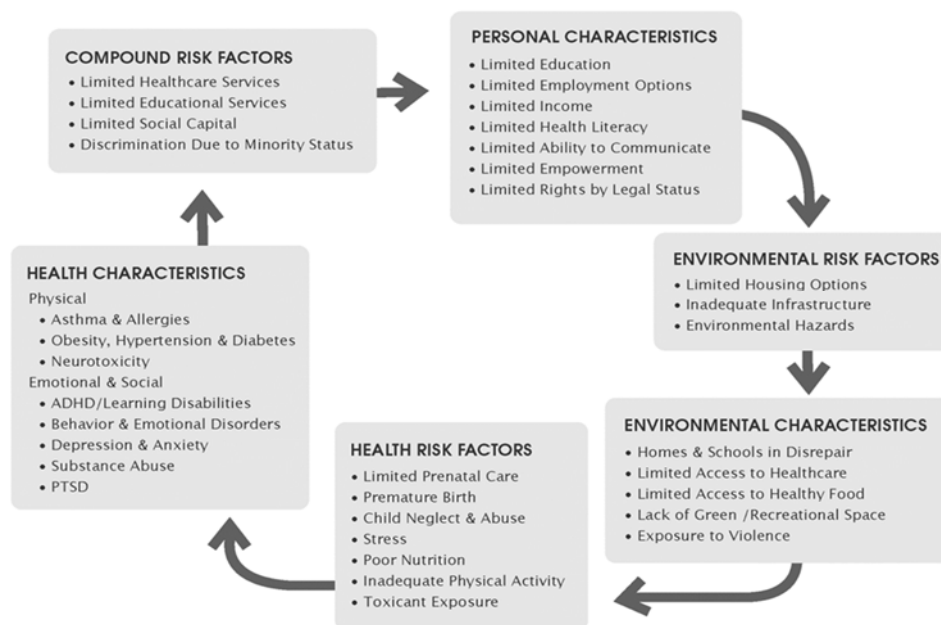


Figure 2. Cycle of environmental health disparities.

We invite interested students to develop a creative project to “Break the cycle” at any point, and thereby reduce the phenomenon of environmental health disparities and promote optimal health and well-being for children and their families (see Fig. 2).

### *Project details*

- 1) University faculty identify students who have an interest in this topic area, and encourage and support the student in the selection of an idea for research. We are specifically looking for projects that address environmental factors that adversely affect the health of children living in circumstances of social and economic disadvantage.
- 2) Interested students submit abstracts of the projects which are then reviewed by the “Break the cycle” team and 10 to 12 of the best projects are selected for each year.
- 3) During the project period, there are mandatory monthly conference calls with the students and their mentors to monitor the progress of the research projects, share ideas, and help to assure that the project is consistent with the spirit of the “Break the cycle” concept.
- 4) At the end of the project period, a conference is held in Atlanta, Georgia, where the students have an opportunity to present their projects to their peers and to their mentors, as well as the “Break the cycle” faculty and other attendees.
- 5) The students are also expected to write papers on their projects, which is submitted for publication in an international health-related journal as a monograph of the “Break the cycle” projects. The papers will also be published as chapters in a book of student “Break the cycle” projects.
- 6) Funding of travel expense and an accommodation to attend the conference is provided for the student and faculty mentor, and modest stipends will be provided to the students at the completion of their work.
- 7) The progress and careers of the participating students are tracked to evaluate the impact of their participation in the Break the Cycle Program on their academic or professional careers.

### *The desired outcome*

- To invite students from a variety of academic disciplines to explore the relationship between adverse social, economic, and environmental factors, and the health and development of children
- To inspire the students to creatively generate strategies to address the challenges
- To collaborate with an interdisciplinary team of academic leaders from different universities and colleges to creatively examine the broader issues of this topic area
- To promote leadership among the students
- To encourage faculty of our university partners to promote academic interest and social awareness in children's environmental health, particularly in Children's Environmental Health Disparities

The questions are then asked, "How have the students found the experience?" "Did they learn anything?" "Has their experience with the "Break the cycle" program changed their lives, and if so, in what way?" "Ultimately, have we been successful in accomplishing what we set out to do?" This project was an attempt to answer these questions.

