Factor influencing sustainable community : ANN Approach

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Software Engineering

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APPROVAL

This thesis titled on "**Factor Influencing Sustainable Community: ANN Approach**" submitted by **Fania Rahman (ID: 191-35-2646)** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering and approval as to its style and contents.

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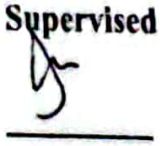

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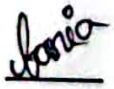

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I really grateful and wish our profound our indebtedness to Dr. Imran Mahmud, Associate Professor and Head, Department of Software Engineering, Daffodil International University, Dhaka. Deep Knowledge & keen interest of my supervisor in the field of "Artificial Neural Networks" to carry out this project. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts, and correcting them at all stages have made it possible to complete this project.

I would like to express my heartiest gratitude to other faculty members and the staff of the SWE department of Daffodil International University.

Finally, I must respectfully thank our parents for their unwavering love and patience.

ABSTRACT

For many community-based organizations, program sustainability is a big concern. When a program is not sustainable, its impact is impacted since it is harder for the program to continue over time. Understanding the variables affecting sustainability is crucial for creating sustainable programs. Utilizing a study considers what is currently known and looks for any missing aspects to gain insight into the factors that affect program sustainability. A mixed-method study involving a thorough assessment of the literature and interviews with subject matter experts was carried out for this objective. Here I'll study some research papers for the review, and try to extract factors. Also, prepare some questions so that I can survey and review them. Human resources, organizational setting, social and political environment, and financing were the four categories into which the factors were divided. a systematic review of the literature.

TABLE OF CONTENTS

CONTENTS	PAGE
Approval Page	I
Declaration	ii
Acknowledgements	iii
Abstract	Iv
List of Figures	ix
ABBREVIATION	x
CHAPTER	
CHAPTER 1: INTRODUCTION	**1-3**
1.1 Introduction	1
1.2 Motivation	2
1.3 Resarch Summary	2
1.4 Expected Outcome	2
1.5 Report Layout	3
CHAPTER 2: LITERATURE REVIEW	**4-5**
2.1 Introduction	4-5

CHAPTER 3: RESEARCH METHODOLOGY **6-9**

3.1 Method **6-7**

3.2Working process **7-9**

CHAPTER 4: EXPERIMENTAL RESULTS AND DISCUSSION **10-15**

4.1 Result **10-15**

CHAPTER 5: SUMMARY,CONCLUSION,RECOMMENDATION AND IMPLICATION FOR FUTURE RESEARCH **16**

6.1Summary of the Study 16

6.2 Conclusion 16

REFERENCES **17-18**

LIST OF FIGURES

FIGURES	PAGE NO
Figure 3.1: Survey Question of my thesis	6
Figure3.2.1:Head part of my data	8
Figure 3.2.2: Data Description & Frequency	8
Figure 3.2.4: Plot Histogram	9
Figure 4.1: Question's 1	10
Figure 4.2: Question's 2	10
Figure 4.3: Question's 3	11
Figure 4.4: Question's 4	11
Figure 4.5: Question's 5	12
Figure 4.6: Question's 6	12
Figure 4.7: Question's 7	13
Figure 4.8: Question's 8	13
Figure 4.9: Question's 9	14
Figure 4.10: Question's 10	14
Figure 4.11: Question's 11	15
Figure 4.12: Question's 12	15

ABBREVIATION

GSD - Global Software Development

ANN - Artificial Neural Network

NECM - Normalized Expected Cost of Misclassification

FNN - Feedforward Neural Network

CBOs –Community Based organizations

CHAPTER ONE

INTRODUCTION

1.1 Introduction

For many community-based organizations (CBOs), particularly in low- and middle-income nations, program sustainability is a significant problem (Gruen, 2008). Evidence from many research suggests that 40% of all new projects are terminated after the original funding has ended within the first few years (Savaya et al., 2008). Unsustainable projects have a smaller long-term impact on the neighborhood, fail to address community needs, squander resources (human, financial, and technological) during the start-up phase, and may erode community confidence and support for future initiatives (Shediac-Rizkallah& Bone, 1998). The community's intended impact must be realized in order forprograms must sustain once implemented. However, because it can be difficult, planning for sustainability is rarely included in the process of developing an initiative (Sridharan, Zinzow, Gray & Barrett, 2007). Traditionally, program evaluation has concentrated on the execution and results of social projects, frequently ignoring sustainability (CassidLeviton, & Hunter, 2006). Frameworks and models are built to construct and assist the sustainability process in the implementation circle, such as the RE-AIM model (Glasgow, Vogt, & Boles, 1999). According to this paradigm, an intervention's effect on public health depends on five factors: reach, efficacy, adoption, implementation, and maintenance. The intended impact will be impacted if the last stage of a program's sustainability assessment is neglected (Sarriot et al., 2004, Scheirer, 2005, Savaya, Spiro &Elran-Barak, 2008). Greater clarity regarding the variables affecting sustainability is required if sustainability is to become a regular part of a program.

A mixed-methods strategy was utilized in this investigation, incorporating a systematic literature review combined with expert interviews. The purpose of the literature review was to ascertain which sustainability-related factors have been discovered so far. The frequency of elements stated in the research was also evaluated in order to build an overview. The interviews were based on a systematic review. Interviews with professionals from community-based organizations provided more in-depth knowledge

about the elements of sustainability. These specialists have experience with this issue and are aware of this. Nowadays it has become a serious issue.

