A Solution for Breakthrough Manchester:

How Educational Inequality Interventions Can Increase One's Income, Well-being, and Educational Attainments

Justin Ko, Mia Seiner, Peyton Bond, and Jayden Reaves

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This research proposal intends to propose a solution for Breakthrough Manchester, an educational intervention program for students at disadvantages located in Manchester, New Hampshire. Our solution involves a research study that will help Breakthrough Manchester gain data on their impact on former participants' lives. In order to gain a broad overview of the program's impact, we chose three dependent variables of interest: educational attainment, income level, and general well-being. In this paper, we will first examine previous literature surrounding intervention methods, specifically relating to our variables of interest. We will then explain the research question and the various methods employed in our proposed research. Finally, we will end with a discussion surrounding the ethical considerations and feasibility of the study. Through this study, we aim to provide a way for Breakthrough Manchester to gain quantitative data assessing the impact of their program on their students.

LITERATURE REVIEW

Previous research in sociology finds a substantial relationship between one's childhood socioeconomic status, their general quality of life, educational attainment, and socioeconomic status later in life. Students with low socioeconomic status have significantly less access to resources than their peers. One of the main methods of getting out of poverty is through educational attainment. Higher income is highly correlated with higher educational attainment, socioeconomic status, and general well-being. Prior literature has studied the impact of educational disparities on future income, educational attainment, and general well-being, as well as the effectiveness of early childhood education intervention. For example, the Social Reproduction Theory describes how social structures and systems may be reproduced based on particular preconditions, explaining why people tend to remain in the same socioeconomic status

as their parents (Swartz 2002). Educational interventions aim to break this cycle by enforcing future education and better life outcomes. However, the gap in these studies lies in assessing how these educational inequality interventions actually impact the lives of their participants. Our project aims to fill this gap in research by drawing on both proximal explanations as well as contextual explanations to understand the lasting impact of educational inequality interventions on future health, wealth, and quality of life.

This is an important issue as students who come from disadvantaged backgrounds and lack access to a good education experience lifelong negative effects on their health and wealth. This negative effect is compounded by the Social Reproduction Theory as people will pass on similar life experiences to their children who will most likely continue this cycle. This cycle has high implications for the notion of the American Dream, as class mobility becomes increasingly difficult to achieve. Overall, we aim to provide an understanding of how educational interventions can provide children with higher educational attainments, income levels, and general well-being later in life.

Childhood Income and Adult Income

Intergenerational economic mobility is a pressing issue for low-income parents and their children in the United States. Rates of economic mobility have been very consistent throughout time, meaning that children entering the job market today have the same chances of moving up in the income distribution (relative to their parents) as children born in the 1970s (Chetty et al. 2014). Previous research finds that children's adult attainments, namely their wages and earnings, are largely a result of parental economic resources. A recent study found that children

born into low-income families (about $14,000 for a family of four) have a 36% probability of carrying their low income into adulthood (Sawhill and Reeves 2016). Children born into high-income families (about $233,000 for a family of four), on the other hand, have an 11% probability of being low income later in life. These results mean that children born into poverty are nearly three times more likely to stay that way.

Educational attainment is one of the biggest factors influencing intergenerational economic mobility. This is because education is intrinsically linked with income; high income individuals are more likely to acquire higher degrees from more prestigious schools than low income individuals (Sabol et al. 2021). As a result of this, high income individuals tend to secure higher paying jobs and have higher SES than low income individuals. Consequently, these individuals have greater economic resources and can buy more materials and services that are directly beneficial to their children. Parents with higher levels of education are able to send their children to private school, live in secure neighborhoods, and pay for tutoring, for example (Sabol et al. 2021). These parents are also less likely to expose their children to toxic stressors – like the conditions often created in low-income houses – which impact the development of the brain's frontal lobes and limbic system, harming children's cognitive performance and life trajectories (McEwen and McEwen 2017). Many studies also suggest that one's race dramatically impacts one's future income level, finding that being born into a black family rather than a white one drastically reduces a child's economic prospects later in life (Corcoran 1995).