It should be noted that, although we started with funding in 2004-2005, we did not get funding again until 2007-2008. For 2004-2005, and 2007-2008 programs we had funding through ISDD (Innovative Solutions for Disadvantage and Disability, Atlanta, Georgia) and we used the cycle of disadvantage and disability (see Figure 1). In the second 2008 program the EPA Region 4 began to fund the program through the Southeast PEHSU and henceforth it became the cycle of environmental health disparities (see Figure 2). Annual funding from the SE PEHSU grant (with supplemental EPA through the PEHSU) has been consistent ever since. In addition, our current functioning model was not in place for the first 3-4 cycles, so that we did not have the same set of responses to the process. Be that as it may, we have used the data as it came to us for all of the years.

### **Methods**

In 2012 we conducted a survey of the students who had participated in the "Break the cycle" (BTC) program to determine what their experience was and how it might have had an impact on their personal and professional lives. At the time we had a track record of students from the inception of the BTC program in 2004-2005 through the 2010-2011 academic year.

We developed a survey through "Survey Monkey", which had a mix of scaled numeric responses and of narrative responses. We felt that the students may have wanted to say something that was not exactly in our questions. For the questions requiring a score, the response was calculated on a five point Likert, where 1 was the lowest score and 5 the highest.

We identified all the students who had participated at any time during the project years and sent them the questionnaire by email. We then reviewed their responses and tabulated them.

### **Results**

We had identified 48 students who had participated from our first "Break the cycle" program in 2004-2005 through the 2010-2011 program. At that time we were only able to obtain responses from 32 (67%). We did get a 100% response from the students of 2009-2010 and 2010-2011 – both years when we had consolidated our process as described above. We only received responses from less than 50% of those from 2004-2005, May 2008 and September 2009, but interestingly, 100% from March 2008. The students' academic status at the time of their project was: 25% undergraduate, 31% graduate, 31% doctoral, and 9% post graduate. Of all the students who responded, 63% were from Georgia, which is understandable since the program is based in Georgia. 16% were from North Carolina, where we had a good relationship with the Children's Environmental Health Initiative (CEHI) at Duke University, 9% from Florida where we had a relationship with the University of Florida in Jacksonville, two from Louisiana where we had a relationship with the Law School at Tulane and we had one each from Washington DC and one from Michigan.

When asked what motivated them to participate in “Break the cycle” program, the most common responses were: opportunity to present at a conference and publish a paper, opportunity to do as research project, meeting and working with faculty, interest in

the topic and opportunity to collaborate with students from different universities and departments in that order; few admitted to being motivated by financial gain (see Table 1). Possible scores ranged from 1 to 5 with 5 signifying “strongly agree”.

**Table 1. What motivated you to become involved with the “Break the cycle” program?**

|  |      |
|--|------|
| Opportunity to present at a conference and publish a paper                     | 4.69 |
| Opportunity to do a research project   | 4.65 |
| Meeting and working with faculty   | 4.44 |
| The topic was of interest to you   | 4.31 |
| Opportunity to collaborate with students from different university departments | 3.51 |
| Stipend  | 2.58 |
| Other (Please Specify)   | 1.44 |

**Table 2. Please rate the contribution of the following to your experience in the “Break the cycle” process**

|  |      |
|--|------|
| Presenting at the conference                               | 4.58 |
| Publication of paper in journal or monograph               | 4.39 |
| Mentoring and supervision from your academic faculty       | 4.32 |
| Preparing for presentation at the conference               | 4.32 |
| Preparing the written paper                                | 4.30 |
| Mentoring and supervision from the Break the Cycle faculty | 3.97 |
| Assistance in formulating a research project               | 3.90 |
| Interdisciplinary collaboration in the research process    | 3.39 |
| Monthly discussions  | 3.39 |

More than 75% of the students reported that they had heard about the program from their mentors. Others had learned about the program from friends or colleagues, from email, or the internet.

The students rated each component of the total experience and reported that they benefitted most from presenting at the conference which scored a 4.58 out of 5, followed by publication of their paper (4.39), mentoring and supervision by faculty (4.32), preparing for presentation (4.32), preparing written paper (4.30), mentoring from “Break the cycle” faculty (3.97), assistance in formulating research project (3.90), interdisciplinary collaboration (3.39) and monthly discussions (3.39) (see Table 2).

When asked to what extent the BTC program enhanced their appreciation and understanding of components of the program, they rated the appreciation of the Cycle concept most significantly, followed by the opportunity for professional networking, followed by the complex relationship between social and environmental factors and health.

