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Swathi Karamcheti

swathikaramcheti@gmail.com

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**COMMUNICATING SUSTAINABILITY THROUGH WEBSITES OF  
HIGHER EDUCATION INSTITUTIONS OF NEW JERSEY**

**By**

Swathi Karamcheti

**Dissertation Committee**

Michael E Vega, Ph.D., Mentor

Rong Chen, Ph.D.

Ashwani Vasishth, Ph.D.

Submitted in Partial Fulfillment of the

Requirements for the Degree of

**Doctor of Philosophy**

Department of Education Leadership, Management and Policy

Seton Hall University

2022

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COLLEGE OF EDUCATION & HUMAN SERVICES  
DEPARTMENT OF EDUCATION LEADERSHIP MANAGEMENT & POLICY

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**APPROVAL FOR SUCCESSFUL DEFENSE**

**Swathi Karamcheti** has successfully defended and made the required modifications to the text of the doctoral dissertation for the **Ph.D.** during this **Fall 2022**.

**DISSERTATION COMMITTEE**

Dr. Michael E Vega	10/14/2022
<b>Mentor</b>	<b>Date</b>
Dr. Rong Chen	10/14/2022
<b>Committee Member</b>	<b>Date</b>
Dr. Ashwani Vasishth	10/14/2022
<b>Committee Member</b>	<b>Date</b>

## **Abstract**

Sustainability is integrated into the higher education institutions as a new culture. Since the emergence of various declarations and policies, higher education institutions have integrated, implemented and practiced sustainability in the form of campus operations, community engagement and academic programs. As a result, some institutions have started communicating about their sustainability practices through their websites to inform their stakeholders. It is also noted that prospective students prefer to study in institutions that communicate about sustainability on their websites. However, there is a gap in research to understand the strategies used by higher education institutions to communicate sustainability. This content analysis provides an insight into the websites of higher education institutions in New Jersey and discusses how these institutions are communicating sustainability. Using campus sustainability framework and STARS reporting tools, this study analyzed the strategies used by the sample institutions. Findings indicate that many higher education institutions in New Jersey still do not communicate any kind of sustainability information on their websites. Institutions that communicate sustainability have talked about different areas where sustainability is incorporated and practiced across the respective institutions.

*Keywords:* Sustainability, higher education institutions, campus sustainability, STARS, website communication

## Acknowledgments

This section is very important for me as my heart is heavy with gratitude and I need to lighten it.

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Somehow you never fail to think and imagine that nothing is impossible for me! Well may be it is true because you trusted in my abilities and stood by me throughout the process. And here I am with this thesis. I will get a hard copy for you!

Ira- my daughter, you sat by me and we both binge watched all the annoying movies while I scribbled through these pages. By the time you are able to read this, you will understand that I am a kind of doctor who doesn't treat the boo boo but would explain the philosophy behind it!

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Thank you for making me believe that **I am strong and I can face anything in this life.**





## **Dedication**

I want to dedicate this thesis to all the stewards of sustainability.

Let us not forget that we are consuming the resources that are meant for the future.

Let us not be greedy.

Let us be **SUSTAINABLE!**

## Table of Contents

Abstract .....	I
Acknowledgments .....	II
Dedication .....	V
Table of Contents .....	6
CHAPTER 1 .....	1
INTRODUCTION .....	1
Problem Statement .....	2
Purpose of the Study .....	3
Significance of the Study .....	4
Limitations .....	5
CHAPTER 2.....	7
LITERATURE REVIEW .....	7
SECTION I .....	7
Evolution of Sustainability in Higher Education .....	7
Factors Influencing HEIs To Integrate Sustainability .....	8
Sustainable Declarations .....	9
<i>The Brundtland Report of 1987</i> .....	9
<i>Talloires Declaration of 1990</i> .....	10
<i>Rio Declaration of 1992</i> .....	11
<i>UNDESD-2005–2014</i> .....	11
Policies of Federal and State Governments .....	12
<i>Federal Policies</i> .....	13
Sustainability in Comparison .....	13
Sustainable Organizations and Networks .....	14
Conceptual Framework .....	16
Campus Sustainability Framework .....	17
<i>University EMS (Environmental Management Systems)</i> .....	18
<i>Public Participation &amp; Social Responsibility</i> .....	19
<i>Sustainability Teaching and Research</i> .....	20
Summary .....	21
SECTION II .....	21
Emergence of Websites of HEIs .....	21
Communicating Sustainability Through Websites.....	23
Effectiveness of the websites .....	26
PageSpeed Insights .....	27
<i>First Contentful Paint (FCP)</i> .....	28
<i>Largest Contentful Paint (LCP)</i> .....	28
<i>First Input Delay (FID)</i> .....	28
<i>Cumulative Layout Shift (CLS)</i> .....	29
<i>Performance Score</i> .....	29
Conclusion .....	29
CHAPTER 3 .....	31
RESEARCH DESIGN AND METHODOLOGY .....	31

Problem Statement .....	31
Methodological Approach .....	32
Research Study Design.....	33
Conceptual Framework .....	34
Population .....	34
Data Collection .....	35
<i>Familiarizing With the Data</i> .....	35
Data Analysis.....	36
(a) <i>Creating Initial Codes</i> .....	36
(b) <i>Identification of Themes</i> .....	36
Sustainability Reports .....	38
Comparison of Sustainability Activities .....	38
Effectiveness of websites.....	38
Reliability of the Study .....	39
Information on Sustainability .....	40
Positionality Statement.....	41
Limitations of The Study .....	42
Summary.....	44
CHAPTER 4.....	46
FINDINGS .....	46
Introduction .....	46
Demographics.....	46
Types of Sustainability practices .....	49
Definition of Sustainability .....	50
Sustainability Practices .....	50
<i>Sub-theme #1- Campus Operations</i> .....	51
<i>Sub theme #2- Community Outreach</i> .....	53
<i>Sub theme #3- Education</i> .....	56
Representative Sample .....	60
Summary.....	63
How is Sustainability Communicated? .....	63
Sustainability Reports .....	64
Sustainability Page .....	66
Summary.....	72
Sustainability Practices in Comparison.....	73
AASHE STARS .....	73
(i) <i>Princeton University</i> .....	74
(ii) <i>Stevens Institute of Technology</i> .....	75
(iii) <i>Raritan Valley Community College</i> .....	77
Summary.....	78
Approach of HEIs.....	79
<i>Public Research Universities</i> .....	79
<i>Independent Four-Year Colleges</i> .....	79
<i>State Colleges and Universities</i> .....	80

<i>Community Colleges</i> .....	80
<i>Proprietary Institutions With Degree-Granting Authority</i> .....	80
Conclusion .....	81
CHAPTER 5 .....	83
DISCUSSION AND IMPLICATIONS .....	83
Review of the Problem Statement and Purpose .....	83
Sustainability Practices .....	84
Sustainability Communication .....	85
Effectiveness of Sustainability Communication .....	87
Effectiveness of Websites .....	89
Sustainability Representation .....	90
Implications for HEIs .....	91
<i>Include Sustainability on Websites</i> .....	91
<i>Responsibility Towards the Future</i> .....	92
<i>Improve Effectiveness of web pages</i> .....	92
Theoretical Implications .....	93
Recommendations for Future Research .....	93
<i>Institution's Commitment to Sustainability</i> .....	93
<i>Characteristics of Institution</i> .....	94
<i>Funding of HEIs</i> .....	94
<i>Effectiveness of Websites</i> .....	95
Recommendation for Practitioners .....	95
<i>A Sustainable Institution</i> .....	95
<i>Sustainable Narration and Mission Statements</i> .....	95
Conclusion .....	96
References .....	98
Appendix A .....	117

## **CHAPTER 1**

### **INTRODUCTION**

Higher Education Institutions (HEIs) can integrate sustainable development principles, values and practices into all aspects of education and learning (Olariu et al., 2020) and design disciplines to promote sustainable practices (Clugston & Calder, 1999). Sustainable development is ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (World Commission on Environment and Development, 1987, p. 41). Sustainable development deals with three paradigms: social, economic and environmental. To promote sustainability through their institutions, more than 600 universities around the world have signed various declarations (Montenegro de Lima et al., 2020) and are pursuing sustainable practices.

From the Stockholm Declaration of 1972 to the Talloires declaration of 1992, leaders around the world have devised policies that promote sustainability in HEIs. By 2022, nearly 500 universities in 50 countries signed the Talloires declaration and committed to promoting the ten-point agenda for environmental sustainability. In the U.S., 173 HEIs have signed the Talloires declaration and pledged to promote environmental sustainability through their institutions. In the state of New Jersey, only two HEIs have signed the Talloires Declaration so far and pledged to promote environmental sustainability through their institutions. HEIs take pride in presenting information about their sustainable practices, achievements and unique characteristics to its stakeholders such as faculty, students, staff, prospective students and others (Amey et al., 2020).

One of the ways the HEIs represent themselves to the outside world is through the information provided on their websites. These websites act as unique conduits to narrate stories, supply information and act as a two-way communication. The HEIs try to represent themselves as unique and distinct from others to attract prospective students, establish

themselves as a brand and enhance their identity, recognition and prestige (Anctil, 2008).

HEIs try to reflect their culture, goals and overall image on their websites as these websites are their virtual faces (Meyer, 2008). Not only to the prospective students, but HEI websites also provide information to current students and alumni.

Sustainability is one of the characteristics that is significantly seen in the websites of HEIs. Sharing information about sustainable practices is a prevalent method of HEIs to inform stakeholders about sustainability online (Amey et al., 2020). Bortree (2011) opined that websites are also a source to learn about sustainability and HEIs have understood the significance of creating an online presence for sustainability communication. In a study done by Ott et al. (2018), it is observed that 93 percent of universities studied by the authors have a sustainability landing page on their respective institutions' websites. However, the online presence of HEIs has increased ever since COVID-19 and the institutions are trying their best to provide information to visitors through their websites (Munna, 2021).

### **Problem Statement**

Despite the pervasiveness of the websites, there is a lack of research to understand how HEIs communicate sustainability through their websites. As the index of the institution to the external world, the website of every HEI provides a vision of the preeminence of its culture and values (Snider & Martin, 2012). Prospective students use these websites to gain an insight into the culture of the institutions (Saichaie, 2011) before paying a visit to the campuses in person. Hence, HEIs have the utmost responsibility to fill in as much information as possible pertaining to their respective institutions. For decades, HEIs are striving to provide information on their athletics, diversity and inclusion practices, their foray into cultural and academic activities and their contribution towards sustainability (Pegoraro, 2006). However, there is very little research to understand how effectively HEIs are communicating these issues on their websites. There is a need to understand the methodology

and effectiveness of communicating such issues through the websites as they can aid HEIs in improving their data and further cater to the needs of the prospective students (Saichaie, 2011).

There has been a strong emphasis on sustainable policies, practices, programs, and initiatives in HEIs. HEIs can influence the way sustainability is seen, perceived and practiced globally by just integrating it into their culture (Savelyeva and McKenna, 2011). Considering the global socio-economic and environmental crisis, and the increasing awareness on sustainability, it is becoming a huge responsibility on HEIs to integrate and implement sustainability into their culture. However, because the scope of sustainability implementation and policies is so broad, it has proven difficult for HEIs' administration and leadership to completely understand and practice sustainability in their institutions (Velazquez et al., 2005).

### **Purpose of the Study**

This study offers insight into the sustainability activities existing in the HEIs and further analyzes the most dominant activities that are seen in among these HEIs. This study helps us understand the type of strategies used to communicate their sustainability practices on their websites and also helps us grasp how effective these websites are in their quality. For the purpose of this study, I chose to study the HEIs of New Jersey. The state of New Jersey has significant policies that enable the HEIs to implement and practice sustainability. Hence, by studying these HEIs, we can understand the different sustainability practices adopted by the HEIs and how effectively they are communicating their sustainability practices through their websites.

The research questions that shape this work are:

- 1) What are the sustainability practices communicated by HEIs in New Jersey on their websites?

- 2) How is sustainability communicated through the websites of HEIs in New Jersey?
- 3) How do the sustainability practices communicated on their websites compare to the practices reported through AASHE STARS by HEIs in New Jersey?

### **Significance of the Study**

Sustainability practices, programs and initiatives at HEIs touch on a wide range of functionalities, including campus operations such as water recycling, waste management, campus greening and others. These activities, however, span the entire institution and involve a diverse range of stakeholders who participate, interact and share their knowledge. These stakeholders include students, faculty, administration, general public, organizations and others (Al. Pop et al., 2020). Institutional policies also promote the incorporation of sustainable practices in communities and through education.

The literature on sustainability in HEIs describes the various practices in the institutions, as well as the barriers to implementation and organizational behavior (Lozano, 2006). In this process, it is essential for all the stakeholders to provide complete and updated information. It is also important to have proper communication among the stakeholders (Velazquez et al., 2005) to accurately communicate with the outside world about their sustainability practices.

However, there is a significant gap in studies on how these HEIs communicate sustainability through their websites. So far, there are no studies to understand how HEIs communicate sustainability nationally or statewide (Dade & Hassenzahl, 2013). It is still unknown what the existing sustainability practices of the New Jersey HEIs are. There is very little literature on the various sustainability strategies adopted by NJ HEIs and how they communicate through their websites. The findings of this study will also fill the gap and make a significant contribution to understanding sustainability trends and strategies among HEIs by providing data that higher education web professionals could apply to their practice.



This study has the potential to develop new frameworks for making HEIs more sustainable. The findings will help other HEIs in New Jersey gain a better understanding of sustainable practices and implement sustainability and also initiate dialogue among higher education senior administrators on the topic itself. Data will be shared with all the HEIs and a set of recommended best practices will be produced as part of this study. This will help each individual HEI in New Jersey and other states, understand how they can adopt a specific sustainable strategy, what they can do to broaden their adoption and implementation and how effectively they can communicate sustainability through their websites.

The goal is not merely to identify the website's communication on sustainability issues, but also to create an opportunity for institutions to reflect on why and how such content is important to be available on their website. This study may also encourage other HEIs to adopt a more sustainable approach if they have not already done so. These HEIs can gain a clear understanding of the advantages of being sustainable and implement the trends accordingly. Furthermore, this study may provide a basis for formulating stricter policies within the state of New Jersey and in other states. These policies can be implemented by HEIs to achieve sustainability.

### **Limitations**

There are some limitations to this study. This study considers all of the HEIs in a single state. As a result, this study cannot go into detail about what and how a specific institution is practicing sustainability or how institutions in different states may fare. It will be difficult to analyze and define a model sustainable institution through this study. Another limitation is that this study analyzes the sustainability themes as communicated by the HEIs on their websites. Hence, some information may be missing or not updated by the institutions during the period of research. This may result in the exclusion of any relevant sustainable practices or may not report certain existing sustainable practices at all.



## **CHAPTER 2**

### **LITERATURE REVIEW**

The literature review provides a detailed analysis of the emergence of sustainability in HEIs and how the websites of HEIs play a vital role in communicating sustainability. For a more comprehensive understanding, this literature is divided into two sections. Section I discusses the emergence and characteristics of sustainability and its relationship with HEIs. Section II discusses the emergence and reliability of website communication of HEIs and its importance in communicating sustainability. It is imperative to conjoin these two sections of literature to understand the intersecting roles of sustainability and communicating through websites of HEIs in detail.

### **SECTION I**

#### **Evolution of Sustainability in Higher Education**

HEIs play the role of sustainability pioneers in society by providing experiences to students through all aspects of campus life and the learning environment (Galang, 2010; Freidenfelds et al., 2018). As bodies of varieties of stakeholders, HEIs are perceived as “cities based on their population, ongoing activities, characteristics and challenges” (Saadatian et al., 2012, p.19), they serve as an outlet for future leaders and a platform for multi-dimensional education (Maruf et al., 2016). HEIs can modernize and anticipate the changing needs of today’s world (León-Fernández, 2015). Salvioni et al. (2017) opined that a socially amenable university adopts behaviors that look for stakeholders and understand their expectations and priorities. While HEIs require a change, they also act as agents of change that are needed globally (Maruf et al., 2013; Farinha et al., 2018).

By early 2000s, influenced by the Sustainable Development Goals and in particular, The Decade of Education for Sustainable Development (DESD), HEIs started to incorporate sustainability into their culture (Howlett et al., 2016). While Sustainable Development (SD) has economic, environmental and social paradigms that are often integrated into the HEIs, it

is predominantly seen in the literature that HEIs focus more on environmental sustainability (Banga Chhokar, 2010).

Some institutions have considered blending environmental education into their curriculum by instilling sustainability concepts (Clark & Button, 2011). However, some HEIs have integrated sustainability education into their campus operations and some reached out to the communities to bring awareness (Singh et al., 2019). Several HEIs embedded sustainability activities into the entire university culture including research, teaching and learning, engagement and campus estates and operations (Cebrián et al., 2013). As a result, the concept of sustainability started garnering more attention in HEIs across the globe (Olariu et al., 2020).

### **Factors Influencing HEIs To Integrate Sustainability**

Sustainability in HEIs is relatively a new concept and most of the HEIs are still trying to comprehend and understand the policies and procedures to integrate it (Son-Turan & Lambrechts, 2019). Semeraro & Boyd, stated that: “....the academic literature in higher education contains relatively few empirical studies that demonstrate the capacity of planning on the realization of sustainability outcomes” (2017, p.1314). The extant literature revealed that HEIs across the globe have received the ideas, support and the necessary push to integrate sustainability from several corners.

The primary factors of influence were the initial declarations on sustainability that planted the seeds of sustainability into the institutions’ ideologies (Grindsted, 2011). In order to strengthen these ideologies various sustainable organizations and networks were formed and cemented the concept into the institutions’ culture (Zhu et al., 2020). To support the HEIs in their respective states and countries, state and federal laws and the research policies emerged strengthening the idea of HEIs and sustainability (Didham & Ofei-Manu, 2020).

## **Sustainable Declarations**

The declarations on sustainability provided the necessary guiding principles to aid the HEIs to integrate and incorporate sustainability into their systems (Wright, 2002). Sylvestre et al., applied critical discourse analysis to examine how sustainability and the university are socio-politically constructed within the declaration documents (2013). Through their analysis, the authors uncovered evidence of ideological assumptions and structures that are potentially misaligned with notions of sustainability. The authors opined that these are often discussed in the Sustainability in Higher Education literature.

This component of literature review explores the most important declarations that encouraged the HEIs to adopt sustainability. It is important to understand the declarations and their roles in promoting sustainability in HEIs, as these declarations resulted in a paradigm shift of perceiving sustainability. They have changed the way HEIs perceive, react and adopt sustainability over a period of time. Though the change has been slow and gradual, it is still considered very significant. This is also considered one of the important influencing factors of adopting sustainability into HEIs. Grindsted examined the discursive interaction between university and intergovernmental declarations that form the basis for the design of sustainable universities (2011). The author has identified 31 sustainable higher education declarations and concluded that 13 or almost half of the declarations have been signed between 2006-2011. Grindsted (2011) study aids the other HEIs in understanding the different declarations and their applicability to their respective institutions.

### ***The Brundtland Report of 1987***

Through the Oxford University Press, the United Nations published ‘Our Common Future’ also known as the Brundtland Report in 1987. The report was an attempt to refocus on the primary objectives of the Stockholm Conference, which are the sustainable development goals. One of the mandates of the Brundtland commission was to ‘raise the

level of understanding and commitment to action on the part of individuals, voluntary organizations, businesses, institutes and governments' (World Commission on Environment and Development, 1987). It is in this report that the education institutions were given focus to support in achieving sustainable development. The report also defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987, p. 41). The Brundtland report gave the necessary momentum to sustainable development and many sectors have started considering an environmentally sustainable approach in earnest.

### ***Talloires Declaration of 1990***

The historical Talloires Declaration is a revelation in itself for sustainability in HEIs (Khan, 2013). Since its emergence in 1990, over 500 university leaders in over 50 countries have signed the Talloires Declaration pledging to incorporate a ten-point action plan and promote sustainability and environmental literacy in teaching, research and outreach at colleges and universities (Talloires Declaration, 2015).

The Talloires Declaration addresses inequitable and unsustainable production and consumption patterns through ten action points: (i) Increase Awareness of Environmentally Sustainable Development; (ii) Create an Institutional Culture of Sustainability; (iii) Educate for Environmentally Responsible Citizenship; (iv) Foster Environmental Literacy For All; (v) Practice Institutional Ecology; (vi) Involve All Stakeholders; (vii) Collaborate for Interdisciplinary Approaches; (viii) Enhance Capacity of Primary and Secondary Schools; (ix) Broaden Service and Outreach Nationally and Internationally; and (x) Maintain the Movement (Talloires Declaration, 2015). Talloires declaration focused on curriculum, research, management, operations and outreach areas in the higher education institutions (Lozano et al., 2013) and involved leadership and management at multiple levels to attain

sustainability. So far, 173 higher education institutions in the U.S. have signed the Talloires declaration since 1990 and have pledged and promoted sustainability. In the state of New Jersey, two HEIs have signed the Talloires declaration.

### ***Rio Declaration of 1992***

In 1992, 117 heads of state and representatives from 178 nations gathered at Rio de Janeiro to attend the United Nations Conference on Environment and Development (UNCED), what is called the Earth Summit. The purpose of this historical conference was to reconcile worldwide economic development with protection of the environment (Zilahy & Huisingh, 2009; Ruiz-Mallén & Heras, 2020). The Rio declaration acted as a wake-up call to many sectors, especially the higher education sectors to incorporate sustainability in their approach.

The conference has adopted ‘Agenda 21’ to protect the environment and development. Chapter 36 of the Agenda 21 discusses promoting public awareness of environmental issues through education and training (Parson et al., 1992). Specifically, Chapters 35 and 36 motivate the universities to -(i) improve long-term scientific assessment, (ii) build up scientific capacity and capability, (iii) reorient education towards sustainable development, (iv) increase public awareness of the interrelated nature of human activities and the environment and (v) promote training to develop human resources and facilitate the transition to a more sustainable world (Ruiz-Mallén & Heras, 2020). Many of the attendees signed the declaration to commit themselves to protecting the earth’s renewable resources and the overall environment while pursuing economic development. The declaration on environment and development laid down 27 non-binding principles to address the concerns towards the environment (Pallemaerts, 2003).

### ***UNDESD-2005–2014***

The United Nations Decade of Education for Sustainable Development 2005–2014 is a

strategy initiated by UNESCO to integrate the principles, values, and practices of sustainability into all aspects of education and learning worldwide (Williams, 2010; Findler et al., 2017). The UNDESD has given momentum for strategic change in sustainability in education and research through formal education, public awareness and training (Mulà et al., 2017; Olariu et al., 2020). As Cebrian et.al mentioned, Education for Sustainable Development (ESD) is based on “values of justice, equity, tolerance, sufficiency and responsibility”, with respect as its core and DESD has promoted ESD into all levels of education (2013).

### **Policies of Federal and State Governments**

Federal and State Governments play a vital role in higher education systems. They formulate laws, rules and regulations that can direct the HEIs and the overall education system to adopt changes that are essential to bring change. In April 1989, under the Executive Order No. 205, the New Jersey Environmental Education Commission was created which comprised members from formal education and others ("NJDEP-SEEDS-Environmental education in New Jersey: A plan of action," 2013). Influenced by the Tbilisi Declaration of 1977, the New Jersey Environmental Education Commission discussed and adopted guiding principles to incorporate environmental education formally into the higher education system.

The document specifically recommends that ‘degree requirements in all public and private institutions of higher learning include a formal study of environmental topics at the undergraduate and graduate levels’. Through the Inter-agency Work Group, the Environmental Education Network and the Department of Higher Education (DHE) model college and graduate level programs, as well as current environmental education information and resources, will be shared with participating institutions and staff” (New Jersey Environmental Education Commission, 1993, p.17). The document further directed the Department of Higher Education to promote the Plan of Action recommendation to all Two-



and Four- year public and private institutions in New Jersey and asked the DHE staff to distribute the plan to key DHE staff, provosts and vice presidents at all two- and four- year institutions by October 1993.