Childhood Income and Adult Educational Attainment

The relationship between childhood socioeconomic status and future educational attainment has been widely researched throughout the sociological community. For example, a significant study from 1997 revealed that children who experienced poverty during their preschool and early school years had lower rates of school completion than children and adolescents who experienced poverty only in later years as well as people who never experienced poverty at all (Brooks-Gunn and Duncan, 1997). This relationship is of the utmost importance because when children do not complete school and focus on education, they will never break the socioeconomic status cycle that they were born into, and as mentioned earlier, socioeconomic status has a large impact on life in general. Additionally, a longitudinal study conducted on selected students came to the conclusion that years of schooling responded most strongly to family socioeconomic status (Entwistle et al., 2005). Overall, educational attainment is significantly impacted by childhood socioeconomic status.

Looking into the relationship between socioeconomic status and educational attainment more specifically, a recent paper dives into the mechanisms to account for the association between these variables. The paper suggests an interactionism model of the relationship between socioeconomic status and family life stating that a parent's socioeconomic status will have a direct impact on their child's traits and dispositions during the first two decades of their life, as well as an indirect impact for the rest of their lives. This paper helped us understand the impact of a parent's socioeconomic status on a child's future (Conger et al., 2010). As mentioned above socioeconomic status is directly related to a child's development and his or her future educational pursuits. Unfortunately, people with low socioeconomic status have limited opportunities and

access to education, and the impacts that affect these children early in life remain with them unless educational interventions like Breakthrough exist.

Childhood Income and Adult Well-Being

The income level that one has during childhood impacts one's well-being throughout life in variety of ways, including one's physical health, mental health, and stress levels. Children from low income families, for example, often grow up with more physical health issues and illnesses because they lack the resources needed to get better and can't afford to frequently visit the doctor (Elo 2009). As one might imagine, this negative impact on health only worsens throughout time and low-income children must carry their poor health long into adulthood.

Mental health is also affected by one's income level. Children who have low income levels have a higher buildup of allostatic load, for example, which makes it difficult for them to control their emotions (Taylor et. al., 2011). As a result of this buildup, many low-children do not know how to process their feelings and they inadvertently impair their brains from functioning properly. This buildup of allostatic load also leads to higher chances of cardiovascular disease later in life as well as issues with lower immune systems.

Being low-income doesn't just impact one's physical and mental health; it also impacts nearly every aspect of who one is. Unlike high-income children, low-income children must deal with substantial amounts of toxic stressors in the home. When exposed to these stressors over long periods of time – such as one's childhood – there is a severe lifetime risk of poor health (Thoits 2010). These physical health issues, mental health issues, and higher stress levels put low-income children at a disadvantage to their high-income peers. Without government policies

or intervention programs like Breakthrough in place, it is extremely difficult for low-income children to overcome not only these disadvantages but also the countless other obstacles that they will face throughout their lifetimes.

Link of Interventions

Research showing the efficacy of educational inequality interventions on our dependent variables of interest (income level, well-being, educational attainment) have not been well-documented. The reason for this, which we expand on in the "Gaps in the Literature" section, is that there may be many intervening variables from the time of participation in educational inequality intervention programs and when we measure adult income and adult well-being. Given this, we are going to focus on the link between educational intervention programs and educational attainment, as this independent variable to dependent variable relationship is closer in time, and has been measured before.

Research has found that high schools in metropolitan areas such as New York City, Boston, and Chicago that offer extracurricular opportunities for underprivileged students ranging from partnerships with community organizations such as local nonprofits, or even just extra literacy classes saw great success in low income students going to college and overcoming the "summer melt," a phenomenon where low-income students graduate from high school intending to enroll in college next fall but do not follow through because of the financial aid process or general anxiety about college (Duncan and Murane 2014). This study bolstered our views that educational disparity programs have a track record of success that could support our Breakthrough success hypothesis.

Another study explores the Summer Melt phenomenon and examines how though the Summer after high school graduation is a largely unexamined stage of college access amongst underrepresented populations in higher education, recent findings have revealed that anywhere from 10% to a staggering 40% of low-income students who have been accepted into college and signal their intent to enroll in college to not do so (Castleman et al. 2012). This study looked at the effects of extra college-readiness counseling on low-income students across various high schools focused on addressing financial and information barriers that low-income students face. The results found that students in these treatment groups were 14% more likely to enroll in college and 19% more likely to keep the post-secondary plans they developed their senior year of high school. This study is useful to our Breakthrough hypothesis as much of Breakthrough's college readiness programming relies on not only getting students into college, but also to enroll and to succeed during their time there. Breakthrough makes efforts like the counseling here to get students feeling more comfortable in higher education and more confident in their decision to actually attend college (Their programming also extends into the Summers as well).