1.2 Motivation

Some fundamental needs still need to be addressed in many communities. I merely want to educate others about sustainability. so that we can better the economic circumstances of our nation. The purpose of this study is to identify those human requirements that have not yet been identified. It is protecting people's fundamental rights. This society primarily uses its resources to address immediate needs while making sure that there are enough resources for future generations.

1.3 Expected Outcome:

- Get good accuracy from the model.
- Will get good knowledge about sustainable development.
- Will know about plot histogram
- Will know about the correlation matrix.

1.4 Research Questions

RQ1: Why can’t people ensure their own needs in a sustainable community?

RQ2: Why do ordinary people still not know what their social needs are?

RQ3: Their own political, natural needs, discrimination, how can they have rights?

1.5 Chapter's Layout

This report varied in a total of six different chapters. Which are capable of extending the understanding of "Sustainability Development" more briefly.

In the first chapter, we'll mention the introduction, motivation, and research questions and the last one is the expected outcome.

In the second chapter, we'll briefly about some related works, which types of challenges we had faced, and about the research summary.

In the third chapter, we'll talk about our research subject and instrumentation, About Data collection processes, and the Coding part.

In the fourth chapter, we'll talk about the result that we got, the analysis of the result, and the discussion

In the fifth chapter, We'll describe its impact on our society, impact on our environment, and sustainability.

CHAPTER TWO

LITERATURE REVIEW

Research on the variables affecting the sustainability of communally managed water facilities was presented by Tendai et al. (2017). It was in Zimbabwe's countryside. Although field findings suggested that communities typically took a passive role in this important project stage, active community involvement in water project design has also been shown to be crucial for sustainability. It was also found that adequate financial contributions and the establishment of operation and maintenance funds were important financial factors in maintaining water delivery systems. It is suggested that all elements be included while evaluating sustainability because they all influence one another.

(K. Law, 2010) The findings imply that "internal variables" have an enabling and driving influence on how prepared high-tech companies are to implement sustainable development plans. By creating a tool to assess the readiness of sustainability strategy implementation in high-tech enterprises in Taiwan and the surrounding area, it is anticipated that the work would be expanded. The results can be used to design a plan for sustainability management in the high-tech manufacturing industry while taking an incremental approach and emphasizing the forces that are driving and facilitating sustainability development.

According to Debra Morgan, et al (2022), The aging of rural populations is one factor in the rise of dementia cases there. Despite the crucial role that primary healthcare plays in rural areas, there is no research on efficient models for dementia care or proof of their sustainability and expansion. In this study, healthcare professionals involved in the design and delivery of memory clinics in rural areas were asked to identify factors that might affect their viability and ability to scale up.

(2013) (Sara J. et al. This study examines the connection between family and water committee sense of ownership and system sustainability using primary data collected from 50 rural Kenyan villages with piped water systems. Along with 50 system operators, 312 water committee members, and technical assessments of the water systems, 1,916

residences were personally interviewed. Using major components analysis, we create composite indicators of system sustainability as well as water committees' and families' sense of responsibility for the system.

The impact of on-premises piped water delivery on fecal contamination pathways in rural Zambia (James Winter, Gary L. Darmstadt, Alexandria B. Boehm & Jennifer Davis, 2021). We discovered that neither the length of self-reported in-home water storage nor microbiological outcomes changed despite the fact that the study's piped water systems reduced the median distance to a trustworthy source of drinking water by approximately 90%. These findings demonstrate the importance of using a broad range of metrics, such as time savings, in future impact evaluations of piped water systems. These metrics are directly tied to human well-being.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Method

In this study, a systematic literature review was combined with expert interviews as part of a mixed-methods strategy. The purpose of the literature review was to find out which sustainability-related criteria have already been discovered. The frequency of elements stated in research was also evaluated in order to build an overview. The interviews were based on the systematic review. Interviews with professionals from community-based organizations provided more in-depth knowledge about the elements of sustainability.These professionals have experience with this problem and are knowledgeable about the variables and mechanisms affecting sustainability.

- Systematic literature review (Search technique) [7]: To discover studies that met the criteria, a thorough literature search was carried out utilizing the electronic databases ERRIC, Pubmed, and PsycINFO. The following keywords and subject headings were put together to locate relevant papers in electronic databases: ("Community based" OR "Communitybased" OR "CBO" OR "Local" OR "Community-based Rehabilitation" OR "CBR") AND ("Program" OR "Factors influencing the sustainability of community based program "Intervention" OR "Practice" OR "Practices" OR "project" OR "Activity" OR "Development" OR "Plan" OR "Action") AND ("Sustainability" OR "Sustainable. Reference lists from retrieved papers and published reviews were manually searched for new studies. Each article's whole text was checked after the abstract and before the title.
- Studies on community-based programs that contained features linked to were eligible publications, according to the study eligibility and data abstraction rules [7]. (IC1) Sustainability (IC1) 1. The phrase "community-based" can apply to a range of methods, such as those in which the community acts as a setting for interventions, a target for change, a resource, or an agent (McLeroy et al., 2003). Include could take any form. There were also community-based rehabilitation

(CBR) programs that enhance the quality of life for people with disabilities and their families (WHO, 2015). Studies with a complete text version that were written in English or Dutch (IC2) and were included (IC3).

