

**To Parachute or Perish: A Dive into the Ethical Implications of Parachute Researching**

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science  
University of Virginia • Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree  
Bachelor of Science, School of Engineering

**William Jarrard**

Spring 2021

On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

Advisor

Kathryn A. Neeley, Associate Professor of STS, Department of Engineering and Society

## Introduction: The Application of Virtue Ethics to the Problem of Parachute Research

Almost anyone who thinks about the global future of science has a vision that includes Africa. It includes over a billion people and many countries are now going through their own industrial revolution and baby boom (Akyeampong et al., 2014). When diseases break out, many people from western countries flock to various parts of Africa to research the disease. In theory, and sometimes in practice, these developing countries have a lot to gain from receiving help on research and improving medical diagnostics. However, for researchers, they have a goal of getting published, and to do this, they must stay quiet about their research for months after it happens. This is still a very current issue and it is known as ‘parachute’ or helicopter research (Harawa, 2018). Parachute research is best defined as western teams coming in for a short time to gather data and leave. This leads to, not all, but most of the benefit going to the short-term western teams that dropped in for a study. This creates an imbalance between the data being available to the community and to the experts even when the data has a practical value for the community. It is much trickier to find a correct balance of what exactly would be needed to improve this.

There are many costs and significant consequences to parachute researchers such as the time it takes for information to become available and how they indirectly undermine African scientists. For instance, if there is a disease outbreak in Africa, and researchers come in and make progress toward treatment and prevention, it can become a significant problem for the people affected by the disease if these teams keep their work quiet for months while the disease keeps greatly affecting people’s lives (Health, 2018). Another significant problem is how it undermines African scientists which significantly contributes to a brain-drain from many of these

African countries and disproportionately benefits these high income countries (Bockarie & Njala, n.d.).

To develop a better understanding of the problems of parachute research, this paper proposes approaching the problem by following the idea of virtue ethics proposed by Aristotle, and using the framework suggested in the book *Ethics in Engineering* (Martin & Schinzinger, 2004). Virtue ethics is the idea of finding the balance between two extremes, and in this case, finding the balance between parachute research and benefiting scientists and teams for their work as well. This has a goal of better understanding what a good solution to parachute research might consist of and leads to interesting discoveries. The different approaches balance different virtues, allowing us to understand why some might prefer one approach over another. The results of this paper show the strengths and weaknesses of different approaches by evaluating their effect through the lens of virtue ethics.

## Problem Definition: How Do We Balance the Interests of Parachute Researchers and the Potential Benefits of That Research to Developing Countries?

The first thing that's important to know about parachute researching is not new. More developed nations have been gathering scientific data in less privileged countries and exploiting less privileged people as research subjects for centuries. Famous figures such as Lewis and Clark gained most of the prestige while Sacagawea and the native American tribes that helped them on their way were thought of as a footnote. Parachute researching has been around for a while, but the term was coined more recently. Researchers first introduced these ethical concerns during the early HIV treatment trials in Zimbabwe (Bhagat & Nyazema, 2000). Pharmaceutical

countries were using these developing countries almost as early trial test subjects without proper consent. During this trial, AZT, a treatment for AIDS, was being tested to try to stop mother-child HIV transmission. Women in Zimbabwe, who were not asked for proper consent, were assigned to a placebo group to test how well the drug performed (Bhagat & Nyazema, 2000). This was not just pharmaceutical companies, but university researchers as well that didn't just steal data from Zimbabwe women, but also did a blatantly unethical trial. This made people more aware of this short-term research and possible problems that come along with parachute researching. Parachuting research persists, although recently more attention has been drawn to it.

The destabilizing condition stems from the nature of how publishing works in the scientific community: after data is gathered, the data and research are a valuable commodity that researchers do not want to give up easily. After all, every scientist's goal is to publish groundbreaking results. The best publications are ones that are big news, and almost all "medical journals prefer exclusives" (Aizenman, 2016). This obviously is very harmful as the ends of finding a cure or learning more about a disease often doesn't justify the means of preventing this helpful information from reaching the hands of the people it is hurting the most. As described earlier, it can become a problem for the people affected by diseases if these teams keep their work quiet for months (Health, 2018). However, it's not as simple as just asking scientists to start releasing their data immediately. In 2016, during the Zika outbreak, the World Health Organization (WHO) encouraged researchers and scientists to promise they will reveal their findings right away. Some researchers discovered the genome sequences of Zika and followed WHO's recommendation and made the sequence public online. Right after that happened, a different paper was released and published without sharing the credit of the original researchers

(Aizenman, 2016). This has made many scientist fears come true and could become a major setback in understanding the ethical implications of helicopter research.

