A Draft Report on the Results of The ICED21: Pre-Workshop Survey on Sustainability

An analysis by AFRICA-DESIGN, a collaboration initiative by The Design Society.

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Executive Summary

The Design Society is an association of individuals from a global scale that have an interest in design, expressing this through research, education, outreach and practice. AFRICA-DESIGN, is an initiative within The Design Society that works around Africa focused sustainable design and development. AFRICA-DESIGN has a workshop slot in the upcoming ICED21 conference. In lieu of this the AFRICA-DESIGN team created a survey to gather insights on behaviors and ideologies concerning sustainability from various perspectives, individuals and regions. The results of that survey are documented in this report.

The purpose of the study aimed to gain more insights on sustainable development and design at large. It was created to establish a common ground with the possibility of finding individuals with common interests and potentially being able to link them in working together. In addition, to identify sustainability gaps that were not focused on enough, while attempting to understand how different individuals behave regarding sustainable behaviours and what inspired them to adopt these changes.

The research used a survey with open ended questions and Likert scales to collect both qualitative and quantitative data from people interested in sustainability and/or design. 41 respondents from different age groups, places and sectors of work from all over the world filled in the survey. 25 questions were asked, foremost about sustainable behaviors both globally and locally and in light of the COVID-19 pandemic. The data analysis was done by categorizing the responses and counting how many of either the responses or respondents that suit each category. Illustrative responses were extracted from the data and used as quotes.

The results show that many individuals are concerned about global warming and other environmental issues. They further show that many are keen on their consumption when it comes to their own personal sustainable behaviors. The results concerning the COVID-19 pandemic show that the respondents noted the changes in the professional and economic aspects of their life during the pandemic. Some of the common themes were a shared economy, diversified revenue streams, and easier means of collaboration. Personal changes in behavior from buying local, consuming less, more focus on physical health, increased learning and productivity during the pandemic were evident from the results. However, conflicting responses were also identified, as the pandemic did not provide the same behavioral changes for all.

Recommendations from the AFRICA-DESIGN team is for The Design Society to further research on sustainability and the individuals' perspective, and potentially pursue possible collaboration opportunities with relevant stakeholders in different parts of the world as a way of contributing to the United Nations Sustainable Development Goals.

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1 Introduction

The Design Society, founded in 2000, is an association of individuals on a global level with interest in design, expressing this through research, education, outreach and practice. (https://www.designsociety.org/1/About+the+Design+Society). AFRICA-DESIGN is an initiative within the Design Society that aims to build a network of design researchers, educators, and practitioners based in African countries, whilst linking them with the worldwide design community. The Design Society holds several international conferences where AFRICA-DESIGN participates with workshops and session papers. At the biennial International Conference on Engineering Design (ICED 2021), AFRICA-DESIGN will have its third workshop (https://africadesign.designsociety.org/).

With the workshop in mind, a survey was conducted to gather insights on behavior and ideologies about sustainability from various perspectives and individuals. The survey also seeks to establish a common ground, find individuals with similar interests and possibly link them to work together, identify sustainability gaps that are not focused on enough and attempt to understand how different individuals behave regarding sustainable behaviors and what inspired them to adopt these changes. Most importantly the team intends to use the survey results as inspiration to guide the workshop themes, activities and action items. Topics, themes and questions not taken on for the ICED21 Conference will be kept in consideration for future conferences and workshops.

This document provides an analysis of the aforementioned survey that includes an overview analysis of the results as well as individual analysis of all the questions through 3 key focus points i.e. age, region and status whilst highlighting unique responses to the questions. The survey consisted of demographic questions, open ended questions about design and sustainability, a set of questions about design and sustainability in relation to the COVID-19 pandemic and questions directly related to the workshop. A deeper analysis and highlights of unique responses are offered
In Chapter 4 of this document.

1.1 Background

AFRICA-DESIGN believes that all societal challenges are inter-connected, and that collaboration is a key aspect in this initiative in solving the said problems. With this in mind,
one of AFRICA-DESIGNs objectives for the ICED21 AFRICA-DESIGN workshop is to attract more youth and to provide a platform that will allow them to create and innovate on problems with solutions that are action inspired, have a sustainable basis and provide an opportunity for collaboration amongst themselves and/or from interested parties and mentors. The workshop also seeks to instigate and promote impact, in order to invoke insight and inspiration on sustainable design and development in the African Region. For this purpose, the pre-workshop survey results are to serve as reference points and inspiration that shape the workshop themes, discussions and activities. Additionally, the survey results will be published on the AFRICA-DESIGN website and Design Society repository and can be used for reference by the larger design community of researchers, educators, design practitioners and relevant

stakeholders to shape discussions on sustainable development and the influence of the COVID-19 pandemic on sustainable design and development on communities and people's individual lives.

1.3 Delimitations

The survey was intended for, and delivered, only to people who either work or have interest in sustainable design, design engineering processes, methods and approaches or sustainability. Hence, directed to and focused on people who find the subject of both the survey and workshop interesting. The report was also mostly shared to AFRICA-DESIGN affiliated persons who in the past, participated in AFRICA-DESIGN events. The survey was also sent to people who the members of the AFRICA-DESIGN team knew were interested in design and sustainability to first of all answer the survey but also feel free for them to further send the email to other potential respondents. Considering the AFRICA-DESIGN team consists of 7 individuals who represent 4 institutions globally the scale and scope covered was biased and limiting to some extent.

2 Methods

This research was of both quantitative and qualitative in nature. As the intention was to explore topics and areas of interest, the research was quantitative with open ended questions to not limit or direct the respondents into biased answers (Bryman and Bell, 2011). The quantitative part of the research was to identify the similarities and differences from different respondents.

2.1 Data Collection

This research was conducted through an online survey. The survey was created by the AFRICA-DESIGN student team and iteratively evolved with continuous feedback from the AFRICA-DESIGN steering team. The survey consisted of four sections and 25 questions. There was a combination of quantitative and qualitative questions, including required and optional answers.

The first section of questions consisted of four demographic questions: the respondents age, country, profession and work status. The second section consisted of open ended questions about design and sustainability. The third set of questions were about design and sustainability in relation to the COVID-19 pandemic. The fourth set, including five questions, were directly related to the workshop; if respondents would attend, if they wanted any specific subjects to be brought up, and more. All of these were optional.

The survey was open for responses between 5/5/2021 to 18/5/2021. The link to the survey was sent via email to a list of people who were known to be interested in design and sustainability, to first of all answer the survey but also feel free for them to further send the email to other potential respondents.

There were 89 respondents during the open time slot for answering the survey, however only 41 answered further than only the first set of questions (the demographic questions). 40 out of 41 respondents answered all questions; 1 respondent answered only the first two sets of questions but stopped when questions concerning COVID-19 started.

2.2 Data Analysis

Only the 41 respondents who answered further than the first set of demographic questions were included in the analysis. The others were regarded as insufficient and not used in the analysis. 40 respondents answered the survey fully. 41 respondents answered the survey up until question 11: *COVID-19 has affected progress in sustainable development worldwide.*, the first likert scale questions, where one respondent stopped answering. Hence, all questions up until question 11 are analyzed in consideration of 41 respondents, and from question 11 and further in consideration of 40 respondents.

The process used by the student team to sort and analyze the data was according to the following steps:

1. Downloaded the results to an Excel sheet.

2. Removed incomplete survey answers.
3. Organized the data.
4. Data analysis overview on the whole survey done by three individuals.
5. Individual analysis was combined and summarized into one document from all three perspectives.
6. Data is presented question by question.
7. Discussed next steps on categorization.
8. Three categories were selected:
    a. Region.
    b. Age.
    c. Status.
9. Analyzed question by question and added general remarks.
10. Similarities, differences and interesting answers are noted.
11. Interesting/ distinctive answers or insights are highlighted
12. Created the report and presentation

The first analysis, called the *Overview analysis*, was conducted individually by the AFRICA-DESIGN student team members. This analysis was done to get an overall understanding of the answers. These three different analyses were then compiled into one. This compiled overview analysis was then detailed and polished, in consideration of both providing both quantitative and qualitative results. As such, the responses were, question by question, bundled into different *groups of answers* which expressed similar things. For example, in Question 6, where all responses that expressed some kind of buying behavior were compiled into a group of answers called *Buying Behaviors.* This way, open ended questions could be quantitatively analyzed by counting how many responses or respondents answered something within the *group of answers*.