- Search Strategy for google form: For survey I prepare some questions. So that I can review them. The keywords for my research question were, “Community”, “Substainable development”, “factor influencing”

- I have 12 questions prepared. These questions provided me with the sustainable development goals.

```
Have you heard of the notion of Sustainable Development?
  Economic development is necessary for sustainable development.
Improving people’s health and opportunities for a good life contribute to sustainable development.
Reducing water consumption is necessary for sustainable development.
Preserving nature is not necessary for sustainable development.
Sustainable development demands that we humans reduce all sorts of waste.
 Respecting human rights is necessary for sustainable development.
 To achieve sustainable development, all the people in the world must have access to good education.
Preserving many different natural species is necessary for sustainable development
Having respect for other cultures is necessary for sustainable development.
Sustainable development demands that people understand how the economy functions.
```

Figure 3.1: Survey Questions of my thesis.

3.2 Working Process:

I, first of all, took help from other's for topping off my google structure. 145 people took partook in my proposition work. They gave their valueable time for me. This work just required some investment.

The question’s options were 5 in numbers. Those were:

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

From google structure reaction part I took my csv record. I use Colab note pad for coding part. Since it is more simpler to utilize. In the colab journal First I transfer tensorflow,

numpypandas libraries. There was a important library that was warning (ignore). By this I'll not get any error. After that I'll import data set.

1 to 5 of 5 entries Filter

Are you?	Have you heard of the notion of Sustainable Development?	Economic development is necessary for sustainable development.	Improving people's health and opportunities for a good l
Male	Yes	Neutral	Agree
Female	No	Disagree	Agree
Female	Yes	Strongly agree	Strongly agree
Female	Yes	Neutral	Neutral
Male	No	Agree	Agree

Figure 3.2.1: Head part of my dataset.

	Timestamp	Are you?	Have you heard of the notion of Sustainable Development?	Economic development is necessary for sustainable development.	Improving people's health and opportunities for a good life contribute to sustainable development.	Reducing water consumption is necessary for sustainable development.	Preserving nature is not necessary for sustainable development.	Sustainable development demands that we humans reduce all sorts of waste.	Respecting human rights is necessary for sustainable development.	To achieve sustainable development, all the people in the world must have access to good education.	Preserving many different natural species is necessary for sustainable development	Having respect for other cultures is necessary for sustainable development.
count	125	125	125	125	125	125	125	125	125	125	125	125
unique	125	2	3	7	7	6	7	4	5	5	5	5
top	2022/11/15 3:10:37 PM GMT+6	Male	Yes	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
freq	1	69	98	58	64	64	49	55	60	50	54	53

Figure 3.2.2: Data Description & frequency.