Another study reveals the effectiveness of academic interventions for students with low socioeconomic status (Dietrichson et al. 2017). The study found that it is possible to substantially improve education outcomes through programs that include tutoring, feedback and progress monitoring, and cooperative learning. This is due to the primary mechanisms of intervention effects: cognitive development, social adjustment, family support, motivational support, increased expectations, and increased pedagogical support. This study was important because it helped us understand what types of intervention programs could work, and why (via these different mechanisms) they worked. This study was done on younger students in Elementary and

Middle school, but we felt that the same mechanisms would apply to Breakthrough's demographic of Middle and High School students from low SES backgrounds. Breakthrough employs many of these same strategies (tutoring, feedback and progress monitoring, cooperative learning) in their programming, so we are hopeful that they they would yield similar results to this study.

Gaps in Literature

There remain several gaps in the literature that our study hopes to fill, namely that there is no data on the links between educational inequality intervention programs and several dependent variables of interest, including adult income and adult well-being. As we discussed before, this is because there is too much time that takes place between the actual programming and when we measure these variables. Because of this, there may be other intervening variables that may impact our dependent variables- an example could be poor health, which could negatively impact adult income via making it harder for our participants to maintain a steady job and may impact their overall well-being. Due to the difficulty in measuring any linkages between educational inequality interventions and these variables of interest (it would be a resource-heavy endeavor) there is no prior data that we can draw from for our current study.

The other gap in our literature has to do with Breakthrough's programming directly. There is no prior literature measuring the effects of Breakthrough's educational intervention programming on adult educational attainment, adult income, and adult well-being. While there is plenty of positive testimonials from past participants, there has been no quantitative data that supports the qualitative data that they may have gathered beforehand. We are hoping to use our

research project to support these testimonials and help Breakthrough make any necessary changes to get the best results out of their programming. Our research study thus aims to address these gaps in our literature, namely by gathering data about how participants of Breakthrough Manchester have fared in our dependent variables of interest since the completion of the program.

Research Question

The study that we propose will address the research question of: what lasting impacts does Breakthrough Manchester have on former participants' educational attainments, income levels, and quality of life? Our conceptual model reflects this research question. Our independent variable, childhood SES, was formulated because in order to qualify for Breakthrough Manchester, you must be at a social and economic disadvantage. However, because we only aim to study former participants of Breakthrough Manchester, we are operationalizing our independent variable to include only people who attended and participated in Breakthrough's programming. We have three dependent variables that are affected by participation in Breakthrough Manchester: socioeconomic status, educational attainment, and general well-being. We hypothesize that our survey will show that Breakthrough Manchester has a positive effect on a person's future. This will be shown through survey results that show an increase in SES from their childhood level, a higher educational attainment level than their parents, and a high general-well being ranking.

METHODS

Sampling and Recruitment

We will study Breakthrough Manchester alumni who have graduated from high school or college in the past 15 years. This means that our participants must have graduated after the year 2006. We picked this recent timeframe because it minimizes the likelihood that other events unrealated to Breakthrough may have impacted one's educational attainment, socioeconomic status, and general well-being. We will perform one of the most common forms of non-probability voluntary response sampling known as convenience sampling. Convenience sampling consists of selecting a requisite number of conveniently attainable participants. This method is appropriate for our research for a number of reasons, one of which is the speed and low cost it offers. Convenience sampling is also ideal because it does not require all of our participants to be in the same location; we can collect data from Breakthrough alumni all across the world by using an online survey. Another key advantage of convenience sampling is that the quantitative survey data collection can easily be analyzed by anyone, regardless of their experience level. A key disadvantage of convenience sampling is that the sample lacks clear generalizability. Another disadvantage is that by nature, convenience samapling may bias our results due to the reasons why some participants chose to take part in the study while others did not.