It was realized during the overview analysis that many respondents answered multiple things for every question. Hence, in the analyses, every question needed to be discussed; if it should be analyzed by how many respondents or responses each *group of answers* received. See every question in results, for what the analysis for separate questions was based on.

The data was also analyzed by comparing the respondents' different demographic information. Multiple questions were hence analyzed by comparing responses from different regions, different ages and different statuses:

Questions two, six, seven, eight, 11, 13, 15, 17 and 20 were analyzed in consideration of region. The countries the respondents came from were divided into three regions, namely, Africa, Europe and Americas (including both North and South America). Multiple questions were analyzed in consideration of regions to find any differences or similarities between them.

Questions six, seven, eight, 10,11, 13, 15 and 17 were analyzed in consideration of age. The age analysis is a comparison between two groups of ages: under 35 years old (-35 y/o) and 36 years old and above (36+ y/o). The age division is based on what ages people are commonly known as being young researchers or workers. Comparing what young people think to what others think is an interesting and important comparison to make when the AFRICA-DESIGN initiative strives

to engage and raise young engagement in design and sustainability projects. Finding similarities and foremost differences between the age groups can surface both issues and solutions that matter when trying to engage youth.

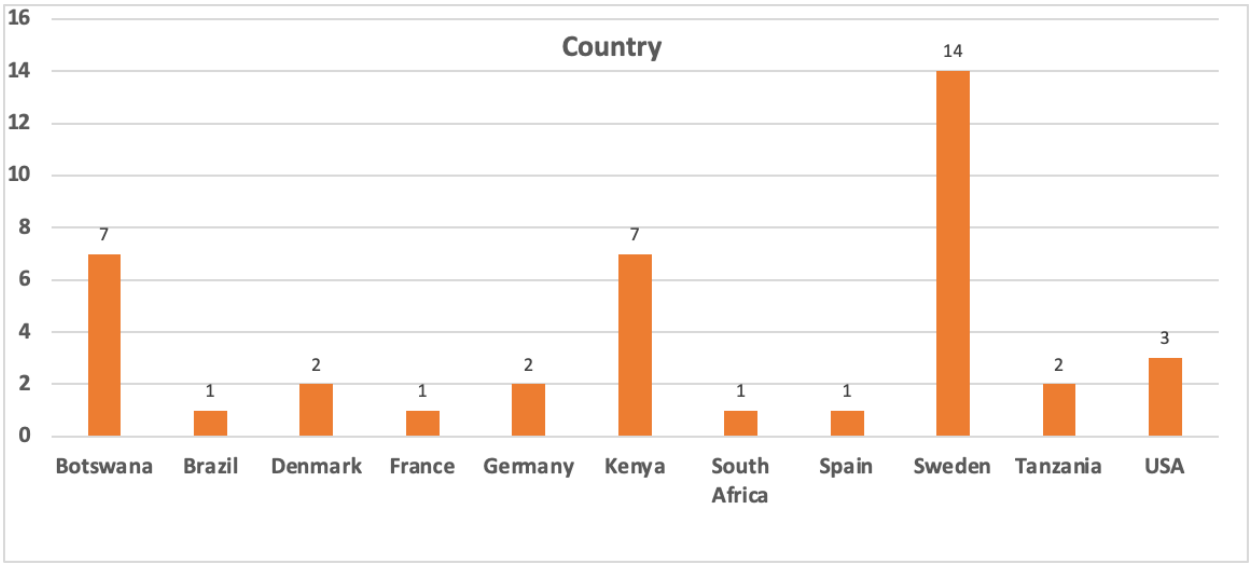
Questions six, seven, eight, 11, 13, 15 and 17 were analyzed in consideration of status, meaning what categorization of work sectors they belong to. The status is divided into five different groups. Namely Employed in a large company, employed in other organizations (e.g. public organization, NGO or alike) Self-employed or employed in a small company/start-up, Students/ Recently Finished Student (5 years), Teachers.

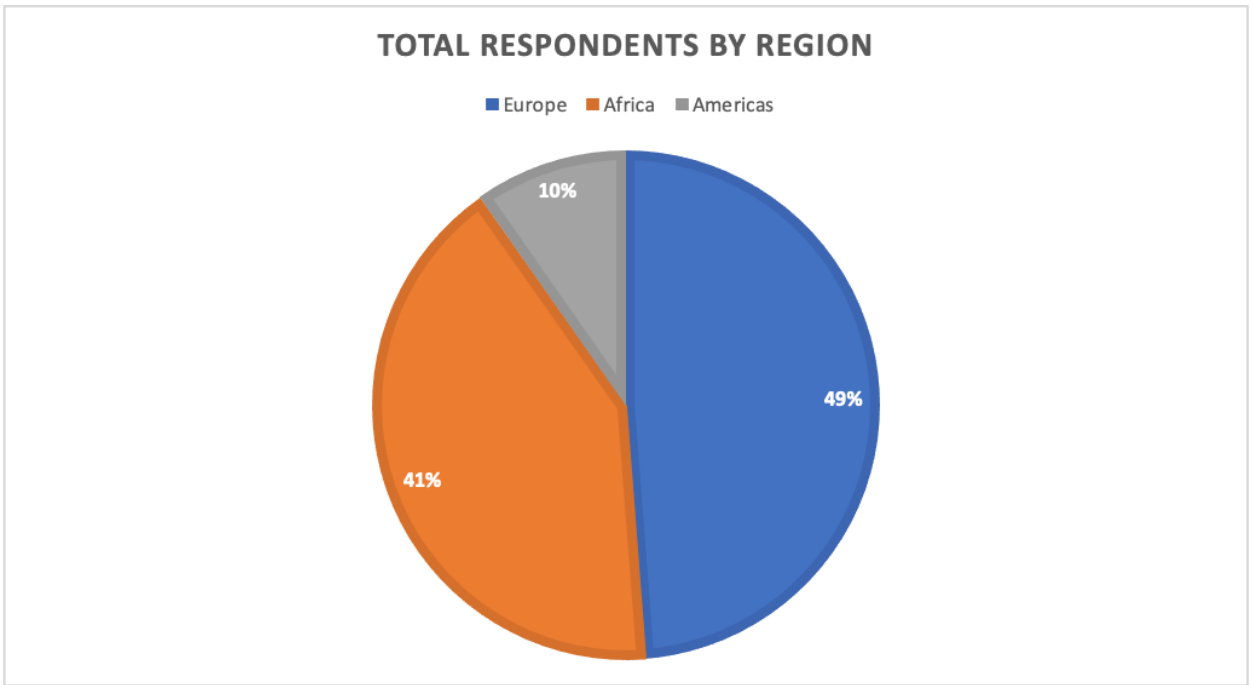
The analyses were individually looked upon and larger similarities, differences and remarkable responses were highlighted.

3 Section 1 - Survey Overview

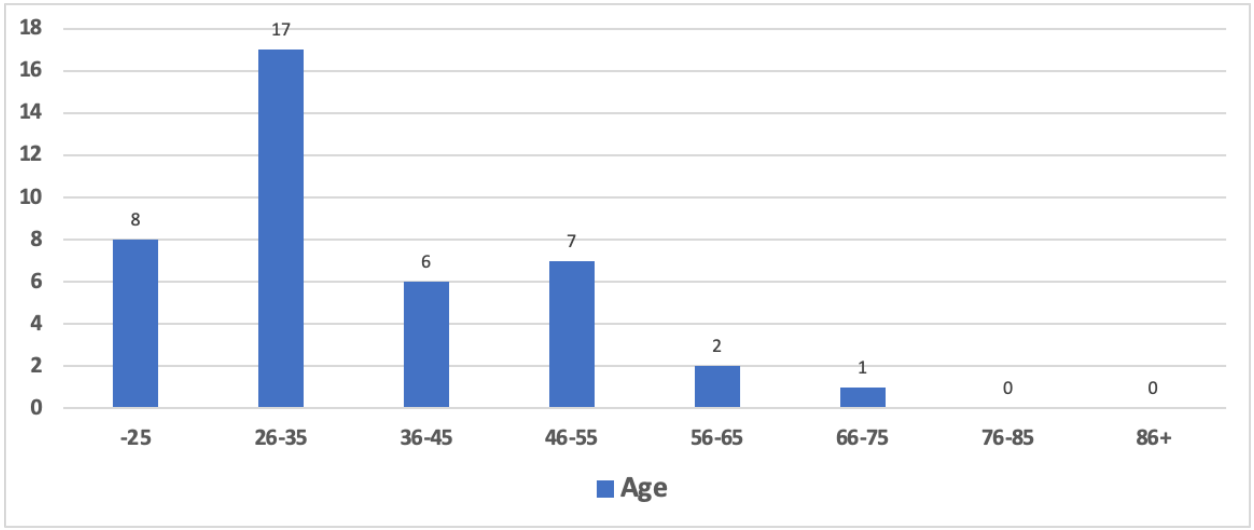
This section presents the biographical data of respondents, their country of residence, age, status and occupation/profession. This information was collected through the first set of questions on the survey, i.e. section 1 and based on 41 respondents. As follows, the questions in the report are presented in the same order as in the survey.