They also appreciated the practical aspects of conference preparation, research skills and academic writing skills (see Table 3). When asked to what extent their experience with BTC influenced decisions around their academic and professional career, 16.7% said very significantly, 36.7% said significantly, 33.3% said somewhat, and 13.3% said minimally. No one said ‘none’ (see Table 4). When asked whether they are involved in any activities related to their BTC project, a third (33.3%) said none, 3.3% said minimally, another third (33.3%) said somewhat, 20% said significantly, and 10% said very significantly (see Table 5). When asked what they were actively engaged in at the time of the questionnaire, 65.5% said research, 20.7% said professional practice, 17.2% in academic teaching, 13.8% in advocacy, and 10.3% each in business or industry and public office. Of the others, most were still studying in an academic track, while a couple of them were in transition between positions (see Table 6).

**Table 3. To what extent did participation in the “Break the cycle” program enhance your appreciation and understanding**

|   |      |
|---|------|
| The cycle of disadvantage and disability and environmental health disparities | 4.57 |
| The complex relationship between social and environmental factors and health  | 4.47 |
| Opportunity for professional networking and collaboration                     | 4.47 |
| Research skills   | 4.27 |
| Conference preparation skills   | 4.27 |
| Academic writing skills   | 4.20 |

**Table 4. To what extent did your participation in the “Break the cycle” program influence decisions around your academic and professional career?**

| Answer Options     | Response Percent | Response Count |
|--------------------|------------------|----------------|
| Very Significantly | 16.70%           | 5              |
| Significantly      | 36.70%           | 11             |
| Somewhat           | 33.30%           | 10             |
| Minimally          | 13.30%           | 4              |
| None               | 0.00%            | 0              |

**Table 5. Are you currently involved in any activities related to your “Break the cycle” project?**

| Answer Options     | Response Percent | Response Count |
|--------------------|------------------|----------------|
| Very Significantly | 10.0%            | 3              |
| Significantly      | 20.0%            | 6              |
| Somewhat           | 33.3%            | 10             |
| Slightly           | 3.3%             | 1              |
| None               | 33.3%            | 10             |

**Table 6. Current activities (if more than one, please choose more than one)**

|                        |        |    |
|------------------------|--------|----|
| Research               | 65.50% | 19 |
| Professional Practice  | 20.70% | 6  |
| Academic Teaching      | 17.20% | 5  |
| Advocacy               | 13.80% | 4  |
| Business or Industry   | 10.30% | 3  |
| Public Office          | 10.30% | 3  |
| Other (please specify) | 31.00% | 9  |

When asked about awareness of children’s environmental health before their experience with

BTC, 50% professed moderate familiarity, 37.5% were minimally aware, while 12.5% were very familiar with the field; none professed to be expert. After the BTC experience, most became very familiar (76.7%), 20% became moderately familiar, and one became an expert (3.3%) (see Table 7). As for awareness of children’s environmental health disparities, one was not aware at all about the concept, 15.6% were minimally aware, while more than half (59.4%) were moderately familiar, and 21.9% were very familiar. After the BTC experience, most became very familiar with the concept of children’s environmental health disparities, 20% were moderately familiar, and 3.3% noted expertise (see Table 8).

**Table 7. Awareness of children's environmental health**

|                     | Before | After |
|---------------------|--------|-------|
| Minimally Aware     | 37.5%  | 0.0%  |
| Moderately Familiar | 50.0%  | 20.0% |
| Very Familiar       | 12.5%  | 76.7% |
| Expert              | 0.0%   | 3.3%  |

**Table 8. Awareness of children's environmental health disparities**

|                     | Before | After |
|---------------------|--------|-------|
| None                | 3.1%   | 0.0%  |
| Minimally Aware     | 15.6%  | 0.0%  |
| Moderately Familiar | 59.4%  | 20.0% |
| Very Familiar       | 21.9%  | 76.7% |
| Expert              | 0.0%   | 3.3%  |

When asked if the experience with BTC was valuable, 76.7% said very significantly, 16.7% said significantly, and only 2 (6.7%) said somewhat. No one said ‘none at all’ (see Table 9). When asked if they maintained contact with anyone related to the BTC, 33.3% said somewhat, 23.3% said significantly, 13.3% said very significantly, 13.3% said slightly and 16.7% said none (see Table 10).