### ***Federal Policies***

In 2008, Congress passed the Higher Education Sustainability Act (HESA) of 2007 as part of the Higher Education Act (H.R. 4137) to establish sustainability research programs in collaboration with the Department of Education and Environmental Protection Agency ("H.R.4137 - 110th Congress (2007-2008): Higher education opportunity act," 2008).

S.2444 (110th): Higher education Sustainability Act of 2007 mentions “to direct the Secretary of Education to provide grants to establish and evaluate sustainability programs, charged with developing and implementing integrated environmental, economic and social sustainability initiatives, and to direct the Secretary of Education to convene a summit of higher education experts in the area of sustainability”, ("S. 2444 (110th): Higher education sustainability Act of 2007," 2007). In November 2019, legislation was introduced in the U.S to reauthorize HESA through the Higher Education Sustainability Act of 2019 (S.2928).

The H.R.4137 - Higher Education Opportunity Act amends the Higher Education Act of 1965 (HEA) to revise and reauthorize HEA programs. H.R.4137- 110th Congress (2007-2008) “Directs the Secretary to make grants to establish sustainability programs at IHEs ("H.R.4137 - 110th Congress (2007-2008): Higher education opportunity act," 2008).

Other federal agencies that support sustainability in higher education are- (i) National Science Foundation; (ii) National Oceanic and Atmospheric Administration; (iii) National Aeronautics and Space Administration; (iv) Department of Defense; (v) Department of Energy; (vi) National Institutes of Health; (vii) U.S. Department of Agriculture; (viii) U.S. Geological Survey; and (ix) U.S. Agency for International Development.

### **Sustainability in Comparison**

The state of New York has also formulated policies to implement Environmental and Sustainability education in higher education. The Department of Environmental Conservation has released documents pertaining to plantation of trees, solid waste management and other aspects of sustainability that need to be implemented in higher education institutions in the state of New York ("Tree city, tree campus, and tree line USA - NYS Dept. of environmental conservation," 2022). The document provides detailed guidelines on how higher education institutions can adapt the sustainability and environmental practices into their culture.

### **Sustainable Organizations and Networks**

To support the HEIs with resources and encourage them to be sustainable enterprises, many national networks and sustainable organizations have come into existence in the U.S. These national networks motivate the HEIs to dive into the path of environmental sustainability.

#### ***AASHE- Association for the Advancement of Sustainability in Higher Education***

AASHE (Association for the Advancement of Sustainability in Higher Education) serves higher education faculty, administrators, staff and students towards sustainability innovation. Established in 2005, AASHE has over 900 members across 48 U.S. states, 1 U.S. Territory, 9 Canadian provinces and 20 countries (Huggins, 2022). AASHE defines sustainability in an inclusive way, encompassing human and ecological health, racial equity and social justice, secure livelihoods, and a better world for all generations.

AASHE has developed a reporting and rating framework tool known as STARS (Sustainability Tracking and Rating System) which aids HEIs in understanding and evaluating their contribution towards sustainability (Lang, 2015). STARS is a “voluntary, self-reporting framework for recognizing and gauging relative progress toward sustainability for colleges and universities” ("About STARS," 2018). Scholars and researchers in the field of sustainability created the AASHE STARS criteria by applying common sustainability

themes (Gregson & Ruppel, 2017). So far approximately 550 institutions have achieved a STARS Rating in the U.S. thus proving STARS has been a mobilizing force for many institutions to work on their sustainability components (Hansen et al., 2021).

This self-assessing/reporting framework is based on criteria developed to aid HEIs in evaluating their sustainable practices in different vantage points (Zahid et al., 2021). The framework consists of different categories such as Institutional characteristics, Academics, Engagement, Operations, Planning and Administration, Innovation and Leadership while each category is assigned certain values which are further dissected to micro level to better report sustainable practices. The self-reporting tool helps in allotting total points to the HEIs and awards them a Reporter, Bronze, Silver, Gold or Platinum STAR accordingly. It is observed that the institutions that acquired the STARS proudly report the achievement on their respective institutions' websites and brochures. They take pride in informing their stakeholders about their sustainability approach and practices.

#### ***ACUPCC: The American College & University Presidents' Climate Commitment***

ACUPCC is a “network of colleges and university presidents who have made institutional commitments to promote the research, education, and community engagement efforts needed to create a sustainable society, and to eliminate net greenhouse gas emissions from specified sources in their own campus operations" ("presidents' climate leadership commitments," n.d.) The network is led by a Steering Committee of more than 25 college and university presidents and chancellors. It is staffed and supported by Second Nature, a Boston-based non-profit with the mission to create a sustainable society by transforming higher education.

As of today, nearly 700 institutions have signed the ACUPCC and are making efforts to be environmentally sustainable. The national network emphasizes sustainable engagement and institutional carbon neutrality (Horhota et al., 2014). The objective of ACUPCC is to

empower the higher education sector by educating students, creating solutions, and providing leadership-by-example for the rest of society ("presidents' climate leadership commitments," n.d.).

### ***HESI: The Higher Education Sustainability Initiative***

HESI was created in 2012 by the United Nations Conference on Sustainable Development (Rio+20) along with a group of partners UN DESA, UNEP, UNESCO, UN Global Impact, UN GC PRME and UNU (Moon et al., 2018). Over 300 universities from 47 countries gave commitments to drive the sustainability agenda, accounting for more than one-third of all the voluntary commitments that were launched at Rio+20 (Mulà et al., 2017). HESI provides a unique interface between higher education, science, and policy making and is considered an effective tool for adopting the UN SDGs ("Higher education sustainability initiative," n.d.).

### **Conceptual Framework**

The declarations, sustainability networks, and sustainable organizations provide necessary guidance to the HEIs in adopting sustainability. However, the HEIs also need a mechanism to adopt, integrate, and implement sustainability into their systems. Researchers have tried and tested many frameworks that specifically give the HEIs feasibility to implement sustainability (Alshuwaikhat & Abubakar, 2008; Weisser, 2017). To understand how sustainability is integrated, researchers have developed conceptual frameworks that categorize sustainable activities into groups. These conceptual frameworks in relation to sustainability aid in 'the development and improvement of the strategies and activities of HEIs toward their commitment to sustainability' (Casarejos et al., 2017, p.1012).

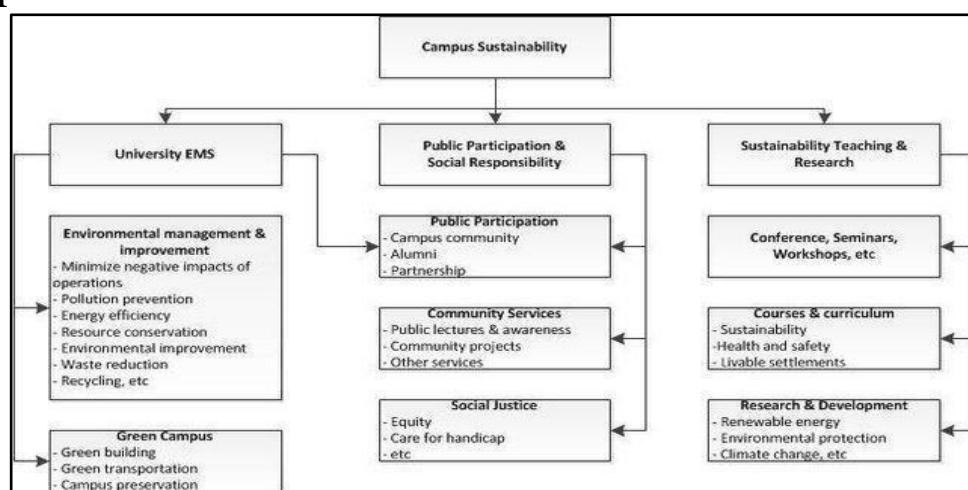
They also have set metrics and indices of sustainability that guide, assess, monitor and report actions (Casarejos et al., 2017). Some researchers expressed their concern over the existing frameworks and assessment tools for sustainability in HEIs as these frameworks

focus more on governance and operations and less on outreach, and education (Yarime et al., 2012). Shriberg states that “deep exploration of institutional models and goals” is essential and HEIs should measure processes and motivations by including past performance and future goals (2002). Although the approaches to sustainability differ on campus, country, policy and declaration levels, there is a certain commonality in the principles and themes in the policies and declarations that guide the HEIs into the path of sustainability (Wright, 2002).

### Campus Sustainability Framework

From the previous studies, it is observed that sustainable practices in HEIs broadly fall into three main categories such as campus infrastructure, education and community outreach. To understand how HEIs are practicing sustainability and how prevalent these practices are in each HEI, it is important to have a framework that can accommodate all these activities. Hence, I have chosen to use the Campus Sustainability Framework designed by Alshuwaikhat & Abubakar (2008). The reason for choosing the Campus Sustainability Framework is the strengths of its existence in the extant literature.

**Figure 1**



*Note:* Campus Sustainability Framework by Alshuwaikhat & Abubakar (2008).

The campus sustainability framework ‘takes all types and sizes of universities into consideration and enables them to be used for universities of different structures’ (Alshuwaikhat & Abubakar, 2008, p.1784) and has been widely used in developing countries, including Malaysia, Indonesia, India, and Brazil and by some studies in North America (Alomar et al., 2021). Throughout the literature, it is preeminently observed that the HEIs are deemed sustainable based on three categories that are broadly discussed.

### ***University EMS (Environmental Management Systems)***

EMS can be a successful tool for educational institutions to effectively manage diverse environmental concerns and improve campus sustainability. The EMS strategy includes environmental management and improvement of the campus as a whole and consideration of the Greening of the Campus (Disterheft al., 2012). According to the Campus Sustainability Framework, the EMS includes but is not limited to activities that minimize negative impacts of the operations, pollution prevention, energy efficiency, resource conservation, environmental improvement, waste reduction, recycling (Santos, 2018; Omazic & Zunk, 2021). The greening of the campus includes green buildings, green transportation and campus preservation (Agostino & Dal Molin, 2016).

Hopkins did an analysis exclusive to campus green building and identified barriers that are common to adopt green building initiatives in campuses (2016). Through the study, Hopkins suggested strategies to address the barriers for successful integration of environmental sustainability in campus operations (2016). Semeraro & Boyd, conducted an empirical archival study of the AASHE STARS database and concluded that climate action plans were most predictive of achieving sustainability outcomes (2017) and suggested that a clear plan has the potential to effect positive changes in public engagement, campus community and outreach.

Lee & Schaltegge used a case study approach to explore the sustainability

transformation of a university (2014). The study suggests that ‘establishment of fully integrated higher sustainability management education would require a close link between the university and the faculty to co-develop and coordinate the program and to develop the curriculum’ (Lee & Schaltegger, 2014, p.467). The authors provided a scope to share the different sustainability experiences to improve the success of curriculum development.

Ralph & Stubbs used both qualitative and quantitative methods through a case study approach by examining four English and four Australian universities to study the integration of environmental sustainability into campus operations, research and outreach activities (2013). The authors claim that their findings ‘draw attention to the need for universities to implement a multi-faceted approach to integrating environmental sustainability, supported by their respective governments’ (Ralph & Stubbs, 2013, p. 87).

### ***Public Participation & Social Responsibility***

This part of the framework includes public participation, community services and social justice as three main sub strategies. Public participation promotes involvement and welcomes contributions through the stakeholders such as campus community, alumni activities and partnerships with internal and external stakeholders (Zilahy & Huisinigh, 2009). The campus Sustainability Framework defined Public Participation and Social responsibility as activities that involve but not limited to community services, public lectures and awareness. The goal of these community projects is to help in the growth of communities as whole.

Social justice promotes equity and justice to different sections of the campus community. Finlay & Massey did a critical review of the previous studies on sustainability and how the concept of the eco-campus can be practically and productively applied (2011). Through their study, the authors concluded that many HEIs have strong leaders and the eco-campus model provides concrete principles that proactively address HEIs’ ecological footprints and develop sustainable community practices. Finlay & Massey claim that their

study on eco-campus approach represents an opportunity to initiate a cultural paradigm shift in HEIs (2011).

### ***Sustainability Teaching and Research***

Sustainability teaching and research include conferences, seminars, workshops, on sustainable development issues (Bullock & Wilder, 2016). The component of sustainability teaching and research in the Campus Sustainability Framework Consists of courses, research, education and curriculum designed around sustainability issues and any research and development activities on the environment, social and economic sustainability paradigms (Popescu & Bealeu, 2014). Alomar et al. (2021) described Campus Sustainability Framework as the most feasible and widely used framework to analyze environmental sustainability in the HEIs.

Leal Filho et al., used a mixed method approach ranging from document analysis, website analysis, questionnaires and interviews by involving 35 universities in seven countries. Through their statistical analysis they concluded that ‘universities with sustainable development (SD) policies have more probability to have initiatives as green campus procedures, SD in the curriculum and joint local/regional SD activities as compared with those who do not’ (2017, p.107). Leal Filho et al., claim that their study provides some valuable insights into the connections between SD policies along with the practice of sustainable development in HEIs (2017).

Dedeurwaerdere reviewed documents and analyzed the institutions and suggested : (i) an interdisciplinary approach to coupled human/nature systems, (ii) an explicit integration of strong sustainability ethics, and (iii) the development of extra-scientific transdisciplinary research collaborations as three core requirements of transformative sustainability science in an integrated way (2013). Through the review, Dedeurwaerdere proposed an incremental institutional change approach, based on a gradual institutionalization process of existing



initiatives (2013).

## **Summary**

The Section I of this literature review discusses some crucial aspects of HEIs and their inclusion of sustainability. This section provided a historical approach to how sustainability was introduced into HEIs through the support of declarations, state and federal policies and networks and organizations. This section also provided evidence through literature on how sustainability is integrated into the HEIs through campus operations, community outreach and education.

## **SECTION II**

### **Emergence of Websites of HEIs**

HEIs had the routine of prospective students and other stakeholders visiting the campus to obtain information about the respective institutions (Hasim et al., 2018). These stakeholders include but are not limited to prospective students, current students, college advisors, families of students, financial organizations, local businesses, community, faculty, leadership of the HEIs, administration and others. By the late 1990s, the internet became an easy tool for gathering information on higher education choices (Moskal et al., 2006). HEIs embraced the internet and developed websites with information pertaining to their institutions and thus changing their primary source in the information search process (Anctil, 2008). Anderson and Reid (1999) stated, “Visiting university websites seems to have become a norm—with many people considering their visit to a university website as their first visit to the university itself” (p. 54).

By the early 2000s, websites of HEIs were the most important tools for stakeholders next to campus visits. These websites are the faces of the HEIs to the world. They aid HEIs in interaction, networking and information dissemination among various stakeholders (Buhalis and O’Connor, 2005). These websites are often used by prospective students to do research

and find information on HEIs, indicating that websites play a prominent role in the college-choice process.

To come across as the most authentic and up-to-date versions of themselves, HEIs have started focusing on the content of their websites. It is estimated that HEIs invest as high as millions of dollars on websites (Schneider & Bruton, 2004), including multiple individuals and offices internally and sometimes externally. However, this amount is still minimal considering the outcomes of the websites. “College websites present a low-cost opportunity to provide thousands of students with essential information about colleges and programs both effectively.” (Margolin et.al., 2012, p.46).

HEIs use their websites to rapidly communicate an indispensable amount of information to a vast audience (Pegoraro, 2006; Anctil, 2008). Carnevale (2005) opined that higher education institutions use their websites as successful marketing tools to attract students and also keep the stakeholders informed. Nearly 78.6% of colleges in the U.S. attribute their websites as their important source of recruitment of new students (NACAC, 2019). They also provide a two-way communication and a scope to maintain continuous relationship between the HEIs and the stakeholders (McAllister & Taylor, 2007). Prospective students may consider dropping a HEI from their choice if the respective HEI’s website does not meet their expectations. Hence HEIs have extreme responsibility to update, organize, and be accessible to visitors and incorporate the needs of current students in future redesigns of the university web pages (Meyer & Jones, 2011).

Many researchers started obtaining information for research purposes from these websites on social issues and others such as politics, tourism, health and more (Vallez et al., 2022). Both qualitative and quantitative studies were performed using these websites where researchers attributed the information on the websites to be authentic and reliable. Margolin et.al. (2012) did a content analysis of ten community college websites to explore whether the

respective websites are a useful medium for providing knowledge relevant to degree completion. They stated that colleges try to provide information and share knowledge fully, clearly and consistently to their students and use their websites as a medium. It is the duty of HEIs to reflect and work on the feedback given by the prospective students (Anderson and Reid, 1999).

Apart from being reliable, the websites of HEIs are public in nature and anyone can access the information from anywhere. Gambescia & Paolucci (2013) analyzed websites of 206 HEIs in the United States including 2- year and 4- year colleges to study the presence of catholic identity of the institutions. The authors enhanced the public nature of the websites of HEIs and opined that they have become one of the most public of vehicles for a college, eclipsing in reach and frequency in the traditional communication outlets (p.9).

These websites are also the primary and first to places for prospective students who wish to pursue college education or enroll in any particular HEI. Jayawardena et al. (2019) analyzed the content of six Australian University websites to study the international student enrollments. They opined that the institutions' websites act as the primary source of information to learn about their institutions. The websites of HEIs have been used as tools of research considering their reliability, authenticity and public nature (Saichaie, 2011).

### **Communicating Sustainability Through Websites**

With the integration of sustainability into the HEIs culture, HEIs took pride in showcasing their achievements on their websites. They started using websites to communicate sustainability by sharing the information on various practices including the campus sustainability plans (Amey et al., 2020; Ferrer-Balas et al., 2008). A study conducted by Shakespeare Martineau's on students' choice of choosing a green college revealed that '90% of prospective students would be proud to study at a green campus' ("Institutions underestimate importance of sustainability for prospective students – new research reveals,"

2022). Students prefer to see information pertaining to sustainability on the websites of the institutions they are applying to. However, many researchers found this process of communicating sustainability through websites a slow and steady process. Though not much qualitative or quantitative research was done on sustainability communication through websites, many researchers tried to study the topic in different dimensions. A study on Canadian websites revealed that 67 percent address sustainability to some extent on their websites (Amey et al., 2020; Ferrer-Balas et al., 2008).

By the mid-2010s, emphasis on sustainability has increased and with the competition among different HEIs to thrive for the Millenium Development Goals and Sustainable Development Goals, many HEIs have started communicating their sustainability programs on their official institution websites. Dade & Hassenzahl (2013) analyzed 737 websites of HEIs in the U.S. for sustainability content, of which 39 percent of websites were from private institutions and 69 percent were from public institutions. They concluded that there was very little communication about sustainability issues mentioned on the institutions' websites and suggested the HEIs evaluate their need to communicate sustainability through their websites.

Over the period, the emphasis slowly spread to policies and plans of sustainability on campuses. Research done by Vaughter et.al (2015) analyzed the websites of 220 Canadian post-secondary institutions to explore the existing environment/sustainability policies and/or plans including sustainability initiatives. The authors relied completely on the information provided by the websites and concluded that there is evidence of the existence of environment/sustainability policies in Canadian post-secondary institutions.

By the middle of the 2010s, the idea of communicating sustainability through websites in HEIs has spread to different parts of the world and researchers started exploring websites of the HEIs to understand how they are addressing sustainability issues. Hinson et al. (2015) studied websites and annual reports of six HEIs from Ghana for sustainability. The author

affirmed that whether or not HEIs address sustainability or release a stand-alone sustainability report, their websites do disclose the sustainability performance and annual reports, indicating that the HEIs rely on disseminating sustainability information through their websites.

With the advent of websites and increased communication, new terms such as green universities and sustainable universities started emerging on the websites of HEIs. These HEIs started utilizing their websites to inform the stakeholders about their sustainability activities. Razman et al. (2016) did a web content analysis of 30 international green universities. They opined that the information revealed on the websites regarding the greening of the HEIs is useful for other HEIs to integrate similar sustainable practices.

From uploading information on sustainability programs and reports on websites to stand alone reports and documents, websites of HEIs have become a reliable source to gather information for many researchers. Sassen et al. (2018) researched on the sustainability reports disclosed by the UK HEIs. They obtained information of the sustainability reports available on the HEI websites in a ‘clearly identifiable and coherent form’. The researchers affirmed that the HEIs provide -evidently distinguishable sustainability reports on their institution websites. Similarly, Son-Turan & Lambrechts, (2019) studied stand-alone reports and the websites of HEIs in Turkey for their sustainability reporting. They concluded that the websites of the HEIs contain more information on sustainability than the reports themselves. The researchers reported that website analysis of sustainability reports merit investigations more than the stand-alone sustainability reports.

In a study done by Zahid et al., (2020), the researchers revealed that the HEIs are more inclined towards the environmental paradigm of sustainability than social and economic paradigms when it comes to sharing information on the websites. The authors studied the websites and documents of three universities in Pakistan for sustainable information.

However, many HEIs are still in the nascent stages of communicating sustainability through their websites. Filippo et al. (2020) analyzed Spanish universities' websites and found that nearly 50% of the websites contained some sustainability related information in them. They recommended the need to make website communication on sustainability more visible. There is also a significant difference in the way public HEIs and private HEIs disseminate information on sustainability through their websites. Vallez et al. (2022) studied the University websites for web visibility on Sustainable Development Goals (SDGs) and concluded that the websites of Spanish Public Universities have significant dissemination of information on SDGs compared to the Spanish private universities. The authors provided recommendations to the websites of HEIs on increasing their web visibility for issues such as SDGs.

### **Effectiveness of the websites**

Bradley (2007) described web appeal as curb appeal and not having an effective college website is 'committing competitive suicide'. HEIs strive to be in the competition by providing updated and authentic information to their website visitors (Sweatt, 2014). A higher education website is deemed effective if it can successfully integrate industry knowledge of website assessment with the needs of the target audience (Olivieri, 2018). When this fails, it may result in the loss of students and further financial loss of the HEIs (Feeney, 2009; Geyer & Merker, 2011; Poock & Bishop, 2006).

It is apparent that the HEIs do not update their websites daily and there is often a delay or some lack of information provided by the HEIs. In addition to updating and providing the information, websites of HEIs should also consider the ease and appealing design and usability testing (Olivieri, 2018). Hence for every HEI, it is important to measure and evaluate the effectiveness of their website to increase the visitors and also accurately represent itself as a digital campus.

There are various ways in which the effectiveness of a website can be measured. Singh et.al., (2016) proposed a hybrid tool to measure the effectiveness of a website. Coker (2013) identified ten variables to measure the effectiveness of a website some of which can be applied to higher education websites too. Zahran et. al (2014) discussed measuring the effectiveness of websites by web evaluation and website evaluation. Cox & Dale (2002) identified ease of use, customer confidence, online resources and relation services as key components of website designing that can also measure the effectiveness of a website.

Apart from these physical models, there are many online tools that are available for free or on purchase to measure the effectiveness of websites. Rashida et. al (2021) developed a web-based automation tool to analyze the quality of websites. The authors were particularly interested in analyzing the quality of the university websites. Khandare et al. (2014) used website Grader, SEOptimer and Qualidator, all three web based tools to analyze the usability of an engineering college.

### **PageSpeed Insights**

To analyze the effectiveness of websites of HEIs, I have chosen to use Google's Pagespeed Insights (PSI). Pagespeed Insights is the most popularly used web performance tool (Nejati, 2020). The tool is very easy to use and gives accurate information about the performance of any given website along with some useful guidelines on optimization of the webpage. Sommerlot & Easton (2017) used PSI to evaluate the interface for implementation, speed and usability of web pages and opined that the free tool is designed for researchers to evaluate the performance of web pages with ease and accuracy.

PageSpeed Insights evaluates a web page for both desktop and mobile performance and provides scores ranging from 0 to 100, along with some reasoning for the scores and a scope to improve the performance ("About PageSpeed insights," 2022). Krol & Zdonek (2021) used PageSpeed Insights to analyze the infectious disease hospital websites and opined that the

tool is very usable to analyze content of the website. Krol & Zdonek (2020) termed PageSpeed Insights as one of the quality indices to measure the performance and usability of web pages. The tool measures four main aspects of a web page by analyzing the URL: (i) First Contentful Paint (FCP); (ii) Largest Contentful Paint (LCP); (iii) First Input Delay (FID); and (iv) Cumulative Layout Shift (CLS). A URL (Uniform Resource Locator), also referred to as a web address, is a unique identifier used to locate a resource on the Internet

### ***First Contentful Paint (FCP)***

The First Contentful Paint (FCP) metric measures the time from when the page starts loading to when any part of the page's content is rendered on the screen (Walton, 2021). The content here refers to any text, images, elements that are present on the web page. According to the PageSpeed Insights, the First Contentful Paint of 1.8 seconds or less is considered to be having a good user experience. FCP of 75th percentile of page loads is considered a good threshold to measure and indicates the web page is hitting its target for most of its users (Walton, 2021).