Parachute researching has many grave consequences. As stated earlier, two of the main issues that arise from parachuting research include undermining African researchers which can contribute to the ongoing brain-drain from Africa; as well as people in these developing countries waiting months for the research and data to be published to help them. These two issues are perpetuated by western teams coming in and collecting data without collaboration, oftentimes the researchers in Africa benefit minimally. This leads to almost all research opportunities being in developed nations. For many researchers in Africa, it is better for their careers to move to Europe or the United States. If they don't, they will have a harder time benefiting from the access to the data collected all over the world. This leads to a brain-drain, the emigration of highly trained and intelligent people, from Africa (Kasprowicz et al., 2020).

This brain-drain has cost Africa almost four billion dollars a year to higher foreign experts and professions to help them with varying problems (Tebeje, 2022). When teams try to be more collaborative with African researchers, it has a positive effect on diminishing these cycles of brain-drain (Kasprowicz et al., 2020). However, this migration is still happening. Some nations such as Rwanda have tried to address this issue. Rwanda is at the forefront of many of these solutions by applying rules and regulations to researchers who travel there and have regulation of authorship (Park & Shema, 2019). This definitely assists preventing parachute research, but these are expensive to enforce and limited in effect. They also don't try to change the behavior of researchers, just make them go through more hurdles.

I'm working on the topic of parachute researching so I can find out how to approach possible solutions to this issue. Ideally this will lay out possible solutions and criteria that could

be helpful in determining the success at addressing this issue. The essence of this problem contrasts developing nations, who want help and resources from western nations to better treat and diagnose these diseases, and researchers wanting to further their careers. So, how do we balance parachute researchers and the benefits of research for developing countries? This ideally could be done in a way that optimizes the benefits for both parties involved, and the approach to solve this problem will be addressed in the next section.

## Methods: Virtue Ethics as a Framework

Applying STS frameworks and ethical theories to parachute researching is an original approach, as parachute researching is not an extremely salient or well researched field. Therefore, this study will try to develop a foundation of how to measure the ethical nature of various approaches to parachute researching. This can be extremely difficult, as oftentimes it's hard to prevent individuals from exploitation for personal benefit. This leads to an interesting dynamic between the individual and the society. And it can be very difficult to find a balance that is mutually beneficial to both of these parties. To find this balance, this approach will follow the framework suggested in the book *Ethics in Engineering* (Martin & Schinzinger, 2004) which uses virtue ethics proposed by Aristotle. Virtue ethics is an innovative way to think about this problem and specific virtues may provide a potentially useful way to identify good solutions. This will provide an interesting contrast as the idea of virtue ethics is thousands of years old and applying it to a contemporary issue helps reveal possible solutions to the issue of parachute researching.

Virtue ethics fall under the four main theories of morality proposed by Aristotle (Martin & Schinzinger 34). These try to answer the question of why something is considered bad and

different approaches that use different metrics. These include utilitarianism, duty ethics, rights ethics, and virtue ethics. All of these can be very relevant to the current problem; however virtue ethics considers the idea of balance (Martin & Schinzinger 51). Balance, as discussed, is an important aspect to parachute researching. Virtue ethics considers things wrong if they manifest bad traits (vices) and good if they manifest good traits (virtues) (Martin & Schinzinger 34). It will be important to identify which virtues and vices are relevant to the problem at hand because it will be easier to compare solutions. Virtue ethics can be separated into two separate categories, intellectual virtues and moral virtues. Intellectual virtues are about learning to be the best you can be by understanding the world and achieving goals. Intellectual virtues are definitely important and will be touched on, but moral virtues will be the major focus. Martin & Schinzinger describe moral virtues as virtues that try to reach a “proper balance between extreme conduct, emotion, desire, or attitude” (51). This balance is ideal for balancing the individual benefit with different social goods in a society. Understanding this balance and possible solutions will be the ultimate goal of this research.

