Responsible Futures Project Final Report

An Interactive Qualifying Project submitted to the faculty of Worcester Polytechnic Institute in partial fulfillment of the requirements for the degree of Bachelor of Science

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Date Submitted:

May 10, 2021

Abstract

The goal of our project was to assess how aspects of the current Responsible Futures program can improve, especially how to better measure student engagement and awareness about sustainability. We accomplished this by reviewing RF practices; comparing RF with other analytic tools to assess improving the ubiquity of the Impacts and Outcomes (IO) criteria; exploring the potential for RF in the Global South; and testing creative ways to collect data from students regarding their interactions with on-campus sustainability efforts. We recommend RF offer more guidance on criteria, use social media and tracking software to measure student engagement, a more user-friendly interface, various methods to improve student engagement, and further investigation into applying RF in the Global South.

Acknowledgements

The Responsible Futures IQP Team would like to thank the following people for contributing to the completion of our project, without whom it would not have been possible.

Members of the University of Worcester Community:

Katy Boom, Director of Sustainability, IQP Sponsor, for providing guidance and feedback throughout the project

Dr. Heather Barrett, IQP Sponsor, for providing guidance and contacts throughout the project

Tim Hewes-Belton, Senior Manager from Worcester Students' Union, providing insight on sustainability and the RF process

Higgy and Catarina, Green Impact Student Employees at University of Worcester, for providing student perspectives surrounding sustainability in higher education

Charlene Steadman and Sarah Kellett, Student Auditors at the University of Worcester, for providing auditor perspectives of the RF accreditation process

Members of the Worcester Polytechnic Institute Community:

Prof. Dominic Golding, IQP Advisor, for providing guidance and feedback throughout the project

Paul Mathisen, Director of Sustainability, for providing insight on the WPI community and present sustainability efforts

Liz Tomaszewski, retired Associate Director of Sustainability, for providing insight on the STARS process

Kat and Jacob, Green Team President and Vice President respectively, for providing perspectives as organization leaders and students in higher education

Diane O'Keefe, Marketing Dept. Communications focus, providing information on data collection

Stacey Happy, Digital Media Manager, providing information and resources on data collection

Members of SOS-UK and Responsible Futures:

Meg Baker, Interim Director of Education, IQP Sponsor, for providing guidance and feedback throughout the project and allowing us to attend an auditor training session

Sonya Peres, Scotland Project Manager for SOS-UK, providing information and insight on RF and allowing us to attend an audit training session

Members of AASHE:

Meghan Fay Zahniser, Executive Director, for providing insight into AASHE and the STARS accreditation process

Daita Serghi, Education Programs Manager, for providing information on how AASHE integrates sustainability into higher education

Miscellaneous:

Meg Price, President & Delegate for Worcester's NUS, for being a primary contact to the student body at UW, and providing us with a student perspective

Darien Castro, Pontifical Catholic University of Ecuador Student, for providing us with a Global South perspective as a student and researcher

Selina Fletcher, Group Head of Sustainability at Coventry University, for providing us with additional RF information and perspectives

Yolonda Cieters, Sustainability Manager at Seattle University Academics Department, for providing us with additional STARS findings and information

Duncan Ross, THE Chief Data Officer, for providing supplemental information on the SDGs and how THE is evolving

Antonia Lindsay, Sustainability officer from the University College of Estate Management, for providing supplemental information on the RF audit process

Karl Letten, Director of Sustainability at DeMontfort University, for providing supplemental information on the RF audit process

Executive Summary

Over the years there have been many calls to action regarding sustainability including the Brundtland report in 1987 and the United Nations (UN) sustainable development goals created in 2015. These goals were set with the intent of sustainable development by the year 2030. These Universities and Higher Education Institutes (HEIs) have consistently been willing to sign onto initiatives for sustainability. To measure the progress that they are making there are a variety of benchmarking tools and accreditations that universities can take part in.

Currently, the three main sustainability benchmarking tools include the Times Higher Education (THE), Sustainability Tracking, Assessment, and Ranking System (STARS), and People & Planet. These programs assess universities sustainability efforts and rank them against all other universities participating in said program. Although these are primarily ranking tools STARS is also considered an accreditation as universities are ranked in categories rather than one at a time. Similar to these tools there is the Responsible Futures Accreditation that allows universities to submit evidence that is then audited by students from the submitting university. This accreditation process allows for a wide scope of criteria and also encourages universities to be creative with their initiatives as they are not ranked against other universities. Our project aims to look deeper into these tools and find areas for improvement based upon what they can learn from one another and find new ways for the criteria to be fulfilled.

Project Goals

The overall goal of this project was to assess how aspects of the current Responsible Futures program may be improved, especially how to better measure student engagement and awareness about sustainability. We focused on the accreditation program's criteria and auditing protocols to make it more applicable outside of the UK. This was accomplished through the following four objectives:

- Review the current and future RF approaches.
- Compare RF with other evaluative tools to assess how to improve the universality of the Impacts and Outcomes criteria of RF.
- Explore the potential for using the RF approach in the Global South.
- Test creative ways to engage students in data collection regarding how they interact with sustainability efforts on campus

Conclusions and Recommendations

1. Responsible Futures and other benchmarking programs can learn from each other's practices to improve.

We conclude that Responsible Futures and other benchmarking and accreditation programs have much that they can learn from each other.

1.1 We recommend RF develop a guide to help universities complete the audit and define vague terminology more precisely.

The accreditation and benchmarking programs that we reviewed use definitions and criteria that capture the breadth, depth and complexity of all the sustainability programs that universities offer but are often conceptually vague and imprecise. Unfortunately, it is difficult to shape the definitions and criteria to be clear and concise whilst still accommodating the difference in approach at different universities. We learned that nebulous wording has caused multiple people to differently interpret the same set of criteria which takes time from the institution to clarify these uncertainties. A consistent clarifying question we were asked in interviews is what we meant when we said "sustainability" and "social responsibility." If sustainability directors at prominent universities are unclear on the scope of key terms, it is likely that first or even second time auditors will also struggle. While there is value in leaving the criteria open to interpretation, having a guide with examples of events, campaigns, or initiatives that qualify as evidence for each criterion might reduce the burden on universities and auditors. Therefore, we would recommend having both a guide to filling out the criteria as well as a glossary of terms. Adding examples and guidance on how to fulfill criteria for different SDGs will help to incorporate different regions that focus on different SDGs due to cultural differences. In order to keep in line with Responsible Futures' desire to allow partnerships to self-define their efforts, we recommend broad definitions that include language such as, "including but not limited to" and "a non-exhaustive list of samples follows."

In conjunction, we also recommend RF encourage partners to use some of the self-defined criteria to measure changes in sustainability activities and learning between audits. A partnership's progress in any and all criteria should be celebrated and contribute to their score if the partnership desires. This would incentivize partnerships who are already high scoring to continue to grow, as that criterion only increases as others change in a positive direction. While the goal of continued improvement is explained in the audit training, giving universities the

credit for making those changes would be beneficial for partnerships to continue in an exponentially positive direction. In a similar vein, it would be beneficial for partnerships to be able to view what other partnerships are doing. Not the accreditation scores, as that may create competition, but some if not all of the evidence. Access to other higher education efforts would allow partnerships to learn from each other and collaborate.

1.2 We recommend RF develop a cleaner and more user-friendly audit interface.

We conclude that the interface of the RF program is less user-friendly than the interfaces used by other accreditation and benchmarking programs. For example, the RF program utilizes an Excel spreadsheet with cells for the criteria, further information about said criteria, a description of how points will be awarded for that criteria, and comments on the evidence provided. A separate folder contains the evidence provided by the partnership separated by criteria title. The title of each criterion included numbers and letters corresponding to the topic of the criterion and how many pieces of evidence were provided per criterion. As auditors, we found this inconvenient to manage. The STARS program is a popular benchmarking program in the U.S. that has a more user friendly and cleaner interface. We interviewed professionals who used the STARS program to audit their university and staff responsible for developing and managing STARS at AASHE. Our interviewees emphasized how easy it was to submit and analyze evidence using the STARS program. Additionally, the results of each evaluation are published on AASHE's STARS webpage so it is easier for students and faculty to look at what their university is doing and for other universities to see how others approach the criteria. The way in which they are recorded is easy to read and different subjects are clearly separated by color. Accessibility and readability are both extremely important when it comes to encouraging schools to participate in a program. Likewise, guidelines on how each criterion is scored are clearly outlined and conveniently on the same page as the submission. Based on these findings, we recommend that RF explore more user-friendly options for data submission and review and consider the learning impacts for other universities and partnerships to make at least some submissions public.

2. Student engagement is difficult to measure in sustainability benchmarking and accreditation programs.

Student engagement and awareness is a hurdle that many universities struggle to improve and measure. We found in our research some proven approaches that could spark future projects to take a more in-depth look into.

2.1 We recommend other benchmarking organizations learn from Responsible Futures' incorporation of student input.

After taking part in the RF audit process and gaining a greater understanding of the inner workings of the criteria, it became evident that a unique and very valuable aspect of the RF approach is that they include student auditors. Other tools like STARS and THE do not actively involve students in their evidence gathering process or include their perspectives into their submissions. By including the student perspective, universities are less likely to follow the "ticking the box" mentality and actually provide a genuine reflection on the current sustainability efforts they are practicing at their university. By incorporating students into the accreditation process, information and awareness about sustainability and social responsibility can permeate between staff and the student body. The knowledge gap between students and staff about sustainability that we saw at WPI, as opposed to the high integration we saw at University of Worcester, could be caused by the lack of participation from students. We recommend that incorporating their input into the accreditation process would be beneficial to the ranking score and the community as a whole.

2.2 We recommend a suite of approaches to improve survey response rates.

We have several recommendations for increasing student engagement and awareness. According to the interviews and polls we conducted, short surveys with the opportunity for a prize are most likely to be interacted with by students. Through our initial poll at WPI, it was determined that email was the most preferable method of communication for students, but we also found that other social media platforms such as Slack provided good response rates just more difficult to reach larger audiences. Using this information, we got a very high response rate on our secondary survey to WPI by sending an email out to a variety of student aliases promoting the survey as being short and offering the opportunity for a gift card as a prize for completing it. Unfortunately, these data about what motivates students to participate are unique to WPI, so we recommend a separate IQP project examine how students at the University of

Worcester and elsewhere in the UK would like to receive information and what platform they would prefer.

In regard to student awareness, after completing the preliminary engagement survey on WPI's campus we found that many students will fill out a survey based on the topic and length. As many students are interested in sustainability, the sustainability literacy assessment does often get a good response rate on both WPI and UW's campuses. To improve response rates further for the sustainability literacy assessment, doing more in-depth research into more effective and creative methods would be highly beneficial as effective techniques could change from campus to campus. With that there is also the concern of not excluding any demographics in the sustainability efforts. As many campuses have students from various locations across the globe it is important to make strides for initiatives that have the interest of all. Doing more research into the specific demographics on a campus can give insights into what will help engage the students. Part of the research should be how to best increase awareness across the campus of sustainability efforts and organizations, the more students are aware of sustainability efforts the more willing they will be to complete a voluntary survey on the topic.

2.3 We recommend several approaches to improve student engagement with sustainability events.

From interviews with University of Worcester Students' Union representatives and students from University of Worcester and WPI, we learned that while student engagement with campus events has been challenging due to the pandemic, some methods have been found to be successful. We found from our interviews that both asynchronous events and offering food or prizes at events has been successful for University of Worcester and WPI for increasing student attendance. We also learned that Instagram is a popular platform used to directly interact with students. Even just fun, quick Instagram polls will get interaction from many students. From speaking with the WPI marketing team, we further learned that they track this interaction by using business accounts on their social media accounts and tracking URLs to track trends of interaction. We recommend that universities look more into these types of accounts and softwares to gauge their engagement and could potentially be used as evidence in RF submissions for more concrete engagement measures.

2.4 We recommend universities use sustainability literacy surveys to systematically track the net impacts of 'embedded sustainability' on the student body.

Many universities distribute sustainability surveys periodically throughout their student's undergraduate career, gauging engagement and awareness at their own discretion. There are major inconsistencies in surveying, however, which leads to a misunderstanding of student engagement by the university. A recommendation for the sustainability literacy assessments is to have a set schedule to send it out. Having students complete it when entering the university and when exiting would allow for more beneficial and informative long-term data. With that there can also be smaller assessments throughout a student's time at university that would account for short term data. One small recommendation we have for this is including questions about sustainability into course evaluations, surveys completed by students after taking a course, to help improve the number of responses and also help track the impact of embedding sustainability into the courses. Along with getting more information from students surveying faculty and staff will improve awareness and help the university guide future efforts into embedding the SDGs into the curriculum.

3. Responsible Futures and benchmarking in the Global South

Many benchmarking organizations, such as THE and STARS, have worked to engage the Global South Universities in assessing sustainability programs but much remains to be done to develop appropriate benchmarks and protocols to best support and highlight the work of these universities. While we were able to speak with one university student in the Global South and some experts from benchmarking organizations that have worked a bit with the Global South, we were not able to secure sufficient collaboration with Global South universities to make extensive conclusions or recommendations. We did find that a common barrier for universities, in the Global South and beyond, to participate in these ranking and accreditation programs is resources such as funding, time and personnel. We recommend that University of Worcester and Responsible Futures consider a follow-up IQP to extend this initial effort.

Based on the conclusions and recommendations found above, we think implementing these changes would make the RF accreditation process more accessible and encompass more of the student experience. These recommendations are based on conversations with multiple different representatives and related research conducted by our team. Furthermore, our

conclusions could propagate future IQP projects, as they each offer the possibility of an in-depth research project on their own.

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Objective II	Bethany Ramsbottom	All Members
Objective III	Anish Nakahara	All Members
Objective IV	Jenna Charron	All Members
Conclusions & Recommendations	All Members	All Members

Table of Contents

List of Figures

Introduction

There is no denying that our planet is facing an environmental crisis. Government agencies, corporations, and other organizations around the world are urgently implementing policies to promote sustainable development. The United Nations World Commission for Environmental Development (WCED) defined sustainable development as the type of human development which, "... fulfills the necessities of the actual generation without impairing the possibilities for the next generations to meet their necessities," (World Commission on Environment and Development, 1987, p. 41). The UN and several countries developed the 17 Sustainable Development Goals (SDGs) as a call to action for all countries for urgent change. These goals recognize that solving social justice issues such as poverty, hunger, and inequality, are directly related to sustainability efforts. The goals were developed to encourage communities to take action to improve human lives and the environment (United Nations, n.d., b).

In response to the climate crisis, higher education institutes have been integrating sustainability into their operations and curriculum. Many benchmarking tools have been developed to measure and rank how universities have integrated sustainability into the curriculum such as People and Planet, Times Higher Education (THE), and Sustainability Tracking, Assessment, and Ranking System (STARS). The National Union of Students (NUS) realized the need for a different type of evaluative program that allows universities to assess their accomplishments and avoids competitive rankings. The NUS developed the Responsible Futures accreditation program to encourage higher education institutions to embed social responsibility and sustainability across both the formal and informal curriculum. This program directly involves students in the process and serves to highlight universities' achievements rather than rank universities. The NUS's charitable organization, Students Organizing for Sustainability (SOS-UK), is responsible for delivering the program and constantly looks for ways to improve the program, including lessons learned from other countries using other evaluative approaches.

The overall goal of this project was to assess how aspects of the current Responsible Futures program might be improved, especially how to better measure student engagement and awareness about sustainability. We focused on the accreditation program's criteria and auditing protocols. This was accomplished through the following objectives:

- Objective I: Review the current and future RF approaches.

- Objective II: Compare RF with other evaluative tools to assess how to improve the universality of the Impacts and Outcomes criteria of RF.
- Objective III: Explore the potential for using the RF approach in the Global South.
- Objective IV: Test creative ways to engage students in data collection regarding how they interact with sustainability efforts on campus.

Our team was trained in the RF audit process to better understand how the evaluative criteria are applied. This also allowed us to discover some of the strengths and limitations of the existing RF assessment program. Additionally, through interviews and polls, we learned more about universities' and students' perspectives on sustainability. This helped us identify ways the RF program might be adapted to better capture student perspectives.

Background

In this chapter, we examine the integration of sustainability concepts into the curriculum and operations of institutions of higher education around the world and the use of sustainability benchmarking tools to evaluate the effectiveness of these efforts. We then delve more deeply into the development of the Responsible Futures program by the National Union of Students and its educational charity, Students Organizing for Sustainability United Kingdom (SOS-UK), which aims to encourage universities to incorporate sustainability in informal curriculum as well. Finally, we looked more closely at the integration and evaluation of sustainability practices and policies at three universities: The University of Worcester in the UK, Worcester Polytechnic Institute in the US, and a university in the Global South.

Sustainability in Higher Education

Universities and Higher Education Institutes (HEIs) have consistently been willing to sign onto initiatives for sustainability. In fact, the Higher Education Sustainability Initiative (HESI) was created as a partnership of the conference that followed the United Nations Conference on Environment and Development (UNCED) (Adams, Martin, & Boom, 2018).

The United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro from June 3rd to the 14th in 1992 and was unofficially known as the "Earth Summit." UNCED hosted over 30,000 participants from 176 countries, making it the largest UN Conference that had ever been held until this point (Hens, n.d.). The UNCED proposed that we should live, "... from nature's income rather than on its capital account" (Hens, n.d. p.2). UNCED defined sustainability as, "The rearrangement of technological, scientific, environmental, economic and social resources in such a way that the resulting heterogeneous system can be maintained in a state of temporal and spatial equilibrium" (Hens, n.d. p.2-3). Following the initial work by the Brundtland Commission, UNCED defined sustainable development as the type of human development which, "... fulfills the necessities of the actual generation without impairing the possibilities for the next generations to meet their necessities" (World Commission on Environment and Development, 1987, p. 41).

Universities and HEIs are critical to the sustainability movement because higher education has three tiers: academic, operational, and wider stakeholder outreach activities.

Universities are not only making changes in curricula, community outreach, campus design and operations, but they are pushing for an integration of sustainability as a way of thinking. However, universities' progress in sustainability is criticized for having little organization and leadership because the efforts are not being coordinated globally (Adams, Martin, & Boom, 2018).