### ***Largest Contentful Paint (LCP)***

The Largest Contentful Paint (LCP) metric reports the render time of the largest image or text block visible within the viewport, relative to when the page first started loading (Walton, 2020, 19). Sites having LCP of 2.5 seconds provide good user experience and LCP of 75th percentile of page loads is considered a good threshold to measure and indicates the web page is hitting its target for most of its users.

### ***First Input Delay (FID)***

FID measures the time from when a user first interacts with a page (i.e. when they click a link, tap on a button, or use a custom, JavaScript-powered control) to the time when the browser is actually able to begin processing event handlers in response to that interaction (Walton, 2020, 17). First impressions can be measured for site's design, visual appeal, speed



and responsiveness. A good first impression can make the difference between someone becoming a loyal user or them leaving and never coming back. A site that has first Input Delay of 100 milliseconds or less and FID measure of 75th percentile of page loads is considered a good threshold to measure and indicates the web page is hitting its target for most of its users. Giannakouloupoulos et al., (2019) analyzed how a university's excellence is related to the quality of its web presence using Pagespeed insights' First contentful Paint and First Input Delay. The authors opined that there is correlation between performance of an institution and the quality of university's online presence.

### ***Cumulative Layout Shift (CLS)***

CLS is a measure of the largest burst of *layout shift scores* for every unexpected layout shift that occurs during the entire lifespan of a page. A *layout shift* occurs any time a visible element changes its position from one rendered frame to the next (Walton & Mihajlija, 2021). A CLS score of 0.1 or less and CLS measure of 75th percentile of page loads is considered a good threshold to measure and indicates the web page is hitting its target for most of its users.

### ***Performance Score***

By using the above mentioned metrics, PageSpeed Insights generates performance scores for each web page by summarizing the page's simulated performance. A score of 90 or above is considered good. 50 to 90 is a score that needs improvement, and below 50 is considered poor. In addition to this, each metric is scored and labeled with an icon: Good is indicated with a green circle, Needs Improvement is indicated with amber informational square, Poor is indicated with a red warning triangle ("About PageSpeed insights," 2022).

## **Conclusion**

The literature review on communicating sustainability through websites in HEIs has opened a variety of topics and issues that have existed in the field for a long time. Maiorescu et al., opined that the transition towards a sustainable society begins with education (2020).

Many researchers have tried to study sustainability through different vantage points.

Sustainability has a plethora of proponents (Owens & Legere, 2015) and there is a significant lack of sustainability evaluation in HEIs (Alba-Hidalgo et al., 2018), especially in the context of its presence on the websites of HEIs.

The historical journey of sustainability in HEIs has revealed some interesting facts pertaining to the slow and steady integration of phenomena into the education system over a period of time. Although this happened over a span of nearly 100 years, many studies still opine that sustainability is still in novice stages (Wright, 2002). The literature on declarations, policies and sustainable organizations revealed the importance of roles of each individual entity and also cemented the relationship between declarations and the HEIs in adopting sustainability.

One critical and important issue with the literature on communicating sustainability through websites is that most of the studies have been found to be on sustainability reporting, integration of campus sustainability issues, barriers and challenges in HEIs, while some focused on curriculum changes and trends in HEIs. There is not much literature on understanding how the respective institutions are implementing, practicing, and progressing in sustainability. There is also a gap in research in learning how HEIs in each state in the U.S. are communicating their sustainability issues on their websites or adopting sustainability. It is still unknown how these websites compare based on institution type or state wide. There is a need for more empirical research as they provide a pragmatic approach to the HEIs in adopting sustainability into their culture and also communicate with the outside world through their websites.

## **CHAPTER 3**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **Problem Statement**

The existing body of research discusses the history and progress of sustainability trends HEIs globally. It is also observed that researchers have explored various declarations, frameworks and tools of sustainability pertaining to HEIs. However, there is a significant gap in research pertaining to how the websites of the HEIs communicate any relevant sustainability practices with the stakeholders. In the state of New Jersey, despite receiving aid in several ways to incorporate sustainability into their institution culture, it is still unknown how the HEIs are implementing these activities effectively and how they are communicating through their websites.

There is a significant paucity in the research to identify the characteristics of communication through websites on various sustainability practices and also how institutions differ in their communication practices. There is also not enough empirical research to discuss the various sustainability practices that are existing in the HEIs. Through the literature review, it is unclear if HEIs are inclining towards campus operations such as installing solar panels or eliminating fossil fuel emissions or constructing more green buildings or implementing alternative transportation etc; or towards the public outreach such as involving communities or holding conferences to bring awareness on environmental issues; or towards research and curriculum on sustainability.

In order to explore the sustainability practices in HEIs and how they communicate sustainability through their websites, coupled with gaps in the literature review and using the conceptual framework, I generated the following research questions:

- 1) What are the sustainability practices communicated by HEIs in New Jersey on their websites?
- 2) How is sustainability communicated through the websites of HEIs in New Jersey?

- 3) How do the sustainability practices communicated on their websites compare to the practices reported through AASHE STARS by HEIs in New Jersey?

### **Methodological Approach**

From the literature review, it is observed that many researchers found content analysis of websites as the most appropriate methodology to analyze the patterns of sustainability reported through the websites of HEIs (Son-Turan & Lambrechts, 2019). Content analysis helps in deriving patterns, understanding the categories and developing themes and trends. The process also aids in analyzing data qualitatively and also quantifying the data (Gbrich, 2007). Pope et. al (2006) opined that content analysis is a useful methodology to explore large amounts of textual information by determining the trends and patterns of words used in communication. A researcher using content analysis views data as representations in the form of texts, images, and expressions that needs to be seen, read and interpreted (Vaismoradi et al. 2013).

Stemler (2015) depicted that content analysis will be advantageous in analyzing massive archival data resulting from advanced technology. The author discussed the use of content analysis in analyzing data from sources such as audio files, video files, websites and other technological sources. Content analysis can aid in determining the concepts present in words or texts. Carley (1990) mentioned the usage of content analysis to analyze computer-based data and suggested that content analysis be uses to get a visual representation of the data along with quantitative text descriptions.

The goal of my study is to establish a comprehensive set of themes of sustainability practices in the HEIs by acquiring information from their websites. This can be achieved only through an inductive and deductive data analysis which is a primary characteristic of qualitative research (Creswell, 2013). Hence, I have chosen to do qualitative research to answer my research questions. As Patton (1990) noted that qualitative researchers “attempt to

make sense of [a] situation without imposing pre-existing expectations on the phenomenon” (p. 44). Qualitative research has been widely used in fields like education, sociology, and anthropology (Castleberry & Nolen, 2018). As a component of qualitative research, I applied thematic analysis methodology to the data as thematic analysis is an independent and a reliable qualitative approach of analysis (Vaismoradi et al., 2013).

### **Research Study Design**

This study primarily relies on the information provided by the websites of the respective institutions. It is observed that HEIs mention about their sustainability practices on their websites. These practices might or might not be the same as compared to different institutions. This study is based on the possibility of new practices emerging from information on the websites or an overlap of information from two or more HEIs. The sustainability practices might also differ from each other though they fall in the same category of the framework. Considering these options and possibilities, I have chosen to do thematic analysis to study the trends, patterns and themes existing in HEIs in relation to sustainability by studying their websites.

I applied thematic analysis as it is a flexible and useful research tool that provides a rich and detailed, yet complex, account of the data (Braun & Clarke, 2006). It also allows categories to emerge from the data. It is just as intensive as coding and requires comparable reflection on data meanings and outcomes by including primary questions, goals, conceptual framework, and literature review. Since this study did not involve first-person data collection such as interviews, but rather has a theme interpretation of sustainability trends in HEIs that are reported on the websites, the process was more of a deductive approach to the data coding and analysis.

As outlined by Braun & Clarke (2006), thematic analysis consists of six phases: (a) familiarizing oneself with the data, (b) creating initial codes, (c) looking for themes, (d)

reviewing potential themes, (e) defining and naming themes, and (f) producing the report. By applying these steps, I have carefully identified and evaluated themes to get an understanding of the environmental sustainability activities in the chosen HEIs.

### **Conceptual Framework**

To understand the various sustainability activities as reported on the websites of the HEIs, I have considered using the Campus Sustainability Framework developed by Alshuwaikhat & Abubakar (2008). Campus Sustainability Framework considers all types and sizes of the universities and accommodates all kinds of operations in the institutions. Through the literature review, it is observed that most of the sustainability practices reported on the websites of the HEIs are falling broadly into three main categories: (i) campus operations; (ii) Community outreach; and (iii) education. Whether or not any activity falls under these three categories or outside is something that can only be discussed after the analysis.

The framework supports implementation of sustainability goals in its entirety including the total well-being of those who will use the campus buildings and the surrounding environment. The framework broadly categorizes the sustainability activities into three categories: (i) campus operations; (ii) Community outreach; and (iii) education. The data is carefully collected using the framework at all the steps and more details on data collection are explained in the next section.

### **Population**

To understand the overall pattern of how HEIs are communicating sustainability and to avoid any biases, I have considered studying all the HEIs in New Jersey. To acquire the list of all the HEIs, I visited the OSHE (Office of the Secretary of Higher Education) website. The OSHE website has a list of HEIs that are accredited. I have not eliminated any HEIs as part of this study as I want to analyze how each HEI communicates sustainability through its website.

## **Data Collection**

To identify, evaluate and analyze the pertinent themes in the chosen HEIs, I have considered using thematic analysis of individual institutions' websites. As an initial step to collect the data and identify the potential HEIs and themes, I resorted to the following steps.

### ***Familiarizing With the Data***

To familiarize myself with the data, I have collected a detailed list of 111 higher education institutions in New Jersey taken from the OSHE website. The OSHE has categorized the institutions based on the sectors including: (i) Community Colleges, (ii) Graduate Degree-Granting Independent Institutions, (iii) Independent Two-Year Religious Colleges, (iv) Independent Four-Year Colleges, (v) Proprietary Institutions with Degree-Granting Authority, (vi) Public Research Universities, (vii) State Colleges and Universities, (viii) Talmudic Institutions / Theological seminaries.

As a first step, I Googled every institution to get the website URL. Once I acquired the URL, I entered the respective institution's website. I gathered the demographic information of the HEI such as campus location, number of campuses and type of institution. Then, I located the search button for every institution, and by using a variety of words such as “environmental”, “sustainability”, “environment”, “sustainable”, “green buildings”, “ACUPCC”, “AASHE”, “NJHEPS”, “declaration”, “student clubs”, “eco clubs”, “community”, “water”, “recycling”, “food waste”, “solar”, “LEED”, “STAR” I navigated through the relevant pages to gather more information. I used these Boolean words as these words emerged through literature review and are closely related to sustainability activities in HEIs.

Using the Boolean terms, I have conducted an extensive web search of the respective HEI to gather information on- if the institution has signed any declaration; if the institutions have completed a sustainability assessment process such as STARS; if the institutions are

members of any sustainable organizations such as ACUPCC, NJHEPS, AASHE; and if the institutions have any sustainability office, or department or a policy in place and if there is any web page dedicated exclusively to sustainability program in the respective HEI. I took a note of all the information and organized them on an excel sheet. I jotted down every minute information on the HEI website on sustainability that is reflected through the search process.

To eliminate further errors, I have also visited the websites of Talloires Declaration, ACUPCC, NJHEPS and AASHE STARS to verify if the institutions are listed as members. I noted down all the relevant information on HEIs available on the above mentioned websites. To ensure all the data is included, I specifically searched for the policy documents and the institutional documents. The institutions and the variation terms are entered into the Google engine such as “Seton Hall University and sustainability” to ensure the searches were rigorous and accurate.

## **Data Analysis**

### ***(a) Creating Initial Codes***

As a second step, I resorted to deductive coding. A deductive coding is studying the data with some preconceived themes based on theory or existing knowledge (Caulfield, 2019). Once the relevant pages are up, I have thoroughly scouted them for information pertaining to sustainability activities. All the data related to declarations, sustainable organizations, networks, existing sustainability activities are noted in an excel sheet. To organize the data, I created the initial codes and subcodes and entered the data as per the relevant codes. The sub coding system helped in identifying the different themes and categorizing them easily in a systematic manner. For HEIs that have information pertaining to sustainability, I took a note of it in the respective excel block. For those that do not have any information available on the website, I noted the information as ‘0’.

### ***(b) Identification of Themes***



As a third step, I did the theme search. This process identified the patterns that are emerging from the coded data. These patterns are clustered or separated and as they reveal a character that is unique to each of its own. During this process, I categorized the activities into three main groups using the campus sustainability framework by Alshuwaikhat and Abubakar (2008). The campus sustainability framework provided a strong idea of what kind of themes could be expected in the data, and based on this framework, a predefined set of codes was generated and these codes were assigned to the new qualitative data. This method is also called concept-driven coding.

The systematic analysis of data began at this phase where codes are classified and associated with the research questions. During this step, I realized that many new themes have started emerging and some existing themes were predominantly seen among the HEIs. With the help of campus sustainability framework, I broadly categorized the themes into three main categories: (i) Campus Operations; (ii) Community Outreach; and (iii) Education.

**(i) Campus Operations.** The campus operations included but not limited to green buildings, LEED certified buildings, recycling programs, energy saving programs, alternative energies, solar panels, water recycling, water saving methods, waste reduction methods, waste reduction at dining halls, paper reduction measure, transportation plans, investing in socially responsible funds, campus greening and green procurement programs.

**(ii) Community Outreach.** The community outreach programs primarily involve the communities and awareness on environmental issues. The activities such as conferences, seminars and or workshops related to environment and sustainability, environment clubs and groups in the campus, task groups, meetings within the campus and with outside communities, community gardens, recycling competitions involving the communities, campaigns involving different stakeholders from and outside the campus, social media pages discussing the environmental activities of the institutions are included in this category.

**(iii) Education.** Research and curriculum are predominantly observed among most of the HEIs. The education programs include Non credit courses on environment or sustainability, credit courses, degree programs, departments or offices on environment or sustainability, research on interdisciplinary programs promoting environment or sustainability across the disciplines.

### **Sustainability Reports**

Each HEI is thoroughly surfed to analyze how sustainability is communicated. From the literature review, it is seen that HEIs mention their sustainability activities as news or blogs. To understand this further, each HEI is carefully reviewed and observed for how sustainability is communicated. While some HEIs have exclusive blogs on sustainability, some HEIs have policy documents or news articles. All the information is acquired and coded to understand in what ways HEIs communicate sustainability through their websites and which are the most commonly seen themes among the sustainability reports that emerged during the analysis.

### **Comparison of Sustainability Activities**

As a method of comparing the existing sustainable activities to those that are mentioned on the websites of the HEIs, I performed a comparative study using the information obtained from the websites to AASHE STARS. STARS is a self-reporting tool used by the HEIs to report their sustainability. These reports are available for the public and have detailed information of all the sustainable activities of the HEIs. By comparing the information provided by the HEIs on their websites to what they report in STARS, I analyzed the extent of sustainability communication through websites.

### **Effectiveness of websites**

As a process to establish the authenticity and effectiveness of the website, it is important to study each web page that contains information on sustainability. HEIs that have exclusive

sustainability pages are identified and further scrutinized to see how effective their sustainability web pages are. To do this analysis, I have resorted to PageSpeed Insights- a free online web tool that is deemed by many researchers as one of the prominent tools to measure effectiveness/performance of the web pages. I gathered the list of all the HEIs that have an exclusive sustainability page that is dedicated to share any information pertaining to sustainability activities in their HEIs. I copied the URLs (Uniform Resource Locators) of the sustainability web pages and analyzed them using PageSpeed Insights. PageSpeed Insights performs the analysis and generates a report indicating the scores for each individual unit including an overall performance score. This analysis gives us information on how well the sustainability web pages are performing and how the websites are reaching out to the stakeholders.

### **Reliability of the Study**

For the purpose of this study, I obtained data from the websites of the HEIs in New Jersey. The data obtained from the websites of the HEIs is considered to be reliable and authentic as the HEIs consider these websites to be their virtual faces. Since these websites communicate with a plethora of stakeholders including but limited to current and prospective students, alumni, staff, faculty, donors, legislators or even a common man, they have the utmost responsibility to present the most legitimate, authentic and updated information (Pegoraro, 2006).

The HEIs also have a responsibility to stand out in the crowd, so they have the utmost obligation to keep any information on their websites to be as reliable and authentic as possible. These HEIs utilize their websites to make and establish their identity and uniqueness by providing information that marks any kind of achievement. These websites are the windows through which the performance of the universities can be viewed (Filippo et al., 2020) and are the first places to be visited by the students for any information on

sustainability practices before enquiring about the institution via phone or brochures (Dade & Hassenzahl, 2013). Hence, any data obtained from these websites is considered to be reliable and effective in nature.

### **Information on Sustainability**

Since four HEIs have no websites, the rest of the 107 HEIs are studied for the presence of any sustainability information. Each institution's website was carefully searched with Boolean terms. It is observed that 45 HEIs have no information on any kind of sustainability on their websites. To eliminate errors, a Google search was also performed with 'institution's name and sustainability' as a search word. Yet no information on sustainability practices could be retrieved pertaining to these 45 institutions. These 45 HEIs primarily fall under the category of Independent Two-Year Religious Colleges (1), Graduate Degree-Granting Independent Institutions (2), Proprietary Institutions With Degree-Granting Authority (16), Talmudic Institutions / Theological Seminaries (26). These 45 HEIs are eliminated from further study as their websites do not have any information on sustainability.

**Table 1**  
*Higher education institutions in New Jersey with no information on sustainability*

<b>Type of the Institution/ Sector</b>	<b>Total number of HEIs with no information on Sustainability</b>
Independent Two-Year Religious Colleges	1
Graduate Degree-Granting Independent Institutions	2
Proprietary Institutions With Degree-Granting Authority	16
Talmudic Institutions / Theological Seminaries	26
<b>Total</b>	<b>45</b>

The rest of the 62 HEIs are further studied and analyzed for information on sustainability. Through the analysis four main themes and three sub themes were established.

The four main themes can be summarized as follows:

1. Sustainability practices: Sustainability practices that are reported by the HEIs. These practices are further categorized into three sub-themes using Campus Sustainability Framework.
2. Sustainability reports: Sustainability reports that are available on the websites of HEIs. These reports can be in the form of news articles, policy documents, strategic plan, blogs, reports on achievements and others.
3. Sustainability page: Exclusive sustainability page on the website dedicated to discuss the commitment of the respective HEI towards sustainability. This page hosts all the information pertaining to sustainability practices of the respective higher education institutions including discussion on sustainability practices, reports, education, policies, and others.
4. STARS report: AASHE STARS reports are self-reporting tools that show the commitment of HEIs across the campus. The STARS reports are publicly available and can be accessed to see how a HEI is practicing sustainability.

Since this study relies on the websites of HEIs to retrieve, code and analyze the data pertaining to sustainability, it is important to analyze the efficiency of the particular websites. PageSpeed Insights is used to determine and understand the efficiency of the respective websites. Additionally, an overall comparison of the web pages analysis is also performed to understand which web pages are more effective in interacting with the visitors.

### **Positionality Statement**

I have an educational background in environmental sciences and professional experience in higher education institutions. I teach sustainability and conservation at a higher education institution. I am also an advocate of sustainable campuses and I am aware of the sustainable policies in New Jersey which also happens to be my current state of residence. I have had the opportunity to be part of a public university, a private university and a

community college in New Jersey in the capacity of a researcher, student and employee. I have witnessed different environmental strategies through which each of these campuses adopted sustainability.

Since there could be a bias in choosing and selecting only one campus or a particular campus, I have decided to analyze all the higher education institutions in New Jersey and study how these institutions are striving to be sustainable by analyzing their websites. Since I am aware of the federal and state policies of New Jersey, I am hoping that my study will provide a scope to other states and other higher education institutions across the nation and globally to be sustainable. As part of this study, my role is limited to extracting and processing the information and to interpret the results. This will eliminate any scope for bias or unethical representation of the information. This research is based on the belief that the higher education institutions provide true and authentic information on their websites and institutional documents that can be trusted. Since all the information on the institutions' websites is self-reported by the institutions themselves, the information is deemed ethical and trustworthy.

### **Limitations of The Study**

The first limitation to this study is that this research assumes that the information provided on the websites is purely at the discretion of the respective institutions. Since this is a self-reported study of the institutions, some institutions might have not updated their information during the time of the research. There is also a possibility that the activities mentioned by the websites may not be current or comprehensive or explored in detail. This may yield a possibility of misinformation or misrepresentation of the information.

The second limitation is that this study is limited to the websites of the 111 higher education institutions provided on the New Jersey Department of Education (NJDOE) website. The websites of the higher education institutions that are not listed as part of NJDOE

are not considered in this study. These websites do not have any information on sustainability and the search yielded no results. It is unknown whether these HEIs have any sustainability practices implemented in their institutions or not. Since this study is purely based on the information provided by the HEIs on their websites, the HEIs that yielded no results through search are not considered in this study.

The third limitation is that in-depth or detailed information of sustainable activities might be missing from the websites. Details pertaining to what sustainability practices are implemented in the HEIs, or how the HEIs are considering adopting sustainability into their culture might be missing, as many institutions may or may not update their websites during the time of the research. Some HEIs may have sustainability practices implemented in their culture but must have eliminated this information on their websites.

The Fourth limitation is that the study analyzed sustainability content on the HEIs websites but did not evaluate the existing on ground sustainable practices. There could be situations where the HEI proposed certain programs but never implemented them or stopped them due to shortage of financial or other resources. Therefore, the presentation of sustainability content could be inconsistent with the actual practices that are adopted or implemented by the HEIs. Similarly, HEI with ineffective content could be practicing more sustainability on ground than what is presented on the website. As I will discuss in the section on areas for future research, creating a method of matching the actual sustainability practices with what is presented on the website would be an important contribution to research in this field.

The fifth limitation is that the preliminary data was acquired during the period of October 1, 2021 - October 14, 2021. The websites of HEIs are revisited and analyzed from June 15, 2022 - June 30, 2022. There are possibilities that the HEIs may have updated their sustainability practices post this study or removed certain content from their websites during

the period of this study. There is a possibility of miscommunication between the departments which can lead to not updating the websites. It is also important to understand that HEIs are constantly struggling to meet the demands of the stakeholders and in this process, the communications unit could be overworked or understaffed. This may result in outdated content presentation or misrepresentation on the website which can lead to missing data from the analysis. Hence some sustainability practices might not have emerged during the data.

The sixth limitation is that certain HEIs have thousands of archival links that have the term sustainability. As part of this research, I clicked on the most relevant links and also verified the data through triangulation. However, there are a lot of archives that emerge during the search and these archives are deep and buried in timelines as old as 10-15 years ago. Hence, there is a scope that some data is missed in these archives or totally went unnoticed.

The seventh limitation is that to understand the effectiveness of the websites, I have used Pagespeed Insights. PSI analyzes how effective the web page is based on the tools and suggests the performance scores. However, PSI scores do not reveal information about the demography or the number of visitors. It is also not possible to know if the visitor is gaining any knowledge from the websites. Since this study did not involve any personal interviews, one cannot identify how much information the visitors acquired after they visited the web page.

## **Summary**

To summarize, this research study is a qualitative thematic analysis that is applied to answer the three research questions: 1) What are the sustainability practices communicated by HEIs in New Jersey on their websites?; 2) How is sustainability communicated through the websites of HEIs in New Jersey?; and 3) How is sustainability communication compared to the existing sustainability practices? The websites of 111 Higher education institutions



from the state of New Jersey are analyzed for the pertinent themes on sustainability using the Campus Sustainability Framework. The themes are broadly categorized into three groups and codes are developed from the data. After the reviewing of the codes, themes are identified and analyzed for the prevalence as per the research questions.