This approach initially applies virtue ethics to analyze what virtues are relevant and which vices or deficiency make parachute research problematic (Figure 1). This can be done by intuitive means. Secondly, it will be important to understand how to find a systematic approach to understanding how well a solution does in each virtue and vice. Lastly, some possible solutions should be suggested and evaluated. These solutions might not be the best possible solutions, but ideally this approach can compare and contrast different possibilities.

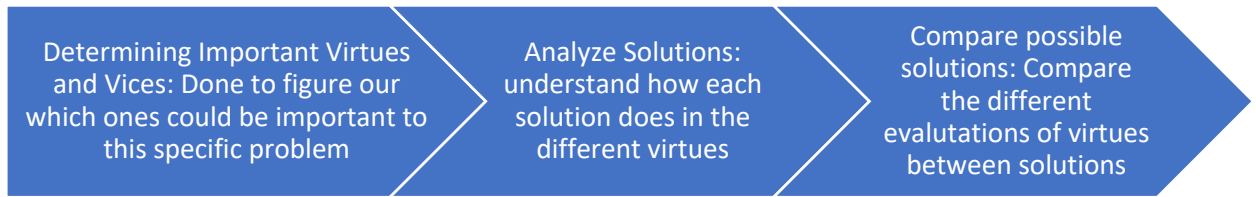


Figure 1: Systematic Approach to Virtue Ethics' Application to Parachute Researching

Before analyzing solutions, the different virtues must be identified. These virtues were selected by relevance to the topic of parachute researching (*List of the Virtues*, 2020). The sixteen virtues that will be analyzed are listed in Table 1. These will specifically be applied to the dynamic between the different groups such as the foreign and domestic researchers, the countries, the organizations, as well as other groups of scientists worldwide.

Table 1: Parachute Research Important Virtues; Definitions Taken from (*List of the Virtues*, 2020)

Virtues	Definition
Ambition	Having a strong desire for success or achievement.
Caution	Avoidance of rashness, attention to safety.
Benevolence	The disposition to do good.
Cooperation	To associate with another or others for mutual benefit/to achieve a shared goal.
Dependability	Reliable, worthy of reliance or trust.
Flexibility	Adaptable, able to be changed to suit circumstances.
Faith	Complete confidence in a person, plan or set of beliefs
Honor	Not disposed to cheat or defraud; not deceptive or fraudulent. Worthy of being honored.
Integrity	Moral soundness; Integrity is consistency of values and actions. Unbroken completeness with nothing lacking.
Knowledge	Part of the hierarchy made up of data, information and knowledge. Data are raw facts. Information is data with context and perspective. Knowledge is information with guidance for action based upon insight and experience.



Openness	Ready and willing to talk candidly. Unsecretive.
Self Sacrifice	The giving up of one's own benefit, especially giving up one's life, for the good of others.
Trust	Having confidence in others; lacking suspicion.
Unity	Freedom from division. Oneness.
Understanding	Comprehension, assimilation of knowledge. The holistic awareness of facts.
Wisdom	The trait of utilizing knowledge and experience with common sense and insight.

These virtues above will eventually be organized into a table with a column of the virtues, and rows of the different solutions. The goal of the intersections will be how well each solution does in that specific virtue or vice. There are several alternatives to doing research in developing countries, but it is not clear if any of them are an effective solution. Moral virtues underneath the umbrella of virtue ethics might be very applicable in the case of balancing researchers and developing countries. This sort of framework has the goal of benefiting all parties involved without undermining communities in general. Right now, parachute research violates this aspect of virtue ethics. These communities that the researchers go to hardly benefit for months while the teams researching disproportionately receive career and research benefit. It often fractures these developing societies and causes the few highly trained individuals to leave. If this framework is successful, the solution to this problem would use virtual ethics as a metric to determine the quality of the proposed solutions.