This global coordination is one of the key aspects of the Brundtland Report published by the UN in October of 1987. Also known as "Our Common Future", the report identified four goals (World Commission on Environment and Development, 1987, p.5):

1) Propose long term environmental strategies for sustainable development;
2) Recommend ways concern for the environment can be translated into greater cooperation globally;
3) To consider ways environmental concerns can be dealt with internationally;
4) To define perception of long-term environmental issues and what efforts need to be taken to deal with them successfully.

This document encourages the nations of the world to return to multilateralism, which is defined as an alliance of many countries towards a common goal. The goal in this case being the solution to our ongoing environmental crises (WCED, 1987). In an updated report published 20 years after the original Brundtland report, multilateralism is still encouraged but new initiatives were proposed to be handled at a national level. Nations should be driven to introduce new technological developments and use the current market to their advantage. As Volker Hauff, Chair of the German Council on Sustainable Development, wrote in the 2007 update to the Brundtland report, "Globalisation does not render national state policies unnecessary" (Hauff, 2007, pg. 7).

Following the publication of the Brundtland Report in 1987, universities across the globe, but especially in Europe, have made progress towards sustainability education (Filho, Wu, Brandli, Avila, Azeiteiro, Caeiro, & Madruga, 2017). Curriculum centered around sustainable development had its roots in certain disciplines. For example, in the United Kingdom, geography used to be the only discipline where sustainability was a persistent topic taught to students (Yli-Panula, Jeronen, & Lemmetty, 2019). Students in primary school are introduced to geography in the first key stage though the third, where sustainability and social responsibility ideas are introduced (Department for Education, 2016). Until the early 1990s sustainability

education was reserved for primary school students, (Kosta, 2017). Since then, the target audience for sustainability education has evolved. Universities and HEIs that have a large number of STEM and engineering students, have been motivated to incorporate sustainability into their programs. This is largely due to the fact that engineering is recognized as a vital career path to build a sustainable future (Rose, Ryan, & Desha, 2015). Strategies that have been employed in engineering based HEIs are modeled by Monash University (MU) in Australia with their initiative to integrate sustainability education into the curriculum for first year engineering students. They began this initiative because international reviews and assessments determined that many students in engineering have little knowledge of sustainable development (Ashford, 2004; Azapagic, Perdan, & Shallcross, 2005; Byrne, Desha, Fitzpatrick, & Hargroves, 2013). Monash University focused on creating a core curriculum that functioned in different units. Education through these units began with a freshman year general education class about sustainability which is then reinforced in following classes throughout students' undergraduate education. Thus, MU focused on creating common resource material in the form of a web portal. This portal was designed to, "highlight essential content and also to provide links to extra material for students who are particularly motivated and wish to explore the sustainability learning areas in greater depth." (Rose et. al., 2015). However, this highly individualized approach is not the most conducive way to holistically educate students about sustainable development.

At times, focusing on individual objectives within the larger scope of sustainable development takes away from addressing larger issues regarding the social aspects of sustainability and how to create intrinsic motivation to change one's lifestyle. Sustainable development has not yet become an integral part of the culture at universities and HEIs. Many universities' efforts only target a small subset of the sustainability goals. By picking only one or two goals, these universities fostered compartmentalism rather than a holistic sustainability model (Filho, et. al, 2017). In an attempt to establish a holistic cultural shift towards sustainability, the University of Worcester focuses on three key considerations: people, planet, and profit. While the issue of sustainability is extremely complex, these "Three P's" are a more approachable way to start to make changes toward sustainability. Universities need to take a holistic approach that integrates sustainability into all aspects of campus life including facilities and operations, the formal curriculum, and the informal curriculum of student clubs,

5

organizations, and activities. First, the university should be committed to implementing sustainability through technology on campus. This includes things such as, how buildings are designed and how efficiently universities and HEIs spend their energy. The second and third educational opportunities are within the curriculum and across campus through clubs and organizations. It is not until universities invite a holistic approach to sustainability by embedding it in the "structures, processes, practices and culture" that it begins to make a difference in the attitudes and actions of students (Adams, Martin, & Boom, 2018).

Adams, Martin, & Boom (2018, p.436) identify four phases universities typically follow when trying to integrate sustainability:

1. Phase one: developing a sustainability vision for the university.
2. Phase two: the mission, the who, what, and why for future actions.
3. Phase three: enact a sustainability committee to create policies, targets, and objectives.
4. Phase four: sustainability strategies in four domains of activity, including education, research, outreach and partnership, and campus sustainability.

Unfortunately, while it may seem holistic, Adams, Martin, and Boom admit that this model is limited because it represents a "top down" approach that does not address the issue of culture. Influencing students to live through a culture of sustainability is one of the most important factors in determining if the efforts in adapting the campus and its curriculum will result in meaningful change post-graduation (Adams, et. al., 2018, p. 436). In order to track how universities and HEIs are teaching sustainability in regard to the phased approach determined by Adams, Martin, and Boom, as well as the culture of the university, a series of benchmarking tools have been developed. These tools allow universities and HEIs to measure progress and identify areas for improvement according to the globally standardized goals.

Development and Shortcomings of Sustainability Benchmarking Tools

Currently, the three main sustainability benchmarking tools include the Times Higher Education (THE), Sustainability Tracking, Assessment, and Ranking System (STARS), and People & Planet. THE is based on the seventeen United Nations (UN) sustainable development goals (Bothwell, 2020) shown in Figure 1, These goals cover topics such as poverty and climate action, which allow the UN to collect data cross-culturally. The goals were not designed for

higher education per se but rather to encourage all communities towards improving human lives and the environment (United Nations, n.d., b). The wide range of the goals means they can be adapted to the curriculum, operations, and local context of universities across the globe. To complete their rankings THE uses data provided by the university and in the event that and specific data points are not available an estimate is put into its place so that it would not affect the score to a large degree (Bothwell, 2019).

Figure 1 UN's Seventeen Goals for Sustainability (United Nations, n.d, a)

The first THE ranking was published in 2010 and these ratings have been released regularly since then (*New Data*, 2015). Around that same time, the STARS program was also being created by the Association for the Advancement of Sustainability in Higher Education (AASHE). Although AASHE had considered beginning STARS in 2006, it was not until 2010 that the full pilot versions were implemented and tested (*Participate,* 2021). STARS was designed and implemented for universities in the United States and Canada (Urbanski & Filho, 2015, p.210). Since the initial launch, AASHE has regularly updated the tool with the most recent update in 2019. In 2016 when AASHE launched a new version in response to user feedback that included "data auto-population, exemplary practice options and a pre-publication review process to make sustainability reporting easier" (*Learn More About AASHE*, 2019). AASHE has provided other resources to supplement the STARS tool, such as 'AASHE connect' which was launched in 2018 and allows participants to communicate and share sustainability solutions in real time (*Learn More About AASHE,* 2019). In the earlier years of the STARS program AASHE identified five key findings:

Finding #1: The interpretation of ''sustainability'' differs among higher education stakeholders.[...] Finding #2: There is growing interest in STARS within the international community.[...] Finding #3: Participation in STARS is greatest among Doctorate and Master's degree granting institutions [...] Finding #4: Institutions' basic type classifications tend to impact sustainability performance. [...] Finding #5: STARS institutions across the board are challenged in areas related to climate change (Urbanski & Filho, 2015, pp. 210-211).

Understanding that operational definitions of sustainability differ among institutions is a crucial part in being able to complete these kinds of assessments at universities in the Global South. The AASHE recognized this issue many years ago in 2014 and has been trying to make the tools more universally applicable. Unfortunately, STARS users are still predominantly universities in the Northern Hemisphere as shown in Appendix A.

People & Planet began with a set of questions in 2007 and have been updating them yearly by consulting with "leading organisations working on environmental and social justice issues" (*People & Planet,* 2021). Along with consulting experts they also complete focus groups with university staff to gage the assessment directly towards higher education and their sustainability efforts. Along with ranking universities People & Planet focus heavily on holding the government and corporations accountable for their actions and the effects they have on the environment. The organization originally started in 1969 but became more of what we know them as now in the late 90's. Having a long history with the dealings that are large public entities and the environmental movement gives them a unique perspective into what to look for. There are thirteen aspects that People & Planet focus on when ranking universities, shown in Figure 2.
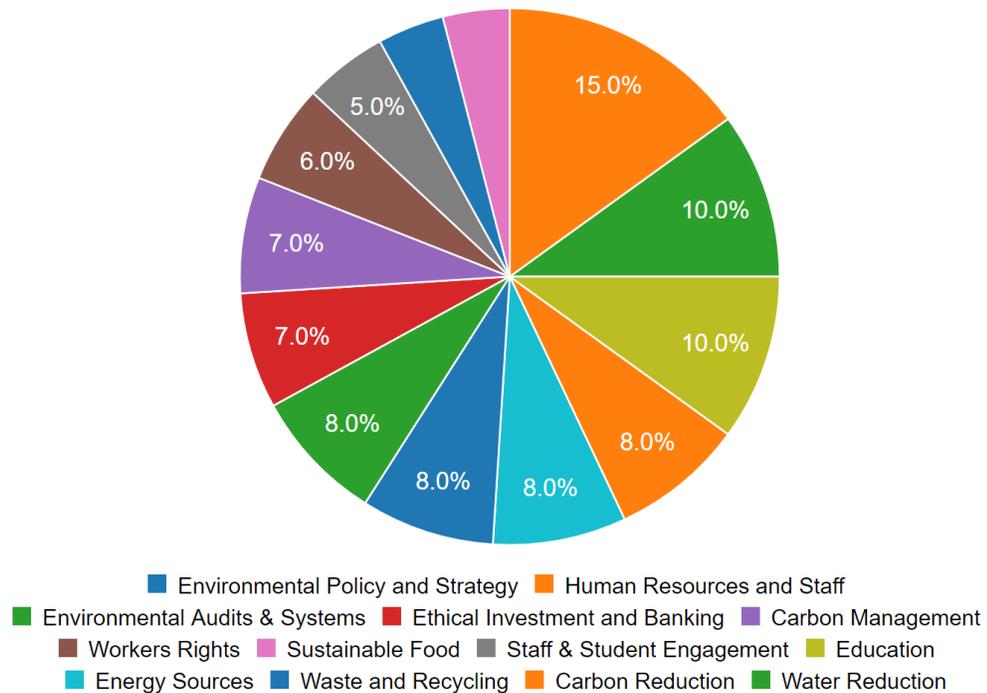
Figure 2 People and Planet Ranking Aspects (*People & Planet,* 2021).

Dr. Victoria Hands and Dr. Richard Anderson conducted a research study in 2018 that found the higher education sector's focus is primarily on collecting and evaluating data in respect to key performance indicators and higher education league table ratings, like People & Planet. This, however, neglects the engagement of non-expert students and staff in sustainability policies and practices. The study determined that one primary challenge of engaging all students and staff in the implementation of policies and practices, based on the United Nations' Sustainable Development Goals (SDGs), is the lack of knowledge about them amongst unversed students and staff. Based on interviews from select students and staff from Kingston University, the study concluded that in order for a university to support students in becoming globally responsible citizens, higher education must improve upon engaging inexpert staff and students by, "Creating awareness and a sense of social responsibility," amongst the university community (Hands and Anderson, 2018).

All three of the systems have a similar fault in that both rely heavily on the user input. For THE, the data used for rankings comes from two different places, either directly from the institutions themselves or from bibliometric datasets from Elsevier (Bothwell, 2020). The

STARS system was designed by AASHE and is a fully user sufficient program. To complete the assessment the user puts in all the information for scoring, making it time consuming for the university itself (*Participate,* 2021). Getting accurate numbers for the sustainability rankings is very time consuming and requires the commitment of substantial resources by the submitting university (J. Agombar, H. Barrett, K. Boom. Personal communication. February 10, 2021). In contrast to STARS and THE, People & Planet collect the data themselves and if the university has not made the data public, then they simply score a zero under that criteria. This method relieves pressure on university resources but limits the kinds of data that are evaluated by the ranking system. People & Planet assesses "every UK university that receives public authority funding combined with being legally registered as a 'Higher Education Institution' and holding degree awarding powers is assessed and ranked" (*People & Planet,* 2021). This means that they are completing an evaluation for any university that fits the description and not just universities that can commit the resources to commit to filing their own reports.

One drawback of the People & Planet evaluation is that they only evaluate universities in the UK. Having the evaluation designed for a specific region gives the best results in that area but does not allow it to be easily transferred to another, such as the Global South. This is a major limitation for all three of these assessments. Although THE uses a model that works well in many areas some data are unavailable or unusable because universities often collect different types of data in different ways.

Currently there are "1,024 institutions registered to use the STARS Reporting Tool, of which 674 have earned a STARS rating" (*STARS Participants & Reports,* 2020). Of those institutions there are only seven that have reached platinum rating, the highest rating that they have, shown in Appendix A. STARS rates universities as platinum, gold, silver, and bronze. Universities are listed alphabetically within these categories, rather than in a cumulative rank order. In 2021, WPI was given a gold rating. Similarly, THE has most recently ranked over 1,500 universities around the globe. With such large interest in these programs, it shows that there is interest from universities to see their sustainability improve over time and continue to work towards it. Appendix B shows the top 20 universities ranked in 2020 by THE on sustainability. Although not in the top 20 University of Worcester was ranked 27th which is an impressive improvement from being ranked 34th in 2019. By contrast, WPI was ranked 501-600 in 2019 and has moved down to 601-800 in 2021 (*Worcester Polytechnic Institute,* 2021).

10

Realizing the need for a program that encourages HEIs to embed social responsibility and sustainability into their curricula, NUS developed the Responsible Futures (RF) accreditation program. This program directly involves students in the accreditation process and highlights universities' achievements as opposed to ranking them.

Responsible Futures Accreditation Program

The National Union of Students (NUS) mission is to, "Promote, defend and extend the rights of students," and to, "Develop and champion strong students' unions." (National Union of Students, n.d). The National Union of Students has encouraged institutions of higher education to equip students with better sustainability skills and knowledge so that they emerge from university prepared to help with the current climate change crisis and other sustainability challenges. In 2019, the NUS President, Zamzam Ibrahim, said, "Institutions have a vital role in empowering and equipping students with the knowledge, attributes and competencies required to be part of the solution to these challenges," (*University and college leaders*, 2019).

In 2019, the NUS created an educational charity called Students Organizing for Sustainability United Kingdom (SOS-UK) to bolster these sustainability engagement efforts. As a smaller entity, SOS-UK could work more efficiently within their mission to reform the education system to focus more on sustainability education. In this way, educators focus on creating more informed adults and on making sustainability education a part of all majors in university. SOS-UK promotes the belief that, "Every student should be a sustainability student," (*Introducing Students Organizing for Sustainability UK*, 2020). SOS-UK supports many educational programs and campaigns aimed at further incorporating sustainability across all education. In 2008, SOS-UK started a parallel environmental accreditation program called Green Impact, which is applied in the workplace by employees. SOS-UK also works on various campaigns including the Teach the Future campaign which works with the UK Student Climate Network to reform secondary and tertiary curriculum to focus on the climate crisis. This campaign has made tremendous headway and now has the support of two teaching unions (*Introducing Students Organizing for Sustainability UK*, 2020).

SOS-UK also supports Responsible Futures, "A facilitated change programme and accreditation mark to embed sustainability across the formal and informal curriculum," (*Responsible Futures Overview,* 2020). Responsible Futures is an accreditation program that

11

guides further and higher education institutions through the process of incorporating sustainability and social responsibility into their curriculum. Responsible Futures was launched in September of 2014 with the purpose of ensuring that students will emerge from university with the skills and education to deal with the climate crisis and be socially responsible citizens. The program was piloted in 2014-15 with several 'partnerships' including the University of Worcester. The program has grown to include 30 partnerships as of 2020, which represents over 520,000 students across the UK, as shown in Appendix C. The work of the Responsible Futures program has led to the outcomes summarized in Figure 3. Feedback from the partnerships indicate that the accreditation process has had significant value including developing credibility and funding, fostering better relationships and engagement between the institution, staff and students' unions and incorporating education for sustainable development in the institution's curriculum (*Responsible Futures Overview,* 2020).

Figure 3 Outcomes of Responsible Futures Program (*Responsible Futures Overview,* 2020)

The Responsible Futures accreditation is valid for two years and encourages different approaches to sustainability by being flexible and customizable to fit different priorities and circumstances. The accreditation consists of 45 different criteria, 10 of which are mandatory, 32 are optional, and three are self-defined. The three self-defined criteria serve to highlight the unique areas of an institution's work. These criteria were developed from good practice in the higher education sector in collaboration with the 2014-15 pilot partnerships and an advisory board. The advisory board is made up of various sector organizations (People and Planet, the Association of Colleges, The Environmental Association for Universities and Colleges (EAUC), EAUC-Scotland, Learning for Sustainability Scotland, University and College Union, Society for the Environment, Higher Education Academy, Knowledge Transfer Network) and

12

Responsible Futures' Sustainability Direction and Oversight Board. The key themes of the criteria are baselines and benchmarks, partnership and planning, leadership and strategy, policy and commitment, interventions, impacts and outcomes, outreach, and the self-defined criteria. In order to earn the accreditation, the institution must meet the 10 mandatory criteria and earn at least 200 points out of the 300 available to earn the accreditation. If the partnership does not reach 200 points but scores at least 100 points, they earn the "working towards" accreditation (*Responsible Futures Overview,* 2020).

The Responsible Futures audit is conducted by a student-led group from their respective university. This group is trained by SOS-UK to conduct the audit. This student group conducts the audit over a two-day period by evaluating the university based on the criteria in Appendix D. Partnerships typically spend 1 to 3 years preparing for the audit and will request an audit from Responsible Futures when they are ready. The audit group looks for evidence that the partnership meets the criteria from a document review. The partnership submits their documentation prior to the audit in an online workbook tool. The document review is complemented with interviews of relevant individuals and focus groups of students. The student group will score the partnership on each criterion based on information gathered in the document review, interviews and focus groups. This scoring will determine if the university receives an accreditation. The student group will then provide the partnership with a feedback report on what they need to continue to work on. The partnership must request another audit before their accreditation expires to keep their accreditation status (NUS Responsible Futures, 2016).