**Table 9. Do you feel that the “Break the cycle” program is a valuable experience for students?**

| Answer Options     | Response Percent | Response Count |
|--------------------|------------------|----------------|
| Very Significantly | 76.7%            | 23             |
| Significantly      | 16.7%            | 5              |
| Somewhat           | 6.7%             | 2              |
| Slightly           | 0.0%             | 0              |
| Not at all         | 0.0%             | 0              |

**Table 10. To what extent have you maintained contact with anyone related to your “Break the cycle” project?**

| Answer Options     | Response Percent | Response Count |
|--------------------|------------------|----------------|
| Very Significantly | 13.3%            | 4              |
| Significantly      | 23.3%            | 7              |
| Somewhat           | 33.3%            | 10             |
| Slightly           | 13.3%            | 4              |
| None               | 16.7%            | 5              |

Table 11 represents selected responses from the students to the question of how they experienced the BTC program and how the BTC program might have affected their professional careers.

**Table 11. Please provide us with a brief personal statement on your experience with the project and/or on how the experience has influenced your studies or professional career**

- The “Break the cycle” program was an overall success and indelible imprint in my life's journey. This opportunity was a blessing in my life that truly challenged my thought processes. Everyone involved from the students, to the faculty and staff of [Southeast] PEHSU and ISDD...everyone was such an integral part of this experience. In the imminent future, I plan

- to further her study of eliminating health disparities for all people through the field of public health. Ideally, I would like to further advance the horizons of public health and medicine with the goal of promoting quality, equitable health for all people.
- I believe participating in this project really helped me understand the research methods we learn in class because of the hands on experience. I learned that I am very interested and motivated by mixed methods research (which is the method my project utilized). I also received more job opportunities when interviewers saw this experience in my resume and portfolio. Finally, going to the CDC for the SOPHE conference was life changing for me. I was so encouraged by coming to Atlanta for that meeting that I did a fellowship at the CDC after graduating with my MPH and now have moved on to work at the NIH.
  - Participating in a conference where research on the cycle of disadvantage was approached from so many different angles really allowed me to experience on a deeper level the extent to which social, cultural and environmental issues are linked together and are multidimensional. And it takes experts from all corners to come together and formulate the best solution to approaching problems. “Break the cycle” helps students be more prepared and respect future work situations that require individuals from different training and philosophies to work together.
  - I participated in the “Break the cycle” project my senior year of college. I am currently a third year medical student at University of North Carolina School of Medicine. Prior to starting medical school, I participated in a year of research. The “Break the cycle” project was beneficial because it gave me more exposure to research that was non-traditional to me. However, it still helped me develop the skills necessary to conduct research and enhance leadership skills. This project was a stepping stone in the advancement in my career in medicine and science.
  - The “Break the cycle” conference has allowed me to meet passionate people in the field who strive for health equity. It was an outstanding opportunity to put into practice what I had been learning in my MPH courses. Not only did I

learn more about health disparities through the BTC conference, but I also gained knowledge and skills to be a better professional, collaborator, and networker- all which are vital to becoming a successful public health professional. I am thankful for the worthwhile experience and it has helped shape my decision to pursue a PhD in public health.

- I believe “Break the cycle” has greatly shaped my career. I worked on a project about smoking and have carried forward that interest into residency, where I am currently designing a new project in the community health tract focused on the same topic. I also got invaluable research experience and learned that I really enjoy interdisciplinary interactions. Overall, BTC has been one of the most influential experiences I have had and I am very thankful to have been a part of it.
- Participating in the “Break the cycle” conference helped me to develop my future academic and career goals along with my understanding of environmental health disparities. As an undergraduate senior, being part of the BTC conference gave me insight into the different paths that I could pursue within public health after college. Before the conference, I believed I had to follow the prescribed route of an MPH to enter the public health industry. Yet I was both inspired and encouraged to see the diversity of projects from other BTC participants. These included students of medicine, law, and even architecture. It was especially rewarding for me to be able to present my work to such an esteemed audience as I had begun on this built environment project as a member of the data-collecting field team in 2008. Two years later, I was now presenting and writing a paper based on this very data that had been assembled and categorized by the collective efforts of so many of my CEHI colleagues.
- The “Break the cycle” conference also expanded my understanding of environmental health disparities and how they can evolve into a cycle of disadvantage and disability among vulnerable children. There was such an assortment of research projects at the conference precisely because there are so many different variables that can affect children’s health at their various stages of development.

Not only was it interesting to see how every project could be incorporated into the cycle, but also how there were so many points at which this cycle could be broken.