## Results

There are several alternatives to doing research in developing countries, but it is not clear how to understand what is ethical. It becomes more apparent which virtues are more controllable

and which are not as we compare the different solutions. This isn't necessarily to say some virtues are more important than others, but rather to understand which ones can be managed by different solutions. Another aspect that is compared is which virtue ethics have the greatest impact on creating a healthy solution. A better resolution would hopefully consider most of these virtues and emphasize the more salient ones. The different solutions that will be studied are no oversight, the oversight from the receiving country, oversight from organizational committees, and the relatively newer approach of organized partnership between foreign and domestic researchers.

No oversight of parachute researching is the situation that has persisted the longest, so its first should be understood why this is disastrous when using a virtue ethics framework. Table 2 contains a summary of the different virtues and how much they emphasize these different approaches. Their key takeaway from no oversight's results is that many of the virtues are non-existent. These can be broken into two categories. First, working alone, with no assistance or oversight from anyone, leads to cooperation, openness, self-sacrifice, trust and unity not being considered. This makes sense, as this type of research is very closed off and mainly for the researchers benefit as seen in the HIV treatments in Zimbabwe (Bhagat & Nyazema, 2000). The second one is because of a lack of standards or rules to follow. For scientists to be cautious or honorable comes more as a second thought when they are primarily focused on collecting data.

*Table 2: Different Solutions and Their Application of Different Virtues. High means the solution highly incorporates that particular virtue. Low means the solution somewhat incorporates a virtue. None means it does not address that particular virtue.*

	No Oversight	Oversight from Receiving Country (i.e. Rwanda)	Oversight from Organization or Committee (i.e. WHO)	Organized by Partnership Foreign and Domestic Researchers
Ambition	High	High	High	High
Caution	None	High	Low	Low
Benevolence	Low	Low	Low	Low
Cooperation	None	None	None	High
Dependability	Low	High	Low	High
Flexibility	High	Low	Low	High

Faith	High	Low	Low	Low
Honor	None	Low	Low	Low
Integrity	None	Low	Low	High
Knowledge	High	High	High	High
Openness	None	Low	Low	High
Self-Sacrifice	None	None	None	High
Trust	None	Low	Low	Low
Unity	None	Low	None	High
Understanding	Low	Low	Low	High
Wisdom	Low	Low	Low	High

There are three possible solutions that are tested compared to no oversight. Oversight from the country for incoming researchers is another possibility. Countries like Rwanda are at the forefront of this and have made significant progress. This can be seen by comparing this to no oversight. Some notable differences are the scientists are much more cautious, and dependable as they are subjected to the country's laws. Another large difference is that many of the virtues are now considered but at relatively low levels. Both this approach and oversight from an organization or committee are extremely similar with a couple of variations. The scientists can be less cautious and dependable as organizations like the WHO do not have absolute control over what scientists do. It also does not promote any unity even at low amounts. The last solution analyzed is organizing research by partnerships between foreign and domestic scientists. This is the most promising as represented in Table 2, where only five categories are not highly relevant in the solution. This may look much better, but those five categories are caused by deep issues. All these solutions are not mutually exclusive and may symbiotically help balance out each other's weaknesses. However, there are some interesting results from Table 2 as a whole that must further be analyzed.

Two of these virtues do not change regardless of the solution: ambition and knowledge. This is very interesting as it seems no solution thus far can change these virtues so they might not be as important when analyzing solutions as others or it indicates that the solutions have been

generated on premises that are different from those of virtue ethics. These two are ambition and knowledge, both of which seem to be important because ambition and knowledge seem to be thematic with good research. As more solutions were analyzed, it became clear that the solutions have no effect on these virtues. This is because regardless of the solution, these virtues are in line with the scientists' goals. After all, all researchers are ambitious; they all have a very strong desire for success. Ones who are unambitious or ignorant (the relative vices) generally won't pursue this sort of career. Researchers primary goal is to collect data and information, which is the definition of knowledge (Table 1). One realization I discovered was the point of research is inherently virtuous. This makes it even more important for a solution to align with all these virtues.