Measures and Methods

Our study will be conducted using quantitative methods. We will address our research question by emailing a survey to former participants of the Breakthrough Manchester program

and informing them that taking part in our research study is completely voluntary. The survey (shown below under "Drafts of Study Materials") has questions that fall into four categories: well-being, socioeconomic status, educational attainment, and general demographic information. All of the questions are formatted as multiple choice or ranked options so it should take respondents less than 5 minutes to complete. The questions pertaining to well-being were originally developed by psychologist Carol D. Ryff and are pulled from her Psychological Well-Being (PWB) Scale. This scale measures six aspects of wellbeing and happiness: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Ryff et al., 2007; adapted from Ryff, 1989). We pulled one question from each of these sections in order to get the biggest range of categories, and let participants rank their answers on an ordinal scale. Our research is best suited to the use of a self-designed survey because there is not currently data specific to the life outcomes of former Breakthrough Manchester participants. Although we are asking retrospective questions, the study will use a cross-sectional design because we are gathering data from participants at one point in time.

We will use a deductive approach to our research. Deductive reasoning aims at testing a theory that is previously well established. Through our research, we are studying the effects of childhood socioeconomic status on educational attainment, future socioeconomic status, and general well-being. Additionally, we are looking at the effects of interventions, specifically Breakthrough Manchester, on that relationship. Many of these relationships are already well defined. There is research that indicates the causal relationship between socioeconomic status and future life outcomes as well as the effects of intervention methods on those outcomes. Our

research hypothesis aims to test these claims by researching one such intervention method and its effect on its participants educational attainment, socioeconomic status, and general well-being.

Our main independent variable is the child's socioeconomic status. Our main dependent variables are educational attainment, socioeconomic status, and general well-being. We conceptualized and operationally defined our independent variable through asking whether or not the person was a former participant of Breakthrough Manchester. Because the qualification to take part in Breakthrough Manchester is low childhood socioeconomic status, a person's participation in the program would operationalize that variable. We are also asking the participants to self-report their parents' income and work status at the time of their enrollment in Breakthrough Manchester. The dependent variable of educational attainment was operationally defined by asking about the participant's highest level of education. Socioeconomic status was operationalized by asking about the participant's current income. Lastly, we operationalized general well-being by taking questions from the Psychological Well-Being (PWB) Scale. We think these are the best methods of measuring our concepts for various reasons. For our independent variable, we think that using participation from Breakthrough would be the best measurement because of our partnership with the program. For socioeconomic status and educational attainment, our measures are relatively standard and allow for the most data. We used the PWB scale to measure general well-being because it is an experimentally tested and peer reviewed method of getting general information on a person's well-being.

Why Web Survey Methodology?

We chose to utilize a web survey method over other survey methodologies and interviews for two main reasons: resource effectiveness and versatility. We have outlined our reasonings based on our research goals, and have highlighted the strengths and weaknesses of our chosen method over these other methodologies.

We decided to pursue a web survey over interview methods as we believe it offered many strengths that make it superior to interview methods. For one, surveys offer enormous versatility- we are able to ask a wide range of questions within a single survey that might be harder to touch on in a structured interview setting. Additionally, they are very efficient- the versatility of surveys, including the need for fewer resources (time/money/personnel) made it particularly appealing. As our survey was focused on several different dependent variables of interest, ranging from educational attainment, income levels, and well-being, we thought that the survey would thus be the right methodology to tackle all of these topics. Another strength of using a survey over interview methods for our research goals was our ability to potentially get responses from as many former Breakthrough Manchester participants as possible. Sending a survey via web allows us to speak to a plethora of participants regardless of if they are still in contact with Breakthrough Manchester or in the Upper Valley. This strength is not offered by structured interviews, which rely on former participants still living in the Upper Valley or having stable internet access and time in their day to spare, all of which are not guaranteed. However, it may not matter that we are able to reach a larger population using the survey method over interviews because surveys don't always yield the highest response rate. Finally, the web survey methodology also allowed us to gather data on potentially sensitive topics that might be harder to

approach in an interview setting- through a confidential web survey, Breakthrough would be able to ask questions to gather data regarding more sensitive topics such as race, income, well-being,etc. directly, instead of of a roundabout way.