Sustainability at the University of Worcester

The University of Worcester was one of the first universities accredited by the RF program and has been a champion of integrating sustainability on its campus for many years. In 2005, the University formed a Sustainable Strategy Group to develop and promote sustainability policies and plans. The University also adopted a Sustainability Policy in 2008, with updates in the policy in 2020 (University of Worcester, 2021). The implementation of these programs and policies shows the commitment to sustainability the University has. UW has a litany of sustainability awards, including the Technology Enhanced Learning, Aramark Catering, Communications and Participation, School of Science and the Environment, Vice Chancellor's

Office, and International Recruitment all gold level (University of Worcester, 2021).
Additionally, in 2019, the University of Worcester was ranked 5th by People & Planet among other top universities in environmental and ethical practices, highlighting the commitment they have made to sustainability and their related operations (People & Planet, 2019).

Previous student teams from WPI have found that the university is doing well in many categories of sustainability (Cuerdon, Matthews, Saperstein, and Weber, 2019). The university's benchmark in the percent of courses pertaining to sustainability is 2.5 times higher than the target (Figure 4). Additionally, every department at the university conducts some type of sustainability research, causing sustainability-related research to be 73.53% of the grant or contract-funded research done by the university's undergraduate students (Figure 5) (Cuerdon et al. 2019). In terms of informal sustainability education, the university sponsors and organizes an annual Go Green Week. The annual event includes "... a range of fun activities to transform campus life for one week in February and is designed and delivered by the SUST1001 first-year students, but anyone can join in and help. It's the perfect opportunity to learn event organization skills firsthand." (Sustainability-Worcester, 2019).
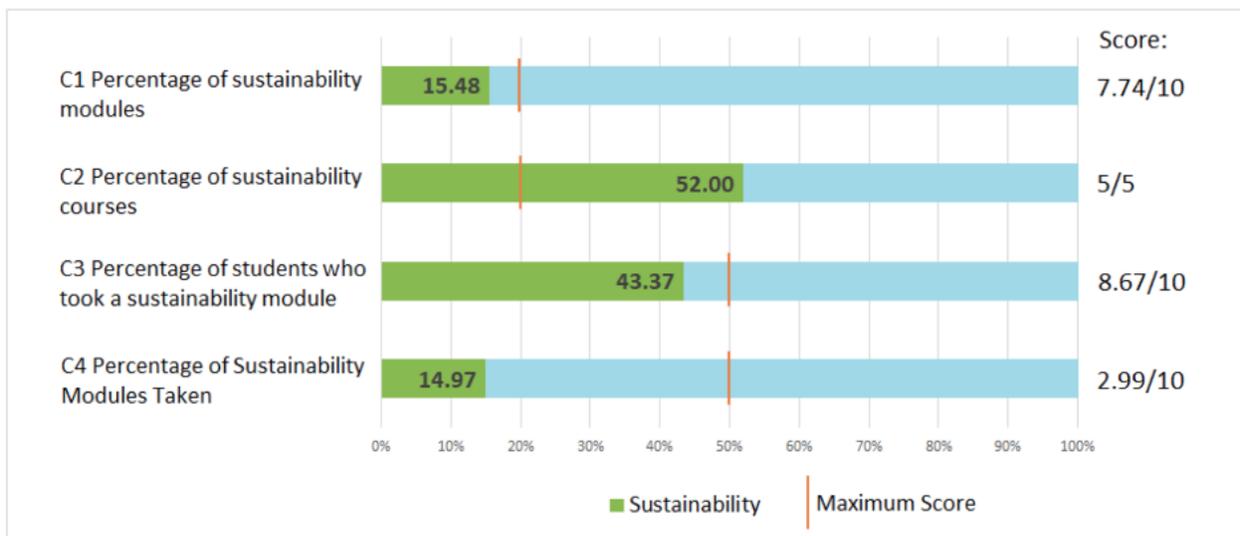
Figure 4 AASHE STARS Benchmarking Tool Assessment (Cuerdon, Matthews, Saperstein, and Weber, 2019)

14
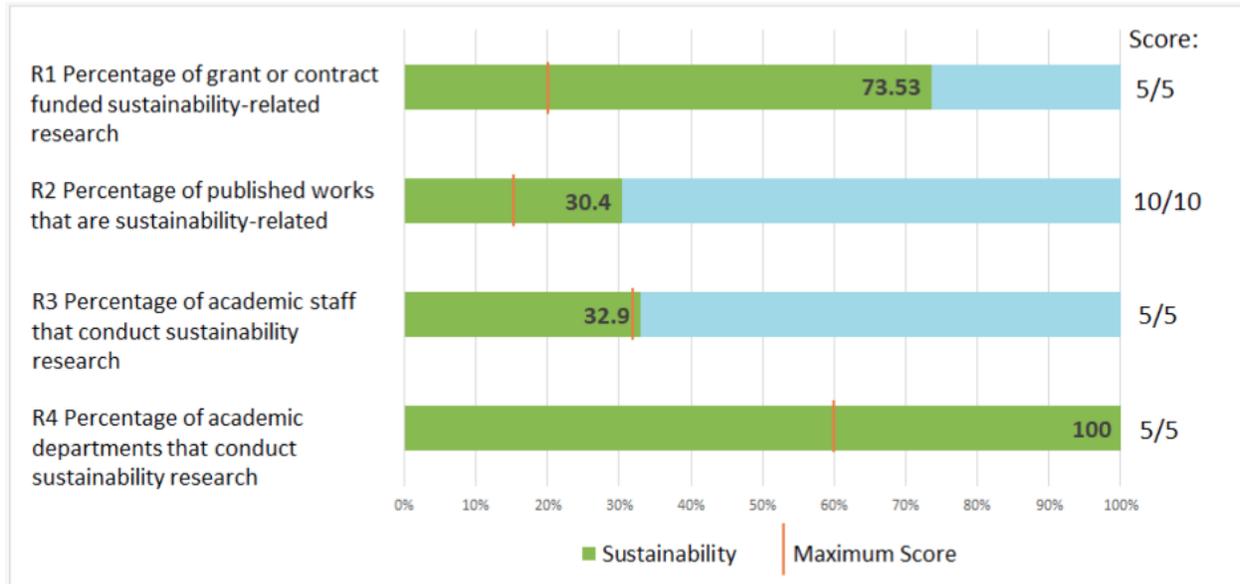
Figure 5 Continuation of the AASHE STARS Benchmarking Tool Assessment (Cuerdon, Matthews, Saperstein, and Weber, 2019)

Currently, the university has a sustainability policy requiring interdepartmental collaboration and communication to achieve its goals, and a sustainability strategy that outlines short, medium, and long-term goals for the years 2020-2030 (Boom & Jenkins, 2020). The strides that the University has made show the need for a new, updated assessment tool to gauge the effectiveness of their efforts.

Sustainability at WPI

Worcester Polytechnic Institute (WPI) is a private institution located in Worcester, Massachusetts primarily focused on science and technology. With project-based learning, innovation, and hands-on experience at the forefront of WPI's mission statement, the university's involvement in a project related to sustainability is no surprise. WPI is committed to promoting sustainability and incorporating it into the curriculum, as shown through the various programs created on campus. Areas of sustainability importance to WPI are academics, research, campus operations, and community engagement. There are programs like Sustainability Ambassadors, Green2Go, Lighting Fair, and E-Waste Drives providing opportunities for education and utilization of these sustainability services (Worcester Polytechnic Institute, 2021). Since 2014, WPI has had a sustainability plan produced by the Office of Sustainability that serves as an

15

initiative guide for programs and long-term goals. This initiative guide explains the goals that the university has made for the following 5 years, and their vision for the future. The current sustainability plan is in effect until 2025 and has different goals but a common theme: "Environmental stewardship, economic security, and social justice," (Worcester Polytechnic Institute, 2020). The Office of Sustainability also publishes a full report on strides made in sustainability on campus every year, highlighting the growing interest and important goals that were reached throughout the year.

In 2017 and 2021, WPI received a gold star from Sustainability, Tracking, Assessment, and Rating System (STARS), highlighting the effort that WPI has put into sustainability in the last decade (Worcester Polytechnic Institute, 2021). In the most recent award, WPI has improved its rating from 65.01 to 72.46 on a 100-point scale, showing the success of sustainability initiatives and efforts that were implemented in the past years. Like the University of Worcester, WPI hopes to integrate the concepts of sustainability in all aspects of university life and has developed a sustainability plan that, "Includes a set of goals and objectives to meet our university's vision for sustainability in four areas: academics, research, campus operations, and community engagement," (Worcester Polytechnic Institute, 2021). WPI has set, small, clear and more manageable goals rather than larger, more overreaching and less manageable goals. Information like utility consumption, waste generation, greenhouse gas emissions, and accomplishments in a subset of academic majors and courses are reported annually to gauge progress.

The climate surrounding sustainability and social responsibility at WPI could be described as cohesive and united. As a STEM (Science, Technology, Engineering, and Math) university dedicated to the advancement of technology and innovation, sustainability issues and social responsibility are priorities for WPI. In the last decade, efforts and interest have been directed towards sustainability efforts more than before, with minimal pushback from the community.

Sustainability at Global South University

Our sponsors initially identified three potential Global South Universities (GSUs) with whom we might collaborate: one from South Africa, one from Brazil, and one from Ecuador. Due to problems with communication and timing, in the end we were able to conduct only a

16

cursory assessment of the Pontifical Catholic University of Ecuador (PUCE) in Ecuador's capital city, Quito. PUCE is one of the top ranked universities in the region (topuniversities.com, 2021) and while the university does not have a separate sustainability department or program, PUCE does have the Department of Exact and Natural Sciences. This department is broad, encompassing food science, microbiology, statistics, and agriculture in plant pathology to name a few fields (*Facultad de Ciencias Exactas y Naturales | Pontificia Universidad Católica del Ecuador*, 2021).

PUCE's mission statement is fully aligned with SDG 17, partnership for the goals: "... internationalization through the management of international agreements with universities for academic cooperation in the fields of teaching, research and networking; participation in international academic networks and the inclusion of the international dimension in the curriculum," (*Internacionalización Universitaria | Pontificia Universidad Católica del Ecuador*, 2021). Currently, PUCE's main focus is SDG 3, health and wellbeing with projects ranging from blood services quality control to healthy living models to prevent Chagas disease (*CISeAL - PUCE - Welcome to the Frontpage!*, 2015). In addition to this, since 1995 PUCE has been partnered with the University of Aarhus in Denmark, and ForestGEO-STRI in the Forest Dynamics Plot. The trio endeavors to maintain Yasuní National Park, a location considered to be one of the most biologically diverse areas in the world (*Yasuní*, 2017).

According to THE, PUCE is ranked 101-125th in Latin America (*Pontifical Catholic University of Ecuador*, 2021). This ranking specifically is focused more on the university as a whole and not solely their impact with sustainability. Unfortunately, we are unable to view the overall ranking as only universities ranking in the top 500 in all four pillars have the information fully posted.

While the University of Worcester focuses on integrating sustainability into campus life, PUCE integrates it through various research projects that students take part in. With this PUCE also publishes a scientific magazine that students can read which covers topics such as finding alternatives to herbicides and various primates in Quito (*Nuestra Ciencia Nuestra Ciencia Publicación anual. Número 22 Quito, October 2020*, n.d.). This magazine is published once a year, each time with new topics.

In order to better understand PUCE's approach to sustainability our team needed to better comprehend the socio-political and economic state of Ecuador. We found that, while the country

17

is rich in natural resources, the capital to utilize them is minimal (*Ecuador Guide Development & Society*, 2012). This is likely for two reasons. One, the cyclical political instability, and two, the economic reliance on oil. Political unrest and instability may contribute to the somewhat stationary environmental efforts because leaders will often focus more on regaining the support of the people and strengthening old ideologies rather than creating new, differing legislation (World Atlas - About Ecuador, 2021). As for the capital importance of fossil fuels, Ecuador is considered a developing country and is growing in terms of industrialization, which requires a strong economy. The primary contributor to the economy is petroleum, though exports like bananas, shrimp, and flowers are also large markets (World Atlas - About Ecuador, 2021). Until the economic foundation shifts, attitudes toward environmental sustainability will not change and thus limit Ecuador and Ecuadorian universities from making substantial sustainability advancements.

Methods

The overall goal of this project was to assess how aspects of the current Responsible Futures program may be improved, especially how to better measure student engagement and awareness about sustainability. We focused on the accreditation program's criteria and auditing protocols to make it more applicable outside of the UK. This was accomplished through the following four objectives:

- Objective I: Review the current and future RF approaches.
- Objective II: Compare RF with other evaluative tools to assess how to improve the universality of the Impacts and Outcomes criteria of RF.
- Objective III: Explore the potential for using the RF approach in the Global South.
- Objective IV: Test creative ways to engage students in data collection regarding how they interact with sustainability efforts on campus

Objective I: Review the current and future RF approaches

Our team began working on this first objective by immersing ourselves in an active RF audit training process. Meg Baker, the interim Director of education at Students Organizing for Sustainability (SOS-UK) negotiated an opportunity with Aston University to allow us to train with RF student auditors from 9:00 a.m to 5:00 p.m. (GMT) on March 23rd and 24th, 2021. This allowed us an inside look at how universities gain accreditation. The first day was an introduction to RF, their mission statement, and how the auditing process is conducted. To receive an accreditation, each university, also known as a 'partnership,' submits evidence to RF/SOS to demonstrate their progress on each criterion. For the training, both student teams (i.e., us and the Aston team) were given access to this evidence and were able to determine how well the university fit into the criteria set by RF. When completing an audit, students work on their own university's evidence. Because we were trying to get a better perspective on how the process was conducted, our team received access to materials previously submitted by the University of Worcester. The other student team was actively conducting an audit on Aston University, and therefore received different materials to review. The student teams then assigned scores for each criterion depending on how well the evidence fulfills the specifications and provided feedback to the partnership on how they can improve and earn a higher score in the future. On the second day

19

of the training, our team and the student auditors for Aston University were trained to conduct interviews and focus groups. This training was used by the Aston University team to interview sustainability educators and representatives and conduct student focus groups to complement their evidence review.

To complement what we learned in the audit with Aston University, we interviewed leaders from RF and various benchmarking tools to ask them about their experiences and plans for expanding the scope of their programs. We interviewed our sponsor, Meg Baker, and Sonya Peres, the Project Manager in Scotland, to get more information about Responsible Futures and its plans for growth. These interviews followed the procedure outlined in Appendix E. Said procedure consists of an introduction of the team and who will be leading the interview, stating the team's purpose and any other interview related concerns such as recording and interview intentions. Following the introduction of our group and the listed formalities, we asked the first two basic interview questions described in Appendix F. We found other RF experts and other benchmarking experts to interview from suggestions from Ms. Baker and our other sponsors, Katy Boom (University of Worcester's Director of Sustainability), and Dr. Heather Barrett (Principal Lecturer in Geography, Archaeology, and Heritage Studies at the University of Worcester).

We also worked closely with our sponsor, Katy Boom, to discuss her past experience applying sustainability assessment tools at the University of Worcester. This interview followed the procedure previously mentioned using the specific questions from Appendix G. Based on the feedback from these interviews, we narrowed the scope of our project to focus on the impacts and outcomes section of the audit.

Objective II: Compare RF with other evaluative tools to assess how to improve the universality of the Impacts and Outcomes criteria of RF

Our second objective was to assess the Impacts and Outcomes criteria of RF using information from other universities about how they assess their sustainability progress. Responsible Futures was created to encourage universities to integrate sustainability across all parts of their curriculum (formal, informal, and subliminal) and highlight unique work that universities are doing in sustainability (J. Agombar, H. Barrett, K. Boom. Personal

20

communication. February 10, 2021). Our first major point of reference was the STARS benchmarking tool, which is used by many US universities, including WPI. Following our training in the RF audit process (see above), we examined the application of the STARS benchmarking tool at WPI and a sample of other US universities. We wanted to learn how the STARS and RF protocols compared, especially with regard to their assessment of impacts and outcomes, and also their assessment of student engagement. We hoped to identify what lessons the RF program might learn from STARS and vice versa. To accomplish this, we reviewed publicly available data submitted to STARS by a sample of US universities and conducted additional research through interviews with staff at THE and AASHE as well as staff and students at the selected institutions.

We evaluated materials submitted to STARS by four universities (Arizona State University (ASU), Worcester Polytechnic Institute (WPI), Barnard College (BC), and California State University: Fresno (CSUF). We chose these institutions to represent a spectrum since they were ranked by STARS as platinum, gold, silver, and bronze, respectively. STARS does not provide a systematic ranking from high to low, but rather lists institutions alphabetically within the major ratings categories. In comparing the institutions, we chose aspects of the STARS criteria that we could use easily and systematically in a baseline comparison. For example, we looked at academic courses, literacy assessments, learning outcomes, and continued education methods. We focused on these criteria because they are similar to the RF criteria used to assess the Impacts and Outcomes of student engagement and long-term sustainability teachings. Based on the different rankings of these universities, we were able to compare and draw conclusions derived from their respective scores and the evidence they submitted for review.

To learn more about the current application and planned improvements of the THE and STARS benchmarking tools, we interviewed Duncan Ross from THE, and Meghan Fay Zahniser and Dr. Daita Serghi from AASHE. These interviews, also following the procedures outlined previously with specific questions from Appendix H, aimed to learn more about the benchmarking program and their work at integrating student engagement and applying their programs internationally. For a full list of interviews and dates see Appendix J.

We also interviewed several sustainability staff from various universities, giving us more insight into their experience with RF, STARS, and THE. We interviewed Paul Mathisen, sustainability director at WPI, to learn more about the university's approach to sustainability, as

21

well as to get more information about how a university in the United States may approach this differently than one in the UK. Along with Mr. Mathisen, we interviewed several current and past representatives of the Office of Sustainability and the Sustainability Advisory Committee to get further information. Additionally, we interviewed a representative from Seattle University (SU) in Seattle, Washington in the U.S. to get more diverse opinions on how RF could be used as a supplemental tool in aiding the assessment process. On April 16th, 2021 we interviewed Yolanda Cieters, sustainability manager at SU. This interview gave us a candid perspective on benchmarking tools used by universities in the US. These interviews used the specified questions in Appendix G.