In this chapter, the data collection, selection of participation and content analysis procedure are presented in detail. This chapter also helped in understanding how effectiveness of websites are analyzed. In the following chapter, the resulting pertinent themes emerging from the methodology will be discussed in detail, providing the evidence collected from the websites of the 111 higher education institutions as part of the study.

## **CHAPTER 4**

### **FINDINGS**

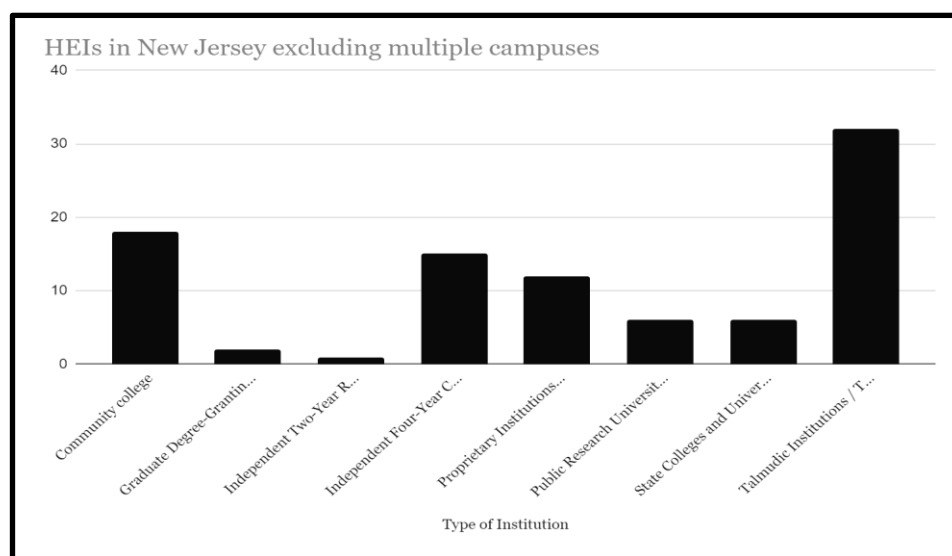
#### **Introduction**

This chapter presents the findings of this study and answers the main research question: How HEIs in New Jersey communicate sustainability on their websites. This chapter will discuss the three main research questions in detail and present the findings of the content analysis of the data.

#### **Demographics**

For the purpose of research, I have acquired the list of HEIs from the Office of Secretary of Higher Education in New Jersey (Office of the Secretary of higher education, 2021). The NJ College & University Directory provides a list of 111 accredited higher education institutions that is open for the public to access. I included all the institutions into my research as I also intend to understand how each institution type differs in communicating sustainability through their websites. The preliminary data is acquired during the period of October 1, 2021 - October 14, 2021. The websites of HEIs are revisited and analyzed during June 15, 2022 - June 30, 2022.

The type of institutions include Community Colleges (23), Graduate Degree-Granting Independent Institutions (2), Independent Two-Year Religious Colleges (1), Independent Four-Year Colleges (18), Proprietary Institutions With Degree-Granting Authority (20), Public Research Universities (9), State Colleges and Universities (6), Talmudic Institutions / Theological Seminaries (32). The total number of HEIs excluding multiple campuses is 92 and including multiple campuses is 111.

**Figure 2**

*Note:* Number of higher education institutions by Institution type excluding multiple campuses.

**Table 2**

***List of HEIs including and excluding multiple campuses***

Type of Institution/ Sector	Total including multiple campuses	Total excluding multiple campuses
Community college	23	18
Graduate Degree-Granting Independent Institutions	2	2
Independent Two-Year Religious Colleges	1	1
Independent Four-Year Colleges	18	15
Proprietary Institutions With Degree-Granting Authority	20	12
Public Research Universities	9	6
State Colleges and Universities	6	6
Talmudic Institutions / Theological Seminaries	32	32
Grand Total	111	92

From the demographics, it is observed that The Talmudic Institutions / Theological Seminaries are the highest in number (28%) followed by the community colleges (20%).

While the Independent four- Year colleges (16%) and Proprietary Institutions With Degree-Granting Authority (18%) are in moderate numbers, the public research Universities (8%) and the State colleges and Universities (5%) are significantly low in number. However, Graduate Degree Granting Independent Institutions (1.8%) and the Independent Two-Year Religious Colleges (0.9%) are almost negligible in number.

It is observed that each of these institutions, except for four, has a website dedicated to provide information to the public. Four HEIs including Yeshiva Chayei Olam, Bais Medrash Mayan Hatorah, Mosdos Yaakov V'Yisroel and The Rabbinical Seminary M'kor Chaim, falling under the Talmudic Institutions and Theological Seminaries sector, have no institutional websites. Hence any information from these HEIs could not be retrieved for the purpose of this study.

The directory has provided a list of 12 institutions that have multiple campuses. Upon observation, it is found that nine institutions including Rowan College at Burlington County (2), Rowan college of south Jersey (2), Union County College (4), Monmouth University (2), DeVry University (3), Strayer University (3), Eastern International College (2), Eastwick college (3), Jersey College (2), New Jersey Institute of Technology (2), have multiple campuses but lack a separate website dedicated exclusively to each campus based on the location. Three institutions including, Seton Hall University (2), Rutgers University (3), Fairleigh Dickinson University (2), have multiple campuses and a separate website is available for each campus location.

Since four HEIs have no websites, the rest of the 107 HEIs are studied for the presence of any sustainability information. Each institution's website was carefully searched with boolean terms. It is observed that 45 HEIs have no information on any kind of sustainability on their websites. To eliminate errors, a google search was also performed with 'institution's name and sustainability' as a search word. Yet no information on sustainability

practices could be retrieved pertaining to these 45 institutions. These 45 HEIs primarily fall under the category of Independent Two-Year Religious Colleges (1), Graduate Degree-Granting Independent Institutions (2), Proprietary Institutions With Degree-Granting Authority (16), Talmudic Institutions / Theological Seminaries (26). These 45 HEIs are eliminated from further study as their websites do not have any information on sustainability.

The findings are further presented according to the three research questions that will aid in understanding the overarching question on how Sustainability is communicated by the higher education institutions through their websites.

**Table 3**  
*List of HEIs with multiple campuses and exclusive websites*

Name of the HEI	Number of campuses	Separate website (No=0, Yes=1)
Rowan College at Burlington County	2	0
Rowan college of south Jersey	2	0
Union County College	4	0
Monmouth University	2	0
Devry University	3	0
Strayer University	3	0
Eastern International College	2	0
Eastwick college	3	0
Jersey College	2	0
New Jersey Institute of Technology	2	0
Seton Hall University	2	1
Rutgers University	3	1
Fairleigh Dickinson University	2	1

#### **Types of Sustainability practices**

By using the deductive approach of content analysis, I analyzed the sustainability information provided by the HEIs on their websites using the Campus Sustainability Framework. This process helped me in answering the research question 1- RQ 1: What are the sustainability practices communicated by HEIs in New Jersey on their websites?

### **Definition of Sustainability**

While HEIs are talking about sustainability on their websites, it is also important to understand how the term ‘sustainability’ is defined and perceived by each institution. From the analysis, it is observed that not many HEIs have clearly defined sustainability. Princeton University however clearly defined the term sustainability on their web-page as *“A dynamic and inclusive process that improves quality of life while regenerating ecological systems”*. Montclair State University does not specifically define sustainability. However, it takes the visitors to a special web-page where the institution elaborated on the UN Sustainable Development Goals. Ramapo College has mentioned what sustainability means to them and stated that *“Sustainability broadly reflects the recognition that our actions today affect our prospects for tomorrow, and increasingly, these actions will affect the quality of life and prospects for future generations”*. Though HEIs in New Jersey do not clearly define sustainability on their websites, some have tried to provide the visitor with information on how they perceive sustainability as and what it means to them.

### **Sustainability Practices**

Information pertaining to sustainability practices on the campus is gathered and analyzed with the help of the respective HEI website. As discussed in chapter one and two, sustainability practices in HEIs can be in the form of transportation, solar energy usage or educational courses. To further understand and delineate these practices, I used the Campus Sustainability Framework. The Campus sustainability Framework uses three broad categories

to understand the sustainability practices in the HEIs. I have used these three categories as sub-themes to analyze the trends in the sustainability practices mentioned by the HEIs on their websites. The three sub themes under which the sustainability practices are categorized are: sub-theme 1- Campus Operations; sub-theme 2- Community Outreach; and Sub-theme 3- Education. Upon studying the institutional websites, several practices falling under each category are carefully noted down.

### ***Sub-theme #1- Campus Operations***

As discussed in chapter two, campus operations can include a plethora of practices such as green transportation, green buildings, waste reduction, recycling and many others. From the data, it is found that- of the 62 institutions, 38 institutions (61%) have mentioned sustainability in their campus operations. These include 6 community colleges (26%), 16 Independent Four-Year Colleges (89%), 1 Proprietary Institutions With Degree-Granting Authority (20%), 9 Public Research Universities (100%), 6 State colleges and Universities (100%).

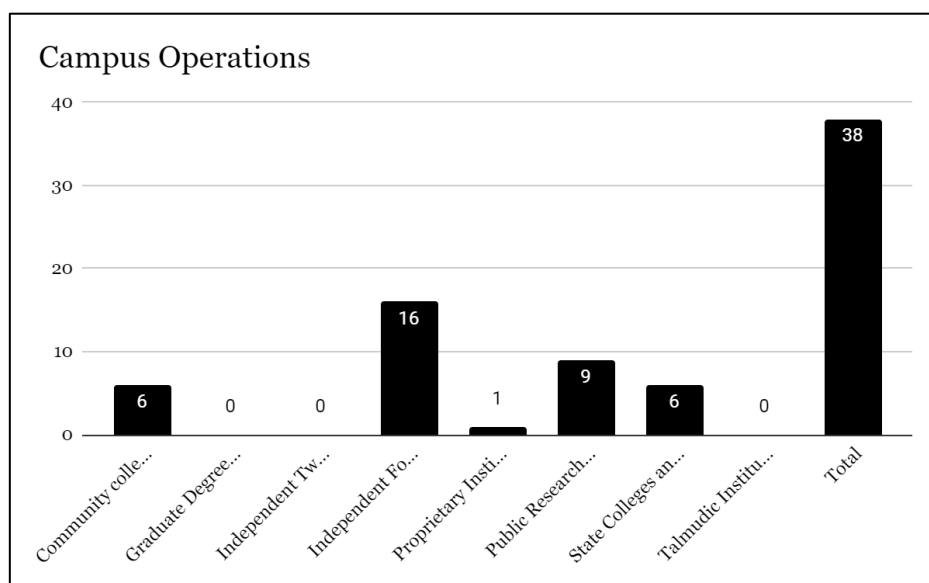
The most common campus operations that emerged during the web search of higher education institutions are LED lights, energy efficient units, Campus hydration stations, recycling programs, food waste minimization, solar energy, waste management, LEED buildings, Energy audit, Greenspaces, green landscapes, water and energy efficiency, Green certified cleaning products, commitment to purchase renewable, reusable and recycled material, electric charging station, motion detection light switches, drought resistant and low maintenance native plant species, public transportation, campus greenhouse, Low-flow fixtures (sinks and toilets) for greater water conservation, Rainwater harvesting tanks, Green Move-Out, Zero Waste Events, Sustainable dining practices, Arboretum, Reduce packaging, Campus rain garden, Carpooling, Living Labs, Carbon neutrality, Institutional bicycle-

sharing program, Eliminate single use plastic, Biodiversity, Reducing kitchen waste and food miles, Reducing bathroom waste, Saving paper, Biotech digester, Reusable water bottle.

Further analysis of the sustainable campus operations revealed that, majority of the higher education institutions relied on broad categories such as energy efficiency, waste minimization, green construction, alternate transportation. Energy efficient practices such as LED lights, water and energy efficient units, solar energy panels are most commonly seen among the community colleges and the independent 4 year institutions, and state colleges and universities. Waste minimization practices such as sustainable dining, food waste composting, waste recycling and reuse events are most commonly seen in all participating higher education institutions. Green construction such as LEED buildings, arboretum are not very commonly seen but are present in community colleges, Independent 4 year institutions, public universities and state colleges and universities. Alternate transportation practices such as public transportation, EV charging stations, carpooling are predominantly seen among the public universities, independent 4 year institutions and state colleges and universities.

Camden County College has a separate webpage that provides exclusive information on campus-wide sustainability operations. The page with attractive pictures and textual content specifically mentions that their facilities have been upgraded to be more sustainable. The web page mentions a list of various activities that are carried out across the campus such as LED lights, reducing solid waste disposal, energy efficient electrical system, transportation hub, outdoor leisure areas, automatic heat setbacks, motion detection light switches, High-voltage electrical service, energy management initiatives, commitment to the purchase of renewable, reusable, recycled material, Electric Charging Stations. PageSpeed Insights score is 13/100 for mobile and 83/100 for the website which indicates that there is a good user interaction on the sustainability pages through the websites though not much through the mobile.



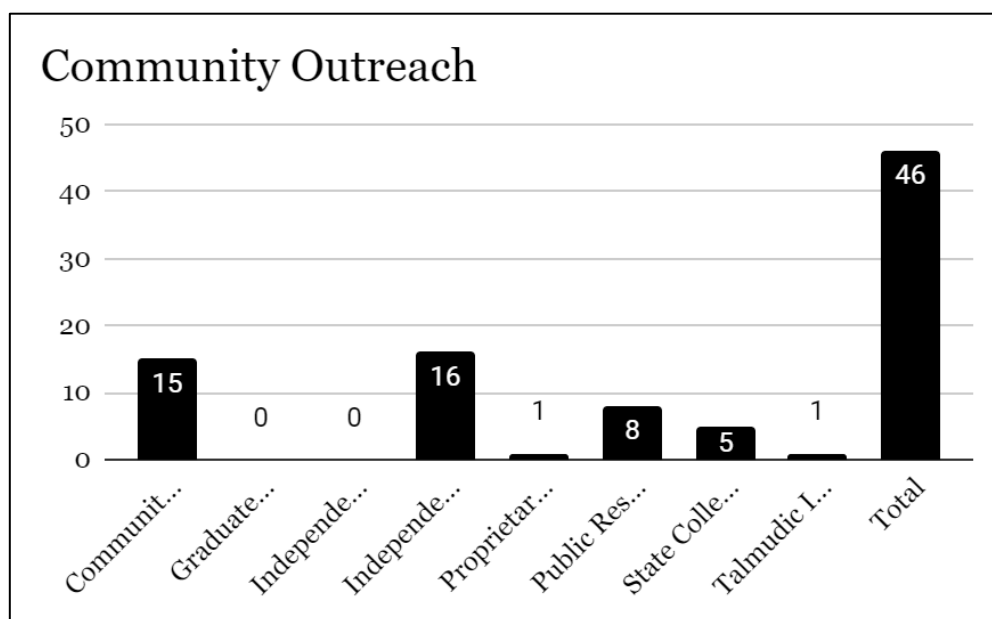
**Figure 3**

Note: Total number of higher education institutions in New Jersey communicating on Campus Operations.

### ***Sub theme #2- Community Outreach***

Community outreach activities as mentioned on the websites of HEIs include the public participation & social responsibility components of an institution. As discussed in chapter two, the community outreach activities of campus sustainability framework include practices such as seminars, community groups, student clubs, alumni activities, workshops, conferences, awareness campaigns and others.

From the data it is found that only 46 institutions (41%) have mentioned outreach activities as part of their sustainability practices on their websites. These include 15 Community colleges (65%), 16 Independent Four-Year Colleges (89%), 1 Proprietary Institutions With Degree-Granting Authority (5%), 8 Public Research universities (89%), 5 state colleges and universities (83%), 1 Talmudic Institutions / Theological Seminaries (3%). Graduate Degree-Granting Independent Institutions and Independent Two-Year Religious Colleges have no information on outreach activities on their websites.

**Figure 4**

*Note:* Total number of higher education institutions in New Jersey communicating on community outreach

Upon observation it is found that community outreach activities mentioned by the HEIs include but not limited to sustainable business practices, student clubs, The Environmental Health & Safety (EHS) hotline, volunteer work on a local farm, seminars on sustainability, earth day and week activities focus on endangered species, volunteerism on campus, community approach to plant trees, sustainable gardening, knowledge exchange forum, climate change convergence, sustainable fair trade coffee, keynote speeches on topics such as smart city technologies, Green Hearts environmental movement (sustainable gardening), Op Ed article on EPA, climate change, campus community garden, drug take back days, native flower garden, news article on gould acorns, sourcing food responsibly, critical concerns on environmental racism week, talk on climate change, campus rain garden, sustainability summit, sustainability education week, edible garden, fair trade, green purchasing, rider woods clean up, beach sweeps with 140+ students, green acres organic community program, green teams, community service week, seminars, workshops, urban

agriculture, discussion on environment, environmental justice database, invite surrounding community to the campus, earth museum.

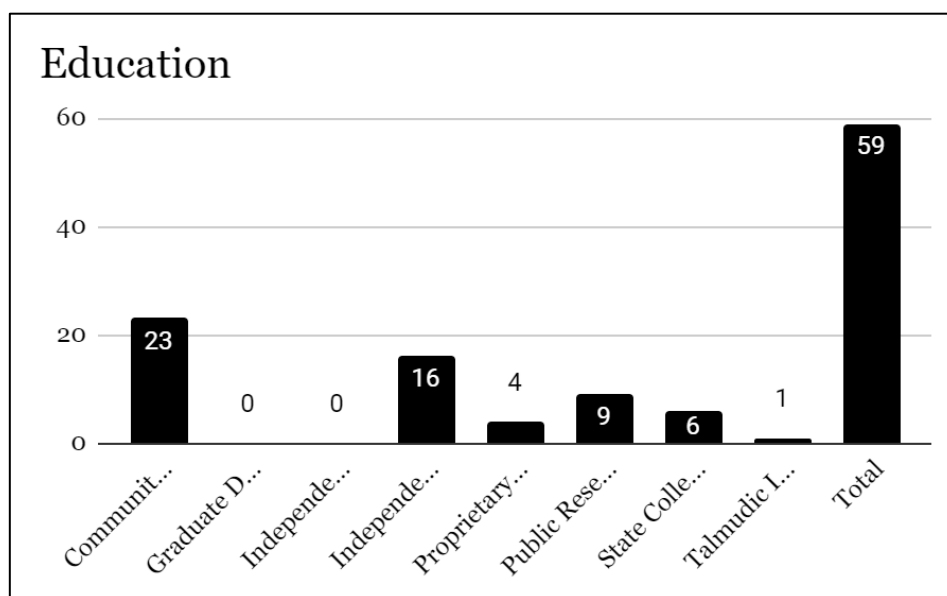
The community outreach activities can be broadly categorized into students clubs, community awareness activities. Almost all the participating higher education institutions have one or more student clubs that encourage sustainability on campus through their activities. Similarly, most of the participating institutions have some kind of community awareness activity in the form of workshops, seminars, conferences or awareness campaigns on sustainability issues. Stockton University's sustainability web page has provided information on campus and community engagement. The web page mentions the university's mission statement - *“invigorate local, small-scale, sustainable agriculture through research and demonstration”*. The web page details a list of community based sustainable activities that are carried by the university such as- having regular produce sales at the Farm Bike; workshops that teach booking, canning, butchering, and pickling; Showing films about issues facing modern agriculture and farm volunteer days. ("Stockton University farm," n.d.). The Pagespeed Insights score is 63/100 for mobile and 93/100 for desktop which means that the mobile interface has less user interaction on the sustainability pages compared to their desktop interaction.

Saint Peter's university sustainability page has information on students' organization that promotes awareness of environmental issues and work towards sustainable earth. The student organization called as Students Against Violating the Earth (S.A.V.E.) discusses topics on sustainability and the ways to contribute to environmental problems. The page also lists the names of advisors and provides a link to view the university's Climate Action Plan. ("Sustainability," 2022). The Pagespeed insight score is 38/100 for mobile and 76/100 for desktop which indicates the the mobile user interaction and performance is poor where as the desktop user interaction needs improvement.

Centenary university sustainability page has information on the university's environmental group which is now called the Evergreen group. The page mentions that the goal of the evergreen group is to promote awareness and education on environmental issues and establish the university as environmentally positive. The web page calls the nearby public community to get involved and details a list of activities such as educational programs on campus and local schools, organizing environmental events and developing programs to promote responsible use of earth's resources ("Evergreen," 2021). The pagespeed insight score is 53 for mobile and 83 for desktop which indicate that both their mobile and desktop user interactions need improvements.

### ***Sub theme #3- Education***

Sub theme #3 education includes the components of Sustainability Teaching and Research. As discussed in chapter two, sustainability education includes courses, research, education and curriculum designed around sustainability issues and any research and development activities on environment, social and economical sustainability paradigms. From the data it is found that 59 institutions (53%) have mentioned Sustainability Teaching and Research on their websites. These include 23 community colleges (100%), 16 Independent Four-Year Colleges (89%), 4 proprietary institutions with degree granting authority (3%), 9 public research universities (100%), 6 state colleges and universities (100%), 1 Talmudic Institution/ theological seminaries (3%). Graduate Degree-Granting Independent Institutions, Independent Two-Year Religious Colleges have no mention of sustainability teaching on their websites.

**Figure 5**

*Note.* Total number of higher education institutions in New Jersey communicating on community outreach

Upon observation, it is found that sustainability courses and programs mentioned on the websites of the HEIs include minors, majors, certificate, training, Diploma, BA, BS, BE, MS, PhD, in Environmental Sciences, Environmental Studies, Environmental Management, sustainability which can be considered under environmental paradigm of sustainability. Some institutions have integrated sustainability into other programs such as business law, policy, engineering and others. While sustainability is offered as a minor, major or at undergraduate level at most of the participating HEIs, it is offered at post graduate or doctoral level at Public Universities or state Universities.

Rowan University's sustainability page provides information on the academic programs that are offered in sustainability and related topics. The web page has detailed information on various sustainability degree programs and the content of the course. This web page helps students in understanding choices of degree programs as well the goals of the sustainability courses. The web page informs the visitors about the available BA and BS programs along with 4+1 degree programs in Environmental Sustainability studies, Civil and Environmental Engineering, Environmental sciences, Geology and others. ("Degrees,

programs and classes," 2021). The pagespeed insight score is 26/100 for mobile and 80/100 for desktop.

Union County College has a dedicated page for its Sustainability Science AS degree program. The page gives detailed information on the program. The page also provides links for various courses that can be taken as part of the program and helps the students to navigate along sustainability science academic program pages. The pagespeed insight score is 47/100 for mobile and 73/100 for desktop.

Further analysis of the information provided by the websites of the HEIs on sustainability practices reveal that 3 HEIs (2.7%) have mentioned both campus operations and sustainability education on their websites. 11 HEIs (10%) have mentioned two sub themes: community outreach, and education on their websites. 35 HEIs (32.5%) mentioned having all the sub themes sustainability campus operations, community outreach, and education on their websites. Among the campus operations, the most frequently adopted sustainable practices are LED lights, solar energy, recycling, solid waste disposal, alternate transportation, and water management. While the frequently adopted community outreach methods are student groups, student clubs, workshops and seminars on sustainability topics.

**Table 4**

***Total number of higher education institutions in New Jersey communicating on sustainability practices***

<b>Type of Institution</b>	<b>Sub Theme#1- Campus Operations</b>	<b>Sub Theme#2- Community Outreach</b>	<b>Sub Theme#3- Education</b>	<b>Total</b>
Community college	6	15	23	23
Graduate Degree-Granting Independent Institutions	0	0	0	2

Independent Two-Year Religious Colleges	0	0	0	1
Independent Four-Year Colleges	16	16	16	18
Proprietary Institutions With Degree-Granting Authority	1	1	4	20
Public Research Universities	9	8	9	9
State Colleges and Universities	6	5	6	6
Talmudic Institutions / Theological Seminaries	0	1	1	32
Total	38	46	59	111

In the case of sustainability education, it is seen that the HEIs that implemented sustainability education have courses in the form of majors and minors. The public universities have implemented a doctoral research component in sustainability too. It is important to note that a total of 35 (32.5%) HEIs in New Jersey have information pertaining to sustainability across campus operations, community outreach and education. This is less than 50% of the total number of HEIs in New Jersey and significantly low.