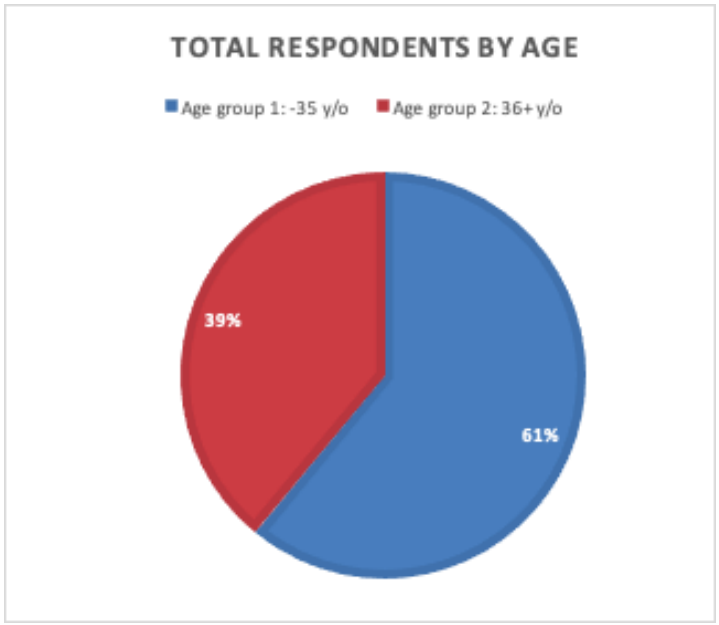
Q1. Country of residence



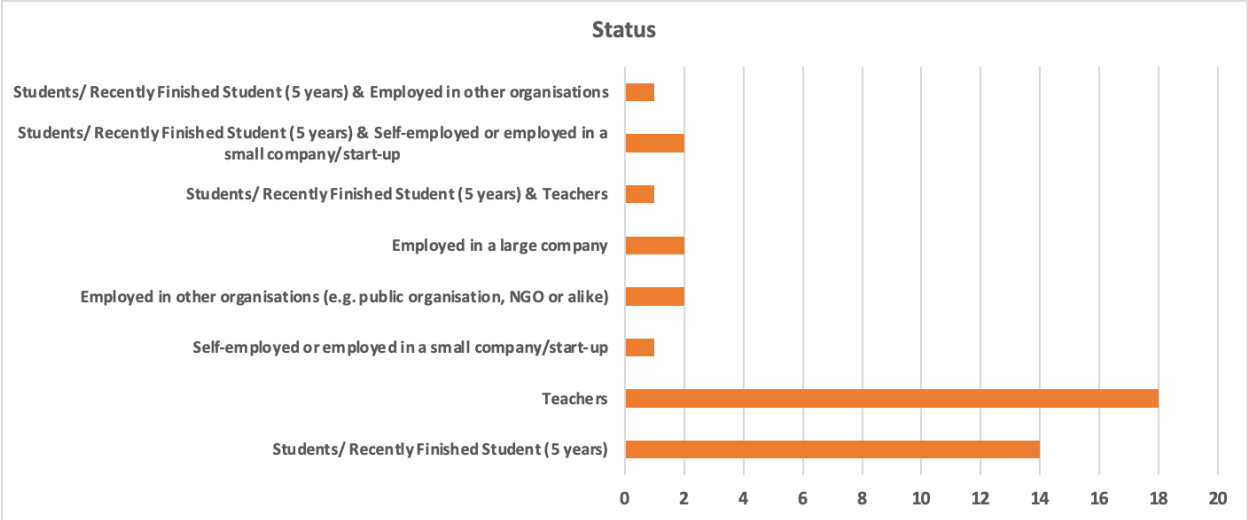


Q2. Age

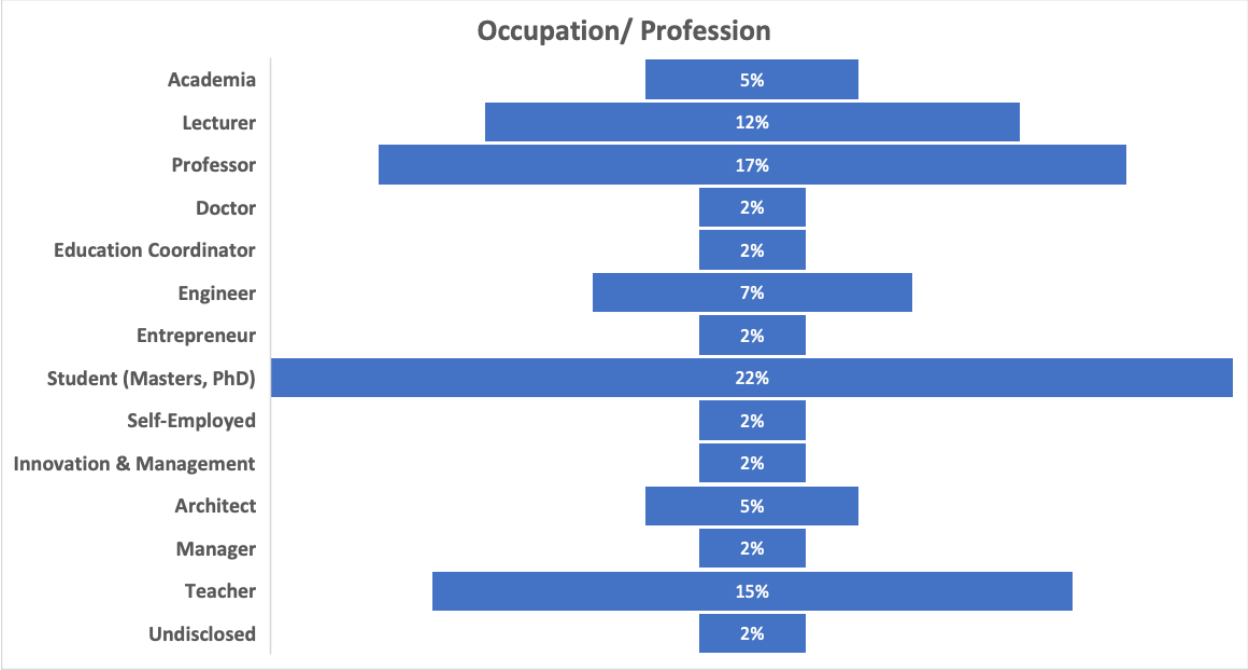

18
16
14
12
10
8
6
4
2
0
8
17
6
7
2
1
0
0
-25
26-35
36-45
46-55
56-65
66-75
76-85
86+
Age