Additionally, we interviewed Selina Fletcher (Coventry University), Antonia Lindsay (University College of Estate Management), and Karl Letten (De Montfort University), three higher education sustainability leaders to determine ways to improve the tool. These representatives were chosen based on suggestions from Ms. Boom due to their experience with the RF process. This gave our team a better understanding of how other universities in the UK approach the impacts and outcomes section. In addition to interviewing sustainability representatives, we also interviewed student auditors Rebekah Higginbotham (Higgy) & Catarina Oliveira Da Silva from UW who have implemented the RF auditing process. We conducted these interviews to learn more about student perspectives and experiences conducting the audits and interpreting the criteria and supporting documentation. Collectively, these interviews revealed some of the strengths and limitations of the current auditing protocols and criteria, and highlighted possible areas for future improvements.

Objective III: Explore the potential for using the RF approach in the Global South.

Originally, our team intended to evaluate universities in the Global South to assess their sustainability efforts and practices. We planned on analyzing their educational curriculum and identifying their sustainability practices to see how feasible implementing RF would be. Unfortunately, despite multiple efforts from our sponsors and team, we were unable to make connections with appropriate contacts in the Global South. Despite our lack of contacts, we still analyzed the feasibility of implementing this type of program in universities where sustainability

priorities are different than those in the US and UK. We looked into the sustainability approach of a Global South university and determined what barriers they experience in applying benchmarking or accreditation programs in order to provide recommendations to RF about what could be done to adapt their program to the Global South university's needs. We did this by interviewing a student from a university in the Global South to gain their perspective on sustainability practices and curriculum at Pontifical Catholic University of Ecuador (PUCE). This interview followed the procedure outlined previously following the specific questions found in Appendix K.

Objective IV: Test creative ways to engage students in data collection regarding how they interact with sustainability efforts on campus

Our final objective was to explore new and creative ways to improve student engagement with learning for sustainability and testing a creative method of polling at WPI. We focused on how students find out about sustainability initiatives, plans, and activities on campus. We conducted interviews with students at several universities and conducted student polls at WPI and the University of Worcester.

At WPI, we contacted the WPI Green Team, the sustainability-based student organization on campus, to learn about their experience with sustainability. On April 12th, 2021 we met with Katarina Himmelberger and Jacob Bernard, two current student representatives from the organization. This interview followed the procedure outlined in Objective I with the specific questions in Appendix K. Then, to get the University of Worcester students' perspective, we interviewed Green Impact student employees on April 14th, 2021. Our sponsor, Katy Boom gave us the contact to two active student employees of Green Impact, Higgy & Catarina. This interview followed the specific questions in Appendix K.

We interviewed Meg Price, the Students' Union President at the University of Worcester, on April 9th, 2021 to learn more about how the Students' Union fosters student engagement and what methods of promotion and interaction she and others have found to be most successful. This interview followed the procedure explained previously with the specific questions outlined in Appendix J.

We also interviewed select students from a RF student audit team to get their perspectives. The identities of the auditors are unknown to university staff until the completion

23

of the audit in order to prevent bias or tampering. Because our project took place after UW's most recent accreditation, we were able to select our interviewees based on recommendations from Heather Barrett, and Katy Boom. Additionally, we interviewed student representatives from other RF accredited universities who have been trained as auditors based on recommendation from Meg Baker. These interviews focused on the student perspective of the Responsible Futures accreditation process and how effectively it gages student engagement and awareness. We also focused on what communication and advertisement methods elicit the most responses from students on campus in order to make recommendations for universities to better engage students in sustainability outside formal curriculum. These interviews follow the protocols outlined in Objective I, following the sample questions in Appendix K.

Additionally, we distributed surveys to WPI students and University of Worcester students to identify what design features might encourage students to fill out a survey for measuring the impact of learning for sustainability. The poll was an anonymous, online survey of students distributed via Instagram, Slack, Discord, and email. Each member of the team utilized club and organization contacts to spread the survey throughout the student body at WPI. This method of distribution was used because each member of our group actively had access to a large and diverse group of peers through participation in school sponsored groups including theater, Greek life, and athletics. The link to the poll was sent out to WPI students on April 20th, 2021 and was closed on April 23rd. During this time, we received 93 responses from students. The polling questions for this initial poll to gauge methods of survey promotion and engagement can be found in Appendix L. The largest challenge posed by this objective was to make the questions as clear and non-leading as possible while still being specific enough to get usable information.

Finally, we used what we learned from the initial WPI survey to conduct a follow-up poll of WPI students' engagement and awareness of sustainability. The questions were formatted in one of three ways: open-ended question (OE) providing the opportunity to freely respond, Likert scale questions (LS) asking students to rate their agreement or disagreement on a scale from one to six, and yes/no/other questions (YNO) that will allow students to elaborate on an answer if yes or no is not entirely accurate. OE responses were coded as positive, negative, neutral, or mixed for data collection. The polling questions can be found in Appendix M.

Findings

With the overall successful data collection and range of interviews conducted, we were able to come to several major findings. The response rate of the surveys we conducted was high considering the exposure it was given, and allowed us to draw conclusions based on the majority's response. We conducted interviews in which we asked questions based on interviewees' specialties so that patterns could easily be spotted and outlying comments could be clarified. The following findings are based on those results and our own research.

Current and future RF approaches

Throughout our team's interview process, we received a great amount of feedback on ways in which the RF tool could be improved. One suggestion that was debated on both sides was the level to which the terms were defined in the toolkit. The vague language surrounding the criteria is meant to allow partnerships to define their own efforts but has led to more discussion and work on the part of auditors as different people have interpreted criteria to have alternate meanings (Personal Communication. 30 April 2021). This is concerning because part of RF's goal is to alleviate much of the burden and work from partnerships.

A unique aspect of the Responsible Futures tool is that it is led by student auditors, incorporating the students at the university in a way that other benchmarking tools do not. This is incredibly valuable for bringing an awareness of sustainability to the school. After speaking with both Meg Price, President of Worcester's Student Union, and the Green Team, a sustainability focused club on the WPI campus, we saw a stark contrast between how integrated sustainability was into the campus culture in the University of Worcester versus WPI. As a former student, Meg Price was able to give us valuable insight as to what the general student body was aware of in terms of sustainability efforts. Her description of sustainability efforts at the University of Worcester highlighted a common theme that we have found while talking to students at multiple universities. It is difficult to get students involved in something that they are not aware of in the first place, and the number of engaged students is not aligned with the number of aware students. Due to COVID-19, the engagement by students is even more limited, but that has not deterred the university's efforts to engage students. Synchronous and asynchronous events have been successful as accessibility to Zoom and other online platforms become prevalent according to

our interviews with Meg Price from the Students' Union and Meghan Fay Zahnsier and Daita Serghi from AASHE. Using social media platforms such as Instagram and Facebook have been successful in interacting with students during the pandemic and have made organizations be more creative when targeting a specific audience.

Incorporating student auditors into the assessment process is one of the greatest strengths in RF because, as we hypothesize, getting students involved in their universities' sustainability evaluation improves their overall engagement. For future changes, incorporating student perspectives and input about the formal, informal, and subliminal curriculum would add depth to the assessment overall. This would allow the university and benchmarking tools to not only gauge student awareness and understanding of the sustainability efforts that the school partakes in, but also get students involved at a much higher level. Involvement from students could reduce the "ticking the box" mentality where schools are submitting evidence that might not apply to that category just for the points and create a more genuine reflection of present sustainability efforts.

From our own experience during our student audit training, we noticed that the Excel spreadsheet format of the RF program makes it difficult to read and enter data. The Excel sheet was accompanied by a long list of evidence that corresponded to each of the different criteria which were labeled using various combinations of numbers and letters. While the tool was usable, we would not consider the audit spreadsheet as a user-friendly tool. In this instance, it would be good to learn from STARS and change the user interface to one that would be less of a burden on the student audit team. STARS as a tool has been described by Yolanda Cieters, sustainability manager at Seattle University academics department, as being very user friendly. She mentioned that it is both easy to submit information to the program and also to consult the data at a later date. This is something that the RF tool lacks. Through making the format easier to read, it may also clear up some of the confusion surrounding what specific evidence RF was looking for in each criterion.

While the United States does not participate in RF, universities, such as WPI, can participate in the AASHE accreditation program STARS. Paul Mathisen, Head of the Sustainability Department at WPI, suggested that there be specific definitions of terms like "sustainability" and "social responsibility" when assessing universities in respect to their sustainability programs. This would prevent differing interpretations of the requirements for

certain criteria. After talking with Meg Baker, she informed us that the terms in RF are "intentionally vague" in order that they can be self-defined (Personal Communication. 13 April 2021). This is to allow universities more freedom and creativity when it comes to meeting the requirements. This open-ended format is designed to leave room for the different student populations, budgets, and other accessibility to resources that would differ dramatically depending on the university. The issue with this intentional vagueness is, however, that participating universities are often confused when it comes to what the criteria is asking for.

This sentiment was expressed by multiple people that we interviewed, including Antonia Lindsay, a leader in the sustainability office at the University College of Estate Management. She has spent two years in this position and has worked closely with sustainability accreditation programs, including RF. She mentioned during her interview that the unclear wording of the RF criteria caused multiple people from the same school to interpret a single criterion differently. RF is made up of 8 categories with varying subcategories, so the lines can be blurred when trying to figure out where certain aspects fit. Attempts were made to reach out to the sustainability head directly for clarification, but after a certain number of emails, Antonia and her team were concerned about being a bother (Personal Communication. 30 April 2021). This caused the university to provide an excess of documentation for each criterion, not all of which was helpful to gain points towards accreditation.

The way in which the RF tool allows its users some freedom cannot be entirely removed, though. It is important that the RF tool is flexible enough to allow for different interpretations without being so specific as to be overly rigid. For example, Liz Tomaszewski, former Associate Director of Sustainability under Paul Mathisen, discussed with us concerns in reference to AASHE's STARS accreditation program that at times the format of the assessment was too focused on programs with the word "sustainability" in their title and credit was often missed for certain programs that had sustainability focus but did not include the term directly in their title or descriptions (Personal Communication. 14 April 2021). For example, AASHE was inflexible when WPI attempted to gain points for sustainability focused IQP projects because the specific word "sustainability" was not on the online web page describing the projects.

Representatives from AASHE including Meghan Fay Zahniser, who has been the Executive Director for six years and worked with the accreditation for twelve years, commented on this issue with wording, as well. Meghan recognized this, saying that one of the most

27

challenging parts of the job is trying to make it so that every university campus that would like to work with STARS has an entry point from which to do so (Personal Communication. 16 April 2021). It is not the intention of the organization to be actively exclusionary on the basis of wording. STARS frequently submits changes to its program based on feedback from the public. There are three tiers of changes to STARS. The first and second are the annual administrative changes and minor substantive changes. The third is where community involvement plays a role. Suggestions are vetted and addressed over a period of years and slowly integrated into the framework. The issue with changing the wording too frequently is that it may only serve to confuse their partnerships more by changing the program too often (Personal Communication. 16 April 2021).

Selina Fletcher, Group Head of Sustainability on campus at Coventry University in the UK, had a similar concern as Ms. Tomaszewski in her dealings with the THE accreditation program. She mentioned there are a few areas in the THE criteria that feel like the university needs to "tick boxes" rather than think creatively about an issue (Personal Communication. 9 April 2021). These criteria fail to capture the full scope of the effort being put forth by the university.

Based on these interviews, it is clear that while definitions within criteria should be explicit at the beginning of the audit process, the criteria should be evaluated not only based on the use of specific words but rather a broader definition. Having a broad scope of what can be used to fulfill each criterion can be highly beneficial to universities, especially those just starting out, so that they are not just trying to 'check certain boxes', so to speak, but rather coming up with new ways to approach the problem. As a sort of compromise, Meg Baker suggested attaching a glossary of terms with the toolkit to avoid confusion. Additionally, she agreed that it may be helpful to include examples for other universities to look at when they are submitting evidence for how well they measure the impact of sustainability in the formal curriculum. For example, she suggested the addition of a sustainability themed question in a basic course evaluation sent to students could serve as evidence to score points for this criterion. With this in mind, our team recommends creating supplementary materials for partnerships to review (Personal Communication. 13 April 2021).

Another suggestion for how to improve the RF toolkit was from Selina Fletcher. She mentioned that it would be beneficial for the university if the RF tool tracked progress over

longer durations of time (Personal Communication. 9 April 2021). This would allow universities to see how far they have come since beginning their efforts in sustainability. After further discussion it was decided the best place for this within the toolkit was the self-defined criteria. Integrating it within the self-defined criteria would be especially helpful for schools that just began their sustainability program. This way, it would be an optional addition.

When talking to Liz Tomaszewski, the former Associate Director of Sustainability at WPI, she highlighted some of the positive aspects of the STARS accreditation program and how she felt it encompassed a large part of the sustainability effort. She also commented on how the tool promotes working with other universities. There are specific criteria centered around collaboration with geographically nearby universities. This aspect is unique to STARS and fosters a mindset focused on community wellness and growth. Collaborating with outside universities or organizations can be a beneficial aspect for universities to utilize because they can learn from others and see what works versus what does not and continue to evolve their own sustainability plans.

Comparison of RF with other evaluative tools

To gain a wider range of understanding about efforts made by universities in the concept of sustainability we applied the provided STARS data to the impacts and outcomes criteria of RF. For this process we completed audits of the impacts and outcomes on WPI, Arizona State University, Barnard College, California State University Fresno, and talked with Yolonda Cieters from Seattle University. Although STARS is not an exact match to RF it allowed us to see where STARS and RF could learn from one another based on what each was missing. From this comparison, we found that RF would be a very useful supplement to STARS in that they cover similar criteria. However, STARS criteria are more specific and seek more quantitative data. For example, STARS asks for the percentage of courses that have a sustainability outcome listed but does not ask for proof that students graduate the course with said outcomes. To get a fuller understanding of the implementation of the learning outcomes, Meg Baker suggested adding a question into the course evaluation about the specific sustainability learning outcome. This will give universities data on students' perspectives. This suggestion came from the concept of sustainability literacy assessments.

29

Looking at the sustainability literacy assessments in STARS, of the five US schools we researched, four of them were actively pursuing this objective. From these chosen universities we can see several different methods used to complete the assessments and get the student perspective. While having the literacy assessment can be useful, it can also be quite difficult to get a large number of responses. Having a variety of working models from other universities can be highly beneficial when trying to either start using one or editing an existing one. Currently, WPI does not have a set schedule for sending out their sustainability survey but does send it out regularly to gain a continuous understanding of student awareness. One thing that it does not fully encompass is the cumulative impacts on the students by the time they graduate. In comparison, Seattle University has all students complete a survey upon entrance and exit of the university allowing them to get a full view of how the students were impacted by different sustainability efforts while at the university. This is a very effective working model of long-term assessment that would be a valuable example for other universities to explore. Similarly, Arizona State University has exiting seniors complete the sustainability literacy assessment so although they do not necessarily see as much specific growth, they are still able to show what sustainability knowledge students are leaving with.

In comparison to previously stated sustainability assessments, UW does not conduct their own assessment explicitly labeled as a sustainability survey. As of now, all sustainability questions are embedded into a travel survey, the reasoning being that this survey typically gets a fairly high response rate as students are usually interested in voicing their opinions on things such as parking. When initially implementing a sustainability survey, students were not very interested in the topic making it difficult to get responses. The most recent sustainability survey done by SOS-UK got a high response rate, though, which perhaps indicates that students are engaging more with the topic of sustainability.

Along with getting the students perspective on sustainability and its integration into the curriculum, the perspective of the staff is equally as important. Many professors may be willing but ill-equipped to add sustainability topics into their curriculum. Without giving an in-depth description of each specific SDG, it may be difficult for them to see how sustainability could fit into their class. It may be difficult to include sustainability outcomes throughout the university unless making them fully required. However, to be required in that manner there would need to be a way to assess and track the students' awareness more precisely. Currently, WPI has begun

having students who complete their Interactive Qualifying Project (IQP) mark which of the SGD's they felt the project aligned with. This is a major step in including the SDGs into more aspects of the curriculum.

Another key part of the STARS system is looking into student organizations on campus and seeing how they advocate for sustainability. Each university has its own unique set of clubs and organizations that focus on sustainability. Many of these organizations are student run, which helps improve engagement and sustainable thinking as the students plan different events and initiatives. Although WPI does not list as many on their STARS record as some of the other universities, the main ones listed play a large role in student awareness. From the survey conducted on WPI students we found that many were aware of the fact that there are sustainability clubs and organizations, but many were unaware of the participation in the STARS program (as shown in Figure 6). We might have expected this response since our interviews with representatives of the Green Team indicated they were also unaware of the current WPI STARS ranking. This was an interesting discovery because our team presumed that, as the sustainability club, they would have an enhanced awareness of all things related to sustainability on campus. That this was not the case and speaks volumes about how well the university involves their students in the inner workings and planning for holistic sustainability on campus. Having the STARS audit be done by staff members rather than students like RF reduces how much information is initially spread about the process. Advertising student auditor positions helps raise awareness for the process, even if not many students out of the whole body participate, they are still more likely to be aware of the accreditation and tell other students about their experiences.
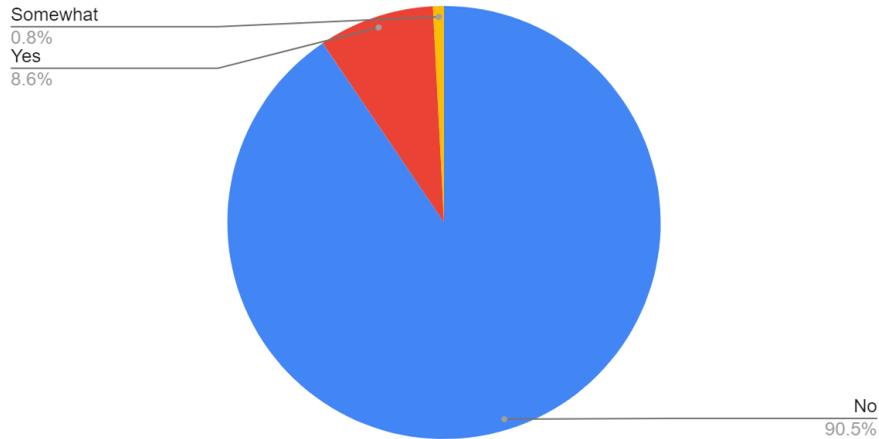
Figure 6 Results from Second WPI Survey of the Students' Awareness of WPI's Sustainability

Ranking

A major takeaway from STARS is that all of the information submitted is open to the public's view which can allow for universities to see what others are doing. The STARS model is a combination of accreditation and ranking so while there is the drive to get to a higher rank it is not necessarily to rank higher than another university but rather, better one's own university. Public access to information can be highly beneficial, in this case, all universities have access to the examples stated above.