Due to the very nature of surveys – with the exception of open-ended questions – participants are less likely to give detailed answers than a structured interview. Surveys are incredibly impersonal so any open-ended questions that participants do answer will fail to give us a full sense of how participants' lives have been affected by Breakthrough. Conducting structured-interviews, on the other hand, would give us incredibly detailed data on how the program has impacted its former participants. For our study, however, sifting through and organizing all of the detailed answers from these two methods would be incredibly time consuming, so specificity isn't an advantage. Additionally, for our goals and our partner's goals, we thought that for our study where we are just trying to get a broader understanding on the effectiveness of the program on life outcomes and well-being, a survey sent to all the participants we can was better than in-depth interviews. Ultimately, the advantages of the survey method far outweigh its cons, making it the optimal way to address our research question.

We chose to pursue a web survey over other survey methodologies such as telephone or mail surveys for much of the same reasons of resource effectiveness, reliability, and versatility. Web surveys still require less resources to employ than their telephone or mail counterparts, as we do not need to have personnel to send surveys, find times to speak with participants, or wait for responses to come back. Web surveys allow us to send out our survey and gather our data in real time. Additionally, web surveys also still yield us just as reliable results on our DV's of interest as these other survey methodologies. As we said before, our research goals are to get a

broad understanding of the impact of Breakthrough's intervention programs on adult educational attainment, adult income, and adult well-being, so we are not looking for any in-depth answers to our questions.

We think that some potential weaknesses of our web survey methodology over these other survey methodologies may have to do with the weaknesses of surveys overall. Surveys are by nature quite inflexible, so if we wanted to rephrase a question immediately after sending out a survey, for example, we would not be able to do so. This is not as relevant for mail surveys which also suffer from this inflexibility, but if we were to do this over the telephone and a respondent did not understand a question, we would be able to rephrase it for them in real time to get the most accurate answer. Still, we weren't worried about survey inflexibility as we spent ample time writing questions, sourcing questions from reputable sources, and double checking with our professor and partner that we were confident in the clarity and effectiveness of our questions. Additionally, surveys as a whole are strongly affected by the response rate. This is one concern that we may have with our survey, as many of the people we reach out to may not want to respond or may not be able to respond. Breakthrough Manchester pre-warned us that their emails/contact info in their data may be out of date for many of their former participants, which may limit the scope of our study. Still, because we felt we mitigated much of the weakness of the web survey inflexibility and the response rate issue affects all potential survey methodologies, we still felt that the web survey methodology was the best choice for us in gathering our broad data for our research.

We are proposing a causal relationship between childhood socioeconomic status and educational attainment, future socioeconomic status, and general well-being. Although we are unable to formally test for causality with our chosen method, we do expect a causal relationship between our independent and dependent variables. There is already great evidence showing the causal relationship between childhood socioeconomic status and various life factore. Through our research, we aim to suggest the effectiveness of Breakthrough Manchester as an intervention for these previously established causal relationships. If our data shows that participants in the program have better life outcomes than those who did not, we can assume through deductive reasoning and a comparative analysis that Breakthrough Manchester caused higher educational attainment, socioeconomic status, and general-well being.

The advantages of voluntary response sampling are the speed, cost-effectiveness, and ease of availability. Since our survey is so short, we expect that the results will come back within a week of sending it out. Emails to fill out surveys flood inboxes everywhere and only some offer a prize for filling out the survey. Our survey is similar in cost and only needs to be offered to a couple random people based on who fills the survey out. Due to the increased use of technology across the country, everyone should be able to fill out the survey if they have access to a computer or phone. The disadvantages of voluntary response sampling are that it is somewhat biased based on who wants to volunteer to complete the survey. Some may not want to participate in the survey which lowers the validity of our survey. In order to encourage high response rates and completion rates, we suggest using a raffle method where participants who fill out the survey will be entered into a raffle to win ~$20. We plan on reaching out to Breakthrough to see if they would be willing to give us the funding. Ideally, the raffle would encourage all

people to participate because they would like the chance to win the prize. Additionally, it is important to note that there is a coverage error in the random sampling method we are using. Those with lower adult SES may be less likely to respond because of insecurities about self-reporting sensitive SES information. We hope that the raffle would be enough of an incentive to overcome that bias. We will also have the directors of Breakthrough Manchester's middle-school program (Debra McLoud) and college bound program (Ben Gentry) send out the survey for us in order to increase both study participation and credibility.