**Table 5**  
***Total number of higher education institutions in New Jersey communicating on sub themes.***

	Sub Themes 1 & 2	Sub Themes 1 & 3	Sub Themes 2 & 3	Sub Themes 1, 2, 3
Total HEIs	0	3	11	35

## **Representative Sample**

**Montclair State University.** Montclair State University is a Public University founded in 1908 in New Jersey. The University serves the communities of Montclair, Little Falls and Clifton in the state of New Jersey with a total student population of 21005. Though the University's mission statement does not specifically refer to sustainability, it does refer to acknowledging the global issues and working towards it.

“.....Recognizing the increasing connectedness of the world, the University will ensure that all students develop an understanding of global issues and of their responsibilities as citizens of the world...”

Montclair State University has a unique web page dedicated to Sustainable Facilities. The webpage has detailed information on various sustainable practices along with strategies that makes the University unique in adopting sustainable practices along with attractive pictures that depict the strategies. The page also has a small section under the name ‘*Did you know*’ where the university mentions that-

“Montclair State became the first educational institution in the nation to sign a Memorandum of Understanding (MOU) with the Environmental Protection Agency (EPA) in 2009, committing to utilize the latest green technologies and practices on its 246-acre campus.”

The webpage also provides information on additional resources claiming that the university is a member of AASHE and external links to give feedback and visit their social media pages. Furthermore Montclair State University has a unique ‘Facilities Sustainability Plan’ page that details the list of all sustainability practices carried across the campus. The page has a special note from Vice President, University Facilities that reads as follows-

“The University Facilities Sustainability Plan represents our commitment to upgrade and exceed our past practices to ensure the viability of our



environment and our institution for future generations. It allows the division to catalog our previous successes and establish a formal and transparent course toward a more sustainable future. -Shawn Connolly, Vice President, University Facilities”

The web page has extensive information on Green building infrastructure; Green building operations; Transportation and Parking; Grounds and Landscape; and Procurement along with Campus engagement that further explains the guiding principles of each operation including the goals to achieve sustainability. The webpage also provides a link to download the full document. The content on the website suggests that the university believes in sustainability and has integrated it into its campus culture by adopting practices and strategies across the campus operations.

In terms of providing information on sustainable community outreach activities, Independent Four-Year Colleges (88%) and Public Research Universities (88%) stood out among the sectors followed by State Colleges and Universities (83%). One Talmudic Institution / Theological Seminary and one Proprietary Institutions With Degree-Granting Authority have information on community outreach activity on their websites. These HEIs have information on various community outreach activities such as student groups, environmental or eco clubs, seminars/ workshops on sustainability related topics and others. Some HEIs have farms and encourage local purchasing as a sustainable approach. Some HEIs provided contact information for the outsiders to get involved in the community activities.

***Saint Peter's University:*** Saint Peter's University is a private Jesuit university founded in 1972 with a total student population of 3000. Though the university has strong beliefs in jesuit, catholic ideologies, Saint Peter's University promotes sustainability too. The university has a dedicated sustainability page that has information on sustainability activities carried out by the institution from 2003-2018. However, there is very less information

pertaining to its community engagement. There is no specific mention of community engagement activities carried out by the university. However there is a small mention of a students' organization that promotes awareness of environmental issues and work towards sustainable earth. The student organization called as Students Against Violating the Earth (S.A.V.E.) discusses topics on sustainability and the ways to contribute to environmental problems.

The page also lists the names of advisors and provides a link to view the university's Climate Action Plan. ("Sustainability," 2022). The Pagespeed insight score is 38/100 for mobile and 76/100 for desktop. The content of Saint Peter's university is very minimal and does not discuss in detail about the activities. However, the university does show its commitment to sustainable community engagement.

In regards to sustainability education, the Community Colleges, Public Universities and State colleges and Private Universities stand out in providing information about sustainability education. 100% of the HEIs belonging to these three sectors/institution types have some kind of sustainability education and the information is reflected on their websites. 88% of Independent Four-Year Colleges provide information on sustainability education on their websites. One Talmudic Institution / Theological Seminary is also providing sustainable education and has updated information on its website. These sustainability courses are offered in the form of Minors, majors, Associates, degrees, post graduate or doctoral programs. Some HEIs are taking pride in announcing that they are integrating sustainability into alternate courses such as fashion, business, engineering and others.

***New Jersey City University:*** New Jersey City University (NJCU) is a public university in New Jersey chartered in 1927. The university hosts a total student population of 9660. NJCU has a dedicated web page to describe the sustainability education programs provided by the university. The web page has a list of all the education programs in sustainability studies and

along with the areas explored as part of the studies. The page provides a career path for students who are wishing to pursue a sustainability degree along with contact information for prospective students. The content in the web page is very elaborate with details on sustainability and has usage of words such as climate change, sustainable business, sustainable community development.

### **Summary**

The findings on the types of sustainability practices as reported by the HEIs on their websites prompt several conclusions. First, all the HEIs that have reported any kind of sustainability practices categorized them into three categories based on the campus sustainability framework. The HEIs that have reported the sustainability practices have integrated the concept into one or more of the categories. Second, all of the community colleges, Public research universities, state colleges and universities and most of the Independent four year colleges have implemented and reported most of the sustainability practices on their websites. Finally, the HEIs have implemented sustainability education in most of their campuses compared to sustainability campus operations or community outreach.

### **How is Sustainability Communicated?**

To understand how sustainability information is communicated by the HEIs through their websites, I extracted all the sustainability information provided by the websites of HEIs and categorized them under various groups. I used an inductive approach to reassign codes to answer the research question 2-

### **RQ: 2 How is sustainability communicated through the websites of HEIs in New Jersey?**

The findings yielded some interesting ways in which HEIs communicate sustainability through their websites. Though it appears that the information is presented by the HEIs on their websites, a careful evaluation revealed that every HEI adopted certain

approaches. The analysis revealed the following approaches which are commonly seen among the HEIs.

### **Sustainability Reports**

Sustainability reports can be in the form of News articles, policy documents, strategic plan, blog, reports on achievements and others. HEIs report decisions or activities related to sustainability on their website to keep the visitors informed on their commitment towards sustainability. Some HEIs upload their policy documents to inform the visitors on how the respective HEIs follow and implement sustainability. Some HEIs publish research papers and upload them on their web pages. Most of the sustainability reports are seen as news from the respective HEIs. These reports could be about students participating in workshops or papers published, or about faculty giving speeches.

As part of this study, I collected information on sustainability reports from the websites of HEIs. During the boolean search on sustainability, many links on various reports have emerged. Upon careful observation of the reports, it is identified that these reports primarily fall under generic information, news, policy documents, blogs, research papers, publications. A cumulative analysis of sustainability reports yielded that there are a total of 4 community colleges, 9 Independent Four-Year Colleges, 4 Proprietary Institutions With Degree-Granting Authority, 9 Public Research Universities, 4 State Colleges and Universities, 2 Talmudic Institutions / Theological Seminaries that have sustainability reports on their websites. There are no sustainability reports available on the websites of Graduate Degree-Granting Independent Institutions and Independent Two-Year Religious Colleges.

Raritan valley community college has a web page that provides information on the memorandum of understanding with EPA and its commitment to sustainability. The same web page also gives access to environmental accolades where a list of various achievements

on sustainability is reported. The pagespeed insight score is 66/100 for mobile and 94/100 for desktop.

**Table 6**

***Total number of higher education institutions in New Jersey communicating on sustainability reports***

<b>Type of Institution</b>	<b>Sustainability Reports</b>
Community Colleges	4
Graduate Degree-Granting Independent Institutions	0
Independent Two-Year Religious Colleges	0
Independent Four-Year Colleges	9
Proprietary Institutions With Degree-Granting Authority	4
Public Research Universities	9
State Colleges and Universities	4
Talmudic Institutions / Theological Seminaries	2

Drew University has uploaded its strategic plan that can be viewed by any visitor. The strategic plan has information on the institutional commitment to environmental sustainability and also on various sustainability initiatives that are adopted by the institution across the campus. The document is in Pdf format and is downloadable. The document mentions- *“Drew University is committed to neutralizing greenhouse gas emissions associated with University activities and accelerating the research and education needed to minimize anthropogenic climate change.”* The pagespeed insight score is unavailable.

Atlantic Cape Community College has a web page with sustainability policy adopted by the institution on 1/26/2021. The exclusive web page is dedicated to sustainability policy and mentions that ‘The Board of Trustees is committed to environmental sustainability’. The web page has information on how the institution is responsible for achieving sustainability

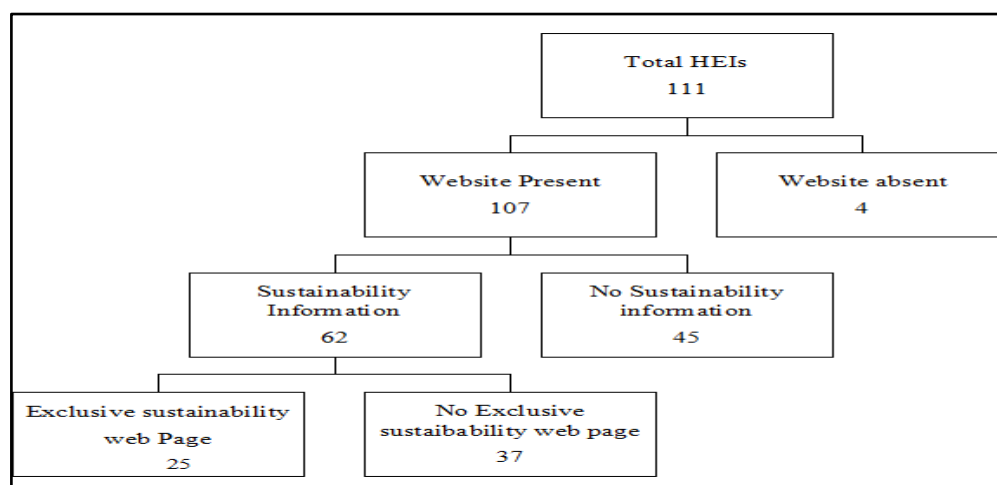
goals through their efforts ("Policy No. 11," 2021). The pagespeed insight score is 71/100 for mobile and 97/100 for desktop.

Seton Hall University has published a news item on “Diplomacy Students Generate Ideas to Advance UN Sustainable Development Goals” on May 9, 2019. This news item is available for visitors and gives information on how students presented ideas on sustainable development goals at Seton Hall (Seton Hall University, 2019). The pagespeed insight score is 39/100 for mobile and 81/100 for desktop.

Fairleigh Dickinson University has a web page that announces about its commitment to sustainability. The web page comes under news and exclusively talks about the campus sustainability projects and FDU sustainability initiative. The web page also provides information on various sustainability initiatives across the campus and the community involvement ("FDU announces campus sustainability projects," 2022). The pagespeed insight score is 34/100 for mobile and 80/100 for desktop.

### **Sustainability Page**

Some HEIs dedicate an exclusive web page on their website to discuss their commitment towards sustainability. This exclusive sustainability page hosts all the information pertaining to sustainability practices of the respective higher education institutions including information on sustainability practices, reports, education, policies, and others. Having a sustainability page provides the institution website with an opportunity to discuss all the sustainability practices under one roof.

**Figure 6**

**Note.** Flowchart of sustainability communication in higher education institutions in New Jersey

**Table 7**

*HEIs in New Jersey with exclusive sustainability web pages.*

**Type of Institution      Sustainability Web page**

Community college	2
Graduate Degree-Granting Independent Institutions	0
Independent Two-Year Religious Colleges	0
Independent Four-Year Colleges	9
Proprietary Institutions With Degree-Granting Authority	1
Public Research Universities	8
State Colleges and Universities	5
Talmudic Institutions / Theological Seminaries	0
<b>Total</b>	<b>25</b>

The analysis shows that exclusive sustainability web pages are present in the websites of 2 community colleges, 9 Independent Four-Year Colleges, 1 Proprietary Institutions With Degree-Granting Authority, 8 Public Research Universities, 5 State Colleges and Universities. There are no sustainability pages present on the websites of Graduate Degree-Granting Independent Institutions, Independent Two-Year Religious Colleges, Talmudic Institutions / Theological Seminaries. The exclusive sustainability web pages of the HEI websites provide all the essential information pertaining to the campus operations, community outreach, education, sustainability reports, policy documents and other important information on sustainability related issues.

Monmouth University has a separate web page that gives information about the university's Sustainability Advisory council (SAC). The web page gives detailed information about the SAC's initiatives and goals and a contact email for visitors to send queries and feedback. Along with the description of SAC, the web page also gives options to visit mission statements of SAC, initiatives, EPA Agreements, voluntary Stewardship Programs. Further the initiatives page gives information on various campus and community involvement, energy conservation and efficiency, renewable energy, sustainable design, construction, and operations practices, vehicle, waste management, water resources with links for each initiative that further opens a separate web page with more information. Similarly EPA agreements and voluntary stewardship programs also provide separate links for each list of activities mentioned on the web page. ("Sustainability advisory council," 2021). The pagespeed insight score is 94/100 for mobile and 100/100 for desktop which means that these pages are often visited by users and there is a very good user interaction.

Princeton university's Office of sustainability web page stands out as an exclusive web page for its sustainability activities. The web page has information on sustainability student groups, events, news and announcements. Along with these the main web page also



gives an option to view the campus energy data live that gives information on energy that is used in the forms of electricity, chilled water, and steam. Furthermore, the web page also gives options to navigate to other web pages that will take the visitors to view the university's sustainability action plan, take action and campus as Lab along with information on sustainability mission, the institution's approach, values, and other resources.

The web page acts as a standalone web site for sustainability at Princeton and gives the visitor an experience to visit and gather information on all of its sustainability activities and also leave feedback and interact with the concerned authorities. The web page also takes the visitors to view the exclusive social media handles on sustainability at Princeton. The web page uses text and images to provide information on campus operations, education, community outreach, events, announcements, news, resources, reports and policy documents ("Office of Sustainability," 2022). The pagespeed insight score is 57/100 for mobile and 74/100 for desktop which means that there is room for improvement on the web pages to increase the user interaction.

Ramapo College has a sustainability page under the name Ramapo Green. Ramapo College also has an exclusive web page on sustainability that provides information on various academic courses that are offered in sustainability and links to other resources. However, the Ramapo Green web page talks about the sustainability activities in detail. The web page has several texts and pics that welcome the visitors with a statement "Creating a more Sustainable Campus". The webpage can be an exclusive website in itself that has all the information on campus activities, community involvement programs, and other organizations that are associated with Ramapo sustainable activities.

The web page gives access to various links such as ramapo green archway, recycling guidelines, sustainability at home. These links further take the visitor into separate web pages which give detailed information on various recycling methods with links for each section, and

various sustainability activities on campus respectively. The main web page also provides snippets of blogs on sustainability written over a period of time and links for various centers and institutes that can be reached out to for further information. There is a provision of contact email and social media handles for feedback and follow up on the web page. The web page provides information about campus operations, academic programs, community involvement, blogs, events, contacts and much more for a visitor ("Ramapo green," 2022). The pagespeed insight score is 58/100 for mobile and 73/100 for desktop which means these web pages need improvement to increase the user interaction.

William Paterson University (WPU) has a university sustainability web page that provides information on the institution's commitment to sustainability. The web page welcomes the visitors with a statement that says: *"William Paterson University is committed to being an energy-efficient, sustainable, and environmentally friendly institution."* The web page gives detailed information on WPU's goals to achieve sustainability through academic department, campus operations and community outreach programs. Along with text and imagery information, the web page provides links for sustainability initiatives, academic activities, Green Team, climate commitments, awards and natural resources. The sustainability initiatives web page further provides detailed information on recycling, solar energy, Energy conservation, EV Charging stations, Campus construction projects designed to maximize efficiency.

Furthermore, there is also information on examples of energy conservation initiatives adopted by WPU and links to watch videos on recycling. The academic activities web page helps the visitor navigate to the department of environmental science to acquire information on sustainability related courses. The green team page provides a list of activities that the team has taken up to promote sustainability and provides the names of the members and gives

the visitor an opportunity to become a partner or a volunteer along with an option to leave a feedback or query.

The web page on awards has a list of all the awards that are achieved by institutions over a period of time in sustainability. The natural resources web page provides information on the natural resources available on and near campus for the visitor to experience the closeness with nature along with the necessary links for the places ("University Sustainability," n.d.). The pagespeed insight score is 56/100 for mobile and 83/100 for desktop which means these web pages need improvement to increase the user interaction.

Fairleigh Dickinson University (FDU)'s sustainability web page has information pertaining to all the sustainability activities of the institution. The web page provides information and links on academic programs and research, facilities and operation, community engagement and social issues, sustainable living on campus, useful resources, announcements, activities, news on sustainability and places to visit on campus to experience sustainability along with contact information and social media handles. Academics Programs and research link further takes the readers into different academic programs offered in sustainability, students projects, and details of concerned personnel along with the contact information. The facilities and operations web page takes the readers to various facilities and operations on sustainability across the campus along with the list of faculty. The page also gives details of places on both the campuses that are sustainably built.

The Community Engagement and Social Issues web page mentions groups, organizations and local communities that are associated with the university to bring sustainable approaches to social challenges. The web page also provides information on the committee members along with announcements on the community events. Sustainable living on campus web page provides information on the practices that can be adopted by students, faculty and staff to foster sustainability on campus. Information on dining, zero waste events,

recycling, green move-out and sustainable living in residence halls is also available for the visitors along with contact information. The useful resources page provides links to visit AASHE, NJHEPS, HESI, UNSDGs and others ("Sustainability," 2022). The pagespeed insight score is 29/100 for mobile and 84/100 for desktop which means these web pages need improvement to increase the user interaction.

## **Summary**

Higher education institutions inform about their sustainability activities through their websites. Though there are 107 HEIs with a website, only 62 HEIs have provided information on sustainability which indicates that there is less presence of sustainability on the websites of HEIs. This is indeed very surprising to see 45 HEIs in NJ have not even considered communicating any kind of sustainable practices through their websites. There is no information regarding any practices and users will have no opportunity to learn about the institutions and their attitude towards sustainable practices.

There are 62 HEIs that have some kind of sustainability information provided on their websites. It can be seen that all the HEIs that have sustainability information communicate it through one or more ways such as blogs, news articles and others. These strategies of communication adopted by the HEIs vary among each institution. However it is important to note that, less than 50% of these HEIs have exclusive sustainability pages. These HEIs have allotted exclusive space on their websites to communicate about all of their sustainable practices. These pages have good to moderate pagespeed insights score for their web pages indicating that there is good overall use interaction and that visitors prefer to visit these websites for exclusive sustainability information pertaining to the respective HEIs.

However, it can be seen some community colleges, and all of the public universities and state colleges and universities, independent four year institutions have some sustainability information present on their website. These HEIs also seem to have

implemented sustainable practices across the campus and communicated through blogs, news articles and announcements. the public universities seem to have exclusive interest on allotting space for sustainability pages. Though not proven through this research, it is apparent from the findings that larger HEIs as in institutions with major grants and funding seem to have keen interest in focusing more on communicating sustainable practices versus small HEIs. The findings also indicate that the size of the HEIs is also playing a vital role in indicating the presence of sustainable communication on the websites of the respective HEIs.

### **Sustainability Practices in Comparison**

I analyzed the existing sustainability practices of the HEIs as reported on their websites with the AASHE STARS reports. This helped in finding how the sustainability information provided by the HEIs on their websites differs from the information they provided in the AASHE STARS reports to understand the research question 3-

**RQ: 3 How do the sustainability practices communicated on their websites compare to the practices reported through AASHE STARS by HEIs in New Jersey?**

### **AASHE STARS**

AASHE STARS reports act as indices of the HEIs to show their commitment to sustainability at various levels. These are self reported by the HEIs and are publicly accessible to see how a HEI is practicing sustainability. The self reporting matrix includes sustainability aspects in broad categories such as academics, engagement, operations, planning and administration, innovation and leadership.

Each category is further divided into subcategories to further delineate the process of reporting the sustainability activities. Academics is further divided into curriculum and research; engagement is divided into campus engagement and public engagement, operations is further divided into air and climate, buildings, energy, food and dining, grounds, purchasing, transportation, waste, water; Planning and administration is divided into

coordination and planning, diversity and affordability, investment and finance, wellbeing and work. Each of these sub categories have matrices in which the institution can report its activities and allot points for each activity. Based on the total points earned by an HEI, the AASHE awards them bronze, silver, gold, platinum STARS. Each AASHE STAR is valid for a period of 3 years after which it is upon the HEI to renew its STARS.

In New Jersey, there are a total of 18 HEIs that have acquired AASHE STARS till date. Upon analysis, it is observed that only three HEIs have updated their AASHE STARS and their reports are current and valid. These three HEIs are: (i) Princeton University; (ii) Stevens Institute of Technology; and (iii) Raritan valley community college. These HEIs have their reports available on the AASHE website for the public.

***(i) Princeton University***

According to the AASHE report, Princeton University has acquired AASHE Gold with a score of 68.42 (The Sustainability Tracking, Assessment & Rating System, 2021). The institution submitted its report on Aug 25, 2021 and is valid through Dec. 9, 2024. According to the AASHE report, Princeton University has adopted a Sustainability Action Plan in April 2019. *“This Plan sets bold targets in all key areas, including climate action, with particular focus on cultivating solutions at the intersection of research, education and campus planning and operations.”* Princeton University’s Campus as Lab program facilitates sustainability programs on and off campus.

Campus operations: Under campus operations, the web page has information on reduction of campus greenhouse gas emissions to net zero, reduction of water usage, increase area under enhanced storm-water management, designing and constructing sustainable buildings, Increase Commuters Using Alternatives to Single-Occupancy Vehicles, Reduce Waste and Expand Sustainable Purchasing, Cultivate Healthy and Resilient Habitats. Under STARS report, Princeton university mentioned Emissions Inventory and Disclosure,

Greenhouse Gas Emissions, Building Design and Construction, Building Operations and Maintenance, Building Energy Efficiency, Food and Beverage Purchasing, Sustainable Dining, Landscape Management, Biodiversity, Sustainable Procurement, Support for Sustainable Transportation, Waste Minimization and Diversion, Water Use, Rainwater Management, Sustainability Coordination, Sustainability Planning, Single-Use Plastic Ban.

Community Outreach: There is a mention of edible garden, fair trade, green purchasing as part of community outreach activities on the web page of Princeton University. The STARS report has a list of community outreach activities such as Eco reps take up Greening dorms, Green move out and resale, Greening Princeton Reunions, greening athletics, Greening events activities. Revise your ride, Princeton Student Climate Initiative: Princeton University Farmers' Market: Sustainable Engineering and Development Scholars (SEADS), BEE Team, Princeton Conservation Society, Princeton Environmental Activism Coalition (PEAC), Princeton University Energy Association, Partnership with Sustainable Princeton- a local nonprofit advocacy group on initiatives relevant to the Town of Princeton and the University.

Education: The sustainability web page has given a list of 66 courses that have sustainability embedded in them. Along with these, the Princeton university website detailed academic programs in bachelors, masters, Doctoral studies that are carried out on sustainability related topics. The STARS report mentions that - Number of sustainability-focused courses offered - 35 Undergraduate(UG), 2 Graduate (G); Number of sustainability-inclusive courses offered -55 (UG), 6(G); Number of academic departments that include at least one employee who conducts sustainability research: 27.

## ***(ii) Stevens Institute of Technology***

Stevens Institute of Technology has a gold AASHE STARS with a score of 65.20 submitted on March 2, 2020 and valid through March 2, 2023 (The Sustainability Tracking,

Assessment & Rating System, 2020). The executive letter mentions that “Improving campus sustainability efforts is a+ continuous process, and one that requires periodic monitoring by all members of the campus community.” The report mentions Living Laboratory for Stormwater Green Infrastructure as its point of distinction. The report says, “The Living Laboratory for Stormwater Green Infrastructure is strategically placed in three campus sites on the Stevens Institute of Technology campus”.