When conducting the audit, regardless of if it is STARS or RF, both tools require multiple departments to work together. To be able to score well in either program, ideally there will be evidence of interdepartmental projects or initiatives for sustainability. Having this be included encourages universities to focus more heavily not only on the formal curriculum but also how each piece of the SDGs intertwines in academic learning.

By looking into the different organizations used for student engagement with sustainability at various types of US universities we can start to see patterns for what works most often. From this we can help make suggestions for the University of Worcester to try new methods of engagement. Although, there are some cultural differences this can still give some insight to allow for new methods other than what they have already tried. As an example, at WPI an organization called the Green Team is one of the main sustainability focused organizations, and although many students are not fully aware, many were able to give their smoothie event as

an example of a popular sustainability event on campus. This event allowed students to use a re-engineered bicycle to power a blender and make a smoothie. In addition to the smoothie, free reusable utensils and drinking straws were distributed to those who attended the event. Student engagement was tracked by asking all students in attendance to swipe their WPI issued identification cards. Interactive events like this help boost engagement and excitement of students towards the topic.

Considering current restrictions due to the COVID-19 pandemic, it can be hard for in-person interactive activities. One successful event was an organized group to remove trash from areas around campus. This allowed students to stay distant. There have also been short lectures called 'Green Talks' done by various staff members from many different departments shedding light onto all aspects of sustainability. While many students might not say they take courses that focus on sustainability, they could be misinterpreting the word. When first heard, students may automatically think about recycling and reusing, but there are many more aspects to sustainability. Having a variety of activities can help spark interests in a diverse student body. Hosting activities that are not necessarily focused on the typical thinking of sustainability can help change the student perspective on how they can get involved and help. For example, at UW, Go Green Week has many different activities organized for students, by students. Including the student perspective when organizing interactive events results in a larger student population in attendance.

Explore the potential for using the RF approach in the Global South

Our interviews with Darien Castro, a student at Pontifical Catholic University of Ecuador (PUCE), AASHE representatives Meghan Fay Zahniser and Dr. Daita Serghi, and THE Chief Data Officer Duncan Ross identified some of the challenges with establishing RF in the Global South. The data from all three interviews agreed that there is an overall lack of resources in the majority of Global South Universities (GSUs). Darien specifically mentioned a lack of funding for sustainability campaigns (Personal Communication. 12 April 2021). Zahniser and Serghi echoed this, pointing out that in order to participate in STARS each university must pay, upfront, either $975 or $1525, the caveat being if the university has AASHE membership. After that there is an annual fee of $585 or $915 (*Register/Subscribe - The Sustainability Tracking, Assessment & Rating System*, 2020). This is money universities such as PUCE may not have, especially

considering that, at the time of our interview with Darien, the university did not have a sustainability department or office (Personal Communication. 12 April 2021). The financial barrier, along with time, personnel, and other resource-based hurdles, are why we think a free, online guide to creating a sustainability culture on campus would be a good first step for RF to be implemented into GSUs.

Beyond the resource restrictions, Duncan Ross revealed that, unsurprisingly, different countries and regions focus on different Sustainable Development Goals (SGDs). For example, European countries tend not to focus on SDGs 1, 2, or 6, which are no poverty, zero hunger, and clean water and sanitation, respectively. However, countries like India[1] tend to focus on said SDGs (Personal Communication. 22 April 2021). This would cause additional issues if RF were to be implemented because the criteria would not highlight or define said SDGs as sustainability practices; RF was a tool developed in and for the UK and thus was created with this bias in mind.

Test creative ways to engage students in data collection regarding how they interact with sustainability efforts on campus

Before sending out surveys to a large number of students we researched different methods and techniques used. A majority of the information found was specifically surrounding student engagement and how to better improve that aspect of surveying. Student Engagement in the U.S. must adapt to be more inclusive of the diverse population of students attending universities and higher education institutions. In America's history, higher education has been dominated by a population of wealthy, Caucasian, heterosexual, male students. As a group, due to their similar socioeconomic standing, it was easy to cater events and curriculum in a way the population would universally understand and be interested in. However, as the student bodies across the country diversify, "A dependency on sameness is no longer appropriate." (Harper & Quaye, p. 1, 2014). This became highly relevant for our project as we were attempting to be able to survey students in both the US and the UK. To help combat any difficulties in creating surveys for various locations, an initial survey was sent out to students asking about what encourages them to participate in surveys and what their preferred method of survey delivery is.

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[1] The RF IQP team acknowledges that India is not in the Global South. Duncan Ross did not give us data on any GSUs due to THE's difficulty in establishing themselves there.

Currently, many universities have some form of sustainability survey in place to gauge student awareness and engagement on campus, but each seems to have a different delivery method. For example, at WPI a sustainability literacy assessment is sent out to students, though it is not campus wide. At UW the sustainability questions are embedded into a travel survey (Personal Communication. 10 February 2021). We also learned from Selina Fletcher, Group Head of Sustainability at Coventry University, that they follow a similar route of using the Students Organizing for Sustainability Skills survey that has questions about sustainability within the survey to target a larger audience (Personal Communication. 9 April 2021). This difference is important to consider, as many students will complete voluntary surveys based on the topic and whether or not they are interested. This is demonstrated by the results in Figure 7. That being said, if sustainability is not something many students would take a survey on, including questions into another survey that already has a good response rate can be beneficial. One thing that we learned from speaking with Selina Fletcher is that from her experience students can sometimes be unaware of what sustainability encompasses and will fill out a survey purely from the perspective of environmental sustainability (Personal Communication. 9 April 2021). Other things that have been found in the past to increase student engagement with surveys is having a reward (D. Ward, 2019) and keeping it short and easy (Park, K., Park, N., et al, 2018). This was also backed up by the survey done at WPI [and maybe UK universities] where students said that they would be much more willing to fill out a survey if there was the chance at a prize after completing it, as shown in Figure 8. Talking with the Green Team at WPI, they suggested that the offer of food is a good way to get people to participate. Another prize they have found effective is a free succulent. An interview with students from the University of Worcester echoed this sentiment. During our interview with Higgy and Catarina on April 14th, 2021, both students mentioned that a small reward would increase the likelihood they would complete a survey. This research was further supported by the open answer responses for "Other" to the question "If you saw a survey about sustainability advertised, would you fill it out?" and the responses to the follow-up question of "If you answered no, what would drive you to complete such a survey?". From these responses we learned that most WPI student respondents would be more likely to fill out a survey about sustainability if they had time, the survey was short and easy to complete and access, there was an incentive for completing the survey, or they had a personal interest or connection to the topic or who was asking them to fill out the survey.

If you saw a survey about sustainability advertised, would you fill it out?

Other 17.4%

No 17.4%

Yes 65.2%
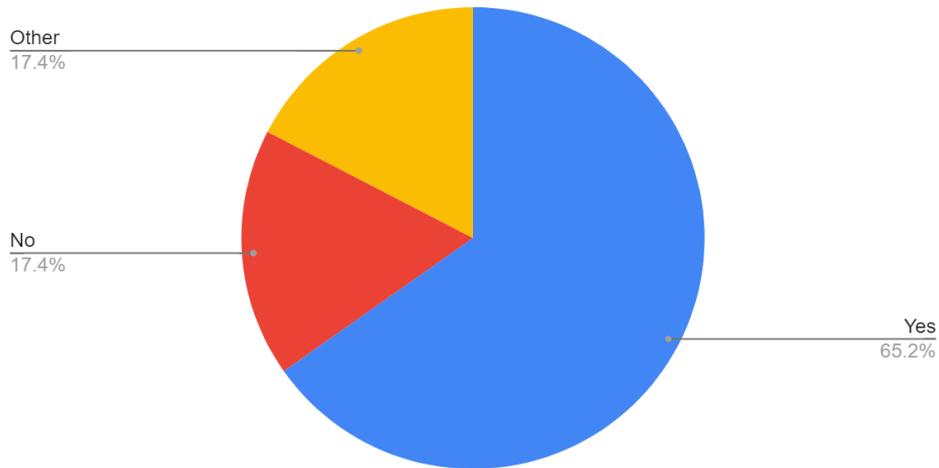
Figure 7 Results from Initial WPI Survey about Student Response to Surveys

Ways to Encourage Survey Engagement

Personal Interest in Topic

Chance for a Small Prize

Chance for University Merch…

Chance for Monetary Prize

Chance for Gift Card

Interactive Survey

Short and Simple Survey

Personal Connection

Incentive

0   20   40   60   80
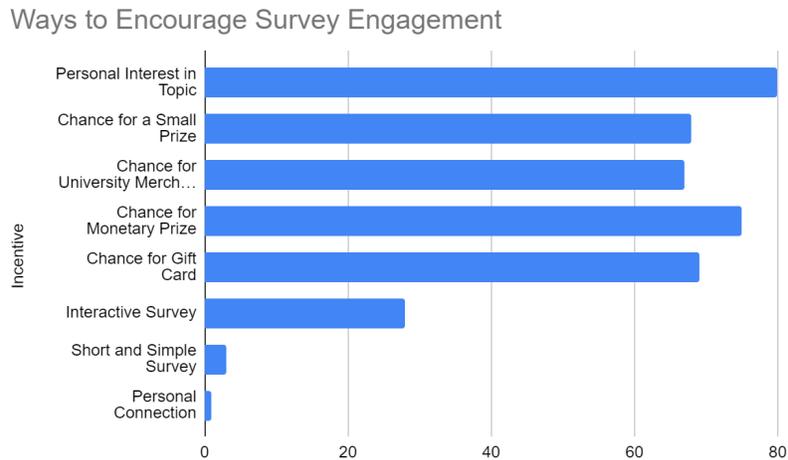
Figure 8 Results from Initial WPI Survey of How to Encourage Survey Engagement

Another important aspect of polling is the delivery method of the survey. Typically, surveys are sent out through email, but with so many being sent out it can become tiresome for students. Other methods for distribution are social media pages or, "... posting a web link or QR code to surveys directly in your learning management system or anywhere else that serves as a central hub for course contents, announcements, and academic resources," (*5 tips to get students to answer your surveys | SurveyMonkey*, 2017). These other delivery methods could both help improve the number of students who see the survey and the response rate as it could improve the

36

odds of a student seeing the survey when not busy, encouraging them to fill it out. To gain a more specific understanding of WPI, we spoke with Dianne O'Keefe and Stacey Happy from the WPI Marketing team. From them we learned that having incentive shown to improve the response rate from students. Along with that they also talked about the timing of the survey and the delivery method. To keep up with which is the most effective they use tracking links to tell them how many students clicked on a link and specifically from where, if it was sent out on various platforms (Personal Communication. 13 April 2021). Along with using tracking links they also use business accounts for their social media which allows them to track all of their statistics. (Personal Communication. 16 April 2021).

To learn more about this, a question was included in the initial surveys given to WPI and UW. At WPI, it was found that students did still prefer email as the main form of survey delivery as shown in Figure 9. The second highest was Slack, which is a group messaging app that many WPI student clubs use to communicate amongst their members. Sending it out through Slack would limit the number of students who would receive the survey, so one would not reach every student. However, a more personalized platform such as Slack will likely increase response rate amongst those receiving the survey as it is more personally targeted.
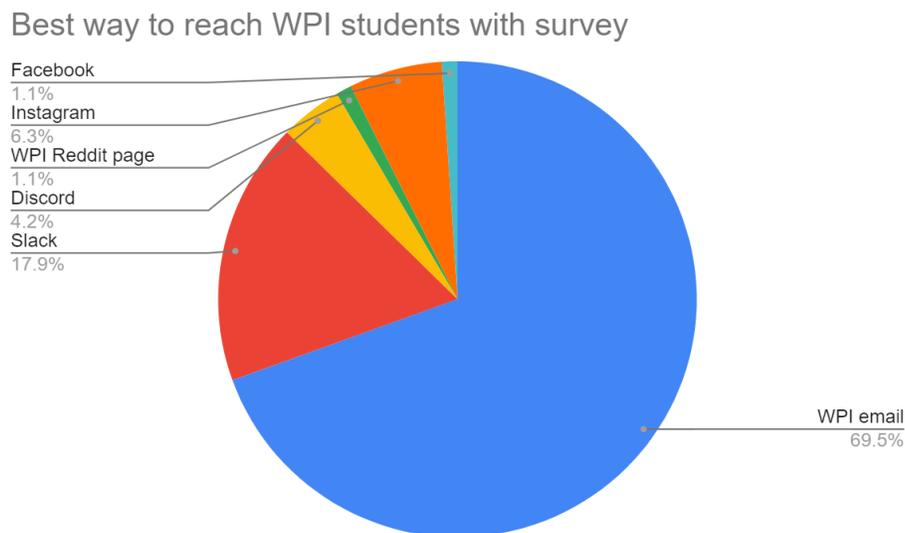

Figure 9 Results from Initial WPI Survey of Best Ways to Reach Students with a Survey

We also sent out a survey to some University of Worcester students through Meg Price, the president of the University of Worcester's Students Union, and our sponsor, Katy Boom.

37

However, we only received 3 responses from this survey, so we are unable to accurately draw any conclusions from this data.

Along with access there is also the look of a survey, whether or not it catches the eye of the intended participant. In one study it was found that "... lack of color, inadequate introductory content, and too much corporate look and feel, were among the top reasons why they didn't engage with the survey content," (*SurveyMonkey*, 2017). Some ways to tie these pieces together is to have highly engaging posters with QR codes posted around campus that will catch a student's eye and get them interested in the topic. To take this into account, for our initial surveys to WPI and University of Worcester students, we included the graphic found in Appendix N to catch the eye of students.

Given what we learned from the initial survey, we sent out a second survey to WPI students using the highest-ranking techniques discovered from our initial survey to gather information about student engagement and awareness of sustainability at WPI. From our data and further research, our best method seemed to be distributing our sustainability survey through email. This email explicitly advertised that the survey would only take a few minutes and that if students participated, they would be entered in a raffle for a $25 Dunkin Donuts Gift Card. This reward was determined to be the most enticing as shown by our results in Figure 10. Our email that was sent to students can be found in Appendix O. Due to the difficulty of getting permission to send emails through the full student email aliases, we contacted faculty that manage the email lists for specific majors and asked them to send out the survey to their aliases. While this meant we were unable to reach all students, we were able to reach a majority of departments and their students.

Figure 10 Results from Initial WPI Survey of Best Prize for Survey Engagement

Using this method of distribution and incentive, we received 246 responses to our survey over an 8-day period. The questions in this survey focused on respondents' awareness and engagement with sustainability efforts at WPI. From these responses, we learned that many respondents are unsure of WPI's sustainability curriculum as shown in Figure 11. Student respondents are primarily aware that WPI has sustainability-based majors such as Environmental Engineering and Environmental and Sustainability Studies, and that WPI's project-based curriculum such as the Great Problems Seminar and Interactive Qualifying Project are sustainability focused. Some students also identified some classes in varying majors that mention sustainability but do not primarily focus on it. We also observed that many respondents do not believe they have taken a course focused on sustainability as seen in Figure 12. The 2.5% of respondents that answered "Other" specified that they had not taken a course primarily focused on sustainability, but it had come up or they were unsure if they had taken a course with a focus on sustainability. From talking to the Green Team, they explained that for their respective majors, Robotics Engineering and Chemical Engineering, they have not experienced any required sustainability curriculum in their courses. Rather that students need to be interested and go out of their way to incorporate sustainability into some majors at WPI (Personal Communication. 12 April 2021).

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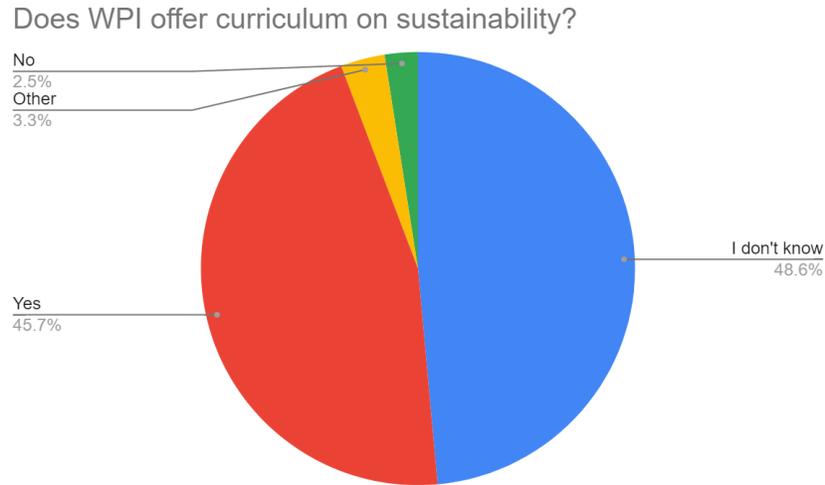
Figure 11 Results from Second WPI Survey of Student Awareness of WPI's Curriculum on Sustainability
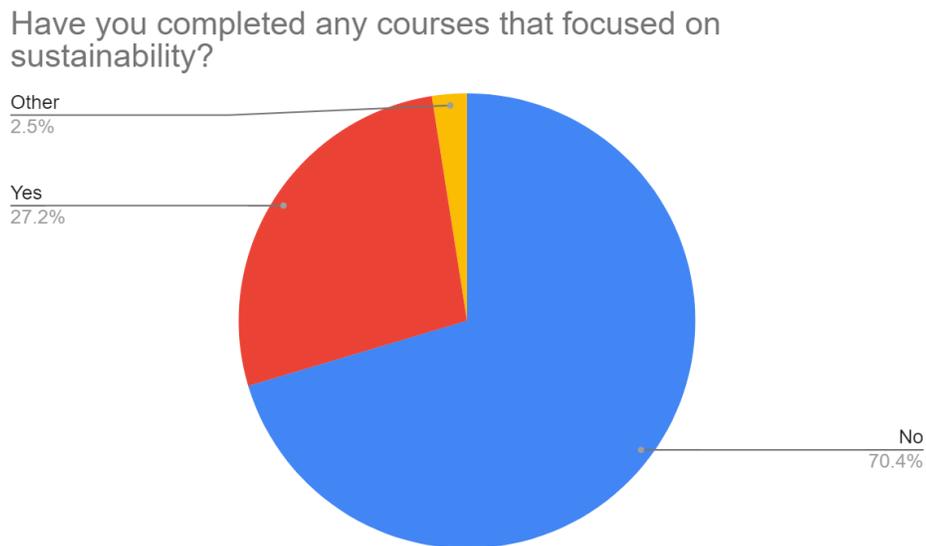
Figure 12 Results from Second WPI Survey of Sustainability Course Completion

We followed the questions about classes with questions about the student respondents' awareness and involvement with sustainability organizations and events on campus. 65.8% of respondents were aware the WPI has clubs and organizations for sustainability, 33.7% were unsure if WPI has sustainability organizations and 0.4% did not think WPI has any sustainability

organizations as shown in Figure 13. When asked what sustainability clubs exist, respondents primarily were aware of the WPI Green Team which, "... is a student run organization dedicated to making WPI a more sustainable place and educating the WPI community about sustainability," (*WPI Green Team*, 2016). 99 respondents out of the 133 that answered that question mentioned the Green Team as a sustainability organization of which they are aware.
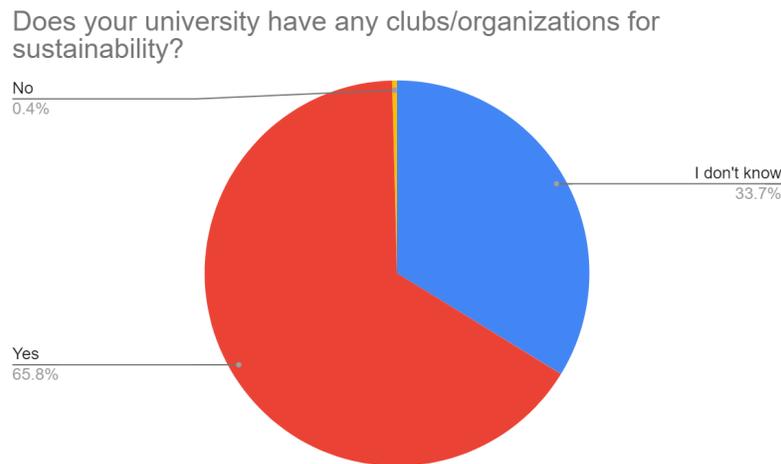
Figure 13 Results from Second WPI Survey of Awareness of Sustainability Clubs or Organizations

However, despite many student respondents being aware of sustainability clubs and organizations, only 16% of respondents reported attending any general body meetings for these clubs or organizations as shown in Figure 14. The Green Team has seen this in their experience and have found that most students will be aware of sustainability but are hesitant to join due to commitments and not being able to dedicate lots of time to the effort. They do not realize that they can be involved minimally and do not join at all due to this.