In our survey we have managed to check for validity because we are making sure to only ask the best questions that will get us close to analyzing our intended independent and dependent variables. Our independent variable is already considered because all our participants are alumni from the Breakthrough Manchester program. For income, we only need to ask one question about how much money our participants are currently making. For educational attainment, we also only need one question to understand what level of education the participants have made it to. We also need one question to understand how far the participants are willing to get their education until. For well-being, it is much harder since there are multiple ways that researchers have shown to test for well-being. We have decided to take questions from the most common type of well-being test (Ryff test) to make it more valid as a researcher has approved that these questions can test the overall well-being of a person. Thus, the Ryff test is said to have internal validity. We consider validity to be a strength of our design because most of our questions can be easily linked to our independent and dependent variables.

To check for reliability, most of these questions have a direct correlation to the variables that we are looking for as stated above. For income and educational attainment, our questions

separate individuals from being low-income to high income. Because we care more about low-income individuals and upward mobility, we have separated low-income into multiple sections that show if an individual has moved up over their lifetime. For well-being, the questions try to prove how well a person is at autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. When the participants answer these questions truthfully, then the questions will reflect real changes in their lived experiences. Participants who have a strong well-being will have a different Ryff score then those with low well-being. There is a possibility of overlap due to only having six questions, but the questions used should get the most variation in answers. Reliability is a strength of our design due to our questions reflecting changes that can happen in participants.

To check for generalizability, our results are only unique to this set of participants who decide to reach out and complete our survey. Due to the fact that our study is also a non-probability sample, it will be hard to relate the results to most people who have entered Breakthrough Manchester. However, this group of participants can help Breakthrough Manchester by explaining what they felt contributed to the results being high or bad for their overall experiences. Thus, Breakthrough will know what to repeat or not repeat for the next groups of students at Breakthrough. Generalizability is a weakness of our study because it is not a random sample of participants and can't be related to the entirety of Breakthrough Manchester as a whole.

Analysis Plan

Breakthrough Manchester can test each of the connections in our hypothesis through the data collected in our survey. In order to test the relationship between Breakthrough Manchester and future socioeconomic status, we can look at two specific questions relating to the participants' parents socioeconomic status at the time of enrollment at Breakthrough Manchester and the participants current socioeconomic status. This will show whether there has been an increase in socioeconomic status level through enrollment in the program. Similarly, we can measure educational attainment by looking at the questions asking participants about their parents' highest level of education and their own highest educational attainment. If there is an increase in generational educational levels, we can attribute that difference to Breakthrough Manchester's interventional programming. Since we do not have a control group in our survey, we recommend supplementing this data with information from New Hampshire's Labor and Education Statistics. Comparing the average income and education levels in the state to Breakthrough Manchester participants, we could identify the impact of the program on a state-wide level in order to get an accurate representation of the effect of Breakthrough Manchester. Lastly, to analyze the general well-being questions, we must take a slightly more complicated approach. We chose one question from each subscale that Ryff proved matters for assessing well-being. Therefore, we recommend that the partner look at each separate sub scale. They could then add up the numbers that go along with each answer, and the sum of those numbers could be used as the dependent variable of general well-being. This method would give a birds eye view of well-being as we've operationally defined it. Additionally, for supplemental interpretation, Ryff has compiled an interpretation of what different scores for the specific

questions mean in relation to her operational definition of well-being. For more detailed information on how to score the PWB scale, see Appendix C.

ETHICAL CONSIDERATIONS

When conducting sociological research, it is always important to consider possible ethical issues and take proactive steps to address them. The Belmont Report (1978) outlines three core principles that are relevant to research involving human subjects: respect for persons, beneficence, and justice. This section will briefly detail each of these measures and describe how we plan to address them.

Respect for Persons. The first ethical principle, respect for persons, holds that all participants must be treated as autonomous agents and that participants with reduced autonomy are protected. The majority of our participants will be people of color and potentially low income because those are two of the main criteria they needed to fit in order to attend Breakthrough Manchester in the first place. If the program considers the potential diminished autonomy of these two groups a concern, we suggest that they send out a form securing consent from a second party as an extra precaution. However, we do not believe this is necessary as the self-selection aspect of participating in the survey should guard against potential issues of participants with diminished autonomy. Compliance with respect for persons also requires that participants enter the research voluntarily and with adequate information. In order to uphold this ethical principle, we have included a detailed informed consent form at the beginning of our survey (see Appendix A) that describes the study, its potential risks and benefits, reminds participants that it is voluntary, and includes the contact information of our research director, Debra McCloud.