TOTAL RESPONDENTS BY AGE
Age group 1: -35 y/o
Age group 2: 36+ y/o
39%
61%

Q3. Status



Q4. Occupation/Profession



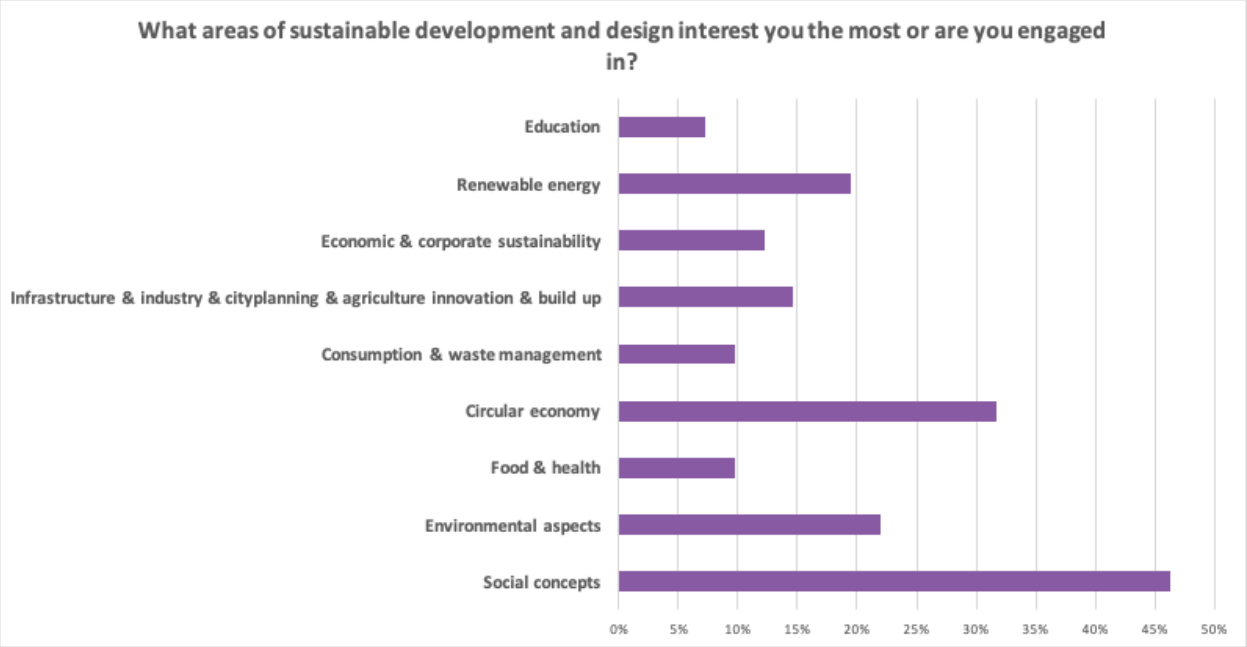
4 Results

The second section and third section of the survey consisted of the questions which concerned opinions, and survey respondent information about sustainability and design. These questions were all analyzed. Interesting findings and drawn conclusions from each question are described per each question.

4.1 Section 2 - Sustainable Development

In this section, the survey focused on areas of interest within sustainable development and design, sustainable behaviors practiced by respondents and the triggers that encouraged them to change and adopt this behavior. Additionally, this section looked at challenges faced in the communities of the respondents and if any action was being taken concerning these and how design and engineering methods and approaches would help the youth to continue in sustained engagement.

Q5: What areas of sustainable development and design interest you the most or are you engaged in? (Examples, but not limited to: Renewable Energy, Social Sustainability, Circular Economy)



The analysis is based on 41 respondents expressing, without limitations, what areas within sustainable development and design that they are interested in or work within. The graph shows how many times areas within the categories were mentioned, in consideration of 41 respondents.

Social concepts, environmental aspects and circular economy were the three categories of interest that appeared the most. These categories touch different parts of the society and can be compared to the commonly presented visual presentation of sustainability from an overview perspective, see Figure 1.

Figure 1: The three aspects of sustainability, from an overview perspective.

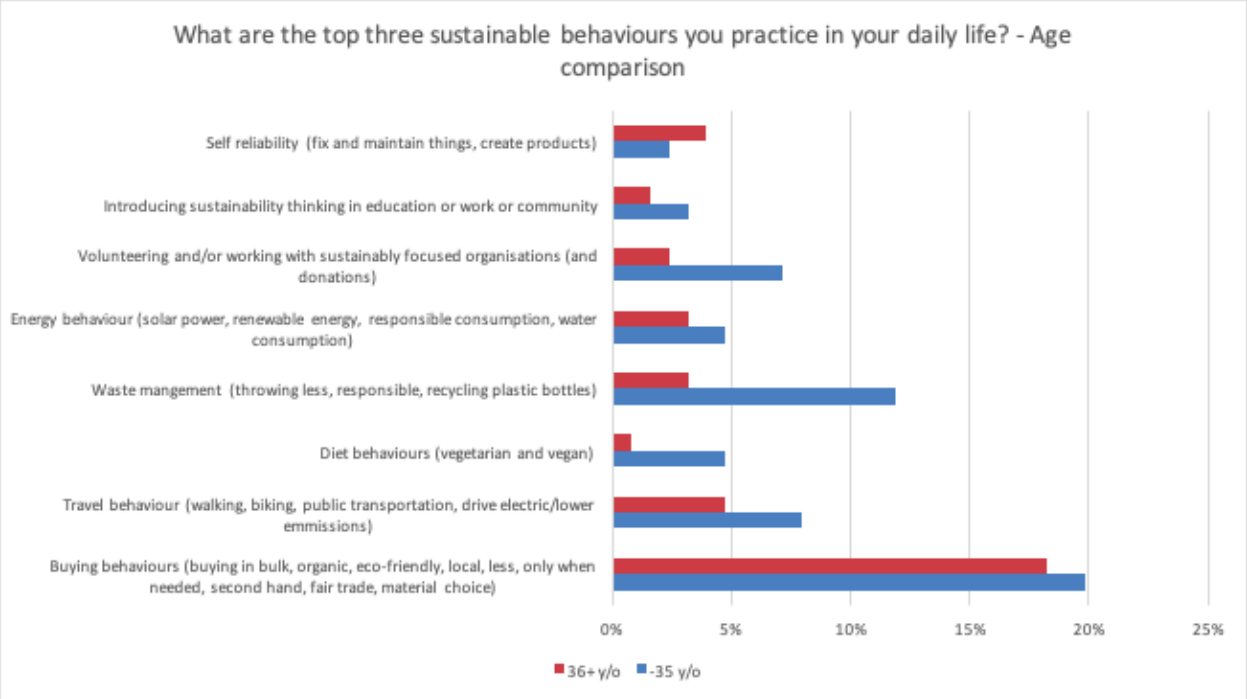
Q6: What are the top three sustainable behaviors you practice in your daily life? (For example, but not limited to: Buying fewer things that are manufactured using fossil fuels. Buying eco-friendly products. Volunteering at a local charity/shelter.)

The overview analysis is based on how many times the different categories were mentioned. It is based on 126 responses, as the 41 respondents were to answer 3 different behaviors. 3 respondents answered 4 different behaviors instead of 3, these are considered in the analysis:

$$38 * 3 + 3 * 4 = 126$$

Buying behaviors were clearly more focused upon than other types of behaviors. According to this analysis, people practice sustainable behaviors foremost in how and what they consume.

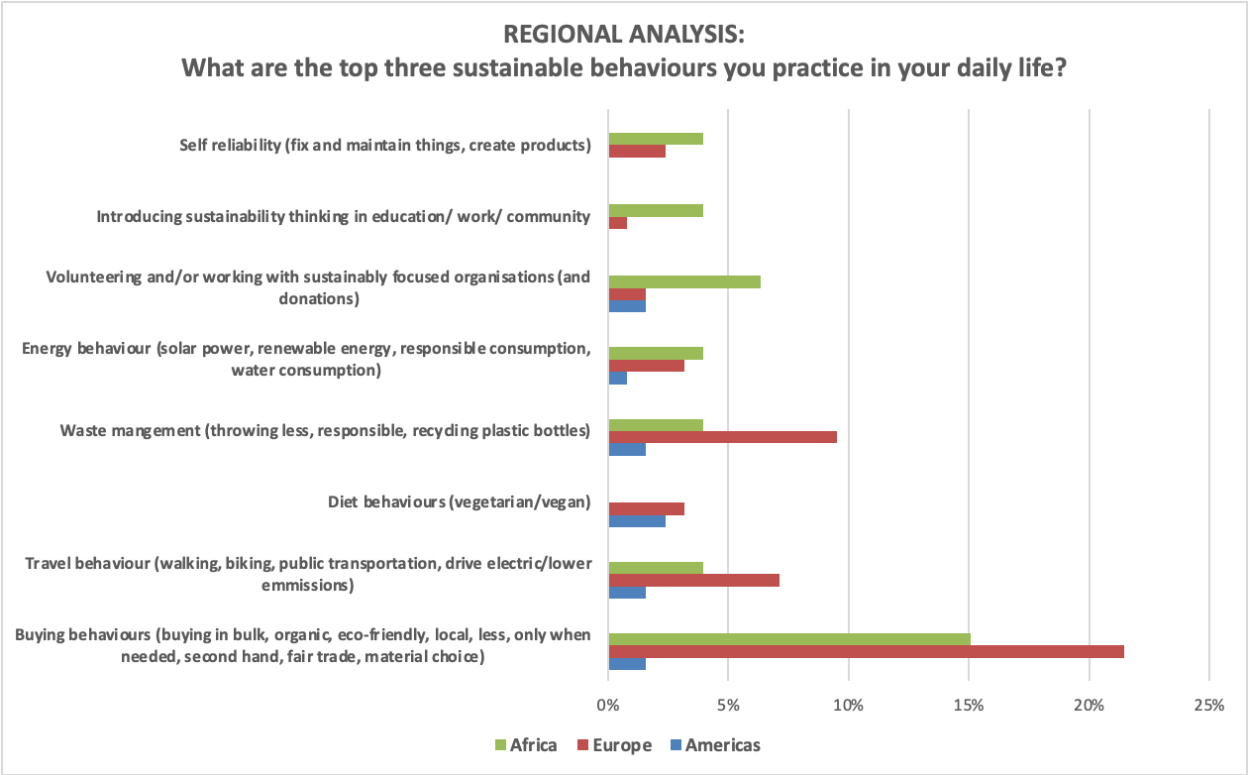
Age comparison



The age comparison analysis is, as the overview analysis, based on 126 responses. 25 respondents are in the age group -35 y/o and 16 respondents are in the age group 36+ y/o.