Campus Operations: The sustainability web page of the institution mentions Green college, STAR certificate, transportation, water conservation, recycling, solar energy, energy conservation, EV charging stations, climate leadership. AASHE STARS report mentions about sustainability in greenhouse gas emissions, LEED buildings, Electricity from on-site, non-combustion facilities/devices (e.g., renewable energy systems), onsite solar PV Panels, Waste Not program (Food waste), LED light fixtures, sustainable purchasing, Landscape Management, water efficient fixtures.

Community Outreach : The website of the institution mentions community outreach sustainability activities as involvement of student groups to educate and bring awareness on green initiatives beyond the classroom. These groups include, Engineers Without Borders (EWB), Stevens Environmental Engineering Professional Society (SEEPS), Stevens Sustainability Coalition (SSC), Sustainability, Activism, Volunteering, and Engineering (SAVE).

The STARS report mentions that “all students receive orientation materials about campus sustainability efforts and how they can create positive change on campus”. The institute also has community partnership with Sustainability Management Plan for Jersey City, Green Retrofit for Stormwater Best Management Practices for Pollution Prevention in Urban Coastal Communities in New Jersey, and Hugo Neu Corporation Sustainability Seminar Series.



Education: The website of the institute mentions that the undergraduate Majors is in B.E. in Environmental Engineering, B.E. in Mechanical Engineering – Sustainable Energy Concentration, B.E. in Civil Engineering – Water Resources Concentration. Undergraduate Minors in Green Engineering, Environmental Engineering, Coastal Engineering, Water Resources. Graduate Degree Programs in M.S. in Sustainability Management, M.S./M.B.A. Dual Degree Program in Sustainability Management, M.E. in Environmental Engineering, M.E. in Coastal Engineering, PhD in Environmental Engineering, PhD in Coastal Engineering, M.E./PhD in Mechanical Engineering, M.S./M.E./PhD in Nanotechnology. Graduate Certificate Programs in Environmental Management, Sustainable Energy Systems, Nuclear Power Engineering, Applied Coastal Oceanography, Atmospheric and Environmental Science and Engineering, Environmental Compatibility and Engineering, Environmental Hydrology, Environmental Processes, Inland and Coastal Environmental Hydrodynamics, Ocean Engineering, Soil and Groundwater Pollution Control, Surface Water Hydrology, Water Resources Engineering, Water Quality Control, Urban Resilience, Urban Systems Informatics. The STARS report mentions that Number of sustainability-focused courses offered - 35 (UG), 2(G); Number of sustainability-inclusive courses offered -55 (UG), 6(G); Number of academic departments that include at least one employee who conducts sustainability research: 27 .

***(iii) Raritan Valley Community College***

Raritan Valley Community College has a silver STARS rating with a score of 59.69 and the report was submitted on July 31, 2019 and is valid through July 30, 2022 (The Sustainability Tracking, Assessment & Rating System, 2019).

Campus operations: The campus operations mentioned on the website of the institution are- Clean Energy, ENERGY STAR Building & Plant Partnership , GreenPower Partnership, GreenScapes, WasteWise Partnership and Solid Waste Recycling, Re-Use of Industrial

Materials, WaterSense Products , Sustainable Design, Construction and Operations Practices, Transportation and Commuter Programs, Clean Construction Equipment and Clean Fuel Use, recycling.

The STARS report mentions Clean Air Cool Planet Carbon MAP calculator to calculate Scope 1 greenhouse gas emissions, purchasing of janitorial products with Green Seal certified or UL Environment (Ecologo) certified to the extent possible, LEED buildings, LED lighting in parking and walkways, passive solar heating, biodiversity programs, sustainable procurement, campus fleet, waste minimization, hazardous waste management, sustainable water use, rainwater management.

Community outreach: The website of the institution mentions community outreach as Environmental club, volunteerism on campus. The community outreach activities mentioned in the AASHE STARS report are The Environmental Club, organic vegetable garden as a green roof for the student center, Clean Ocean Action beach sweeps, Leave No Trace , RVCC Environmental Sustainability Committee.

Education: The website mentions Associates programs in environmental science, environmental studies along with field trips, study abroad opportunities for students to interact with outside the campus on sustainability issues. The AASHE STARS report has a list of Number of sustainability courses offered 8(UG), Number of courses offered that include sustainability 70 (UG).

## **Summary**

The analysis revealed that there is a significant difference in the way HEIs report their sustainability activities through their websites compared to AASHE STARS. HEIs seem more invested in reporting their sustainability activities on AASHS STARS. The AASHE STARS reports have more activities listed and more information is available to understand what kind of sustainability practices are integrated in the HEIs. The AASHE STARS reports

also help us in understanding in what ways these practices are integrated and progressed over a period of time. In comparison, the websites provide little information on sustainability practices. Though the reasons are unknown, it is significantly seen that even HEIs belonging to categories such public universities, state colleges and universities or community colleges prefer to provide less information on their websites as compared to the wealth of information they provide on AASHE STARS reports.

### **Approach of HEIs**

The study revealed that sustainability communication differed for each category of higher education institution. It is observed that Talmudic Institutions / Theological Seminaries, Independent Two-Year Religious Colleges, Graduate Degree-Granting Independent Institutions have no information on sustainability on their websites. As per other categories of HEIs, the analysis revealed that the HEIs communicating sustainability through their websites.

### ***Public Research Universities***

There are a total of 9 Public Research Universities in New Jersey. The analysis showed that these HEIs have communicated about sustainability campus operations, Community outreach activities and education. All these HEIs also have sustainability reports uploaded on their websites. Except for one Public Research University, all the other institutions have exclusive sustainability web pages.

### ***Independent Four-Year Colleges***

There are a total of 18 Independent Four-Year Colleges in New Jersey. The content analysis of their websites showed that only 16 institutions have communicated about campus operations, community out reach activities and sustainability education. Sustainability reports are communicated by only 9 institutions which is just 50% of the total number of institutions.

Only 8 Independent Four Year Colleges have exclusive sustainability web page present on their websites.

### ***State Colleges and Universities***

There are a total of 6 state colleges and Universities in New Jersey. The data revealed that all of the state colleges and universities (100%) have information on campus operations and sustainability education. Only five institutions have information pertaining to community outreach activities. However only four (66.66%) state colleges and universities have sustainability reports uploaded on their websites and five institutions have exclusive sustainability web pages.

### ***Community Colleges***

There are a total of 23 community Colleges in New Jersey. The analysis showed that only 6 community colleges have mentioned about campus operations on their websites. 15 institutions have communicated about out reach activities and all of the community colleges have information pertaining to sustainability education. Only four (17% ) of community colleges have sustainability reports available on their websites. However, it is revealed that only two (8%) institutions have exclusive sustainability web pages on their websites.

### ***Proprietary Institutions With Degree-Granting Authority***

There are a total of 20 Proprietary Institutions With Degree-Granting Authority in New Jersey. The data revealed that only one (5%) of the institutions has mentioned about campus operations and community outreach activities. Four (20%) Proprietary Institutions With Degree-Granting Authority have sustainability education mentioned on their websites. Similarly, only four (20%) of the institutions have sustainability reports available on their websites. It is very significant to see that only one institution has exclusive sustainability web page available on the website.

### **Table 8**

#### ***Higher education institutions in New Jersey with information on sustainability***

<b>Type of Institution</b>	<b>Theme 1- EMS</b>	<b>Theme 2- Outreach</b>	<b>Theme 3- Curriculum and Research</b>	<b>Sustainability Report</b>	<b>Sustainability Page</b>	<b>Total</b>
Community college	6	15	23	4	2	23
Graduate Degree-Granting Independent Institutions	0	0	0	0	0	2
Independent Two-Year Religious Colleges	0	0	0	0	0+	1
Independent Four-Year Colleges	16	16	16	9	8	18
Proprietary Institutions With Degree-Granting Authority	1	1	4	4	1	20
Public Research Universities	9	8	9	9	8	9
State Colleges and Universities	6	5	6	4	5	6
Talmudic Institutions / Theological Seminaries	0	1	1	2	0	32

### **Conclusion**

Using the list of HEIs provided by the New Jersey Department of Education and through content analysis procedures, the sustainability activities were analyzed as reported by these HEIs on their websites. This study sought to determine whether and how HEIs report sustainability activities through their websites. The findings reveal some interesting information about how HEIs communicate sustainability information through their websites. It is surprising to note that some HEIs still do not have a basic website to provide information

of their institutions. While majority of the HEIs do have a website, most of them have no information on any kind of sustainability activities of the HEIs. These websites do not mention about anything related to any kind of sustainable practices. While the rest of the HEIs provide some sustainability information on their websites, it is surprising to see that these websites lack details of how these practices are incorporated. There is more information on sustainability education as compared to campus operations or outreach activities. Similarly, there are fewer HEIs that have exclusive sustainability pages, but the user interaction of these web pages needs vast improvement.

The content analysis findings suggest HEIs still are in nascent stages of providing sustainability information on their websites. It appears that these HEIs do not focus on highlighting their sustainable practices and fail to provide this information through their websites. It is also observed that a majority of HEIs do not have exclusive sustainability web pages despite their active involvement in sustainability practices throughout the campus.

## **CHAPTER 5**

### **DISCUSSION AND IMPLICATIONS**

In this chapter, I will discuss the outcomes of the content analysis of the higher education institutions in New Jersey. I will discuss how sustainability is communicated by the higher education institutions through their websites along with the efficiency of the respective web pages. I will also describe the theoretical implication of this research. I will conclude this chapter with recommendations for future research along with recommendations for higher education institutions on sustainability communication.

#### **Review of the Problem Statement and Purpose**

HEIs use websites to communicate with the visitors. In an attempt to be transparent and authentic, they provide as much information as possible pertaining to their institutions' culture including sustainability on their websites (Hasim et al., 2018). However, sustainability communication is still in the nascent stages and not all HEIs are talking about it on their websites (Dade & Hassenzahl, 2013). So, to understand how HEIs are communicating sustainability through their websites, I analyzed the follow research questions:

- 1) What are the sustainability practices communicated by HEIs in New Jersey on their websites?
- 2) How is sustainability communicated through the websites of HEIs in New Jersey?
- 3) How do the sustainability practices communicated on their websites compare to the practices reported through AASHE STARS by HEIs in New Jersey?

While the literature discussed issues of various sustainability practices in HEIs, there is a significant gap in understanding how HEIs communicate their sustainability practices through their websites. This study focused on addressing this gap through content analysis of the information gathered from the websites of HEIs in New Jersey. In order to establish the

authenticity of the information, data triangulation is performed. Apart from relying on just the websites of the HEIs, I gathered information from other sources of the internet by trying various Boolean search terms to ensure data authenticity.

Son-Turan & Lambrechts (2019) mentioned, sustainability is still very new for many institutions and many HEIs have not started incorporating the sustainability information on their websites. This study affirms this statement as it is found that of the 111 HEIs, 45 HEIs still do not communicate any kind of sustainability on their websites. These HEIs, despite having a website, lack any information on sustainability.

Based on the analysis it is seen that of the 111 higher education institutions in New Jersey, only 62 institutions have some form of communication on sustainability through their websites where the HEIs have information on their websites pertaining to sustainability as compared to Filippo et al (2020) who founded that nearly 50% of the websites they analyzed contained some sustainability information. While some HEIs uploaded policy documents, some HEIs have uploaded information on their sustainability practices. Some HEIs have exclusive sustainability pages where all the information is provided to the visitors. Dade and Hassenzahl (2013) revealed that quality and completeness of website communication varies greatly among the HEIs. This kind of variety is seen among the HEIs that have sustainability information on their websites.

### **Sustainability Practices**

Sustainability practices cater to a plethora of stakeholders among the HEIs and provide necessary information and resources to everyone involved in the HEIs (Galang, 2010; Freidenfelds et al., 2018; Saadatian et al., 2012; Singh et al., 2019). The findings of RQ 1- What are the sustainability practices communicated by HEIs in New Jersey on their websites? -revealed that HEIs practice sustainability in various ways. In chapter four, we have seen the findings of sustainability practices in the form of campus operations,



community outreach and education. However, a detailed content analysis of the websites revealed that HEIs have indeed implemented sustainability practices across their campuses in various ways. However, it is significant to note that these practices vary widely depending on the type of the HEIs. Though it is unknown why and how HEIs implement and decide to integrate these practices, this surely gives an opportunity for future research to dive into the aspects of sustainability practices and the type of the HEI.

Public universities have the most opportunity to integrate sustainability into their culture and also educate a variety of student populations along with the communities (Olariu et al., 2020). This holds true to this research as it can be seen that all the Public Universities (100%) in New Jersey have information on their sustainable campus operations. Their websites gave detailed information on what kind of sustainable campus operations are adapted, implemented, and practiced across the campuses. In addition, some public universities also invited suggestions and feedback from the visitors on their sustainable campus operations. Some public universities took pride in their sustainable campus operations.

Similarly, all the state colleges and universities (100%) have provided information about their sustainable campus operations on their websites. Some HEIs encouraged the current and prospective students to consider sustainable living on campus. Independent Four - Year Colleges (88%) also provided information on their sustainable campus operations. However, only six community colleges (26%) have information pertaining to sustainable campus operations on their websites. This signifies that public universities have more sustainability information on their websites as compared to other categories of the HEIs. It is also significant to see that the community colleges are equally competing in their own caliber to provide sustainability information through their websites.

### **Sustainability Communication**

Sustainability communication is seen among the websites of HEIs where the institutions are trying to discuss, promote or take pride about their sustainability practices through their websites (Amey et al., 2020). However, literature review revealed that there is little information on what strategies are adopted by HEIs to communicate sustainability (Dade & Hassenzahl, 2013).

To answer the RQ 2- How is sustainability communicated through the websites of HEIs in New Jersey- I analyzed the websites for the presence of sustainability content and how it is represented by the HEIs. Upon observation, it is found that there are two major ways in which HEIs communicate sustainability on their websites. While some HEIs adapt and include sustainability across the website, some HEIs have exclusively dedicated web pages for sustainability.

HEIs that have information on sustainability are inclined towards publishing annual reports on their websites (Hinson et al., 2015; Sassen et al., 2018; Son-Turan & Lambrechts, (2019). HEIs with exclusive sustainability pages have all the information pertaining to sustainability under one roof. These sustainability web pages have information on sustainability practices, reports, education, policies, and others. 25 HEIs (22%) have exclusive sustainability pages that have a separate URL. These web pages of the HEIs serve as individual websites themselves and have information on all the sustainability activities including but not limited to campus operations, existing and upcoming projects, community outreach activities, policy documents, educational courses, blogs and others. However, there are very few HEIs that have exclusive sustainability web pages and it shows that HEIs need more dedication to build sustainability web pages and inform their visitors.

Contrary to the less presence of sustainability web pages, there are more number of HEIs that are into communicating sustainability as generic information or special reports. This is the strengthening the analysis of Ferrer-Balas et al. (2008) who mentioned about the

presence of sustainability information on the websites of HEI in the form of generic information on sustainability practices across the campus. It is also widely seen from the analysis that some HEIs show their commitment to sustainability in their mission statements while some HEIs inform the visitors about their existing sustainable practices and upcoming projects. The sustainability reports, however, are in the form of news articles, policy documents, strategic plans, blogs or reports on achievements. News reports cover new sustainability practices that garnered attention from the campus and outside including information on workshops, seminars or conferences attended by students or faculty on sustainability issues.

Supporting the statement by Vaughter et.al (2015) on availability of sustainable policy documents on the websites of HEIs, this study revealed that majority of the HEIs uploaded sustainable policy documents including exclusive sustainable policies adopted by the HEIs that are mostly available for the public to download. Some HEIs included sustainability as part of their institutional policies and uploaded the documents for the public. Strategic plans are another form of sustainability reports that are widely seen among the HEIs. These strategic plans usually cover information on sustainable practices and align with the mission statements of the HEIs.

The findings also strongly support the research of Hinson et al. (2015) where the authors concluded about seeing some kind sustainability information on the websites of HEIs. This is most seen in HEIs that have blogs that invite articles and posts from faculty, students and others on sustainability information. These blogs also act as news items and provide information on current sustainable practices along the campus. Reports on achievements are mostly done by HEIs when there are some achievements or success stories on sustainable practices.

### **Effectiveness of Sustainability Communication**

Hansen et al. (2021) opined that many universities have adopted AASHE STARS to report their sustainable practices. However, the findings reveal a surprising and disappointing fact that only three HEIs in NJ have a current and valid STARS report as of 2022. These reports are a way to inform analyze and compare their own sustainability practices over a period of time and also with other HEIs. To answer RQ 3- How is sustainability communication compared to the existing sustainability practices- I compared the sustainability information provided by the HEIs on their websites to the AASHE STARS reports.

This comparison revealed that HEIs provide less information about sustainability on their websites compared to what they actually practice and these HEIs have more sustainable activities implemented on their campus than what they informed on their websites.

Princeton University's STARS report mentions more than 20 sustainable activities under campus operations. However, their website has a mention of only 10 or more sustainable activities listed under campus operations. Similarly, the university's STARS report mentions several student groups and eco clubs as part of community outreach programs. The university website, however, does not have indepth information on all its community outreach activities.

Similarly, Stevens Institute of Technology gives detailed information on community outreach programs with descriptions on student orientation techniques adapted by the institute. The institution website, however, mentions different outreach activities but not indepth. Though the activities are mentioned in the website, they are embedded in archives or can only be retrieved upon in depth search. These activities cannot be found under one topic or webpage.

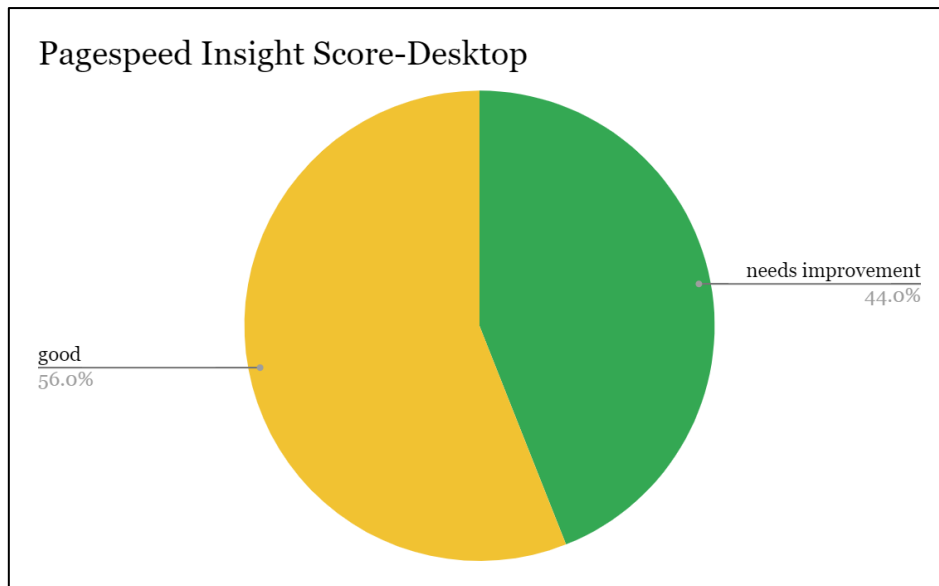
Raritan Valley Community College STARS report mentions offering eight undergraduate sustainability courses including 70 under graduate courses that have

sustainability components in them. However, the institution's website only mentions associates programs in environmental science, environmental studies along with field trips, study abroad opportunities for students to interact with outside the campus on sustainability issues. There is a substantial difference in the information on the number of courses offered and one needs to navigate through the institution's website to discover the sustainability courses.

### **Effectiveness of Websites**

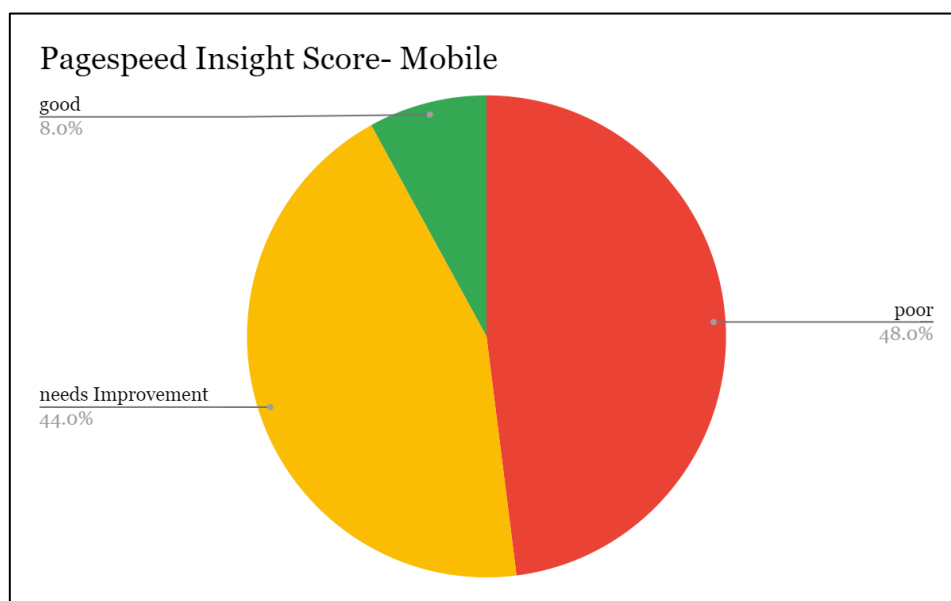
The effectiveness of HEI websites is important as they provide all the necessary authentic and relevant information to stakeholders (Sweatt, 2014; Olivieri, 2018). Hence, I have used PageSpeed Insight (PSI) to measure the effectiveness of the websites. The PSI scores for mobile and desktop vary greatly. From the PSI score analysis, it is seen that 56% HEIs have websites with good scores, while 44% HEIs need improvement on their websites. This means the respective web pages with good PSI scores have good visitor interaction, take less time to load along with the images and textual content. However, the same web pages have different PSI scores on mobile. The majority of these websites have poor PSI scores and only 8% have a good score while 44% of them need improvement on mobile devices. Some sustainability web pages have a score of 100 which means these web pages are often visited and have good user interaction. An overall insight into the PSI scores reveals that many HEIs need improvement on their web pages and increase the user interaction to communicate and inform their users about their sustainability practices (see Appendix A).

### **Figure 7 A**



*Note.* PageSpeed Insight scores for web pages on desktop

**Figure 7 B**



*Note.* PageSpeed Insight scores for web pages on desktop

### **Sustainability Representation**

Sustainable development deals with three paradigms: social, economic and environmental. However, for most of the HEIs, sustainability meant environmental sustainability. This strengthens the concern expressed by Zahid et al. (2021) that HEIs mostly integrate and focus more on the environmental parameters as compared to social and economic parameters of sustainability. The findings of this study also reveal that the

economic and social paradigms are not discussed by HEIs in particular or in depth. While the HEIs do not mention environmental sustainability exclusively, the terminology and the inclination of the projects and programs align with the environmental sustainability. The terms green, eco and environmental are added to the projects to make them look more sustainable. The courses listed under sustainable programs are mostly in environmental sciences or related programs. Though there is no specific mention of social and economic paradigms of sustainability, it is seen that the environmental paradigm is always mentioned.

### **Implications for HEIs**

HEIs have the responsibility to adapt to the evolving challenges and demands of the global market (Hassan et al., 2021). This study uncovered significant issues with how sustainability is presented in higher education institutions' websites. The initial review of the HEIs revealed that there are four HEIs in New Jersey that do not have an active website. These higher education institutions could use this opportunity to build a website to represent themselves and also inform the visitors about their commitment to sustainability through their websites.

### ***Include Sustainability on Websites***

Hassan et al. (2021) mentioned that many HEIs have failed to integrate sustainability into their culture and also make it their modus-operandi. To strengthen this discussion, I discussed in chapter two about how the New Jersey Environmental Education Commission adopted guiding principles to incorporate environmental education formally into the higher education system. The document specifically recommends that- 'degree requirements in all public and private institutions of higher learning include a formal study of environmental topics at the undergraduate and graduate levels.' However, there are still 45 HEIs in New Jersey that do not have any information on sustainability. It is unknown if these institutions have implemented any sustainability in their campus or not.