Have you ever attended a meeting for such clubs/organizations?

Yes
16.0%

No
84.0%
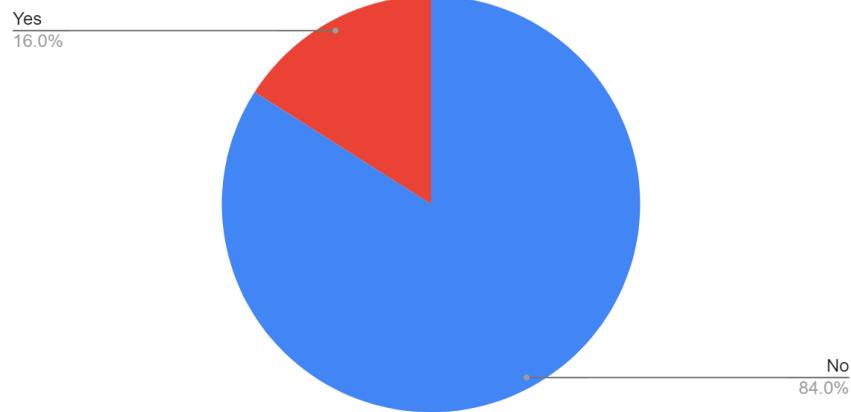
Figure 14 Results from Second WPI Survey of Participation in Meetings of Sustainability Clubs/Organizations

       Next, we asked students about events on campus and how they learn about them and if they engage with sustainability events. Ways in which students learn about events on campus include emails, social media outlets such as Facebook and Instagram, and word of mouth through their friends and professors as seen in Figure 15. Several students mentioned signs such as posters, flyers or digital advertisements on screens on campus as ways to learn about events. WPI has a Techsync page that posts events for students to look for and the Student Government Association sends out weekly emails about events on campus that some students hear about events through.

How do you hear about events on campus?
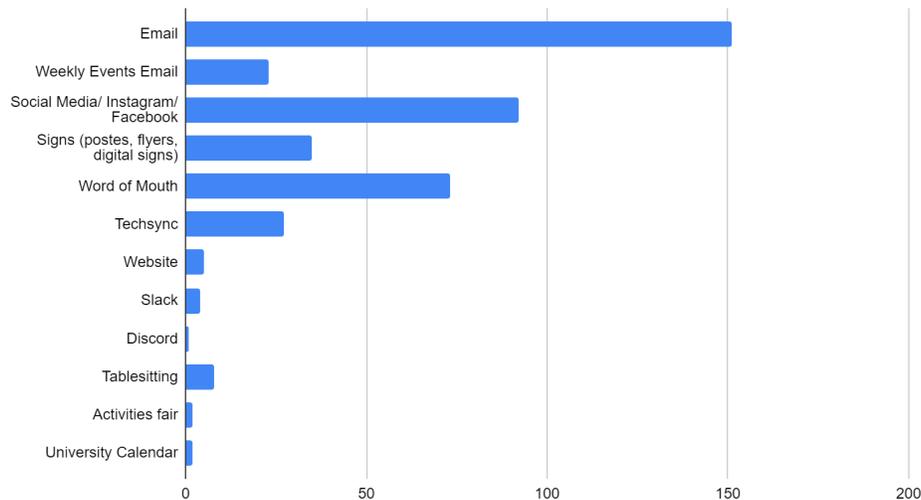
Figure 15 Results from Second WPI Survey of How Students Hear about Events on Campus

Following this question about general events, we asked specifically about sustainability events. We found that if students knew about a sustainability event 54.3% would likely attend, 28.8% said they may attend, 0.4% were unsure if they would attend and 16.5% would not attend as seen in Figure 16. Those that fall under maybe expressed that they would attend depending on the following factors: their availability or the time of the event, if the event was interesting to them or fun, if there was food offered, how the event was run (virtual or in-person) and some expressed that they would be interested but do not participate as much as they used to due to the pandemic. When asked what sustainability events, if any, the respondents are aware of, 72 out of the 246 respondents knew about at least one sustainability event that happens on campus throughout the year, many of which are student organization led events. The WPI Green Team suggested that the offer of food, prizes or incentives in general are a good way to get people to attend events. A popular incentive that students see around campus in warmer weather are free succulents (Personal Communication. 12 April 2021).

If you were aware of sustainability events on campus would you attend?

Not sure
0.4%

Maybe
28.8%

Yes
54.3%

No
16.5%
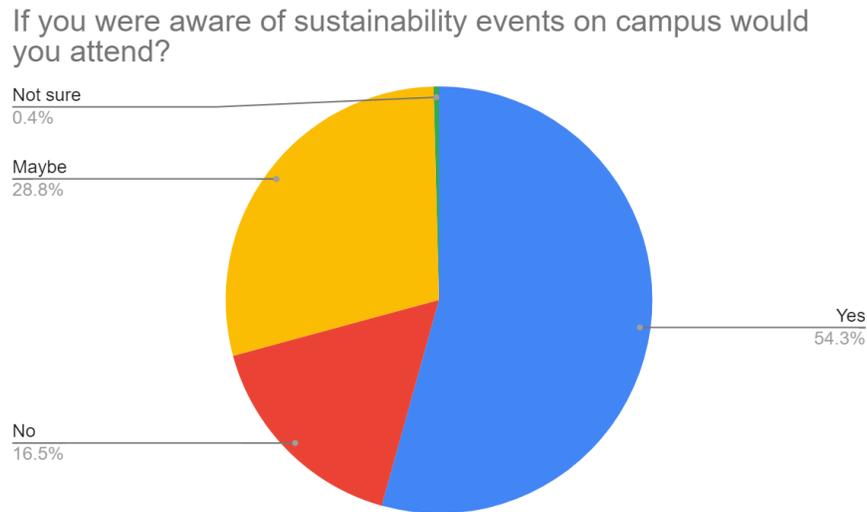
Figure 16 Results from second WPI survey of intent to attend sustainability events

Despite their awareness and desire to attend events, 85.2% of respondents responded that they have not attended any sustainability events as shown in Figure 17. From our interview with Meg Price, the president of the University of Worcester's Students Union, we learned that the Students Union has also struggled with live event attendance due to the pandemic (Personal Communication. 9 April 2021). They have found more success with asynchronous events and interaction through digital platforms. Additionally, Facebook is good for events and interaction with parents, Twitter is good for interaction with stakeholders, but Instagram is the best for interacting with students. Thus, UW's student's union has increased engagement through Instagram polls and vlogging. The Green Team has also found Instagram is an important media for low-commitment student interaction. Meg also mentioned that many students have a competitive side, so they have had success engaging students with the prospect of competitions and challenges, as well as drawing students in with current topics that the community is passionate about.

Have you attended any campus sustainability events?

Don't Know
0.8%
Yes
14.0%

No
85.2%
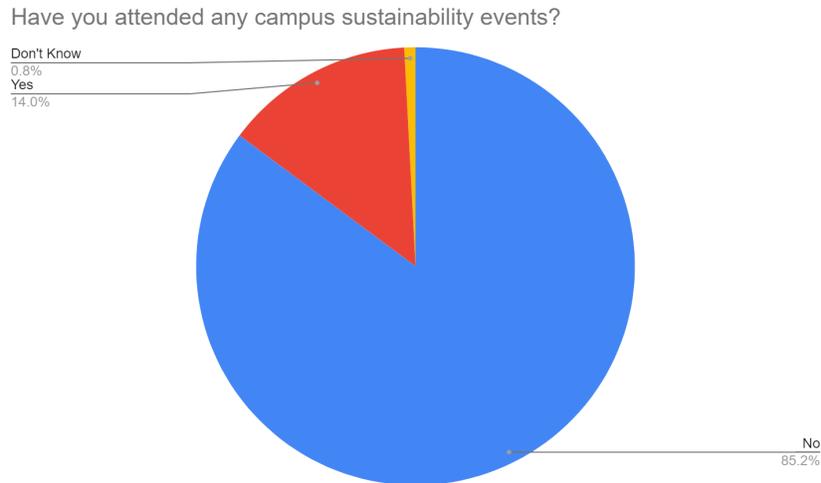
Figure 17 Results from Second WPI Survey of Participation in Campus Sustainability Events

We next asked about student awareness of WPI's sustainability ranking to see if students learn about WPI's ranking as shown in Figure 18. We found that 90.5% of respondents were not aware, 8.6% were aware and 0.8% were somewhat aware in that they knew that WPI likely participates in rankings but were unsure. This supports what we learned when we talked to the Green Team as they were unaware of WPI's participation with STARS. While this data is public for anyone to access, even students who are highly involved with sustainability on-campus are not aware of it. We also found similar information from the RF auditors, Charlene Steadman and Sarah Kellett, in that they were unaware of the university's participation with RF and the full extent of the university's sustainability efforts until they learned about it in the document review (Personal Communications. 29-30 April 2021).
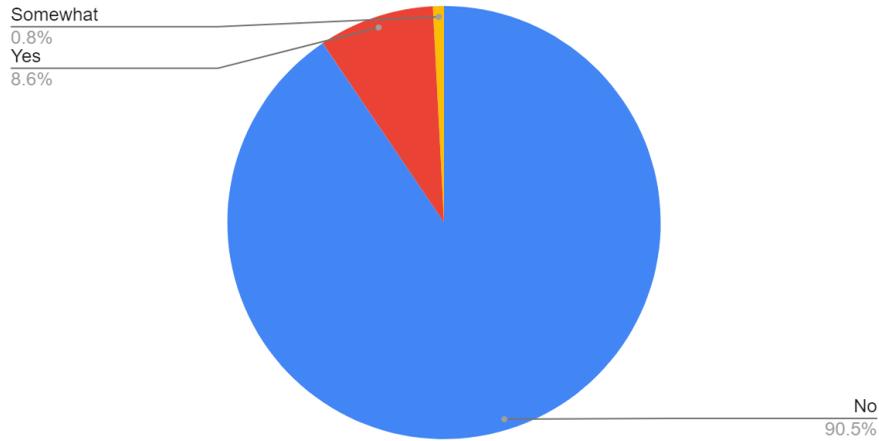
Figure 18 Results from Second WPI Survey of the Students' Awareness of WPI's Sustainability Ranking

Finally, we asked generally about student opinions of the sustainability of the campus and student engagement with sustainability as shown in Figures 19 and 20. We asked students to rank WPI from 1 to 6 with 1 being least and 6 being most for these two questions. Despite not being aware of WPI's sustainability ranking with STARS, students generally think that WPI is decently sustainable but believe that the student body is less engaged with sustainability on-campus.
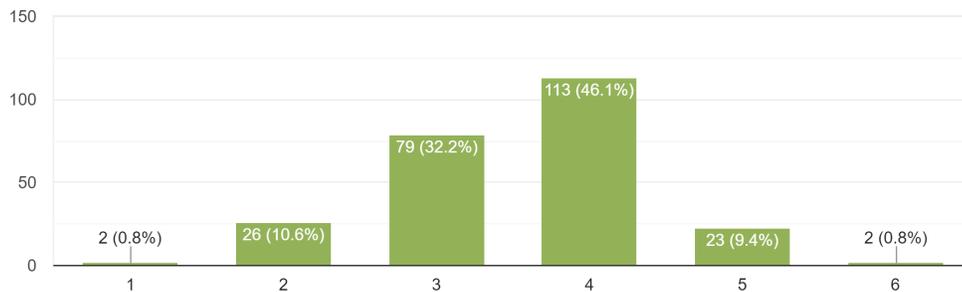
Figure 19 Results from Second WPI Survey of the Student Opinion of Sustainability at WPI

How engaged is the student body as a whole in sustainability efforts?
245 responses
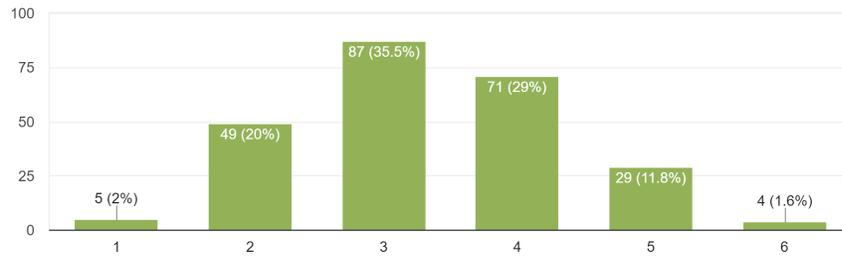
Figure 20 Results from Second WPI Survey of the Student Opinion of Student Engagement

Finally, we asked for emails of students interested in entering the raffle for the incentive. 221 out of 246 respondents entered their email to participate in the incentive raffle. We did get two responses from non-WPI students that we removed from these results as to not influence our data about current students.

Conclusions and Recommendations

1. Responsible Futures and other benchmarking programs can learn from each other's practices to improve.

We conclude that Responsible Futures and other benchmarking and accreditation programs have much that they can learn from each other.

1.1 We recommend RF develop a guide to help universities in completing the audit and define vague terminology more precisely.

The accreditation and benchmarking programs that we reviewed use definitions and criteria that capture the breadth, depth and complexity of all the sustainability programs that universities offer but are often conceptually vague and imprecise. Unfortunately, it is difficult to shape the definitions and criteria to be clear and concise whilst still accommodating the difference in approach at different universities. We learned that nebulous wording has caused multiple people to differently interpret the same set of criteria which takes time from the institution to clarify these uncertainties. A consistent clarifying question we were asked in interviews is what we meant when we said "sustainability" and "social responsibility." If sustainability directors at prominent universities are unclear on the scope of key terms, it is likely that first or even second time auditors will also struggle. While there is value in leaving the criteria open to interpretation, having a guide with examples of events, campaigns, or initiatives that qualify as evidence for each criterion might reduce the burden on universities and auditors. Therefore, we would recommend having both a guide to filling out the criteria as well as a glossary of terms. Adding examples and guidance on how to fulfill criteria for different SDGs will help to incorporate different regions that focus on different SDGs due to cultural differences. In order to keep in line with Responsible Futures' desire to allow partnerships to self-define their efforts, we recommend broad definitions that include language such as, "including but not limited to" and "a non-exhaustive list of samples follows."

In conjunction, we also recommend RF encourage partners to use some of the self-defined criteria to measure changes in sustainability activities and learning between audits. A partnership's progress in any and all criteria should be celebrated and contribute to their score if the partnership desires. This would incentivize partnerships who are already high scoring to continue to grow, as that criterion only increases as others change in a positive direction. While

48

the goal of continued improvement is explained in the audit training, giving universities the credit for making those changes would be beneficial for partnerships to continue in an exponentially positive direction. In a similar vein, it would be beneficial for partnerships to be able to view what other partnerships are doing. Not the accreditation scores, as that may create competition, but some if not all of the evidence. Access to other higher education efforts would allow partnerships to learn from each other and collaborate.

1.2 We recommend RF develop a cleaner and more user-friendly audit interface.

We conclude that the interface of the RF program is less user-friendly than the interfaces used by other accreditation and benchmarking programs. For example, the RF program utilizes an Excel spreadsheet with cells for the criteria, further information about said criteria, a description of how points will be awarded for that criteria, and comments on the evidence provided. A separate folder contains the evidence provided by the partnership separated by criteria title. The title of each criterion included numbers and letters corresponding to the topic of the criterion and how many pieces of evidence were provided per criterion. As auditors, we found this inconvenient to manage. The STARS program is a popular benchmarking program in the U.S. that has a more user friendly and cleaner interface. We interviewed professionals who used the STARS program to audit their university and staff responsible for developing and managing STARS at AASHE. Our interviewees emphasized how easy it was to submit and analyze evidence using the STARS program. Additionally, the results of each evaluation are published on AASHE's STARS webpage so it is easier for students and faculty to look at what their university is doing and for other universities to see how others approach the criteria. The way in which they are recorded is easy to read and different subjects are clearly separated by color. Accessibility and readability are both extremely important when it comes to encouraging schools to participate in a program. Likewise, guidelines on how each criterion is scored are clearly outlined and conveniently on the same page as the submission. Based on these findings, we recommend that RF explore more user-friendly options for data submission and review and consider the learning impacts for other universities and partnerships to make at least some submissions public.