An age comparison does not really affect how people conduct sustainable behaviors. The most indifferent behaviors, between the age groups, are Volunteering and/or working with sustainably focused organizations (and donations), Waste management (throwing less, responsible, recycling plastic bottles) and Diet behaviors (vegetarian and vegan) where the younger age group practices more of these behaviors than the older age group.

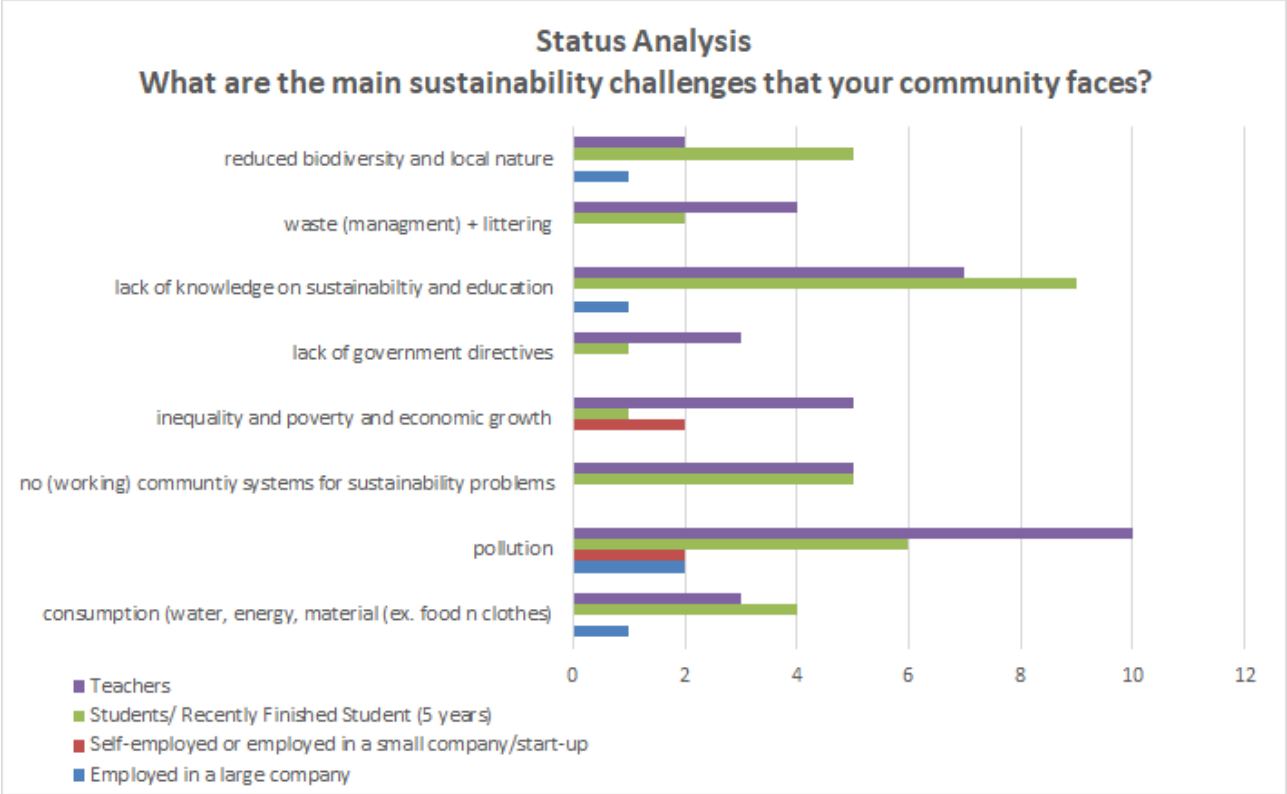
Regional Comparison



The regional analysis is based on 126 responses as there was a minimum of three answers per respondent. Four respondents from the Americas, twenty respondents from Europe and seventeen African respondents. The results showed that buying behaviors were most dominant when adopting sustainable behaviors.

There is more of a volunteering and charity focus in Africa with more awareness for sustainable thinking required. Proper waste management was a higher priority in the European region than any other. Although, the Americas made up the least total respondents, two out of four respondents were vegetarian, whilst a third respondent made a conscious effort not to consume meat every day.

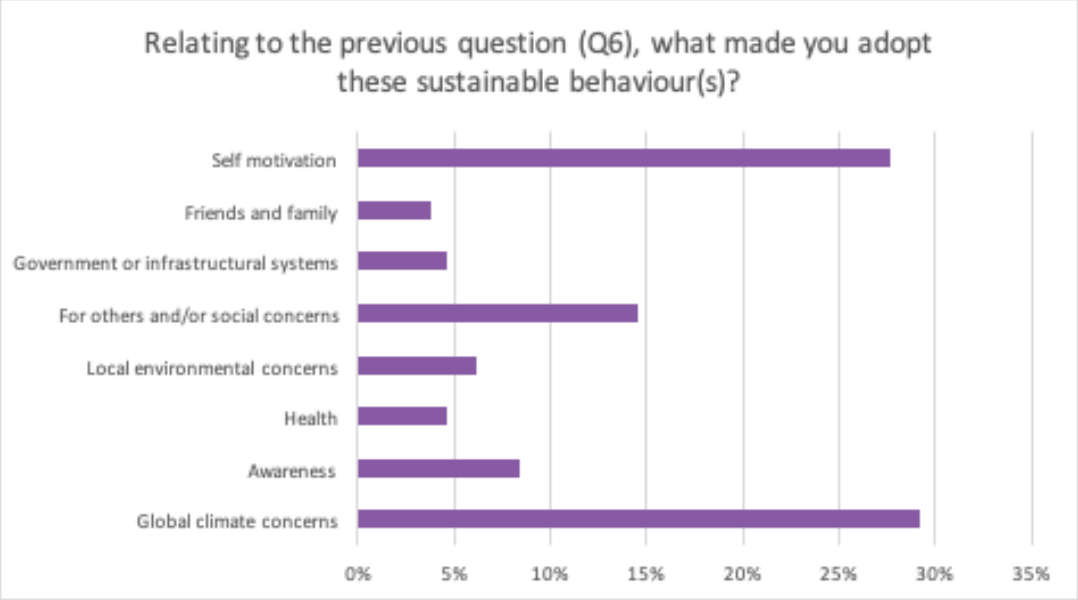
Status Comparison



An interesting aspect is that there were a lot of teachers in the survey but they were not well represented in the introducing sustainability thinking in education or work or community category. An assumption was made that a gap potentially existed that maybe needed to be filled considering the number of students that teachers get into contact with then it would be a great avenue to educate the world on sustainability and if it's the contrary of this maybe they do influence students but subconsciously and they are not aware of it .It is also interesting to note that teachers are not represented at all in the Self reliability (fix and maintain things, create products) category does this speak to their working culture which then reflects on the influence that has on their creativity?

Q7: Relating to the previous question (Q6), what made you adopt these sustainable behavior(s)? (For example, but not limited to: I am concerned about global warming. Government directive. My friend guilt tripped me.)