Beneficence. The second ethical principle, beneficence, asks that researchers maximize potential benefits and minimize potential harms. Although our survey is very low risk, one of the ways we plan to minimize potential harms is by protecting the confidentiality of our participants. We will maintain confidentiality throughout the entire study by not collecting participants' names or email addresses. For the consent for specifically, we will respect our participants' privacy by asking them to click "yes" or "no" to indicate if they agree to the terms of our form rather than requiring their signatures. Our study also minimizes potential emotional distress for participants by placing more personal questions later in the survey. If Breakthrough implements our suggestion to enter respondents into a raffle, some participants will directly benefit, but we will leave that decision up to the program.

Justice. The third and final ethical principle, justice, requires the that the burdens and benefits of research be fairly distributed. Although participants are unlikely to recieve direct benefits from the study, they will directly benefit the future of Breakthrough. The study results will do this by quantitatively assessing Breakthrough's impact as an educational inequality intervention, and thus likely helping the program secure additional funding.

FEASIBILITY AND SIGNIFICANCE

Feasibility. Through various conversations with the directors of Breakthrough's middle school and college-bound programs, we determined that information regarding their recent alumni would be most beneficial to the future of their program. We spoke about the optimal form of data collection for our study and the amount of information they have on alumni. They shared that while they have some contact information for their more recent alumni, they have little to no

information as we go back further in time. Thus, in an effort to make our research feasible given Breakthrough's resources, we narrowed our target population down to alumni who have graduated in the past 15 years. Both the program directors and our group feel that an online survey is the appropriate research tool based on the quick speed and ease of accessibility it offers. Our study is also incredibly feasible given Breakthrough's monetary resources: the most that the program will need to spend is $20 or so on an optional raffle.

Significance. As we discussed in our literature review, although there is a plethora of data supporting the positive impact of educational interventions on one's future educational attainments, income level, and general well-being, Breakthrough has no quantitative data regarding their specific program's impact on their students. By conducting our study, we hope to provide evidence supporting the immense impact that Breakthrough has in changing low income children's life paths for the better. Our study will provide academic significance by filling the aforementioned gap in literature. We expect our results to support students' upward mobility relative to their parents regarding their educational attainments and income levels. We also expect our study to support a positive link between the program and well-being relative to low SES individuals. If the results indicate that Breakthrough is doing well for some aspects of their goals but not all, then our study will highlight these shortcomings and help Breakthrough make necessary changes. The program directors shared that all of their services are provided tuition free, and are funded by foundations and stakeholders that believe in Breakthrough's mission. Although our group doesn't quite have the financial capabilities to become a stakeholder in Breakthrough, we are determined to help them achieve their mission in a different way: by providing them with this research proposal. The quantitative data that comes from this study

should support Breakthrough's effectiveness which will lead to increased funding and may allow the program to increase their reach.

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Appendix A: Informed Consent Form

You are being asked to take part in a research study. Taking part in research is voluntary. We would like to learn more about your experiences after completing the Breakthrough Manchester program. We will ask some questions about your educational attainments, income level, and well-being. We will also ask about the educational attainments and income level that your parent(s) had when you first enrolled in Breakthrough. Participation in the study will take approximately 5 minutes. You must have graduated from either high school or college after 2006 to take part in this study.

Your participation in this study is completely voluntary. You may withdraw your consent and discontinue your participation at any time with no consequences to you. There is little chance you will personally benefit from being in this research study. We hope that this information will help the program continue to receive funding and to see how we can improve our educational programming to help future Breakthrough students.

The information collected for this study will be kept secure and confidential. Your name will not be linked to your responses in any way. Only the Breakthrough Manchester research team staff will have access to your data. If you have questions about this study, you can contact the research director for this study, Debra McCloud (dmcloud@derryfield.org).

I have read the above information and agree to take part in this study.

Do you agree to the above terms? By clicking Yes, you consent that you are willing to answer the questions in this survey.

☐ Yes

☐ No

Appendix B: Survey Questions

In this section of the survey, we are going to ask you a few questions about your educational attainments and income levels.