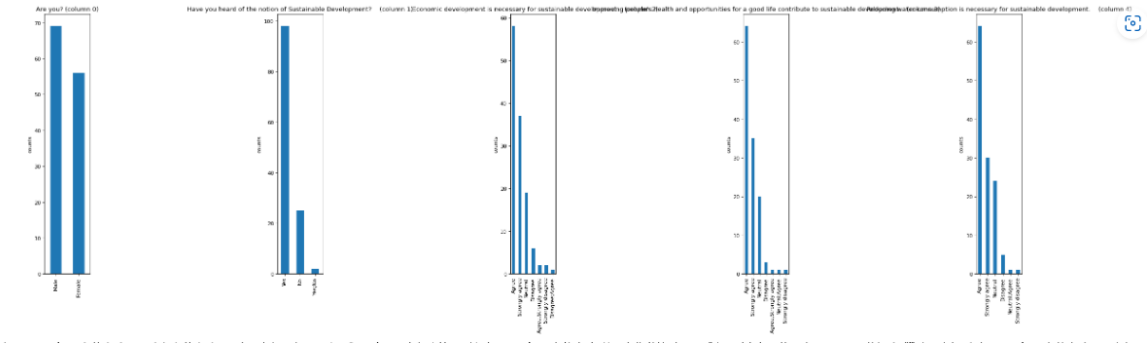


Figure 3.2.3: Plotdistribution

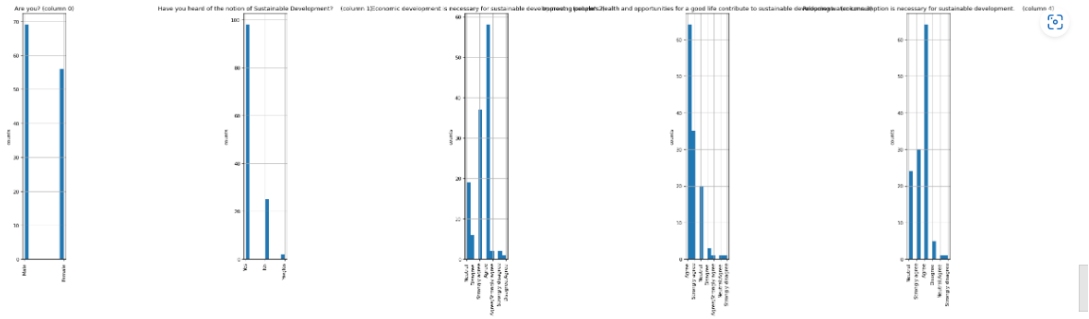


Figure 3.2.4: Plot histogram

CHAPTER FOUR

RESULTS AND DISCUSSION

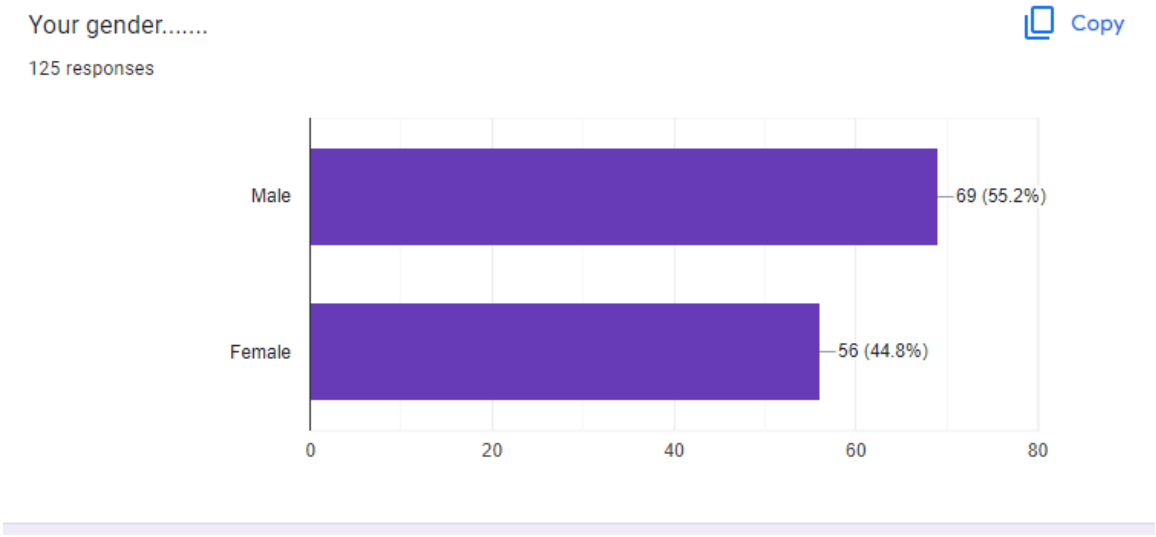


Figure 4.1: Question 1's answer.

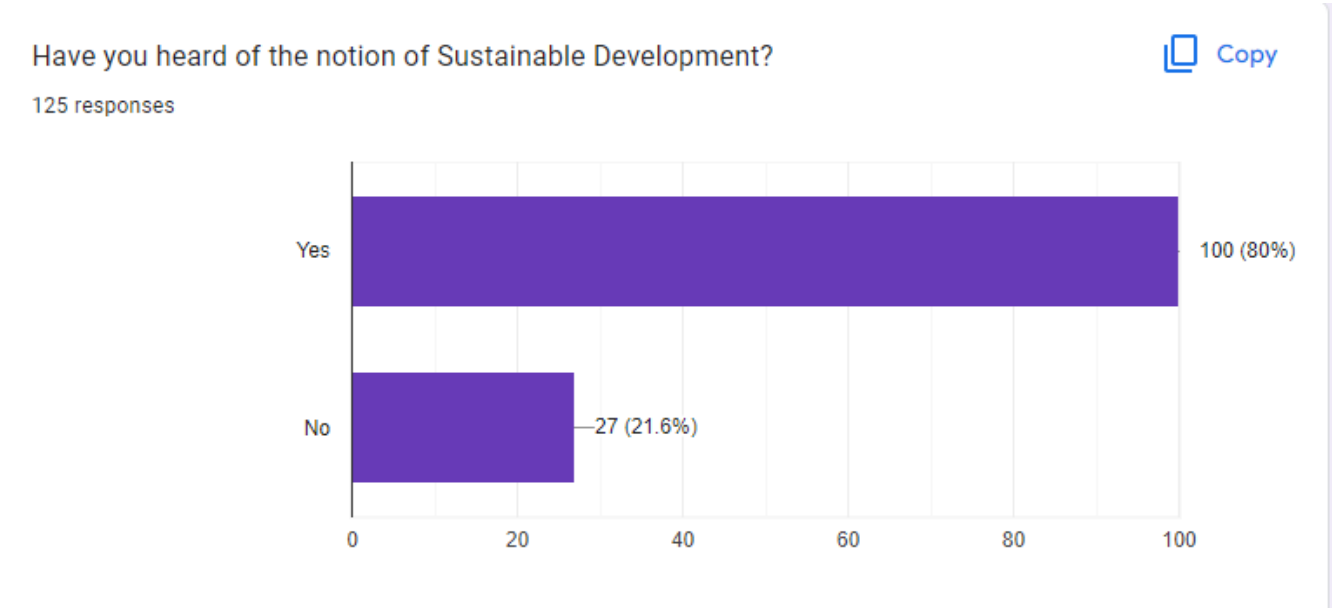


Figure 4.2: Question 2's answer.