- The opportunity to work with a faculty member on an original research project and to present these findings at an academic conference provided me with incredible exposure to the field. Throughout my undergraduate experience, I heard of few if any similar programs and feel incredibly fortunate to have participated in “Break the cycle”. Collaborating across universities and disciplines provided an outside-the-classroom exposure to the transdisciplinary and iterative research process required to get at the heart of issues like breaking the cycle of children’s environmental health disparities.

## Discussion

The most rewarding discovery was the almost unanimous finding that all students rated the BTC experience valuable, most of them (76.7%) ‘very significantly’ or a number ‘significantly’ (16.7%) (see Table 9). This question addresses the overall experience that begins with the application process, the selection, the discussion and delineation of the project, the monthly calls to monitor progress, then the preparation for presentation, the travel to and actual attendance at the conference in Atlanta and the presentation followed by the requirement for a written manuscript of the project for publication and then to see the paper in print!

Although this survey had many limitations, it included the students who had been there from the earliest days when we did not have a formal structure. The structure only fell into place after we were consistently funded by the SE PEHSU grant and EPA starting in late 2008, our 3<sup>rd</sup> “Break the cycle” Program which actually built on the 2<sup>nd</sup> one earlier in 2008. Over that time, we build a cadre of mentors who would field students for the annual application process. Although the survey only goes through the 2011 set of students, four years and four cycles later (and more than 40 students later), we have a greater track record and greater consistency in the program. To date, we have seven international journals of the



student papers and six themed books (1-13). We have presented the program nationally and internationally, and have explored the possibility of replication. We are also exploring the idea of taking one of the projects and getting funding to promote further exploration of that topic or subject and translating it into practice.

As we review the student responses, we find that, although some had found out through the internet or email and some by word of mouth from colleagues or friends, most of them (75%) were introduced to the program by their mentors. Indeed, we have had a number of mentors who have had multiple students come through the program.

To date, we have had students from nine different states in the USA as well as students from Europe, Latin American and from Africa. We have had a number of students, particularly from the schools of public health who have done projects with international populations, particularly in Latin American countries and in China. This international perspective is positive for the program as it provides participating students with another side of life and also the opportunity to have an international connection. Our most recent connection with Africa has been very positive from all sides, and hopefully we will continue in this way. Generally the students did acknowledge appreciation for the opportunity for professional networking and collaboration (see Table 3) as well as for a number of students maintain contact with each other after the BTC experience (see Table 10). Unfortunately there has not been much follow up of the students nor has there been a consistent strategy to maintain contact and communication. We look forward to identifying mechanisms to do so as we go forward.

It is interesting and gratifying that the reasons they gave for being interested in the program (see Table 1) were consistent with our stated goals to promote academic success and leadership in the students, which are to present at a conference and publish a paper; for some it is a first time. Obviously the program does require a project, which for the students is secondary to the academic rites of passage. They also cite that working with a mentor was a goal for them, as was the secondary (but by no means insignificant) goal of collaborating and interacting with students from other departments and universities.

This element is actually a unique one for the students and one that they would be much less likely to experience in any other setting. Although the main focus is on the project, the presentation, and the publication, the awareness of what other students are doing in areas and the opportunity to interact with them over the course of the program provides a unique experience that may well endure beyond the actual project and its tangible products.

It is also good to see that their ratings of the benefits of their experience were consistent with their stated goals and that they rated the experiences quite highly (see Table 2). This is a testament to their achievements and to the process, which includes their own mentor and individualized guidance from the BTC team based on the project and the need of the student. They do rate the monthly conference calls relatively low, on par with the 'interdisciplinary collaboration' which is also part of the conference call; but then it is perhaps tedious to spend an hour to an hour and half on the conference call when you only have 3-5 minutes for your presentation and discussion, but the monthly calls fulfill many needs. Firstly, our early experience told us that if we did not keep close track on the students some of them would be distracted by other pressing needs and might not be able to bring their projects to completion when due. It also serves to help the student focus the project on environmental health disparities and shape their thinking towards the complex issues of health disparities simplified in a single diagram. The forum of the conference call also introduces the students to each other and to a different way of looking at the same issue. This process comes to fruition when the students eventually meet each other the evening before the conference in a relaxing reception, where they get to know each other personally and possibly even develop more significant relationships. This is perhaps reflected in Table 10 where they report some degree of continuing connection and relationship. Again, this may also reflect the notion of networking as a representation of the process of social and academic capital that can yield dividends down the road.