49

2. Student engagement is difficult to measure in sustainability benchmarking and accreditation programs.

Student engagement and awareness is a hurdle that many universities struggle to improve and measure. We found in our research some proven approaches that could spark future projects to take a more in-depth look into.

2.1 We recommendation other benchmarking organizations learn from Responsible Futures' incorporation of student input.

After taking part in the RF audit process and gaining a greater understanding of the inner workings of the criteria, it became evident that a unique and very valuable aspect of the RF approach is that they include student auditors. Other tools like STARS and THE do not actively involve students in their evidence gathering process or include their perspectives into their submissions. By including the student perspective, universities are less likely to follow the "ticking the box" mentality and actually provide a genuine reflection on the current sustainability efforts they are practicing at their university. By incorporating students into the accreditation process, information and awareness about sustainability and social responsibility can permeate between staff and the student body. The knowledge gap between students and staff about sustainability that we saw at WPI, as opposed to the high integration we saw at University of Worcester, could be caused by the lack of participation from students. We recommend that incorporating their input into the accreditation process would be beneficial to the ranking score and the community as a whole.

2.2 We recommend a suite of approaches to improve survey response rates.

We have several recommendations for increasing student engagement and awareness. According to the interviews and polls we conducted, short surveys with the opportunity for a prize are most likely to be interacted with by students. Through our initial poll at WPI, it was determined that email was the most preferable method of communication for students, but we also found that other social media platforms such as Slack provided good response rates just more difficult to reach larger audiences. Using this information, we got a very high response rate on our secondary survey to WPI by sending an email out to a variety of student aliases promoting the survey as being short and offering the opportunity for a gift card as a prize for completing it. Unfortunately, these data about what motivates students to participate are unique

50

to WPI, so we recommend a separate IQP project examine how students at the University of Worcester and elsewhere in the UK would like to receive information and what platform they would prefer.

In regard to student awareness, after completing the preliminary engagement survey on WPI's campus we found that many students will fill out a survey based on the topic and length. As many students are interested in sustainability, the sustainability literacy assessment does often get a good response rate on both WPI and UW's campuses. To improve response rates further for the sustainability literacy assessment, doing more in-depth research into more effective and creative methods would be highly beneficial as effective techniques could change from campus to campus. With that there is also the concern of not excluding any demographics in the sustainability efforts. As many campuses have students from various locations across the globe it is important to make strides for initiatives that have the interest of all. Doing more research into the specific demographics on a campus can give insights into what will help engage the students. Part of the research should be how to best increase awareness across the campus of sustainability efforts and organizations, the more students are aware of sustainability efforts the more willing they will be to complete a voluntary survey on the topic.

2.3 We recommend several approaches to improve student engagement with sustainability events.

From interviews with University of Worcester Students' Union representatives and students from University of Worcester and WPI, we learned that while student engagement with campus events has been challenging due to the pandemic, some methods have been found to be successful. We found from our interviews that both asynchronous events and offering food or prizes at events has been successful for University of Worcester and WPI for increasing student attendance. We also learned that Instagram is a popular platform used to directly interact with students. Even just fun, quick Instagram polls will get interaction from many students. From speaking with the WPI marketing team, we further learned that they track this interaction by using business accounts on their social media accounts and tracking URLs to track trends of interaction. We recommend that universities look more into these types of accounts and softwares to gauge their engagement and could potentially be used as evidence in RF submissions for more concrete engagement measures.

51

2.4 We recommend universities use sustainability literacy surveys to systematically track the net impacts of 'embedded sustainability' on the student body.

Many universities distribute sustainability surveys periodically throughout their student's undergraduate career, gauging engagement and awareness at their own discretion. There are major inconsistencies in surveying, however, which leads to a misunderstanding of student engagement by the university. A recommendation for the sustainability literacy assessments is to have a set schedule to send it out. Having students complete it when entering the university and when exiting would allow for more beneficial and informative long-term data. With that there can also be smaller assessments throughout a student's time at university that would account for short term data. One small recommendation we have for this is including questions about sustainability into course evaluations, surveys completed by students after taking a course, to help improve the number of responses and also help track the impact of embedding sustainability into the courses. Along with getting more information from students surveying faculty and staff will improve awareness and help the university guide future efforts into embedding the SDGs into the curriculum.

3. Responsible Futures and benchmarking in the Global South

Many benchmarking organizations, such as THE and STARS, have worked to engage the Global South Universities in assessing sustainability programs but much remains to be done to develop appropriate benchmarks and protocols to best support and highlight the work of these universities. While we were able to speak with one university student in the Global South and some experts from benchmarking organizations that have worked a bit with the Global South, we were not able to secure sufficient collaboration with Global South universities to make extensive conclusions or recommendations. We did find that a common barrier for universities, in the Global South and beyond, to participate in these ranking and accreditation programs is resources such as funding, time and personnel. We recommend that University of Worcester and Responsible Futures consider a follow-up IQP to extend this initial effort.

Based on the conclusions and recommendations found above, we think implementing these changes would make the RF accreditation process more accessible and encompass more of the student experience. These recommendations are based on conversations with multiple

different representatives and related research conducted by our team.Furthermore, our conclusions could propagate future IQP projects, as they each offer the possibility of an in-depth research project on their own.

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Appendices

Appendix A: Top 50 Universities Ranked by STARS

STARS ranked top 50 universities (*STARS Participants & Reports,* 2020)

Institution	Location	STARS Version	Rating ▲	Valid Through
Arizona State University	United States, AZ	2.2	Platinum	March 5, 2023
Colorado State University	United States, CO	2.1	Platinum	Dec. 5, 2022
Cornell University	United States, NY	2.1	Platinum	March 5, 2023
Stanford University	United States, CA	2.1	Platinum	Feb. 21, 2022
Thompson Rivers University	Canada, BC	2.1	Platinum	Nov. 26, 2021
University of California, Irvine	United States, CA	2.1	Platinum	Sept. 23, 2021
University of Connecticut	United States, CT	2.1	Platinum	March 6, 2023
Université de Sherbrooke	Canada, QC	2.1	Platinum	Dec. 5, 2022
Agnes Scott College	United States, GA	2.1	Gold	Dec. 17, 2021
American University	United States, DC	2.2	Gold	March 6, 2023
Appalachian State University	United States, NC	2.1	Gold	April 18, 2022
Babson College	United States, MA	2.1	Gold	Sept. 25, 2021
Bard College	United States, NY	2.2	Gold	Nov. 20, 2023
Bates College	United States, ME	2.1	Gold	Aug. 25, 2023
Belmont University	United States, TN	2.1	Gold	Feb. 25, 2022
Berea College	United States, KY	2.1	Gold *	Dec. 10, 2020
Binghamton University	United States, NY	2.2	Gold	March 5, 2023
Bowdoin College	United States, ME	2.1	Gold	Feb. 27, 2022
Bucknell University	United States, PA	2.1	Gold	Sept. 22, 2022
California Polytechnic State University	United States, CA	2.1	Gold	Sept. 18, 2022
California State University, Channel Islands	United States, CA	2.2	Gold	March 6, 2023
California State University, Chico	United States, CA	2.1	Gold	Aug. 26, 2021
California State University, Northridge	United States, CA	2.1	Gold	Dec. 9, 2021
California State University, Sacramento	United States, CA	2.0	Gold *	May 9, 2019
California State University, San Marcos	United States, CA	2.2	Gold	Feb. 18, 2024
Carnegie Mellon University	United States, PA	2.1	Gold	Feb. 6, 2022
Central Michigan University	United States, MI	2.2	Gold	Feb. 3, 2024
Chatham University	United States, PA	2.1	Gold	Nov. 25, 2021
Clarkson University	United States, NY	2.1	Gold	Feb. 21, 2022
Colby College	United States, ME	2.1	Gold	Nov. 4, 2021
Colgate University	United States, NY	2.1	Gold *	Feb. 6, 2021
College of the Atlantic	United States, ME	2.1	Gold	Feb. 28, 2022
Colorado College	United States, CO	2.2	Gold	March 4, 2023
Columbia University	United States, NY	2.1	Gold	Aug. 28, 2021
Concordia University	Canada, QC	2.0	Gold *	Nov. 21, 2020
Dalhousie University	Canada, NS	2.1	Gold	Oct. 2, 2021
Dawson College	Canada, QC	2.1	Gold	Dec. 7, 2023
Denison University	United States, OH	2.1	Gold	Feb. 27, 2022
Dickinson College	United States, PA	2.1	Gold	Aug. 27, 2021
Emerson College	United States, MA	2.1	Gold	Sept. 25, 2021
Emory University	United States, GA	2.1	Gold *	Jan. 20, 2021
Fanshawe College	Canada, ON	2.1	Gold	Nov. 29, 2021
Fleming College	Canada, ON	2.1	Gold	Aug. 22, 2022
Florida Gulf Coast University	United States, FL	2.2	Gold	Dec. 4, 2023
Florida State University	United States, FL	2.1	Gold	Dec. 18, 2021
George Mason University	United States, VA	2.2	Gold	Feb. 19, 2024
George Washington University	United States, DC	2.2	Gold	March 5, 2023
Georgia Institute of Technology	United States, GA	1.2	Gold *	May 15, 2015
Gonzaga University	United States, WA	2.2	Gold	Nov. 12, 2023
Grand Valley State University	United States, MI	2.1	Gold	Feb. 28, 2022

Appendix B: Top 20 Universities Ranked by THE

Table of top 20 Universities ranked by THE for 2020 (*Impact Rankings: Sustainability,* 2020).

Rank	University	Location	Sustainable Cities and Communities	Overall
1	Simon Fraser University	Canada	94.8	93.4
2	University of Sydney	Australia	94.2	98.1
3	University of Otago	New Zealand	91.7	92.6
4	University of North Carolina at Chapel Hill	United States	91.6	92.7
5	Trinity College Dublin	Ireland	91.5	93.9
6	Newcastle University	United Kingdom	91.1	94.1
7	King's College London	United Kingdom	90.9	95.4
8	University of British Columbia	Canada	90.8	95.9
9	York University	Canada	90.4	91.3
10	Massey University	New Zealand	90.0	87.2
11	University of Auckland	New Zealand	89.9	98.5
12	The University of Queensland	Australia	88.9	75.4-83.3
13	Monash University	Australia	88.6	93.6
14	University of Tasmania	Australia	88.4	88.5
15	Arizona State University (Tempe)	United States	88.2	96.3
16	University of Manchester	United Kingdom	88.1	95.6
17	Polytechnic University of Turin	Italy	87.8	-
18	Concordia University	Canada	87.0	75.4-83.3
19	University of Leeds	United Kingdom	86.2	94.1
20	Auckland University of technology	New Zealand	86.1	92.6
=27	University of Worcester	United Kingdom	84.7	88.3

Appendix C: Responsible Futures Partnerships

Table of 30 partnerships with Responsible Futures as of January 2020 (*Partnerships @ Sustainability* 2020).

Institution	Date Joined	Status
Anglia Ruskin University	Summer 2015	Accredited
Aston University	Summer 2018	Working through toolkit
Canterbury Christchurch University	Summer 2017	Accredited
University of Chester*	Autumn 2014	Accredited
Coventry University*	Autumn 2014	Accredited
De Montfort University	Spring 2018	Accredited
University of Derby	Autumn 2017	Working through toolkit
University of Edinburgh*	Autumn 2014	Accredited
University of Keele*	Autumn 2014	Accredited
University of Kent	September 2019	Working through toolkit
London South Bank University	Spring 2018	Working through toolkit
Manchester Metropolitan University*	Autumn 2014	Accredited
Nottingham Trent University	Summer 2015	Accredited
University College of Estate Management	Autumn 2017	Accredited
University of the West of England	Summer 2015	Accredited
University of Winchester	Summer 2017	Accredited
University of Worcester*	Autumn 2014	Accredited
Blackpool and the Fylde College	-	Not Active
University of Bristol*	Autumn 2014	Not Active
Dumfries and Galloway College*	Autumn 2014	Not Active
Dundee & Angus College	-	Not Active
Fife College	-	Not Active
Greenwich University	-	Not Active
Kingston University	-	Not Active
University of Plymouth*	Autumn 2014	Not Active
Sheffield College	-	Not Active
South Lanarkshire College*	Autumn 2014	Not Active
South Thames College*	Autumn 2014	Not Active
SRUC*	Autumn 2014	Not Active
University of Wales Trinity Saint David	-	Not Active

Note: * indicates a pilot cohort

Appendix D: Responsible Futures Criteria

Underlined criteria are mandatory.

Baselines & Benchmarks

BB001) Within the last two years, the Partnership has completed an institution-wide survey of students on their attitudes towards, expectations on, and awareness of social responsibility and sustainability SRS and published the findings.

BB002) The Partnership has completed a follow-up to the survey conducted in BB001 and published the findings.

BB003) Within the last five years, the Partnership has carried out a thorough baseline curriculum review or audit on SRS and published the findings.

BB004) The Partnership has completed a follow-up curriculum review or audit conducted in BB003 on SRS and published the findings.

BB005) The Partnership routinely asks students about SRS in evaluation surveys.

BB006) Within the last two years, the Partnership has developed an understanding of teaching staff's knowledge and confidence with SRS at the institution and informed their practices with these findings.

BB007) The Partnership has completed a follow-up survey to the survey conducted in BB006 and published the findings.

Partnership & Planning

PPL001) The Partnership has a working or coordinating group that leads on SRS.

PPL002) The Partnership has a SMART action plan progressing actions for issues related to Responsible Futures.

PPL003) Within the current academic year, the Partnership has proactively engaged key stakeholder groups in the issues related to Responsible Futures.

Leadership & Strategy

LS001) The Partnership has gained the support of a high-level champion within both the students' union and institution for their efforts to attain Responsible Futures.

LS002) The Partnership has gained the support of their trustees and/or governors within both the students' union and institution on the issues related to Responsible Futures and their efforts to achieve accreditation.

LS003) The Partnership has developed a statement on SRS through a consultative process that defines what it means to the institution in relation to its educational purpose and values.

LS004) The institution's overall strategic plan and/or the publicly stated learning outcomes include supportive references to SRS.

LS005) The institution's learning and teaching strategy, academic strategy, or equivalent, includes supportive references to issues related to Responsible Futures, or it will do after the next review.

LS006) The institution and students' union have whole institution/SU holistic sustainability strategies (or equivalent).

LS007) The institution and students' union's marketing and communications teams (or equivalent) are fully engaged with and supportive of the partnership's SRS work.

Policy & Commitment

POC001) The institution has provided professional development and dedicated support for relevant personnel on the issues related to Responsible Futures.

POC002) The students' union has formally passed and publicised a policy commitment to embedding SRS in the formal and informal curriculum.

POC003) One or more named elected student officer has agreed to lead on SRS issues for the students' union this academic year.

POC004) At least one member of staff in the students' union has responsibility for SRS.

POC005) The Partnership has made sufficient staff or student resource available to substantively progress the issues related to Responsible Futures.

POC006) The Partnership has made effective use of the relevant quality framework and/or outcome agreements to progress the issues related to Responsible Futures.

POC007) The Partnership has embedded the issues related to Responsible Futures into their human resource, induction, and training processes for all types of new starters (students, sabbatical officers, staff, governors, etc.).

POC008) The Partnership has worked with the institution's student recruitment and/or widening participation department(s) to incorporate issues relating to SRS into their work.

Interventions

IN001) Within the current academic year, the Partnership has run one or more internal events bringing together staff and students on the issues related to Responsible Futures.

IN002) Within the last five years, the Partnership has taken part in, or is booked onto, an external change programme on the issues related to Responsible Futures.

IN003) Within the current academic year, the institution has made funding, or related resources, available to staff and students so that they can develop their own projects that support the aims of Responsible Futures.

IN004) During the last 12 months, four or more schools or departments have integrated innovative pedagogical approaches to their SRS teaching, learning, and assessment.

IN005) The institution's non-academic and research/academic teams routinely collaborate to create educational and/or research opportunities through their SRS-related work. Some institutions would call this a Living Lab approach.

IN006) Within the current academic year, the Partnership has actively made use of student coursework and/or dissertations.

IN007) There are wide reaching structured interdisciplinary experiences, linked to the issues related to Responsible Futures, through the formal curriculum for students across the institution.

IN008) There are good levels of informal curriculum activity that support the aims of Responsible Futures.

IN009) There is demonstrable positive progress in embedding SRS across the subliminal curriculum.

Impacts & Outcomes

IO001) The Partnership has reflected on and identified demonstrable positive progress in embedding SRS across the formal curriculum.

IO002) The Partnership has reflected on and identified demonstrable positive progress in relation to its institution-wide collaborative approach.

IO003) The Partnership has reflected on and identified their short-term impacts and outcomes in relation to positive outcomes for students.

IO004) The Partnership has reflected on and identified their long-term impacts and outcomes in relation to positive outcomes for students.

Outreach

OU001) The Partnership has embedded the issues related to Responsible Futures into their community outreach activities.

OU002) Within the last two years, the Partnership has proactively engaged one or more students' union or educational institution on the issues related to Responsible Futures.

OU003) Within the last two years, the Partnership has presented on their work relating to the Responsible Futures agenda at a sector event.

OU004) The Partnership has published case studies highlighting SRS-related achievements, impacts and outcomes.

Self-Defined Criteria

SD001-SD003) Self-defined by the partnership to highlight the innovative, creative, and unique practices of each Partnership.

(*Responsible Futures Overview* 2020)

65

Appendix E: Interview Preamble

Preamble:

"We are the Responsible Futures IQP team. We are working in collaboration with the University of Worcester, England, and Students Organizing for Sustainability, also known as SOS-UK, to evaluate student's engagement in sustainability in higher education. This interview will take about [TIME]. May we use your name in our report or would you prefer to remain anonymous? May we record this interview exclusively for our own review? You may at any time during the interview let us know that you would like something stricken from the record or to end the interview all together. You will be given access to the portions of the report in which you are mentioned at your request. Do you have any questions?"