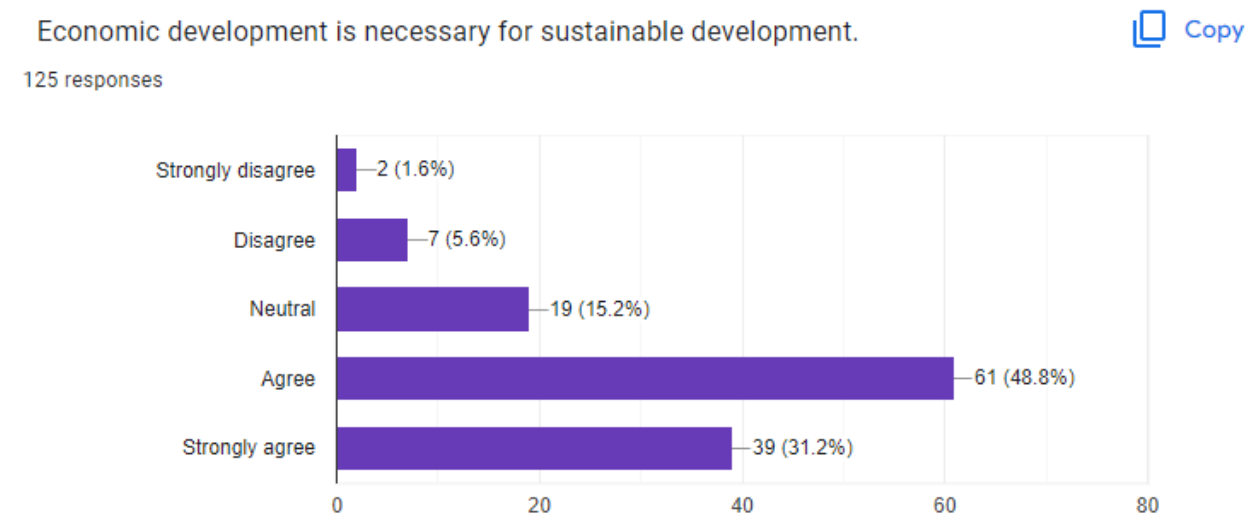


Figure 4.3: Question 3's answer.

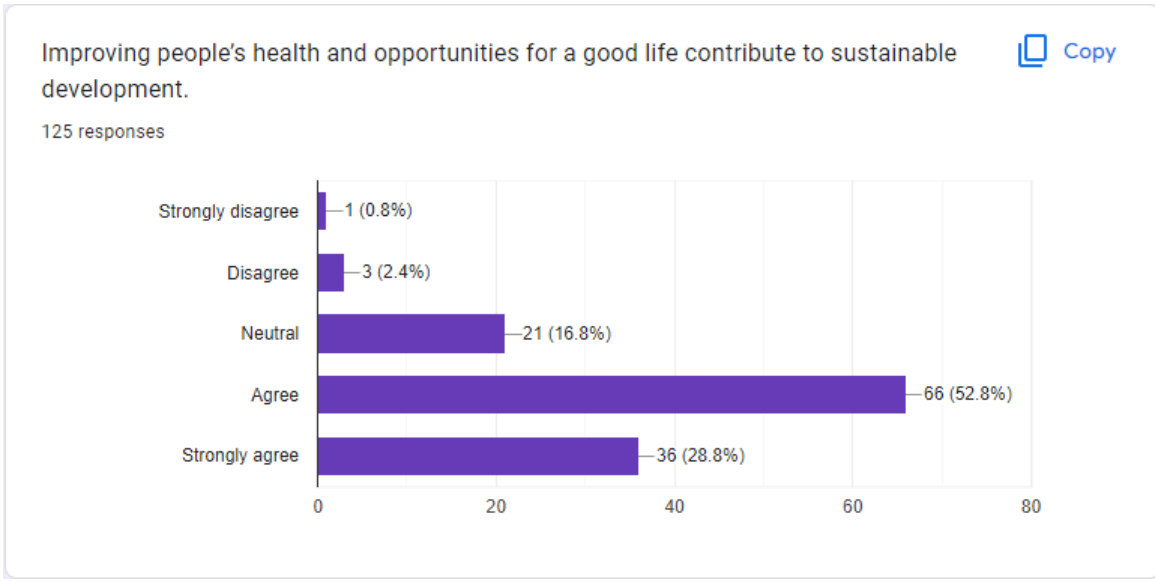


Figure 4.4: Question 4's answer.