1. What is your highest level of education?
    - No formal education
    - Less than high school education
    - High school diploma or GED
    - Vocational training
    - Part of College
    - College degree
    - Graduate or professional degree

2. What is your current work status?
    - Employed full-time
    - Employed part-time
    - Unemployed – Looking for work
    - Unemployed – Not looking for work
    - Homemaker
    - Not able to work
    - Retired
    - Not applicable
    - Other

3. What is your current income level?
    - Under $20,000
    - $20,001 – $30,000
    - $30,001 – $40,000
    - $40,001 – $50,000
    - $50,001 – $60,000

- $60,001 – $80,000
- $80,001 – $100,000
- $100,001 or over
- Don't wish to answer
- Unsure

Now we are going to ask you a few questions about the educational attainments and income levels of your *parent(s)*.

4. What is the highest level of education reached by either of your parents?
    - No formal education
    - Less than high school education
    - High school diploma or GED
    - Vocational training
    - Part of College
    - College degree
    - Graduate or professional degree
    - Unsure

5. What was the work status of parent #1 when you first enrolled in Breakthrough?
    - Employed full-time
    - Employed part-time
    - Unemployed – Looking for work
    - Unemployed – Not looking for work
    - Homemaker
    - Not able to work
    - Retired
    - Not applicable
    - Other

6. What was the work status of parent #2 when you first enrolled in Breakthrough?
    - Employed full-time
    - Employed part-time
    - Unemployed – Looking for work
    - Unemployed – Not looking for work
    - Homemaker
    - Not able to work
    - Retired
    - Not applicable

- Other

7. When you were 12 years old (about the age when you first enrolled in Breakthrough), what was your household income? (If you are not sure about the amount, please estimate)
    - Under $20,000
    - $20,001 – $30,000
    - $30,001 – $40,000
    - $40,001 – $50,000
    - $50,001 – $60,000
    - $60,001 – $80,000
    - $80,001 – $100,000
    - $100,001 or over
    - Don't wish to answer
    - Unsure

8. "Financially, I'm doing better than my parents were when I enrolled in Breakthrough"

Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree

9. "Breakthrough has increased the number of opportunities I've had to improve my life"

Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree

In this next section of the survey, we'd like to ask you some personal questions about your well-being. Please do not answer any questions if you are uncomfortable doing so. (*For information on how to score this section, see Appendix C.)*

10. "People would describe me as a giving person, willing to share my time with others."

Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree

11. "I have confidence in my own opinions, even if they are different from the way most other people think."

Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree

12. “I sometimes feel as if I've done all there is to do in life.”

Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree

13. “In general, I feel I am in charge of the situation in which I live.”

Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree

14. “I gave up trying to make big improvements or changes in my life a long time ago”

Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree

15. “In many ways I feel disappointed about my achievements in life.”

Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree

Finally, we are going to ask you a few questions about your race.

- Are you of Hispanic, Latino, or Spanish origin?
    - Yes
    - No
    - Unknown
    - Don’t wish to answer

- How would you describe your race? (select all that apply)
    - Native American Indian or Alaska Native
    - Asian
    - Black or African American

- Native Hawaiian or Other Pacific Islander
- Caucasian
- Unknown
- Other/Prefer to self-describe
- Don't wish to answer

Appendix C: Scoring Ryff's Psychological Well-Being Scale

Answer Format: 1 = strongly agree; 2 = somewhat agree; 3 = a little agree; 4 = neither agree or disagree; 5 = a little disagree; 6 = somewhat disagree; 7 = strongly disagree.

Subscale Sections:
Positive Relations with Others: Q10
Autonomy: Q11
Purpose in Life: Q12
Environmental Mastery: Q13
Personal Growth: Q14
Self-Acceptance: Q15

Q10, Q11, and Q13 should be reverse-scored. Reverse-scored items are worded in the opposite direction of what the scale is measuring. The formula for reverse-scoring an item is: ((Number of scale points) + 1) - (Respondent's answer)

For example, Q10 is a 7-point scale. If a respondent answered 3 on Q10, you would re-code their answer as: (7 + 1) - 3 = 5.

In other words, you would enter a 5 for this respondents' answer to Q10.

To calculate subscale scores for each participant, sum respondents' answers to each subscale's items. Higher scores mean higher levels of psychological well-being.