With regards to communicating sustainability on the HEI websites, the adage holds true: perception becomes reality. Ultimately, the HEI that lacks competence in sustainability may be perceived as irresponsible and non-committal towards the needs of the future, which could damage the institution's standing among peers and alienate stakeholders. These institutions could potentially be perceived as non-sustainable as they do not provide any information on sustainability.

### ***Responsibility Towards the Future***

HEIs play the role of sustainability pioneers in society by providing experiences to students through all aspects of campus life and learning environment (Galang, 2010; Freidenfelds et al., 2018). HEIs that have sustainability information on their websites appear to be more concerned towards world development and committed to take care of the needs of the future. These HEIs also invite feedback and allow two-way interaction with the visitors. There are 37 HEIs that do not have exclusive sustainability web pages or organized information on sustainability practices. These HEIs should characterize sustainability effectively on their websites so that all the stakeholders from the respective HEIs could get more involved. Salvioni et al. (2017) opined that a socially amenable university adopts a behavior that looks for stakeholders and understand their expectations and priorities. This will also increase participation of staff, students, administration and community members to get involved in the existing sustainability practices and improve on them.

### ***Improve Effectiveness of web pages***

There are 25 HEIs that have exclusive sustainable web pages. However, 9 of these HEIs have a PSI score that needs improvement. This means that there is a scope to improve more user interaction by improving the content and images on the web pages. These pages can include more information on sustainability and increase the traffic by providing content that is more useful and interactive to the users. The effectiveness of web pages can aid in



increasing visitor interaction. For example, these web pages can use more images and interactive content to engage the visitors and provide authentic information to increase their awareness on sustainability. They can also have feedback forms to ask the user to leave comments, suggestions or opinions on sustainability.

### **Theoretical Implications**

This study utilized a model of content analysis as suggested by Braun & Clark (2006). The content analysis is performed solely on the information retrieved from websites of the HEIs. Formalizing a theoretical model for digital media such as websites, email communications, and social media tools such as Twitter, Facebook and Instagram could help in improvising more research on sustainability communication and also broaden the area of research. Additionally, these models can also help HEIs in adapting sustainability at grassroots levels and implement successfully. These theoretical models provide pragmatic approaches for the HEIs to understand, comprehend and evaluate their commitment to sustainability.

### **Recommendations for Future Research**

#### ***Institution's Commitment to Sustainability***

HEIs can set an example to the community by improving their sustainability efforts through education, research and their operation (Hasim et.al., 2016). This study revealed how HEIs communicate sustainability. However, future research could investigate whether and how a HEI is adapting, implementing and practicing sustainability. This new research could evaluate the sustainability practices in detail and also help us to understand the barriers to implementing sustainability at all levels in an institution. This new research can also help us in understanding how HEIs are approaching new sustainability practices such as energy efficient programs or zero carbon emission institutions. This research will also help us in evaluating how the finances of the institution help it in determining whether or not the HEI adapts sustainability.

### ***Characteristics of Institution***

This study helped in understanding whether or not an institution belonging to a particular sector is communicating sustainability or not. For example, this study revealed that HEIs belonging to Independent Two-Year Religious Colleges, Graduate Degree-Granting Independent Institutions, Proprietary Institutions With Degree-Granting Authority, Talmudic Institutions / Theological Seminaries lack any kind of communication on sustainability.

However, it is not clear why these institutions did not prefer to incorporate any kind of sustainability information on their website. Or if these institutions are practicing any kind of sustainability yet failed to communicate through their websites. Hence research on these sectors can evaluate why, if at all, these HEIs are not incorporating sustainability communication through their websites. Through this new research, we can also evaluate how sustainability varies depending on the type and size of the institution along with the barriers that hinder the HEIs from adapting and implementing sustainability in the respective institutions.

### ***Funding of HEIs***

The findings revealed that public universities, community colleges, state colleges and universities and independent four-year institutions have sustainability communication. These HEIs have support from the external agencies for funding and have room to experiment with sustainable practices and also can communicate the same through their websites. On the other hand, the other HEIs that lack sustainability information on their websites seem to have little funding support from external agencies and these HEIs appear to focus more on their target curriculum than putting extra efforts in sustainable practices. A study on if or not funding to the HEIs have any relation to their sustainable practices can reveal more information on how and why the HEIs focus on sustainable practices and also resort to communicate the same through their websites.

### ***Effectiveness of Websites***

Amey et.al (2020) highlighted how ‘universities recognized the importance of creating an online presence for sustainability communication’. Based on the presence of sustainability web pages, this study evaluated how HEIs communicated sustainability through their websites and also how effective these sustainability web pages are. However, the effectiveness is a comparable measure. Hence, future research on how they compare to the generic web pages or specialized web pages such as diversity/athletics web pages can help us in understanding how the users interact with the sustainability web pages. This new study will help the HEIs in increasing their communication on sustainability issues and can guide them in incorporating more content in the future.

### **Recommendation for Practitioners**

Communication on sustainability is difficult: the content must authentically represent the institutions, support the ideologies of the stakeholders, enable the institutions to show their progress and provide a scope to the students to envision themselves as sustainable ambassadors. In the following section, I present ideas on how to conceptualize sustainability information in order to ensure it supports the mission of the institutional goals.

### ***A Sustainable Institution***

This study supports the opinion by Hasim et.al (2016) that the commitment of a university to sustainability should reflect on its website. As an institution that houses future leaders, every HEI can show some commitment to sustainability by incorporating information on its websites. Also, the presence of sustainability content on the websites of HEIs shows their commitment towards a better world (Ferrer-Balas et al., 2008). The information on the websites could be presented in the form of news or reports or in any other form that can inform, aware, and encourage the visitors to adopt sustainable practices (Hinson et al., 2015).

### ***Sustainable Narration and Mission Statements***

Some HEIs are the result of Land Grant University systems where the local communities play a vital role in bringing their experiences. Similarly, the Community Colleges also represent a large population of local communities that bring their experiences to the institutions. The HEIs should utilize the native knowledge and adapt to sustainable practices. The HEIs should also narrate best practices from such communities and individuals. Also, the web communication team should consult with the stakeholders to get good content to make the information more appealing.

HEIs should revisit and rewrite their mission and vision statements and formulate their goals that meet the specifics of sustainability. Additionally, the leadership should also focus on developing strategic plans and policies that reflect the institutional growth sustainably. Inclusion of specific words, sentences and phrases that reflect the overall institutional ideology towards a better sustainable future can increase the impact of the institution on students (Vaughter et.al, 2015).

### **Conclusion**

This study focused on how HEIs communicate sustainability through their websites. I relied on conducting a qualitative study as it can help me in interpreting vast amounts of data and also develop themes. Although I used content analysis to understand and analyze the data, I am aware of the fact that there are various methods to interpret the information I gathered from the websites.

The purpose of this research is to understand how HEIs are communicating sustainability through their websites. I analyzed the content by evaluating what kind of sustainability practices are reported by the HEIs on their websites; how HEIs are communicating sustainability and also comparing the existing sustainability practices to those that are reported on the websites. The content analysis of the websites illuminated the most adopted sustainable practices and the strategies used by the HEIs to communicate them. This

research revealed that many HEIs still do not have any kind of sustainability information on their websites. While some HEIs do have a website present, they lack any kind of sustainability information on them. However, there is a need for HEIs to take pride in talking about their sustainability practices and focus more on providing information to the users. The literature review emphasized on the need to improve sustainability communication (Ferrer-Balas et al., 2008; Dade & Hassenzuhl, 2013; Vaughter et.al, 2015; Amey et al., 2020) and work towards social, economical and environmental paradigms of the world. It is also the responsibility of the HEIs to change the mindsets of the students and make them responsible towards the world.

My goal is to encourage the HEIs to improve their communication on sustainability through their websites and make the institutions understand the importance of being sustainable. HEIs should also understand that the magnitude of the sustainable practices does not matter and whether small or big, the institutions should allot some space on their websites to discuss sustainability. Similarly, content and images should also be given priority and focus should be given on informing the user about sustainability. It is the responsibility of the institution to show its commitment towards sustainability and also inform the fraternity and encourage them to adopt and follow sustainable practices. HEIs should be more proactive in integrating sustainability and also communicate the same to the outside world. This can help other HEIs understand and adopt similar strategies and be more sustainable.

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## Appendix A

**Table A 1**

*PageSpeed Insights score of sustainability web pages of HEIs in New Jersey*

<b>Name of the Institution</b>	<b>Type of the Institution</b>	<b>Institution website</b>	<b>Sustainability web page</b>	<b>PageSpeed Insight Score-Mobile</b>	<b>PageSpeed Insight Score-Desktop</b>
Camden County College	Community college	<a href="https://www.camdencc.edu/">https://www.camdencc.edu/</a>	<a href="https://www.camdencc.edu/about-1/sustainability-plan/">https://www.camdencc.edu/about-1/sustainability-plan/</a>	13	82
Raritan valley community college	Community college	<a href="https://www.raritanval.edu/">https://www.raritanval.edu/</a>	<a href="https://www.raritanval.edu/general-information/national-recognition/sustainability">https://www.raritanval.edu/general-information/national-recognition/sustainability</a>	70	94
Fairleigh Dickinson University-Metropolitan Campus	Independent-4	<a href="https://www.fdu.edu/campuses/metropolitan-campus/">https://www.fdu.edu/campuses/metropolitan-campus/</a>	Sustainability   Fairleigh Dickinson University (fdu.edu)	39	80
Fairleigh Dickinson University-College at Florham	Independent-4	<a href="https://www.fdu.edu/campuses/florham-campus/">https://www.fdu.edu/campuses/florham-campus/</a>	Sustainability   Fairleigh Dickinson University (fdu.edu)	39	80
Drew University	Independent-4	<a href="https://drew.edu/">https://drew.edu/</a>	<a href="https://drew.edu/campus-sustainability/">https://drew.edu/campus-sustainability/</a>	43	90
Monmouth University-400 Cedar Avenue West Long Branch,	Independent-4	<a href="https://www.monmouth.edu/">https://www.monmouth.edu/</a>	<a href="https://www.monmouth.edu/sustainability-advisory-council/">https://www.monmouth.edu/sustainability-advisory-council/</a>	92	100
Monmouth University-185 Monmouth Parkway West Long Branch	Independent-4	<a href="https://www.monmouth.edu/">https://www.monmouth.edu/</a>	<a href="https://www.monmouth.edu/sustainability-advisory-council/">https://www.monmouth.edu/sustainability-advisory-council/</a>	92	100
Princeton University	Independent-4	<a href="https://www.princeton.edu/">https://www.princeton.edu/</a>	<a href="https://sustain.princeton.edu/">https://sustain.princeton.edu/</a>	62	93

Rider University	Independent-4	<a href="https://www.rider.edu/">https://www.rider.edu/</a>	<a href="https://www.rider.edu/about/why-choose-rider/sustainability-rider">https://www.rider.edu/about/why-choose-rider/sustainability-rider</a>	35	90
St. Peter's University	Independent-4	<a href="https://www.saintpeters.edu/">https://www.saintpeters.edu/</a>	<a href="https://www.saintpeters.edu/sustainability/">https://www.saintpeters.edu/sustainability/</a>	32	73
Stevens Institute of Technology	Independent-4	<a href="https://www.stevens.edu/">https://www.stevens.edu/</a>	<a href="https://www.stevens.edu/about-stevens/sustainability/">https://www.stevens.edu/about-stevens/sustainability/</a>	52	96
Berkeley college	PIDGA	<a href="https://berkeleycollege.edu/index.html">https://berkeleycollege.edu/index.html</a>	<a href="https://berkeleycollege.edu/about/at-a-glance/sustainability/index.html">https://berkeleycollege.edu/about/at-a-glance/sustainability/index.html</a>	54	87
Rutgers, The State University of New Jersey- New Brunswick	Public	<a href="https://newbrunswick.rutgers.edu/">https://newbrunswick.rutgers.edu/</a>	<a href="https://www.sustainability.rutgers.edu/">https://www.sustainability.rutgers.edu/</a>	62	95
New Jersey Institute of Technology	Public	<a href="http://www.njit.edu">www.njit.edu</a>	<a href="https://www.njit.edu/environmentalsafety/sustainability/">https://www.njit.edu/environmentalsafety/sustainability/</a>	47	93
Rowan University	Public	<a href="http://www.rowan.edu">www.rowan.edu</a>	<a href="https://sites.rowan.edu/senate/sustainabilityatrowan/">https://sites.rowan.edu/senate/sustainabilityatrowan/</a>	25	81
Rutgers Schools & Colleges- New Brunswick	Public	<a href="https://newbrunswick.rutgers.edu/">https://newbrunswick.rutgers.edu/</a>	<a href="https://www.sustainability.rutgers.edu/">https://www.sustainability.rutgers.edu/</a>	62	95
Rutgers Schools & Colleges- Newark	Public	<a href="https://newark.rutgers.edu/new/">https://newark.rutgers.edu/new/</a>	<a href="https://www.sustainability.rutgers.edu/">https://www.sustainability.rutgers.edu/</a>	62	95
Rutgers Schools & Colleges- Camden	Public	<a href="https://camden.rutgers.edu/new/">https://camden.rutgers.edu/new/</a>	<a href="https://www.sustainability.rutgers.edu/">https://www.sustainability.rutgers.edu/</a>	62	95
Montclair State University	Public	<a href="https://www.montclair.edu/">https://www.montclair.edu/</a>	<a href="https://www.montclair.edu/pseg-sustainability-institute/">https://www.montclair.edu/pseg-sustainability-institute/</a>	24	61
Kean University	Public	<a href="http://www.kean.edu">www.kean.edu</a>	<a href="https://www.kean.edu/academics/dorothy-and-george-hennings-college-science-mathematics-and-technology/school-3">https://www.kean.edu/academics/dorothy-and-george-hennings-college-science-mathematics-and-technology/school-3</a>	62	94

The College of New Jersey	State College and Universities	<a href="http://www.tcnj.edu">www.tcnj.edu</a>	<a href="https://si.tcnj.edu/">https://si.tcnj.edu/</a>	85	99
Stockton University	State College and Universities	<a href="https://stockton.edu/">https://stockton.edu/</a>	<a href="https://stockton.edu/sciences-math/sustainability.html">https://stockton.edu/sciences-math/sustainability.html</a>	21	70
New Jersey City University	State College and Universities	<a href="http://www.njcu.edu">www.njcu.edu</a>	<a href="https://njcu.info/eco/">https://njcu.info/eco/</a>	43	70
William Paterson University	State College and Universities	<a href="https://www.wpunj.edu/home/index.html">https://www.wpunj.edu/home/index.html</a>	<a href="https://www.wpunj.edu/sustainability/">https://www.wpunj.edu/sustainability/</a>	52	54
Ramapo College	State College and Universities	<a href="http://www.ramapo.edu">www.ramapo.edu</a>	<a href="https://www.ramapo.edu/sustainability/">https://www.ramapo.edu/sustainability/</a>	42	71

**Table A2*****Accredited Higher Education Institutions in New Jersey***

Name of the Institution	Type of the Institution/ Sector	Website	Membership of sustainable organization	Mention about member organization?	Sustainability Page	Sustainability Office	Sustainability report	Sustainability Practices #1- EMS	Sustainability Practices #2- Outreach	Sustainability Practices #3- Curriculum and Research	Themes	AASHE report
Atlantic cape community college	community college	<a href="http://www.atlantic.edu/index.php">http://www.atlantic.edu/index.php</a>	NJHEPS	0	0	0	Sustainability Policy	Sustainability Policy-striving for building efficiencies, reducing energy consumption, ensuring recycling programs and sustainable landscape practices	promoting sustainable business practices, and working with the community to develop academic and career training renewable energy and sustainability programs.	Environmental Science,	123	0
Middlesex college	community college	<a href="https://www.middlesexcc.edu/">https://www.middlesexcc.edu/</a>	NJHEPS	0	0	0	0	LEED buildings, water and energy efficiency	Earth Science club	sustainability science	123	0
Bergen Community College	community college	<a href="https://bergen.edu/">https://bergen.edu/</a>	NJHEPS, ACUPCC, AASHE	0	0	0	0	No information	The Environmental Health & Safety (EHS) hotline, Environmental Club	sustainability, renewable energies,	23	0
County college of Morris	community college	<a href="https://www.ccm.edu/">https://www.ccm.edu/</a>	NJHEPS	0	0	0	0	No information	Environmental club, participants will get to perform volunteer work on a local farm, gain first-hand insight into sustainable food production and assist with distributing produce obtained from the college's share in the farm.	Environmental Sustainability, ENVIRONMENTAL STEWARDSHIP TRAINING,	23	0
Brookdale Community College	community college	<a href="https://www.brookdalecc.edu/">https://www.brookdalecc.edu/</a>	NJHEPS	0	0	0	0	No information	Seminars on sustainability, environmental club, EARTH DAY AND WEEK ACTIVITIES FOCUS ON ENDANGERED SPECIES	Environmental Science, sustainability in fashion	23	0

Ocean county college	community college	<a href="https://www.ocean.edu/">https://www.ocean.edu/</a>	NJHEPS	0	0	0	0	LEED building, energy efficient building	environmental clubs	Environmental studies	123	0
Rowan College at burlington county- Mr Laurel campus	community college	<a href="https://www.rcbc.edu/">https://www.rcbc.edu/</a>	NJHEPS	0	0	0	0	No information	Environmental club	Principles of sustainability, Environmental program	23	0
Rowan College at burlington county- Mr Laurel campus	community college	No separate websites	NJHEPS	0	0	0	0	No information	Environmental club	Principles of sustainability, Environmental program	23	0
Passaic County community college	community college	<a href="https://web.pccc.edu/">https://web.pccc.edu/</a>	NJHEPS	0	0	0	0	No information	No information	Environmental science, intro to sustainability	3	0
Camden county college	community college	<a href="https://www.camdencc.edu/">https://www.camdencc.edu/</a>	NJHEPS	0	1 <a href="https://www.camdencc.edu/about-sustainability-plan/">https://www.camdencc.edu/about-sustainability-plan/</a>		1- sustainability plan, Strategic plan,	campus-wide recycling program, switch to green certified cleaning products, reduced fare passes for public transportation, construction of a campus greenhouse, increased campus tree planting and use of document imaging to reduce reliance of paper files, and the review of all construction projects to encourage discussion of alternate material/methods with the focus of reducing the carbon footprint of the College landscaping, LED lights, recycling, commitment to purchase renewable, reusable and recycled material, electric charging stations, motion detection light switches, drought resistant and low	Earth Day celebration and activities,	Environmental science	123	0

								maintanence native species of plants.					
Raritan valley community college	community college	<a href="https://www.raritanval.edu/">https://www.raritanval.edu/</a>	AASHE STARS, NJHEPS	1 (AASHE STAR-silver	1 <a href="https://www.raritanval.edu/general-information/national-recognition/sustainability">https://www.raritanval.edu/general-information/national-recognition/sustainability</a>	RVCC Sustainability & Energy Coordinator, at Susan.Dorward@raritanval.edu.	Achievements, news, blog, Press release,	Solar, recycling, gardens	Environmental club, volunteerism on campus	environmental science, environmental studies, field trips, study abroad	123	No information	
Essex county college	community college	<a href="https://www.essexcountycollege.edu/">Essex County College</a>	NJHEPS		o	o	o	o	No information	No information	environmental science	3	o
Salem community college	community college	<a href="https://www.salemcc.edu/">https://www.salemcc.edu/</a>	NJHEPS		o	o	o	o	No information	community approach to plant trees	sustainable energy course, environmental science	23	o
<a href="#">Rowan College of South Jersey-Gloucester</a>	community college	<a href="http://www.rcsj.edu">www.rcsj.edu</a>		o	o	o	o	o	No information	No information	AS Environmental Science	3	o
<a href="#">Rowan College of South Jersey-Cumberland county campus</a>	community college	No separate websites		o	o	o	o	o	No information	No information	AS Environmental Science	3	o
Sussex County Community College	community college	<a href="https://www.sussex.edu/">https://www.sussex.edu/</a>	NJHEPS		o	o	o	o	No information	sustainable gardening, biology club	sustainable gardening certificate, environmental science, environmental sustainability, environment and cultural behavior	23	o

Hudson County community college	community college	<a href="http://www.hccc.edu">www.hccc.edu</a>		0	0	0	0	0	LEED building. A photovoltaic rooftop system that will generate electrical power by converting solar rays into direct current electricity. • Daylight and occupancy sensors that turn lights on/off as people enter/leave spaces. • Low-flow fixtures (sinks and toilets) for greater water conservation. • Rainwater harvesting tanks. • High-efficiency mechanical equipment such as interior light shelves that help to reflect light deeper into instructional spaces	environmental club, community outreach	environmental science, conservation and sustainability	123	0
<u>Union County College</u>	community college	<u>Union County College (ucc.edu)</u>	NJHEPS		0	0	0	0	No information	No information	sustainability science, environmental sciences,	3	0
Union county college-Elizabeth Campus	community college	No separate websites	NJHEPS		0	0	0	0	No information	No information	sustainability science, environmental sciences,	3	0
<u>Union County College - Plainfield Campus</u>	community college	No separate websites	NJHEPS		0	0	0	0	No information	No information	sustainability science, environmental sciences,	3	0
<u>Union County College - Scotch Plains Campus</u>	community college	No separate websites	NJHEPS		0	0	0	0	No information	No information	sustainability science, environmental sciences,	3	0
Mercer county community college	community college	<a href="http://www.mccc.edu">www.mccc.edu</a>	NJHEPS		0	0	0	0	No information	Go green club	sustainability science, environmental sciences,	3	0

Warren county community college	community college	<a href="http://www.warren.edu/">http://www.warren.edu/</a>	NJHEPS	0	0	0	0	No information	community outreach club	environmental studies	3	0
New Jersey Center for teaching and learning	GDGII	<a href="https://njctl.org/">https://njctl.org/</a>	0	0	0	0	0	No information	No information	no information	0	0
Hackensack Meridian School of Medicine	GDGII	<a href="http://www.hmsom.org">www.hmsom.org</a>	0	0	0	0	0	No information	No information	no information	0	0
Assumption College for Sisters	Independent-2-Religious College	<a href="http://www.acs350.org">www.acs350.org</a>	0	0	0	0	0	No information	No information	no information	0	0
Pillar College	Independent-4	<a href="https://pillar.edu/">https://pillar.edu/</a>	0	0	0	0	0	No information	No information	no information	0	0
<u>Saint Elizabeth University</u>	Independent-4	<a href="http://www.steu.edu">www.steu.edu</a>	0	0	0	0	0	Mission, Goals and Objectives, news article, Facilities department mentions- The Facilities Department is here to assist you with all your Facilities needs. Our goal is to provide the SEU campus with the best possible service and to provide all students and employees on campus a cleaner and better-maintained facility. Energy management, recycling.	No information	Environmental chemistry credit	13	0
<u>Felician University</u>	Independent-4	<a href="https://felician.edu/">https://felician.edu/</a>	NJHEPS	0	0	0	0	No information	Innovation, Globalization, & Sustainability Knowledge Exchange Forum	No programs	2	0
<u>Seton Hall University-South Orange</u>	Independent-4	<a href="http://www.shu.edu">www.shu.edu</a>	NJHEPS, AASHE	1	0	0	0	Announcement, News, Blog, strategic plan Green Chemistry Program. Recycling - The following items are currently recycled: Glass, Aluminum, Computer paper, white paper, plastic, shredded paper, Cardboard, Leaves, branches, Waste oil, Fluorescent, LED, HID light bulbs, Batteries, Light Electronics, Scrap metal	Ecology Club	Environmental studies (BA), , Graduation theses on environmental sustainability related subjects	123	0