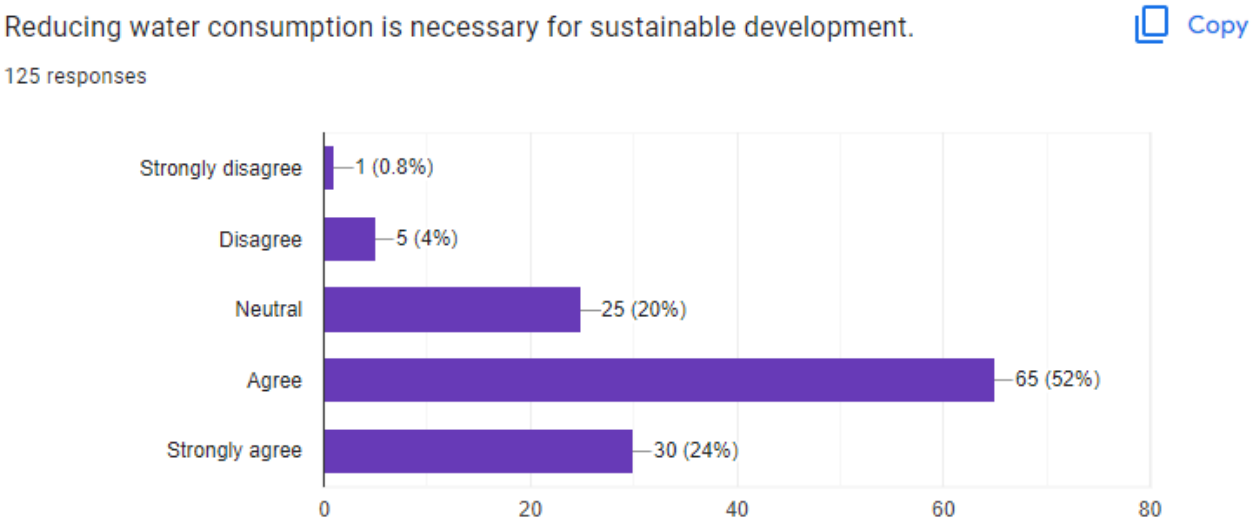
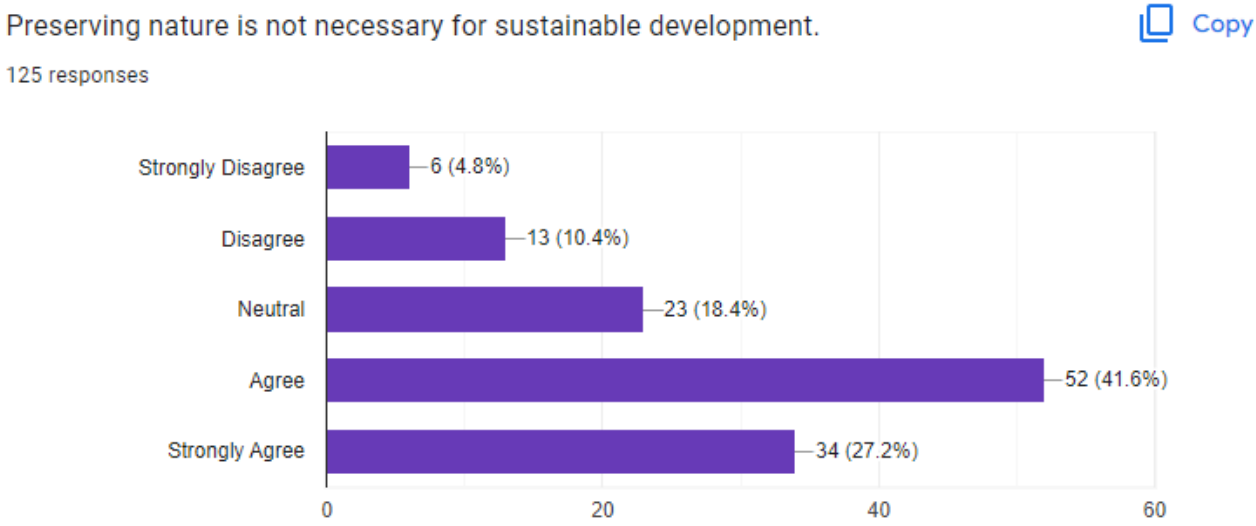


Figure 4.5: Question 5's answer.



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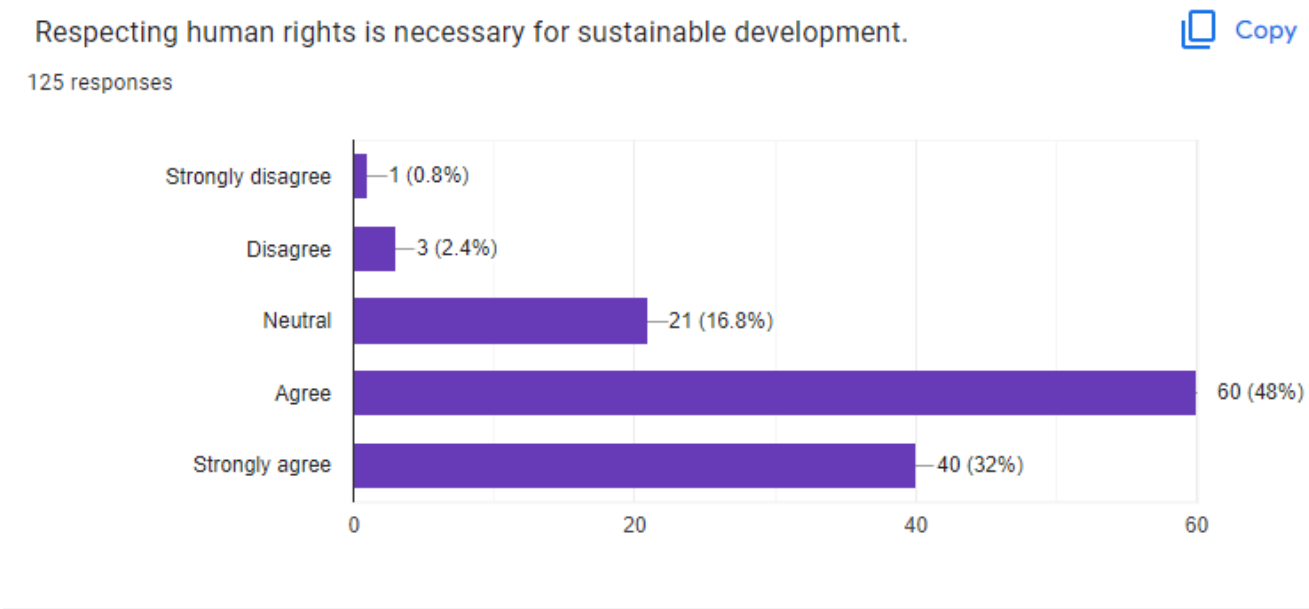

Figure 4.8: Question 8's answer.