Virtues that are in contrast to each other are also an interesting discovery. Specifically, the ones no oversight excelled in flexibility and faith. Although the three solutions can be used together, they cannot use the benefits of no oversight. No oversight scored very strongly in flexibility, as generally they are not constrained by others and can freely adapt and change. This is obviously important in research and the lack of flexibility can lead to slower progress even in urgent circumstances. Faith is also very important if not the most important. The reason why many scientists may be hesitant to use these solutions is because they don't have faith or complete confidence that their research could be stolen. As seen during the Zika outbreak, researchers tried to release data but ended up having their data stolen and used without being cited (Aizenman, 2016). This made many scientists lose what little faith they might have had in others. The reality is data is a commodity that is valuable and releasing data for free could become a great sacrifice to one's career even if it is virtuous. A complete solution, although I have yet to discover it, would ideally solve this problem of faith.

## Conclusion

Throughout this paper, this research tries to partially answer how to approach the conflicts of parachute researchers and developing countries. There are several alternatives to doing research in developing countries, but it is not clear how to understand what works or if any of them are a solution. However, to do this, we first need a way of understanding the effectiveness of different solutions. I found out that the different solutions and non-solutions becomes a tradeoff between the different virtues. This tradeoff is very difficult to decide as someone might favor one virtue over another. The new understanding of this problem of parachute researching that emerges from my research is that its more complicated than saying one solution is better than another, and comparing and contrasting the strengths of each solution in terms of its virtues can provide beneficial analysis.

This obviously is only a fraction of what can be analyzed, and although I argue that virtue ethics could be part of the solution to parachute research, I only talk about very specific virtues and many more could be applied to understand different solutions (*List of the Virtues*, 2020). This paper doesn't even consider the other main theories proposed by Aristotle which all could reveal interesting solutions to the issue at hand (Martin & Schinzinger, 2004). These are valid concerns, and I could have missed something but the analysis I have provided is a good foundation for future work. This future work could either expand on virtue ethics' application or branch out to other theories of morality. This could practically be applied by universities or other programs like the World Health Organization that send people abroad could use this research to teach the teams to be more collaborative with local scientists and understand the negative results of solely focusing on their research and not the broader effect it might have on different cultures.

## References

- Aizenman, N. (2016, April 2). *Scientists Say It's Time To End "Parachute Research."* NPR.Org. <https://www.npr.org/sections/goatsandsoda/2016/04/02/472686809/scientists-say-its-time-to-end-parachute-research>
- Akyeampong, E., Bates, R. H., Nunn, N., & Robinson, J. (2014). *Africa's Development in Historical Perspective*. Cambridge University Press.
- Bhagat, K., & Nyazema, N. Z. (2000). Ethics and HIV research in Zimbabwe. *The Central African Journal of Medicine*, 46(4), 105–107.
- Bockarie, M. J., & Njala, I. (n.d.). *We need to end "parachute" research which sidelines the work of African scientists*. Quartz Africa. Retrieved December 9, 2020, from <https://qz.com/africa/1536355/african-scientists-are-sidelined-by-parachute-research-teams/>
- Harawa, P. P. (2018). *Parasitic and parachute research in global health*. 1.
- Health, T. L. G. (2018). Closing the door on parachutes and parasites. *The Lancet Global Health*, 6(6), e593. [https://doi.org/10.1016/S2214-109X\(18\)30239-0](https://doi.org/10.1016/S2214-109X(18)30239-0)
- Kasprowicz, V. O., Chopera, D., Waddilove, K. D., Brockman, M. A., Gilmour, J., Hunter, E., Kilembe, W., Karita, E., Gaseitsiwe, S., Sanders, E. J., & Ndung'u, T. (2020). African-led health research and capacity building- is it working? *BMC Public Health*, 20(1), 1104. <https://doi.org/10.1186/s12889-020-08875-3>
- List of the Virtues*. (2020). <https://www.virtuescience.com/virtuelist.html>
- Martin, M., & Schinzinger, R. (2004). *Ethics in Engineering*.
- Park, S., & Shema, C. (2019, November 26). Preparing for Research Abroad: Fieldwork Requirements in Rwanda. *Field Research Methods Lab*. <https://blogs.lse.ac.uk/fieldresearch/2019/11/26/preparing-for-research-abroad-fieldwork-requirements-in-rwanda/>
- Tebeje, A. (2022, May 2). *Brain Drain and Capacity Building in Africa*. <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/34566/126237.pdf>