- Introduce the lead interviewer and note taker
- Once the recording has started:

"This is [NAME] interview on [DATE]. Thank you for meeting us. We are going to ask you a series of questions about your involvement with sustainability in higher education. This information will only be used in our report. Are you ready to begin?"

- Basic interview questions one and two (See Appendix F)
- Appropriate specified questions
- Basic interview questions four through seven (See Appendix F)
- Debrief:

"Thank you for helping us. If you have any questions, comments, or concerns please reach out to us as gr-woo21-rf@wpi.edu."

- Stop recording

66

Appendix F: Basic Interview Questions

1. What is your position?

2. Can you give us a brief summary of your involvement in sustainability? (At university, organization, etc.)

3. See relevant Appendix

4. Do you have any suggestions for other experts we could interview?

5. Can you direct us to additional documentation?

6. Do you mind if we get back to you in the future for clarifications?

    a. What is the best way to contact you, and during what times?

7. Is there anything we should be aware of that we did not cover in this interview?

Appendix G: University Sustainability Staff

1. Has there been support on campus related to sustainability and social responsibility?
2. What is the university's view on sustainability and social responsibility? Does support come from the university itself or outside organizations?
3. Which benchmarking tool(s) has your university been using?
   a. Why did your university choose to use this benchmarking tool?
4. How long has X university been using the benchmarking tool?
   a. Does X university get accredited or ranked annually?
5. Are there parts of the benchmarking tool that are easy to use? Why and what are they?
6. Are there parts of the tool that are difficult to use? Why and what are they?
7. Were there obstacles when putting the benchmarking tool in practice?
   a. What could have improved it?
   b. Was there any information particularly difficult to find?
8. Do RF and other benchmarking tools adequately assess the student experience outside of formal curriculum?
9. Does your university poll students about their experiences learning about sustainability?
   a. If so, how does your university conduct these polls?
   b. What have you learned from the results of these polls?
   c. Are results from the polls posted for students to access?
10. Does your university collect data on student engagement with sustainability efforts?
Does your university poll staff about sustainability efforts and awareness?

Appendix H: Benchmarking Experts

1. What was the original intent and process for developing the tools?
2. Have you worked with other accreditation programs?
   a. Did any aspects of those programs, either positive or negative, inspire aspects of the tool?
3. How many countries do you operate in?
4. How many universities utilize this tool?
5. Has this tool evolved in recent years? How?
6. How does your organization see your tool compared with others?
7. Does your organization have plans for future revisions of the tool? What are they? (If you can disclose)
8. Does this tool assess the full student experience?
   a. If yes, how?
9. Is student engagement important in terms of your tool? How is it incorporated into the assessment?
10. Are you working to have the tool track or capture anything else in future revisions?
11. Has your organization attempted to integrate sustainability accreditation tools in the Global South?
    a. If yes, have you encountered any issues in trying to apply the program in the Global South?

Appendix J: List of Interview Descriptions

Date	Interviewee	Email	Title
3/30	Sonya Perez	Sonya.Peres@sos-uk.org	Scotland Project manager for SOS-UK
4/1	Katy Boom		Director of Sustainability for University of Worcester
4/5	Paul Mathisen	mathisen@wpi.edu	Director of Sustainability & Faculty at WPI
4/9	Selina Fletcher	aa5851@coventry.ac.uk	Group Head of Sustainability at Coventry University
4/9	Meg Price	megan.price@worc.ac.uk	President & Delegate for NUS
4/12	Darien Castro	dcastro493@puce.edu.ec	Student at PUCE
4/12	Green Team	greenteamexecs@wpi.edu	Sustainability based Organization at WPI
4/13	Meg Baker		Interim Director of Education
4/13	Diane O'Keefe	dokeefe@wpi.edu	Marketing Dept. Communications focus
4/14	Rebekah Higginbotham & Catarina Oliveira Da Silva	higr1_20@uni.worc.ac.uk, olic1_19@uni.worc.ac.uk	Green Impact Student Employees at University of Worcester
4/14	Liz Tomaszewski	ltomasz@wpi.edu	Former Associate Director of Sustainability & Systems Manager at WPI
4/16	Stacey Happy	sahappy@wpi.edu	Digital Media Manager at WPI
4/16	Yolanda Cieters	cietersy@seattleu.edu	Sustainability Manager at Seattle University Academics Department
4/16	Meghan Fay Zahniser & Daita Serghi	meghan@aashe.org, daita.serghi@aashe.org	M: Executive Director with AASHE --- D: Education Programs Manager with AASHE
4/22	Duncan Ross	duncan@timeshighereducation.com	Chief Data Officer at THE
4/26	Tim Hewes-Belton	t.hewesbelton@worc.ac.uk	Senior manager at Seattle University, Deals with Sustainability
4/27	Charlene Steadman	charlenesteadman6@gmail.com	Student Auditor at the University of Worcester
4/29	Sarah Kellett	kels1_18@uni.worc.ac.uk	Student Auditor at the University of Worcester
4/30	Antonia Lindsay	a.lindsay@ucem.ac.uk	Sustainability officer-- University College of Estate Management: online
5/5	Karl Letten	kletten@dmu.ac.uk	Director of Sustainability at DeMont University

Appendix K: University Students/National Union of Students Representatives experienced with RF Audit

1. Have you seen sustainability education integrated into your university experience? If yes, how?
2. What do you know about the university's sustainability efforts?
   a. How did you learn about them?
3. Are you aware of university sustainability programs and events?
   a. Have you been involved in planning any sustainability events or programs?
4. Have you attended any sustainability events or programs?
   a. How did you learn about them?
5. If a student wanted to get involved in sustainability programs on campus, how would they do so? Is it easy for them to get involved?
6. Are there different ways to get students involved that have been found to be more effective than others?
   a. Is sustainability promoted on a social media platform?
7. Are you aware of the university's use of benchmarking tools? If so, which ones?
   a. How have you learned about these tools?
8. Have you been a part of the Responsible Futures accreditation process at your university?
9. Were you aware of the sustainability efforts presented in the audit evidence before the audit process?
10. Does RF accurately represent student experience at this university based on your experience? How/how not?
11. Does the RF process fail to capture anything in its assessment?

Appendix L: Initial WPI Survey

Student Engagement Questionnaire

The purpose of this voluntary survey is to determine what is the best method for engaging students in a sustainability survey. This survey is for an Interactive Qualifying Project about enhancing sustainability benchmarking and accreditation programs to be more universal and better assess student engagement. We will be asking you a series of questions about surveys in order to better a future questionnaire about sustainability awareness. This survey should take around 5 minutes to complete and should be done with the consent and will of the participant. If you have any questions or comments, please email gr-woo21@wpi.edu.

* Required

Do you consent to the information you provide in this survey being used for data analysis for an IQP? Your personal information will be kept private and will only be used to enhance our demographic understanding of the data. *

○ I consent

○ I do not consent

Next

Demographic Information

The purpose of this voluntary survey is to determine what is the best method for engaging students in a sustainability survey. This survey is for an Interactive Qualifying Project about enhancing sustainability benchmarking and accreditation programs to be more universal and better assess student engagement. We will be asking you a series of questions about surveys in order to better a future questionnaire about sustainability awareness. This survey should take around 5 minutes to complete and should be done with the consent and will of the participant. If you have any questions or comments, please email gr-woo21@wpi.edu.

Are you a current student at WPI? *

◯ Yes

◯ No

What is your major?

Your answer

What is your graduation year?

◯ 2021

◯ 2022

◯ 2023

◯ 2024

◯ Graduate student

If you saw a survey about sustainability advertised, would you fill it out? *

◯ Yes

◯ No

◯ Other: _____

Back   Next

73

Survey Engagement

The purpose of this voluntary survey is to determine what is the best method for engaging students in a sustainability survey. This survey is for an Interactive Qualifying Project about enhancing sustainability benchmarking and accreditation programs to be more universal and better assess student engagement. We will be asking you a series of questions about surveys in order to better a future questionnaire about sustainability awareness. This survey should take around 5 minutes to complete and should be done with the consent and will of the participant. If you have any questions or comments, please email gr-woo21@wpi.edu.

If you answered no, what would drive you to complete such a survey?

Your answer

Back   Next

Survey Engagement

The purpose of this voluntary survey is to determine what is the best method for engaging students in a sustainability survey. This survey is for an Interactive Qualifying Project about enhancing sustainability benchmarking and accreditation programs to be more universal and better assess student engagement. We will be asking you a series of questions about surveys in order to better a future questionnaire about sustainability awareness. This survey should take around 5 minutes to complete and should be done with the consent and will of the participant. If you have any questions or comments, please email gr-woo21@wpi.edu.

What would encourage you to fill out a survey? Select all that apply *

- [ ] If it was a topic I was interested in
- [ ] A chance for a small prize
- [ ] A chance for WPI merch
- [ ] A chance for a monetary prize
- [ ] A chance for a gift card (ie Dunkin', Starbucks, etc.)
- [ ] If it were interactive
- [ ] Other: _____

If a prize would motivate you, which would be best? *

- ( ) Free shirt
- ( ) Dunkin' gift card
- ( ) A cup
- ( ) Stress ball
- ( ) A hat
- ( ) Socks
- ( ) No, a prize would not motivate me to fill out a survey
- ( ) Other: _____

What's the best way to reach you with a survey? *

○ WPI email

○ Instagram

○ Facebook

○ Slack

○ Discord

○ Other: _____

Could we reach out to you for further clarification? If so, please leave your WPI email here.

Your answer

Back   **Submit**

Appendix M: WPI Sustainability Engagement Survey

Sustainability Engagement Survey

The purpose of this voluntary survey is to determine the extent of WPI's involvement of students in its sustainability efforts. We will be asking you a series of questions about campus sustainability and sustainability-based or related curriculum. This survey should take around 5 minutes to complete and should be done with the consent and will of the participant.

* Required

Do you consent to the information you provide in this survey being used for data analysis for an IQP? Your personal information will be kept private and will only be used to enhance our demographic understanding of the data. *

○ I consent

○ I do not consent

Next

Sustainability Engagement Survey

The purpose of this voluntary survey is to determine the extent of WPI's involvement of students in its sustainability efforts. We will be asking you a series of questions about campus sustainability and sustainability-based or related curriculum. This survey should take around 5 minutes to complete and should be done with the consent and will of the participant.

Are you a current WPI student? *

○ Yes

○ No

Does WPI offer a curriculum on sustainability? *

○ Yes

○ No

○ I don't know

○ Other:

What specific classes are you aware of?

Your answer

Have you completed any courses that focused on sustainability? *

○ Yes

○ No

○ Other:

If yes, which ones?

Your answer

Does your university have any clubs/organizations for sustainability? *

◯ Yes

◯ No

◯ I don't know

◯ Other:

Which clubs?

Your answer

Have you ever attended a meeting for such clubs/organizations?

◯ Yes

◯ No

◯ Other:

How do you hear about events on campus? *

Your answer

If you were aware of sustainability events on campus would you attend? *

○ Yes

○ No

○ Other: _____

What sustainability events are you aware of on campus? *

Your answer

Have you attended any campus sustainability events? *

○ Yes

○ No

○ Other: _____

Does the university seem to focus on any specific aspect of sustainability? *

Your answer

Are you aware of your campus's sustainability ranking and/or accreditation? *

○ Yes

○ No

○ Other: _____

If yes, did you learn about the ranking/accreditation on your own?

○ Yes

○ No

○ Other: _____

How sustainable do you think your campus is? *

	1	2	3	4	5	6	
Not at all sustainable	○	○	○	○	○	○	Very sustainable

How engaged is the student body as a whole in sustainability efforts? *

	1	2	3	4	5	6	
Not at all engaged	○	○	○	○	○	○	Very engaged

If you are interested in being entered into a raffle to win a $25 Dunkin Gift Card please type your WPI email below

Your answer

Back   Submit

Appendix N: Infographic

Appendix O: WPI Sustainability Awareness Survey Email

Hello!

Our IQP team is finishing up a project assessing sustainability awareness and engagement in higher education.

This survey covers sustainability practices at WPI and how aware students are of these practices. This **sustainability survey** is anonymous and should take **no more than 5 minutes**. As a bonus, participants may enter their WPI email for a chance to win a **$25 Dunkin Gift card**.

Survey link: https://forms.gle/mFUVD4A8MsAnJypv6

Please feel free to email gr-woo21-rf@wpi.edu with any questions. We greatly appreciate your help!

Best,

Jenna Charron, Kaelyn Foss, Anish Nakahara, Bethany Ramsbottom, Vanessa VanDeMark
Responsible Futures IQP Team

Appendix P: Additional Survey Methods and Criteria

Problem	Poor Example	Better Alternative
1. Leading or biased questions	Which of the following do you believe is *most* responsible for the high costs of health care? • Physicians • Irresponsible health insurance companies • The federal government	Which of the following do you believe is most responsible for the high costs of health care? • Physicians • Health insurance companies • The federal government
2. Double-barreled questions	Was your attending on time to rounds and knowledgeable about the discussion topic?	Was your attending on time to rounds? Was your attending knowledgeable about the discussion topic?
3. Vague questions	How was your rotation experience?	Please rate the quality of attending rounds: Please rate the variety of patients seen on attending rounds:
4. Negatively worded questions	How often do you fail to start rounds on time?	How often do you start rounds on time?
5. Acronyms, nonspecific, or unfamiliar terms	For your most recent MAX experience, were the CBME Milestones reviewed at the start of the rotation?	For your most recent outpatient medicine rotation, were the competencies (skills) for the rotation reviewed at the start of the rotation?
6. Incomplete range or overlapping answer choices	Approximately what percentage of patients who you cared for in clinic the past month were over age 70 years? Choices: 0%–25%; 25%–50%; 50%–75%; 75%–100%	Choices: 0%–24%; 25%–49%; 50%–74%; 75%–100%; not applicable, I was not in clinic last month
7. Absolute answers, such as *always*	In attending rounds over the past 2 months, about how often did you provide scheduled, midrotation formative feedback to the interns? Choices: always; sometimes; rarely; never	Choices: more than 75% of the time; 51% to 75% of the time; about 50% of the time; 25% to 49% of the time; less than 25% of the time
8. Responses that do not match questions	During clinic rotation last month, did the interdisciplinary team meetings assist you in caring for your patients? Choices: strongly agree; agree; neutral; disagree; strongly disagree	Choices: yes, helpful with many patients; yes, helpful with a few patients; no, the team was not helpful; not applicable, I did not discuss my patients with the interdisciplinary team
9. No content review by experts	Survey may omit key areas or not reflect recent studies	Review literature; modify or create the survey; experts review survey
10. No pretesting with similar individuals	Questions and answer responses may not be interpreted consistently by respondents or as you intended	Pretest survey with sample of subjects similar to your target population, using cognitive interviewing techniques[3]
11. No pilot study to examine score reliability or relation to other variables	Survey scores may not be reliable; scores may not measure what you think they measure	Conduct small or large scale pilot study and begin assessing score reliability and validity evidence
12. Excessively long survey	Survey is pages long, with many unnecessary items that may not be used in the analysis	Pretest survey to determine time required to complete; use analysis plan to guide which questions are necessary and which can be removed

Common Problems and Alternatives in Survey Design. (Sullivan & Artino, 2017.)

Appendix Q: UK University Engagement Survey

Student Engagement Questionnaire

We are a student project group from Worcester Polytechnic Institute in the United States conducting research into better methods for engaging students in polling for sustainability. This survey is voluntary to determine what is the best method for engaging students in a sustainability survey. This survey should take around 5 minutes to complete and should be done with your consent. If you have any questions or comments, please email gr-woo21@wpi.edu.

* Required

Do you consent to the information you provide in this survey being used for data analysis for a student research project? Your personal information will be kept private and will only be used to enhance our demographic understanding of the data. *

◯ I consent

◯ I do not consent

Next

Demographic Information

We are a student project group from Worcester Polytechnic Institute in the United States conducting research into better methods for engaging students in polling for sustainability. This survey is voluntary to determine what is the best method for engaging students in a sustainability survey. This survey should take around 5 minutes to complete and should be done with your consent. If you have any questions or comments, please email gr-woo21@wpi.edu.

What university do you currently attend? *

○ University of Worcester

○ De Montfort University

○ University College of Estate Management

○ Coventry University

○ I don't attend any of these universities

What is your field of study?

Your answer

What is your graduation year?

○ 2021

○ 2022

○ 2023

○ 2024

○ Graduate student

If you saw a survey about sustainability advertised, would you fill it out? *

○ Yes

○ No

○ Other: _____

Have you ever filled out a survey pertaining sustainability in the past?

○ Yes

○ No

○ Maybe

○ Other: _____

Back   Next

Survey Engagement

We are a student project group from Worcester Polytechnic Institute in the United States conducting research into better methods for engaging students in polling for sustainability. This survey is voluntary to determine what is the best method for engaging students in a sustainability survey. This survey should take around 5 minutes to complete and should be done with your consent. If you have any questions or comments, please email gr-woo21@wpi.edu.

If you answered no, what would drive you to complete such a survey?

Your answer

Back   Next

Survey Engagement

We are a student project group from Worcester Polytechnic Institute in the United States conducting research into better methods for engaging students in polling for sustainability. This survey is voluntary to determine what is the best method for engaging students in a sustainability survey. This survey should take around 5 minutes to complete and should be done with your consent. If you have any questions or comments, please email gr-woo21@wpi.edu.

What would encourage you to fill out a survey? Select all that apply *

- ☐ If it was a topic I was interested in
- ☐ A chance for a small prize
- ☐ A chance for sustainable product from Lush, Pack it In Zero Waste Living, etc.
- ☐ A chance for a monetary prize
- ☐ A chance for a gift card
- ☐ If it were interactive
- ☐ Other: _____

If a prize would motivate you, which would be best? *

- ○ Free shirt
- ○ A gift card
- ○ A cup
- ○ Stress ball
- ○ A hat
- ○ Socks
- ○ No, a prize would not motivate me to fill out a survey
- ○ Other: _____

88

What's the best way to reach you with a survey? *

- [ ] University email
- [ ] Instagram
- [ ] Facebook
- [ ] Slack
- [ ] Discord
- [ ] WhatsApp
- [ ] Other: _____

Could we reach out to you for further clarification? If so, please leave your university email here.

Your answer

Back   Submit

89