<a href="#"><u>Seton Hall University Law School</u></a>	Independent-4	<a href="https://law.shu.edu/">https://law.shu.edu/</a>		0	0	0	0	0	Recycle	The Environmental Law Society (ELS)	environmental Law	123	0
<a href="#"><u>Caldwell University</u></a>	Independent-4	<a href="https://www.caldwell.edu/">https://www.caldwell.edu/</a>	NJHEPS		0	0	0	0	food waste minimization, solar energy, academics, recycling, waste management	Visceglia Gallery Presents Climate Change Convergence, sustainable fair trade coffee, Caldwell University's 100 percent recycled caps, gowns and tassels worn by undergraduate and graduate, students at the May 21 ceremonies. Eco club	Environmental science (BS)	123	0
<a href="#"><u>Bloomfield College</u></a>	Independent-4	<a href="https://bloomfield.edu/">https://bloomfield.edu/</a>	NJHEPS		0	0	0	0	LEEDs building, College grads wear robes made of plastic waste,	Green Hearts environmental movement (sustainable gardening), President delivered keynote speech on smart city technologies	environmental issues and human survival, ecology,	123	0
<a href="#"><u>Centenary University</u></a>	Independent-4	<a href="https://www.centenaryuniversity.edu/">https://www.centenaryuniversity.edu/</a>	New Jersey Department of Environmental Protection, NJHEPS, AASHE		0	0	0	0	Equestrian Center receives the Gold Medal Horse Farm Award for 2020 by the New Jersey Equine Environment Stewardship Initiative	Op Ed article on EPA, climate change. The Evergreen Group, Trex's University and Community Recycling Program.	Sustainable Business Practices , BS in Env sci	123	0
<a href="#"><u>Fairleigh Dickinson University-Metropolitan Campus</u></a>	Independent-4	<a href="https://www.fdu.edu/campuses/metropolitan-campus/">https://www.fdu.edu/campuses/metropolitan-campus/</a>	NJHEPS		1	<a href="#"><u>Sustainability   Fairleigh Dickinson University (fdu.edu)</u></a>	Sustainability Task Force	Announcement, Blogs, News, strategic plan, progress report	campus sustainability projects, FDU, Spirit Bridge on Metropolitan campus, Energy Audit, Greenspaces	Sustainable Living on Campus Working Group, FDU Sustainability Community Engagement, urban farming, Creating blight resistant trees, Environmental Justice Symposium, Drug take back days, Campus community Garden, Native flower garden,	Research on sustainable projects, Environmental science Minor, Environmental studies minor, Ecosystem and environmental science, environmental geography,	123	0

<a href="#">Fairleigh Dickinson University-College at Florham</a>	Independent-4	<a href="https://www.fdu.edu/campuses/florham-campus/">https://www.fdu.edu/campuses/florham-campus/</a>	NJHEPS		1	<a href="#">Sustainability   Fairleigh Dickinson University (fdu.edu)</a>	Announcement, Blogs, News, strategic plan, progress report	Promoting Sustainability on Campus, Sustainable dining practices, Green Move-Out, Zero Waste Events, recycling, residence life	No information	no information	1	0	
<a href="#">Georgian Court University</a>	Independent-4	<a href="https://georgian.edu/">https://georgian.edu/</a>	NJHEPS	0	0	Sustainability Committee-Director of Sustainability	blog, News, strategic plan, announcement,	Arboretum, Dining, Minimise food waste, , operate efficiently, Reduce packaging, Building Sustainable Campus	news article on gould acorns, CO2 emissions, Green thread, source food responsibly, critical concerns on environmental racism week, talk on climate change,	Minor in sustainability, triple ecology in costa rica summer course,	123	0	
<a href="#">Drew University</a>	Independent-4	<a href="https://drew.edu/">https://drew.edu/</a>	NJHEPS, ACUPCC, AASHE		1	<a href="https://drew.edu/campus-sustainability/">https://drew.edu/campus-sustainability/</a>	Sustainability Coordinator	Policy document, Strategic plan, announcement, News, Blog	campus rain garden, recyclemania, student groups	BS in Environmental Science and a BA in Environmental Studies and Sustainability, Research work on Environmental sustainability topics,	123	0	
<a href="#">Monmouth University-400 Cedar Avenue West Long Branch,</a>	Independent-4	<a href="https://www.monmouth.edu/">https://www.monmouth.edu/</a>	NJHEPS		1	<a href="https://www.monmouth.edu/sustainability-advisory-council/">https://www.monmouth.edu/sustainability-advisory-council/</a>	Sustainability Advisory Council-sustainability@monmouth.edu.	Announcement, Blogs, News, strategic plan, progress report	ERM, SAC, Urban coast Institute energy conservation, renewable energy, waste and recycling, water conservation,	2022 Student Sustainability Summit – Call for Entries, 2nd Annual Sustainability Education Week, environmental awareness through education and outreach	Minor in Global Sustainability	123	0
Monmouth University-185 Monmouth Parkway West Long Branch	Independent-4	<a href="https://www.monmouth.edu/">https://www.monmouth.edu/</a>	NJHEPS		1	<a href="https://www.monmouth.edu/sustainability-advisory-council/">https://www.monmouth.edu/sustainability-advisory-council/</a>	Sustainability Advisory Council-sustainability@monmouth.edu.	Announcement, Blogs, News, strategic plan, progress report	ERM, SAC, Urban coast Institute energy conservation, renewable energy, waste and recycling, water conservation,	2022 Student Sustainability Summit – Call for Entries, 2nd Annual Sustainability Education Week, environmental awareness through education and outreach	Minor in Global Sustainability	123	0

<a href="#"><u>Princeton University</u></a>	Independent-4	<a href="https://www.princeton.edu/">https://www.princeton.edu/</a>	NJHEPS, AASHE		1 1 <a href="https://sustainability.princeton.edu/">https://sustainability.princeton.edu/</a>	Sustainability Action Plan, sustain@princeton.edu, Director of Office of Sustainability	Policy, News, Announcement, Sustainability plan, strategic plan	carpooling, Recycling, STARS, SAP, public transportation,	edible garden, fair trade, recycling program, green purchasing,	Minors, Major and Research	123	AASHE gold.
<a href="#"><u>Rider University</u></a>	Independent-4	<a href="https://www.rider.edu/">https://www.rider.edu/</a>	NJHEPS, ACUPCC		1 1 <a href="https://www.rider.edu/about/why-choose-rider/sustainability-rider">https://www.rider.edu/about/why-choose-rider/sustainability-rider</a>	Director of Sustainability		1 38,000+ food waste diverted by biodigester, 45 EV charger users, Energy Master Plan, North Hall LEED Gold,	Earth Day celebration and student concert, Rider woods clean up, beach sweeps with 140+ students, Green Acres organic community program	Sustainability Studies minor	123	0
<a href="#"><u>St. Peter's University</u></a>	Independent-4	<a href="https://www.saintpeters.edu/">https://www.saintpeters.edu/</a>	ACUPCC, NJHEPS		1 1 <a href="https://www.saintpeters.edu/sustainability/">https://www.saintpeters.edu/sustainability/</a>	0		1 , Native Plant Garden, energy conservation, Ev charging stations, climate leadership	green teams, community garden, local produce used by food service	major and minor in Environmental Studies, environmental research in amazon forest	123	0
<a href="#"><u>Stevens Institute of Technology</u></a>	Independent-4	<a href="https://www.stevens.edu/">https://www.stevens.edu/</a>	NJHEPS		1 1 <a href="https://www.stevens.edu/about-stevens/sustainability">https://www.stevens.edu/about-stevens/sustainability</a>	0		1 Green college, STAR certificate, transportation, water conservation, recycling, solar energy, energy conservation, Ev charging stations, green teams, climate leadership	sustainable purchasing	The Center for Environmental Systems (CES), Environmental Research, Bachelors and Masters and doctoral programs in Environmental Engineering, Environmental engineering sustainability, environmental management graduate cert.	123	0

Berkeley college	PIDGA	<a href="https://berkeleycollege.edu/index.html">https://berkeleycollege.edu/index.html</a>	NJHEPS	0	1 <a href="https://berkeleycollege.edu/about/at-a-glance/sustainability/index.html">https://berkeleycollege.edu/about/at-a-glance/sustainability/index.html</a>	0	1	LED bulbs, HVAC to energy efficient units, energy efficient windows, campus hydration stations,	Community Service Week	Sustainable Fashion course,	123	0
Eastern School of Accupuncture and Traditional Medicine	PIDGA	<a href="https://www.esatm.edu/">https://www.esatm.edu/</a>	0	0	0	0	0	No Information	No Information	No Information	0	0
Best Care College	PIDGA	<a href="https://www.bestcarecollege.edu/">https://www.bestcarecollege.edu/</a>	0	0	0	0	0	No Information	No Information	No Information	0	0
Eastwick College-Ramsey	PIDGA	<a href="https://eastwick.edu/">https://eastwick.edu/</a>	0	0	0	0	0	No Information	No Information	No Information	0	0
Eastwick College-Hackensack Campus	PIDGA	No separate websites	0	0	0	0	0	No Information	No Information	No Information	0	0
Eastwick College-Nutley Campus	PIDGA	No separate websites	0	0	0	0	0	No Information	No Information	No Information	0	0
Chamberlain University	PIDGA	<a href="https://www.chamberlain.edu/">https://www.chamberlain.edu/</a>	0	0	0	0	0	No Information	No Information	No Information	0	0
Jersey College Main Campus	PIDGA	<a href="https://www.jerseycollege.edu/">https://www.jerseycollege.edu/</a>	0	0	0	0	0	No Information	No Information	No Information	0	0
Jersey College Ewing Campus	PIDGA	No separate websites	0	0	0	0	0	No Information	No Information	No Information	0	0

CTOR Academy	PIDGA	<a href="https://www.ctor.academy/">https://www.ctor.academy/</a>	0	0	0	0	0	No Information	No Information	No Information	0	0
Sollers College	PIDGA	<a href="https://sollers.edu/">https://sollers.edu/</a>	0	0	0	0	0	No Information	No Information	No Information	0	0
Devry University-North Brunswick Campus	PIDGA	<a href="https://www.devry.edu/">https://www.devry.edu/</a>	0	0	0	0	1	No Information	No Information	AA engineering technology with a specialization in renewable energy and sustainable power	3	0
Devry University-Cherry Hill Center	PIDGA	No separate websites	0	0	0	0	1	No Information	No Information	AA engineering technology with a specialization in renewable energy and sustainable power	3	0
Devry University-Paramus Center	PIDGA	No separate websites	0	0	0	0	1	No Information	No Information	AA engineering technology with a specialization in renewable energy and sustainable power	3	0
Strayer University-Cherry Hill Campus	pidga	<a href="https://www.strayer.edu/">https://www.strayer.edu/</a>	0	0	0	0	0	No Information	No Information	No Information	0	0
Strayer University-Willingboro Campus	pidga	No separate websites	0	0	0	0	0	No Information	No Information	No Information	0	0

Strayer University-Piscataway Campus	pidga	No separate websites		0	0	0	0	0	No Information	No Information	No Information	0	0
Eastern International College-Jersey City Campus	pidga	<a href="https://www.eicollege.edu/">https://www.eicollege.edu/</a>		0	0	0	0	0	No Information	No Information	No Information	0	0
Eastern International College-Belleville Campus	pidga	No separate websites		0	0	0	0	0	No Information	No Information	No Information	0	0
univ of phoenix, Jersey city campus	pidga	<a href="https://www.phoenix.edu/">https://www.phoenix.edu/</a>		0	0	0	0	0	No Information	No Information	No Information	0	0
Rutgers, The State University of New Jersey-New Brunswick	Public	<a href="https://newbrunswick.rutgers.edu/">https://newbrunswick.rutgers.edu/</a>	NJHEPS, AASHE	0	1	<a href="https://www.sustainability.rutgers.edu/">https://www.sustainability.rutgers.edu/</a>	<a href="mailto:rosa.villanueva@rutgers.edu">rosa.villanueva@rutgers.edu</a>	1	renewable energy efficiency, sustainable landscape, water refill stations, food waste minimization, biodiversity	Community Garden	academics, research,	123	0
New Jersey Institute of Technology	Public	<a href="http://www.njit.edu">www.njit.edu</a>	NJHEPS, AASHE	1	1	<a href="https://www.njit.edu/environmentalsafety/sustainability">https://www.njit.edu/environmentalsafety/sustainability</a>	0	1	solar panels, academics, food waste recycling, research	Building	Environmental Engineering	1	0
Rowan University	Public	<a href="http://www.rowan.edu">www.rowan.edu</a>	NJHEPS, AASHE	1	1	<a href="https://site.s.rowan.edu/senate/sustainabilityatrowan/">https://site.s.rowan.edu/senate/sustainabilityatrowan/</a>	0	1	sustainability master plan,	Outreach team	Environmental and Sustainability Studies, School of earth and environment	123	0
Rutgers Schools & Colleges-New	Public	<a href="https://newbrunswick.rutgers.edu/">https://newbrunswick.rutgers.edu/</a>	NJHEPS, AASHE	1	1	<a href="https://www.sustainability.rutgers.edu/">https://www.sustainability.rutgers.edu/</a>	0	1	Living Labs,	Seminars,	Environmental courses in BS, certificates, sustainability	123	0

Brunswick										courses		
Rutgers Schools & Colleges-Newark	Public	<a href="https://newark.rutgers.edu/new/">https://newark.rutgers.edu/new/</a>	NJHEPS, AASHE		1 <a href="https://www.sustainability.rutgers.edu/">https://www.sustainability.rutgers.edu/</a>	0	1	sustainable practices	workshop, seminar, discussion, urban gardening, urban agriculture	environmental science - sustainability (B.S.)	123	0
Rutgers Schools & Colleges-Camden	Public	<a href="https://camden.rutgers.edu/new/">https://camden.rutgers.edu/new/</a>	NJHEPS, AASHE	0	1 <a href="https://www.sustainability.rutgers.edu/">https://www.sustainability.rutgers.edu/</a>	0	1	Sustainability camden	No information	Environmental Management	13	0
NJIT schools and colleges	Public	No separate websites				0		solar panels, academics, food waste recycling, research	Building	Environmental Engineering	123	0
<u>Montclair State University</u>	Public	<a href="https://www.montclair.edu/">https://www.montclair.edu/</a>	NJHEPS, ACUPCC, AASHE	0	1 <a href="https://www.montclair.edu/pseg-sustainability-institute/">https://www.montclair.edu/pseg-sustainability-institute/</a>	0	1	recycling, stormwater, transportation, MOU with EPA, reusable water bottle, green buildings, '	campus community garden, environmental club,	<u>Sustainable Food Practices (Certificate), bachelors, masters and doctoral programs in environmental sciences.</u>	123	0
<u>Kean University</u>	Public	<a href="http://www.kean.edu">www.kean.edu</a>	NJHEPS, AASHE	1	1 <a href="https://www.kean.edu/academics/dorothy-and-george-hennings-college-science-mathematics-and-technology/school-3">https://www.kean.edu/academics/dorothy-and-george-hennings-college-science-mathematics-and-technology/school-3</a>	0	1	food waste composting and recycling, energy efficient and sustainable facilities	Sustainable agriculture, community volunteering	, Minor in Sustainability Science ,	123	0
<u>The College of New Jersey</u>	State College and Universities	<a href="http://www.tcnj.edu">www.tcnj.edu</a>	NJHEPS, ACUPCC	1	<a href="https://si.tcnj.edu/">https://si.tcnj.edu/</a>			Environmental Sustainability Council (ESC), arboretum,	ENVIRONMENTAL JUSTICE DATABASE , : INVITE SURROUNDING	Sustainability Institute	123	0

								renewable energy and carbon neutrality, community planning, transportation, recycling, eliminate single use plastic, institutional bicycle-sharing program,	COMMUNITY TO TCNJ ENVIRONMENTAL PROGRAMMING , ENCOURAGE LOCAL BUSINESSES			
<u>Stockton University</u>	State College and Universities	<a href="https://stockton.edu/">https://stockton.edu/</a>	ACUPCC, AASHE		<sup>1</sup> <a href="https://stockton.edu/sciences-math/sustainability.html">https://stockton.edu/sciences-math/sustainability.html</a>	0		biodiversity, energy and climate, transportation, water usage, eco buildings, food, waste and recycling	Stockton Farm	Sustainability - energy science, agroecology, Bs/PSM in Environmental Science,	123	
<u>Thomas Edison State University</u>	State College and Universities	<a href="http://www.tesu.edu">www.tesu.edu</a>	NJHEPS	0	0	0	0	robes from plastic recycled water bottles, LEED building,	No information	Sustainable Energy/Green Building certifications, Environmental Policy/Environmental Justice, BS in env studies,	13	
<u>New Jersey City University</u>	State College and Universities	<a href="http://www.njcu.edu">www.njcu.edu</a>	NJHEPS, AASHE		<sup>1</sup> <a href="https://njcu.info/eco/">https://njcu.info/eco/</a>	0		Setting and Infrastructure Energy and Climate ChangeWaste Recycling Water Conservation Transportation local vendors, biotech digester	NJCU earth museum, environmental club, sustainability studies BA,	<u>Earth and Environmental Science—Geoscience Earth Science/Secondary Education (Teacher Certification), B.S.</u>	123	
<u>William Paterson University</u>	State College and Universities	<a href="https://www.wpunj.edu/home/index.html">https://www.wpunj.edu/home/index.html</a>	NJHEPS, ACUPCC		<sup>1</sup> <a href="https://www.wpunj.edu/sustainability/">https://www.wpunj.edu/sustainability/</a>	0		recycling, solar energy, energy conservation, Ev charging stations, climate leadership	green teams,	Environmental sustainability, sustainability policy,	123	
<u>Ramapo</u>	State College and	<a href="http://www.ramapo.edu">www.ramapo.edu</a>	NJHEPS		<sup>1</sup> <a href="https://www.ramapo.edu/sustainability/">https://www.ramapo.edu/sustainability/</a>	0		waste reduction, saving paper, saving energy, reducing kitchen waste and food miles, reducing bathroom waste, ,	edible garden, fair trade, green purchasing	environmental science BS, environmental studies BA, sustainability	123	



College	Universities	o.edu			bility/			recycling, carpooling, public transportation,		BA, MA in sustainability studies,		
Bais Medrash Toras Chesed	TI/TS	<a href="http://www.bmtc.edu/">http://www.bmtc.edu/</a>	o	o	o	o	o	No information	No information	No information	o	
Yeshivas Be'er Yitzchok	TI/TS	<a href="https://yeshivasbeeryitzchok.org/about-us/">https://yeshivasbeeryitzchok.org/about-us/</a>	o	o	o	o	o	No information	No information	No information	o	
Beth Medrash Govoha	TI/TS	<a href="https://www.bmg.edu/">https://www.bmg.edu/</a>	o	o	o	o	o	No information	No information	No information	o	
Yeshiva Chayei Olam	TI/TS	No website	o	o	o	o	o	No information	No information	No information	o	
Bais Medrash Mayan Hatorah	TI/TS	No website	o	o	o	o	o	No information	No information	No information	o	
Yeshivas Chemdat Hatorah	TI/TS	<a href="https://yeshivachemdatshatorah.com/">https://yeshivachemdatshatorah.com/</a>	o	o	o	o	o	No information	No information	No information	o	
Bais Medrash Zichron Meir	TI/TS	<a href="https://www.baismedrashzichronmeir.com/">https://www.baismedrashzichronmeir.com/</a>	o	o	o	o	o	No information	No information	no information	o	
Yeshivas Emek Hatorah	TI/TS	<a href="https://yeshivasemekhatorah.com/">https://yeshivasemekhatorah.com/</a>	o	o	o	o	o	No information	no information	no information	o	
Keser Torah- Mayan Hatalmud	TI/TS	<a href="https://mayanhatalmud.org/">https://mayanhatalmud.org/</a>	o	o	o	o	o	No information	no information	no information	o	
Yeshiva Gedola Tiferes Yaakov Yitzchok	TI/TS	<a href="https://yeshivatvy.com/">https://yeshivatvy.com/</a>	o	o	o	o	o	No information	No information	no information	o	

Manara College	TI/TS	<a href="https://njia.org/">https://njia.org/</a>	0	0	0	0	0	No information	No information	No information	0	
Yeshiva Gedola Tiferes Yerachmiel	TI/TS	<a href="https://yeshivagedolatiferesyerachmiel.com/">https://yeshivagedolatiferesyerachmiel.com/</a>	0	0	0	0	0	No information	No information	No information	0	
Mosdos Yaakov V'Yisroel	TI/TS	No website	0	0	0	0	0	No information	No information	No information	0	
Yeshiva Gedolah Keren Hatorah	TI/TS	<a href="https://yeshivagedolahkerenhatorah.com/">https://yeshivagedolahkerenhatorah.com/</a>	0	0	0	0	0	No information	No information	No information	0	
New Brunswick Theological Seminary	TI/TS	<a href="https://nbtse.edu/">https://nbtse.edu/</a>	NJHEPS	0	0	0	1	No information	No information	No information	0	
Yeshiva Gedolah of Cliffwood	TI/TS	<a href="https://yeshivagedolahcliffwood.com/">https://yeshivagedolahcliffwood.com/</a>	0	0	0	0	0	No information	No information	No information	0	
Princeton Theological Seminary	TI/TS	<a href="https://www.ptsem.edu/">https://www.ptsem.edu/</a>	NJHEPS	0	0	0	1	No information	Sustainable Farm	Research on environmental ethics	23	
Yeshiva Gedolah Shaarei Shmuel	TI/TS	<a href="https://yeshivagedolahshaareishmuel.com/">https://yeshivagedolahshaareishmuel.com/</a>	0	0	0	0	0	No information	No information	No information	0	
Rabbi Jacob Joseph School	TI/TS	<a href="https://rabbiacobjoseph.com/">https://rabbiacobjoseph.com/</a>	NJHEPS	0	0	0	0	No information	No information	No information	0	
Yeshiva Gedolah Tiferes Boruch	TI/TS	<a href="https://yeshivagedolahtiferesboruch.com/">https://yeshivagedolahtiferesboruch.com/</a>	0	0	0	0	0	No information	No information	No information	0	

Rabbinical College of America	TI/TS	<a href="https://www.rca.edu/">https://www.rca.edu/</a>	o	o	o	o	o	No information	No information	No information	o	
Yeshiva Gedola Zichron Leyma	TI/TS	<a href="https://www.vzl.edu/">https://www.vzl.edu/</a>	o	o	o	o	o	No information	No information	No information	o	
Rabbinical Seminary M'kor Chaim	TI/TS	No website	o	o	o	o	o	No information	No information	No information	o	
Yeshiva Ohr Simcha of Englewood	TI/TS	<a href="https://www.yeshivaohrsimcha.org/">https://www.yeshivaohrsimcha.org/</a>	o	o	o	o	o	No information	No information	No information	o	
Seminary Bnos Chaim	TI/TS	<a href="https://www.seminarybnoschaim.com/">https://www.seminarybnoschaim.com/</a>	o	o	o	o	o	No information	No information	No information	o	
Yeshiva Ohr Zechariah	TI/TS	<a href="https://yeshivaohrzechariah.com/">https://yeshivaohrzechariah.com/</a>	o	o	o	o	o	No information	No information	No information	o	
<u>St. Sophia Ukrainian Orthodox Theological Seminary</u>	TI/TS	<a href="https://www.uocofusa.org/news_210225_1">https://www.uocofusa.org/news_210225_1</a>	o	o	o	o	o	No information	No information	No information	o	
Yeshiva Toras Chaim	TI/TS	<a href="http://www.ytchaim.com/">http://www.ytchaim.com/</a>	o	o	o	o	o	No information	No information	No information	o	
Talmudical Academy	TI/TS	<a href="https://talmudicalacademynj.com/">https://talmudicalacademynj.com/</a>	o	o	o	o	o	No information	No information	No information	o	
Talmudical Academy	TI/TS	<a href="https://talmudicalacademynj.com/">https://talmudicalacademynj.com/</a>	o	o	o	o	o	No information	No information	No information	o	

Yeshiva Yesodei Hatorah	TI/TS	<a href="https://yes-hivayesodei-hatorahlake-wood.com/">https://yes-hivayesodei-hatorahlake-wood.com/</a>	o	o	o	o	o	No information	No information	No information	o	
Yeshiva Bais Aharon	TI/TS	<a href="https://yes-hivabaisaharon.com/">https://yes-hivabaisaharon.com/</a>	o	o	o	o	o	No information	No information	No information	o	