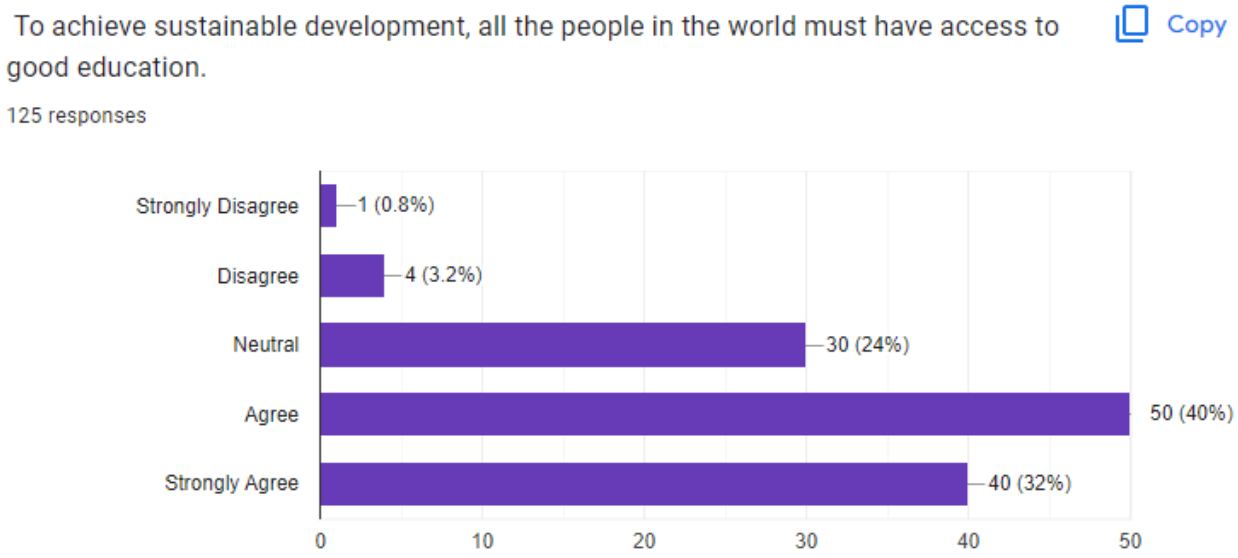

Figure 4.9: Question 9's answer.

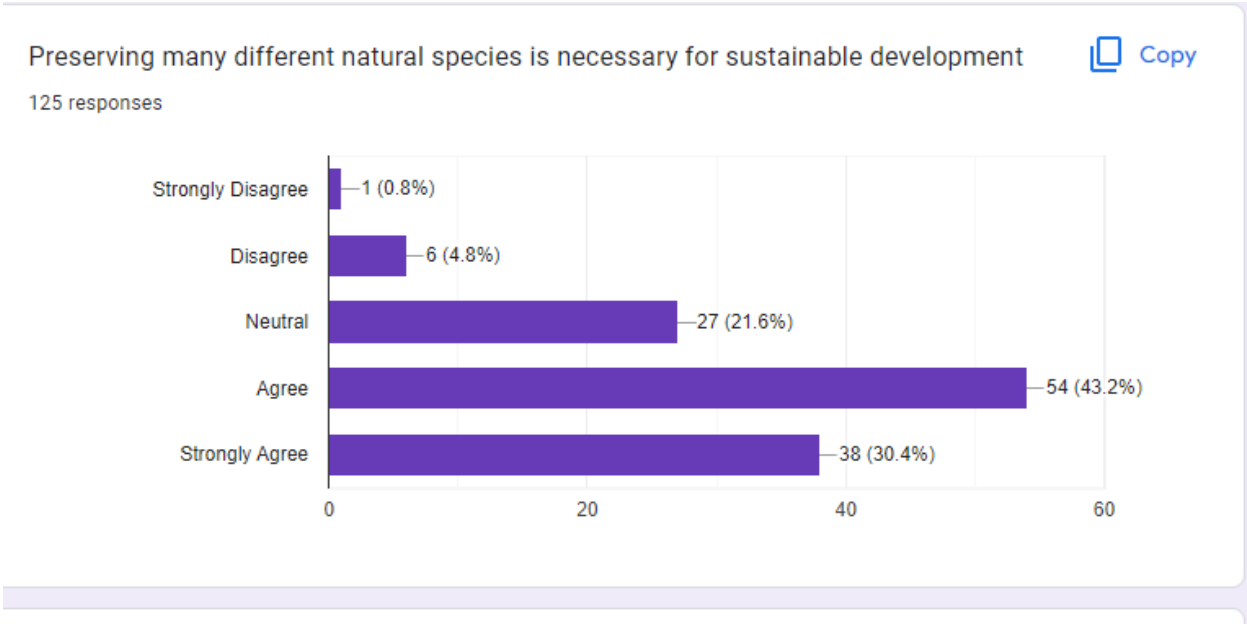

Figure 4.10: Question 10's answer.