Overview analysis

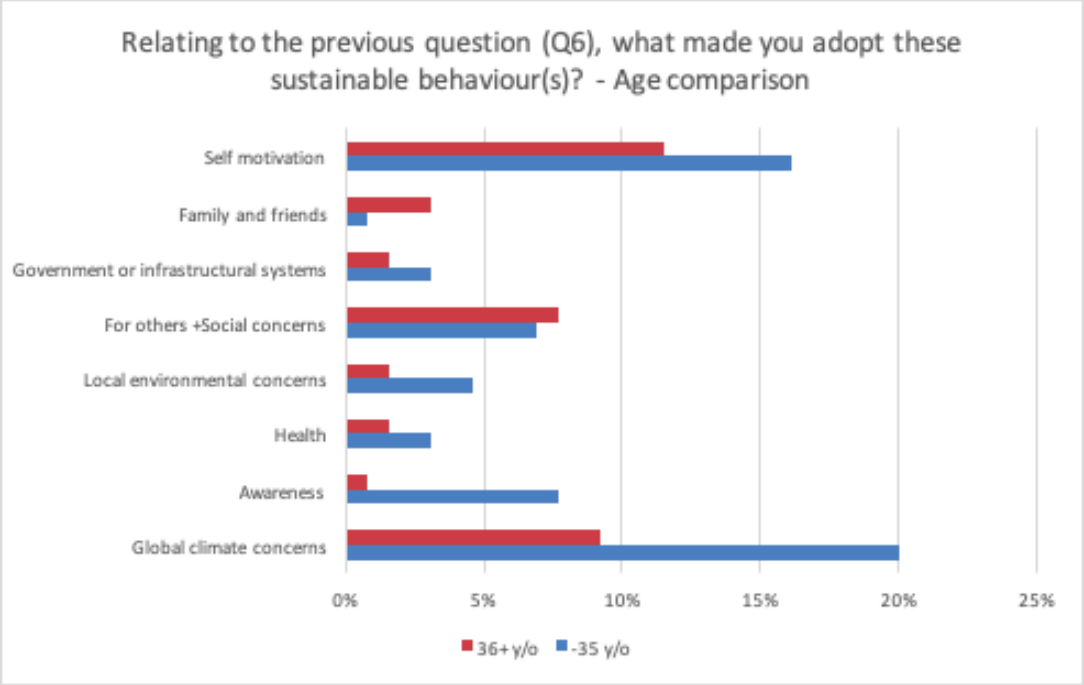


* One response was outside the scope of these categories: "*Moving to Sweden from Pakistan*".

The overview analysis is based on 130 different responses.

Both different intrinsic and extrinsic reasons can be identified as to why various sustainable behaviors were adopted. Self-motivation and health can be internal motivators, while concerns about the environment, social concerns are external motivators.

Age comparison

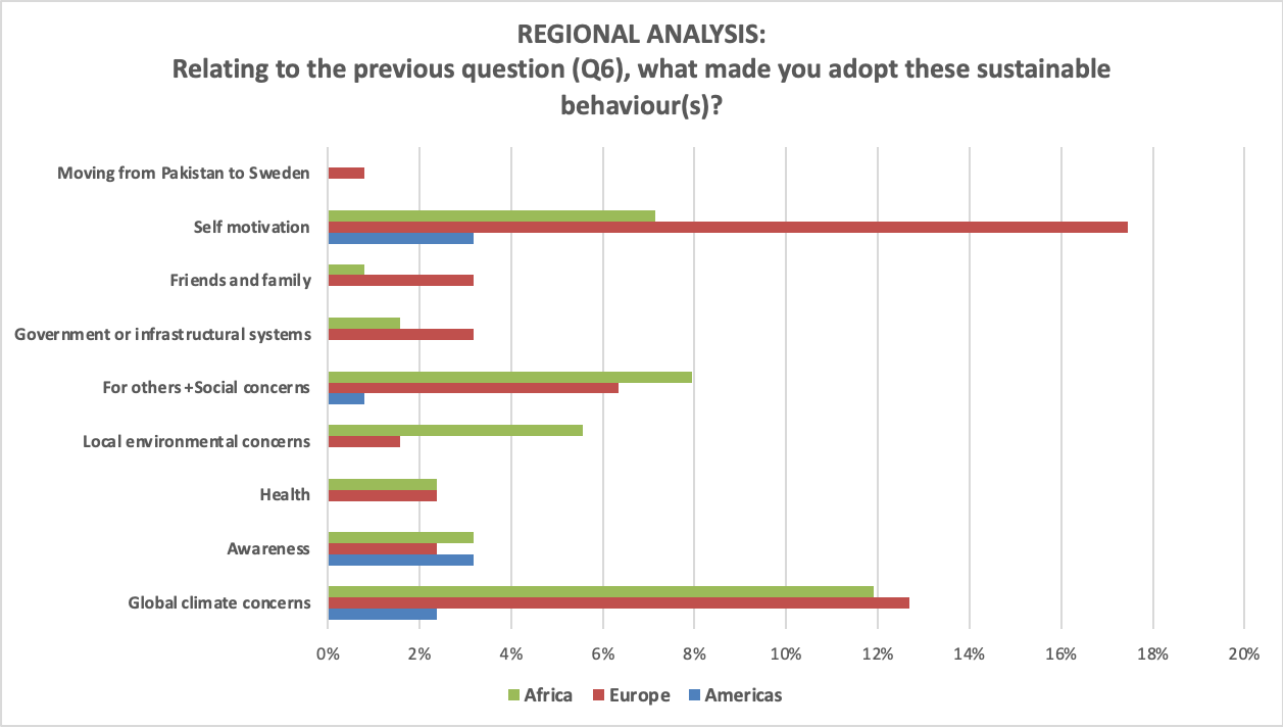


*One response in the *-35 y/o* age group was outside the scope of these categories: "*Moving to Sweden from Pakistan"*.

The age comparison analysis is based on 130 different responses. 25 respondents are in the age group -35 y/o and 16 respondents are in the age group 36+ y/o.

It is noted that the younger age group are more motivated by intrinsic reasons such as awareness and self-motivation whilst the older age group are motivated more by extrinsic reasons such as social concerns and their family and friends. However, the younger group are clearly more affected by global climate concerns than the older age group.

Regional Comparison

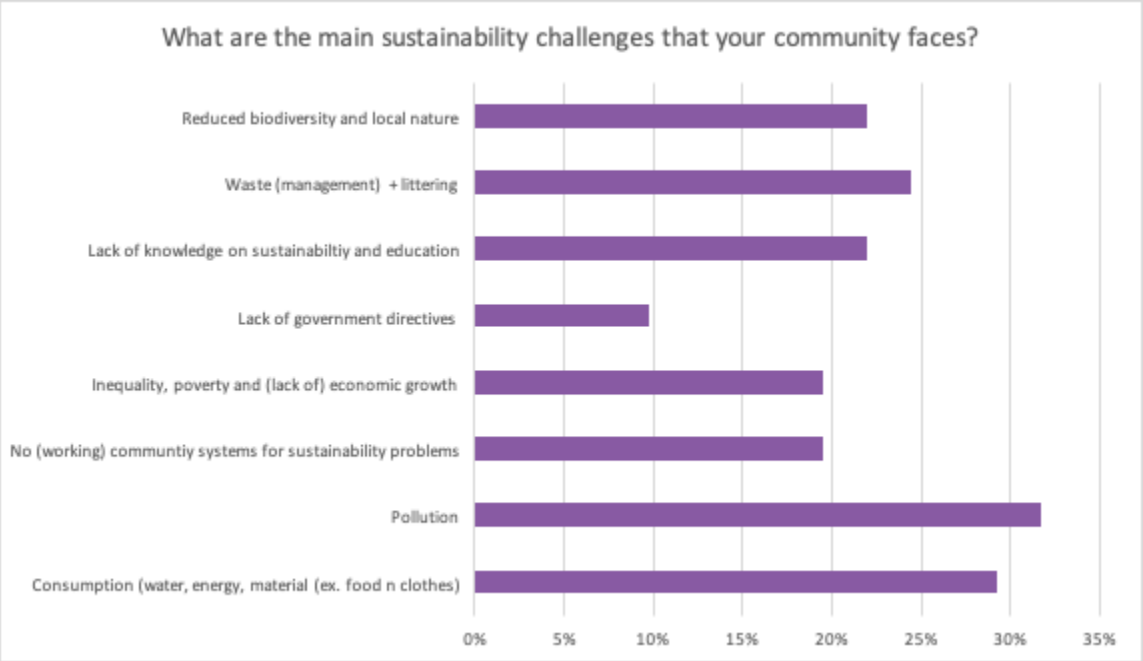


*Based on 126 responses, one category outside the scope being *Moving from Pakistan to Sweden.*

The results of why sustainable behaviors were adopted by respondents showed internal and external motivators. For European respondents, self-motivation was the most significant factor for adopting sustainable behaviors, whilst all three regions were concerned about the global climate as an extrinsic motivating factor.