Most rewarding and satisfying was the documentation that the students acknowledged increase knowledge and awareness of children's environmental health and children's environmental

health disparities (see Tables 7-8). In addition, they clearly reflect that they learned about the cycle of environmental health disparities and the complex relationship between social and environmental factors and health (see Table 3). These particular Tables endorse the effectiveness of the program in communicating the importance of the impact of social and economic factors on health, development and success of children. The students also acknowledge the importance of networking and collaboration as discussed above and then they record their appreciation of the practicalities of developing skills in research, conference preparation and academic writing which are the currency of academic success.

Interestingly, most of the students identified as being in academia – 65.5% were involved in research, while a further 17.2% were involved in academic teaching positions. This is not surprising, as we had encountered them in the budding academic years (see Table 6). Another group comprising 20.7% who identified as being in professional practice and a further 10.3% who were in business or industry reflected participation in the open market of services; while 13.8% were involved with advocacy and 10.3% in public office which speaks to a degree of public service which, one could assume, would reflect a commitment to the public good and to help those who are more vulnerable – especially the ones who identify with advocacy. Of the remainder who constituted the ‘other’ category, almost all reported that they were still studying at one level or another and a couple of them reported being in a transitional stage.

When we asked whether their experience with BTC influenced their academic or professional paths, they acknowledged in the affirmative (see Table 4). More than a third (36.7%) said significantly and 16.7% said very significantly, a further third (33.3%) said somewhat and 13.3% said minimally but none said ‘none’. We therefore have to accept that their experience with the BTC program was valuable, beneficial and in some ways guided their futures, which is exactly what we had hoped.

When asked whether they were currently involved in any activities relating to their BTC project a full third (33.3%) said not, one said slightly, another third said somewhat, while 20% said significantly and

10% said very significantly (see Table 5). This is actually quite impressive, because this was one project in their many years at university, so if they were still involved in any way, it is a tribute to the BTC program. We must acknowledge the caveat that they may have been a self-selecting group and were attracted to the BTC program because of their preexisting interests. However, the BTC did give a vehicle for expression and an opportunity to learn critical academic skills, to be immersed in a subject or topic for a period of time to hear about other work being done by other people in the field, and to have a conceptual framework upon which to hang the clinical, academic, professional, support and service related activities.

Table 11 is the exact wording of the students’ response to an open ended question of what role the BTC played in their lives. It is encouraging to see how each student perceived the experience and what impact it had on career choices and more importantly on how the students came to think about themselves and their relationship with the world around them. Most importantly, in some of the comments the ideas of responsibility for social and environmental causes came to the fore with hints of future leadership. In a sense, these comments say it all.

## **Conclusion**

“Break the cycle” is a program that uses a relatively simple concept to cultivate the interests of eager students from diverse universities in different states in the USA and in different countries to use their creativity and seize the opportunity to learn the academic skills of research, public presentation and publication, while immersing them in the studies of children’s environmental health and children’s environmental health disparities. The goal of the program is to promote the students’ interest in these subjects at the same time as imbue them with a sense of ownership and potential leadership in changing the world for the better. The track record of students and the diversity of student projects and publications is a testament to this effort. Furthermore, the analysis of their response to the questionnaire demonstrates the value of their experience and the impact the experience has had on their futures.

The BTC program is relatively inexpensive, in that the direct costs go primarily towards the coordination of the program and the costs of travel and accommodation for the students to come to Atlanta for the conference. The other costs of the program are absorbed by the responsibilities of one regional grantee of the PEHSU network which is mandated to provide education on children's environmental health to professionals and to the public and cultivate future leaders. The environmental health disparities part of the program is consistent with the mission of ISDD. From the responses of the students, it can be seen that this is indeed a program with a focus on the promoting health equity for children who grow up in circumstances of social and economic disadvantage and provides a rich yield on its investment – indeed a positive cost-benefit ratio.

“Break the cycle” will continue its annual process and continue to cultivate the interests of students from around the country and around the world and continue to provide them with the tools to become future leaders and make a positive difference in the world but we need more. While the accumulation of student and student publications is commendable, major problems in the world with environmental pollution continue to affect our children. These show no sign of abating, and the major health disparities continue that rob our societies of the great potential of many of their citizens – both in the USA and around the world, particularly in developing countries in continents such as Latin America, Asia and Africa.

“Break the cycle” is a simple readily reproducible program than can be adopted and adapted to any center, where there is a thirst for knowledge and skills and a desire to make the world a better place. It is our responsibility to leave the world a better place, and what better way to do it than to cultivate our future leaders who will have the knowledge and skills to deal with the challenges of the future?

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