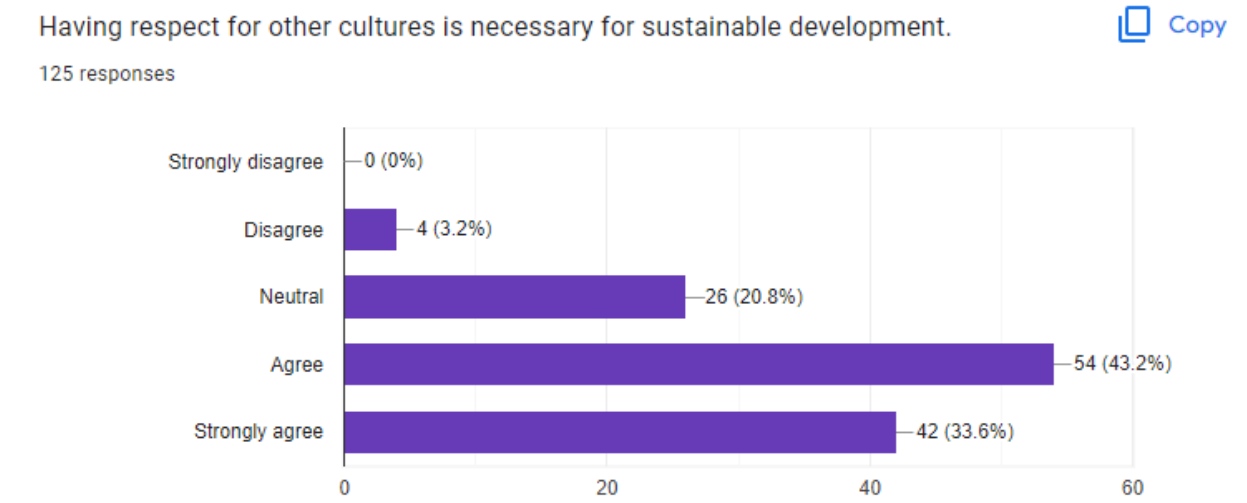

Figure 4.11: Question 11's answer.

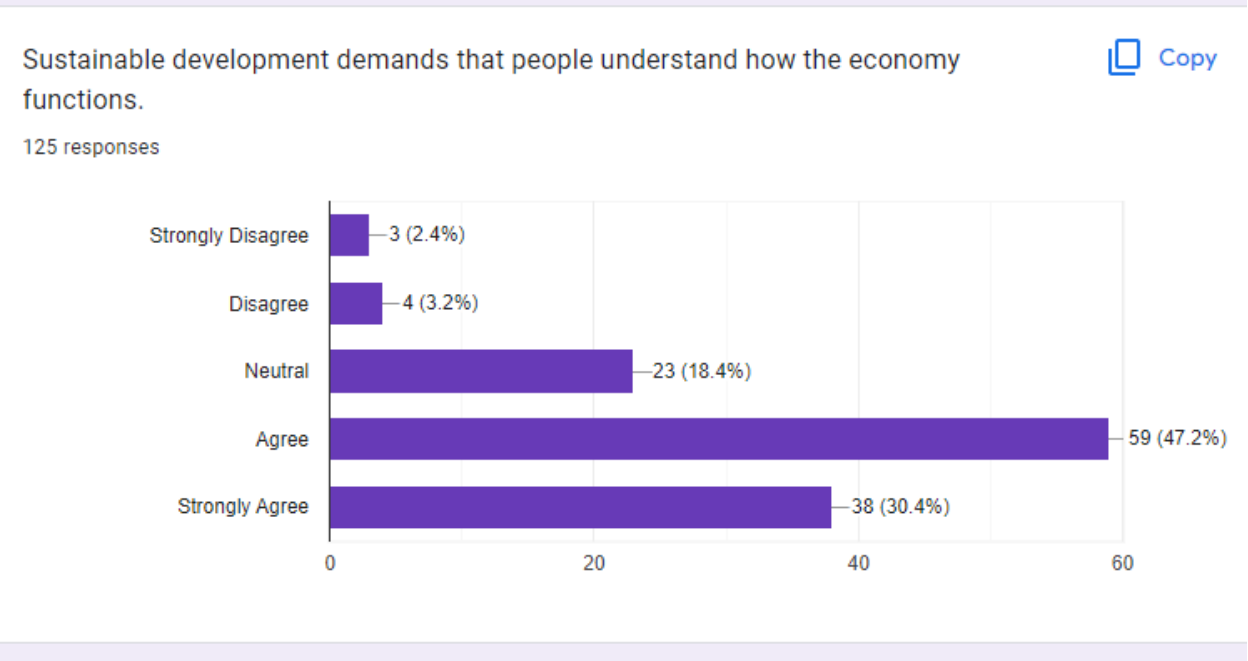

Figure 4.12: Question 12's answer.

4.2 Result Analysis:

From the google structure reaction I obtained my outcome. As indicated by the outcome, substaibale development is very important. Most of the answer were agree or strongly agree. The purpose of this study was to shed light on the elements involved in community-based program sustainability. The meetings assisted with making sense of and elaborate the issues found during the audit. Community involvement was a factor that did not stand out from the systematic review but was evident in the interviews. In addition to exposing this factor, the interviews also made clear how crucial local participation is to the longevity of community-based initiatives. This is examined in connection to other elements and in light of current planning methods.This study shown that include people from an early stage in the program creation can be considered as a key component for program sustainability. These efforts are reflected in some of the models developed for program planning. These planning models were created as

frameworks to give the planning process necessary to create a health promotion program structure and organization.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

It works to meet all of the necessities of life. ensuring that everyone in the society has what they need. Sustainability preserves the environment's health and biocapacity. Individuals and communities' well-being is supported by sustainability. Sustainability encourages the development of a better economy with less waste and pollution, lower emissions, more employment opportunities, and more equitable income distribution. The factors influencing the sustainability of a community-based program are thoroughly examined in this study. The implementation of a mixed method study design was successful because the systematic literature review provided a useful framework for the interviews, which in turn brought depth to the findings. This study suggests that a number of variables influence how long a community-based program will survive. The most important component is the involvement of the local community. by involving the neighborhood in the planning and implementation phases and by adjusting the project to fit the needs and conditions of the locality.

5.2 Recommendation

A work procedure that consolidates local area contribution will at first demand greater investment and exertion, yet it will take care of as a more practical venture with a lot more prominent effect on the area. How this approach may be utilized in genuine settings ought to be the subject of additional review. From the review we got to know the required of it.

- It will be a contribution.
- More easier.
- More flexible.

- User friendly.

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