Q8: What are the main sustainability challenges that your community faces?

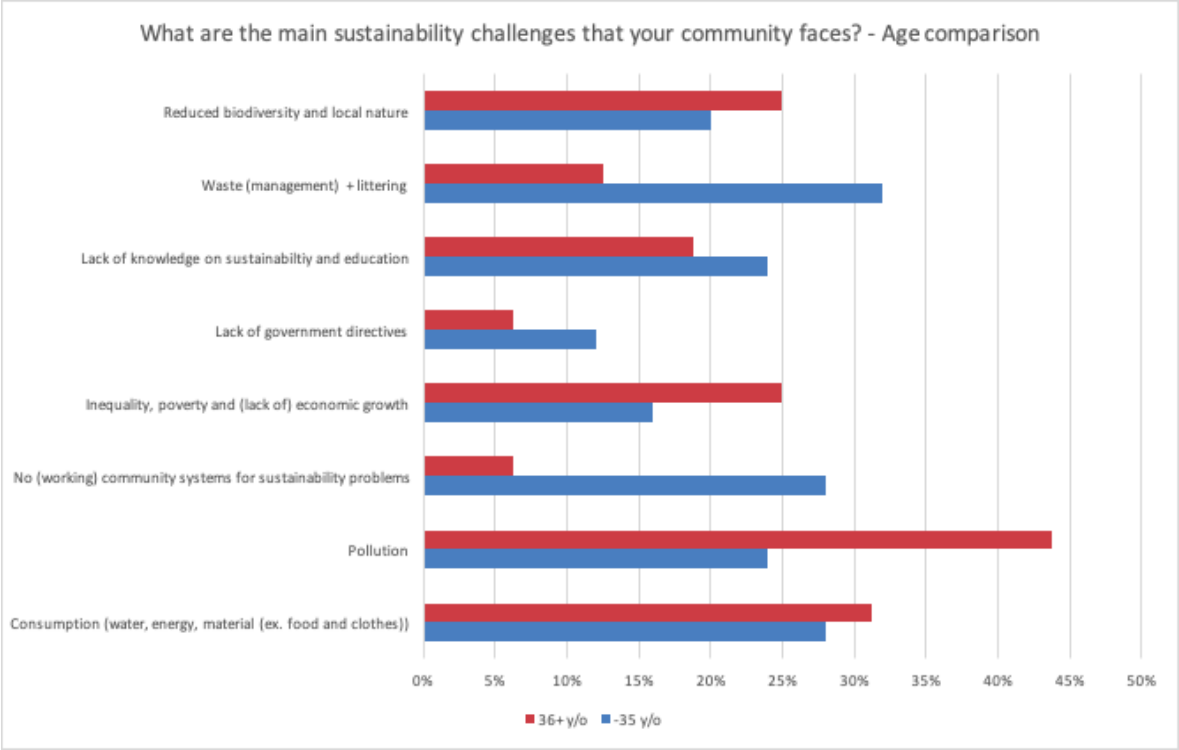
Overview analysis



* One response was outside the scope of these categories: "*Industrialization"*.

The analysis is based on 41 respondents expressing, without limitations, what sustainability challenges they believe to have in their community. The graph shows how many times areas within the categories were mentioned, in consideration of 41 respondents.

Age comparison

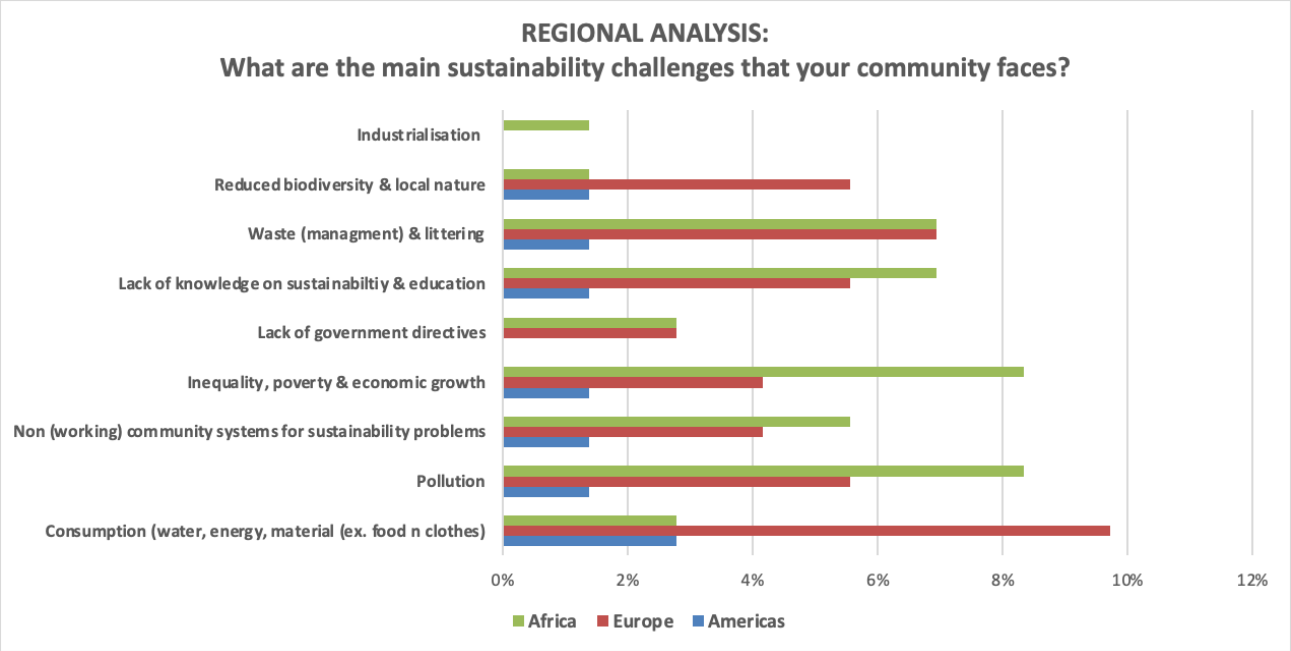


* One response in the *36+ y/o* age group was outside the scope of these categories: "*Industrialization*".

The analysis is based on how many respondents each age group consisted of (25 respondents in age group -35 y/o and 16 respondents in age group 36+ y/o). Hence the chart shows the percentage of each age group that answered in consideration of each category.

The younger age group finds that no (working) systems for sustainability problems exist to a larger extent than the older, similarly with waste management and littering. Meanwhile, the older age group consider pollution to be an issue to a larger extent than the younger.

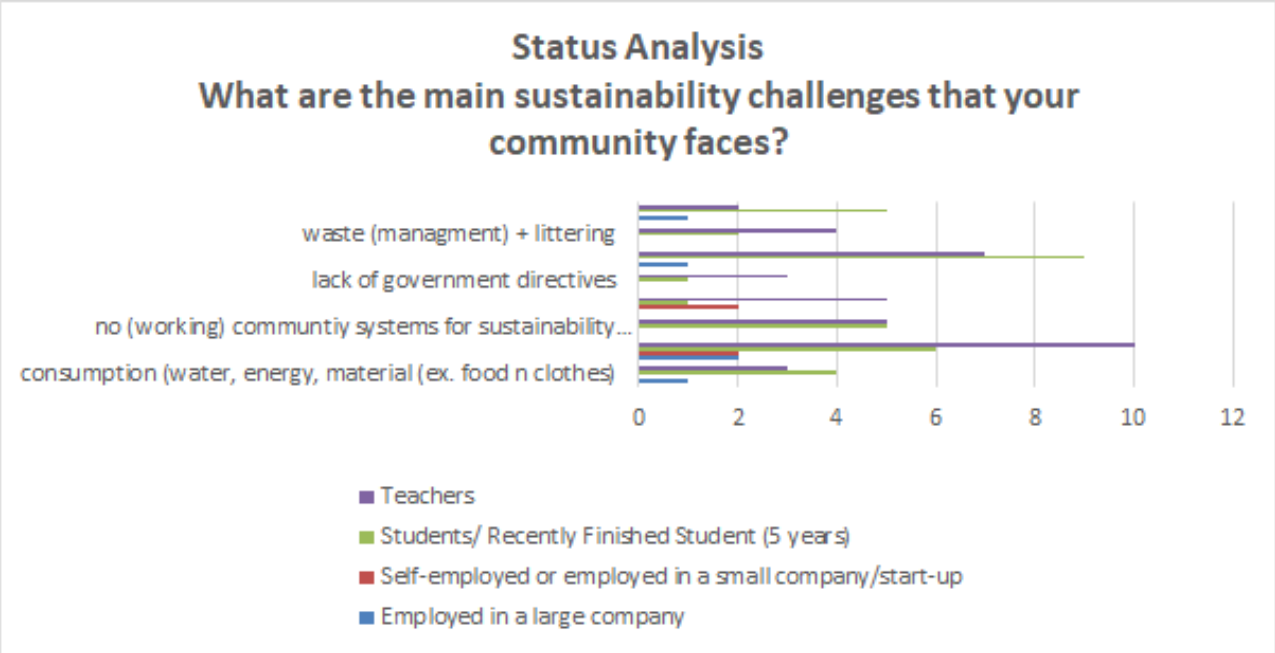
Regional Comparison



The graph above is based on 73 responses from three different regions, the Americas, Europe and Africa with four, twenty and seventeen respondents respectively.

Pollution, social concerns, limited knowledge on sustainability and proper waste management were the main challenges being faced according to African respondents, whilst over consumption in respect to water, energy and resources were of concern in communities of European respondents. Responses from the Americas indicated that social concerns, pollution, over consumption and reduced biodiversity were some of the challenges in their communities.

Status Comparison



Q9: Relating to the previous question (Q8), what actions are being taken to overcome these challenges, and by whom?

The question had three different aspects to it: "what actions are being taken", "to what specific challenge" and "who is taking this action". Respondents answered the question differently from each other. Some answered actions clearly in consideration of specific community issues they had described in the previous question, see Table 1 and others described actions being taken in general for sustainability issues in the community. Some respondents left out who was taking action and some only wrote who was taking action.

Table 1. Community issues and actions and/or by whom, being taken in consideration

Community issue	Actions being taken and/or by whom
Consumption (water, energy, material (ex. food and clothes))	Some individuals change their own behavior. Some companies are changing their product-services. Research on alternatives.
Pollution	Individuals are choosing other options (ex. eco-friendly products). Local governments. New policies and initiatives by the government, ex. some levies are introduced.
No (working) community systems for sustainability problems	Some individuals try to take community action (ex. protests). Local government

	initiatives. Companies are creating innovative solutions. Government - new policies. Education and training. Research
Inequality, poverty and (lack of) economic growth	NGOs (creating capacity building projects). Government initiatives, ex. affirmative action. Schools.
Lack of government directives	
Lack of knowledge on sustainability and education	Concerned individuals are creating awareness. Education through universities and students, curriculums are changing. NGOs
Waste (management) + littering	Some individuals try to take community action, ex. volunteer cleaning. Some levies are introduced. Companies and the local government create clean up strategies. Startups innovate solutions.
Reduced biodiversity and local nature	Students. Government (minor actions). Education sector, NGOs, activists, local farmers, citizens, local government.

General answers to sustainability issues in the respondent's communities were that some stakeholders are (trying to) taking action, see Table 2 below.

Table 2. General actions or general respondents to sustainability issues.

Who/what in general is taking action:
Politics are trying
Everyone is taking action, but not enough
NGOs
Startups
Some protests by youth
Academia
Swedish companies
Public sector
Efforts by large stakeholders to reduce emissions of carbon dioxide
Private sector introducing renewable energy solutions

However, multiple responses were in line with either not knowing or nothing/no one and not enough. Further, multiple answers were in line with considerations of what actions or who

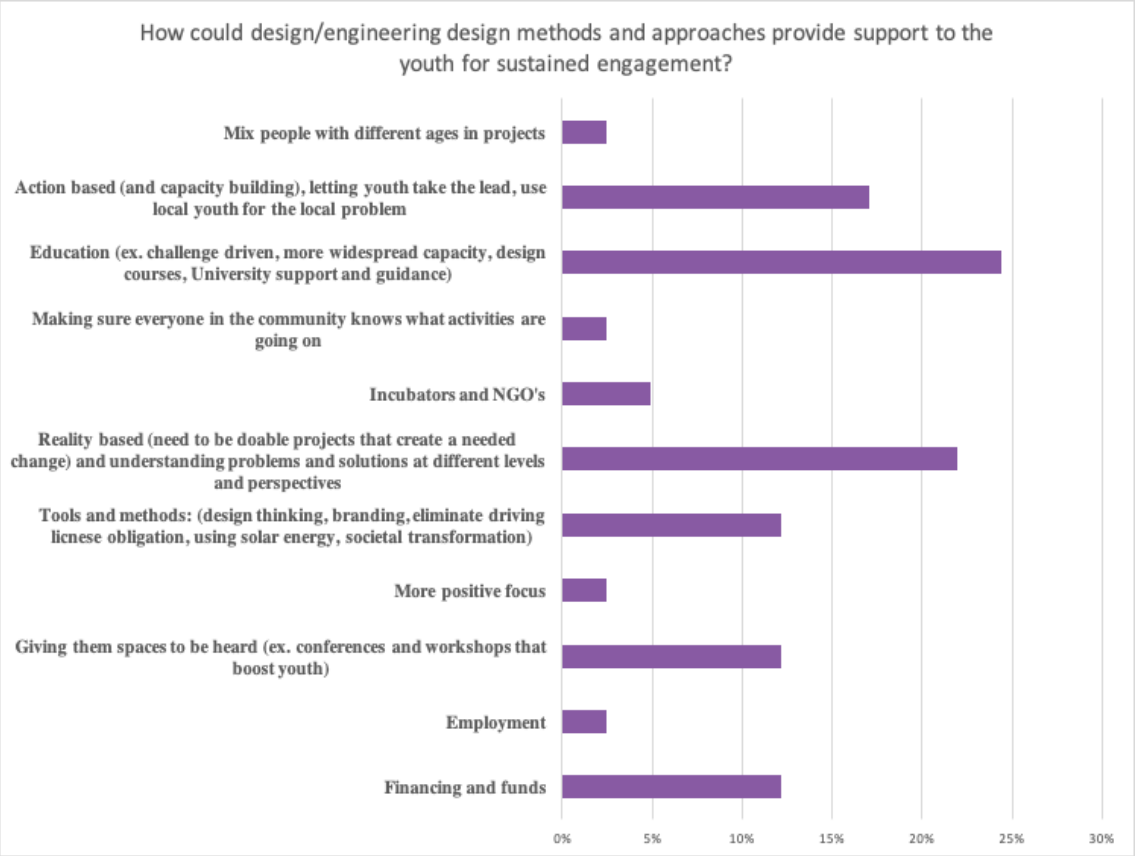
should act on these issues, yet expressed as something that is a recommendation but not something actually done, such as

"Multiple actors need to take action".

This question had 40 respondents (one survey respondent did not understand the previous question and could hence not answer this question), and 50 different responses, as some respondents answered multiple actions, actors and in consideration of multiple issues.

Several respondents expressed how individuals are taking action, showing the power and responsibility that we all have to create changes in our communities. Further a large variety of different stakeholders and respondents are seen, further showing how all sectors and stakeholders can target sustainability issues and (try to) solve them with what resources, perspectives and possibilities they have available.

Q10: Many design and sustainability projects are being driven by the youth (18-35 yr. olds) globally. How could design/engineering design methods and approaches provide support to the youth for sustained engagement? Please provide examples from your own community, if possible.



The analysis is based on 41 respondents, with unlimited answering options.

The majority of the respondents thought that education was of high importance to support the youth for sustained engagement, whilst a systematic approach was less appealing. Elaborating on this, a more organic approach could be considered a solution to attract the youth.

The respondents understood the question from different perspectives, and below are a range of quotations of how design and engineering methods and approaches can be beneficial:

"Production of equipment's to enable reduction of waste and to enable recycling of most products"

"Good engineering design methods can support & promote non-motorized transport infrastructure. For instance, our government has been trying to promote non-motorized transport within the main city with the creation of side-walks and bicycle lanes in the central business district."

"They can follow the engineering design process for whatever specific problem they want to tackle."

"Design methods and approaches provide a means to measure progress in sustainability."

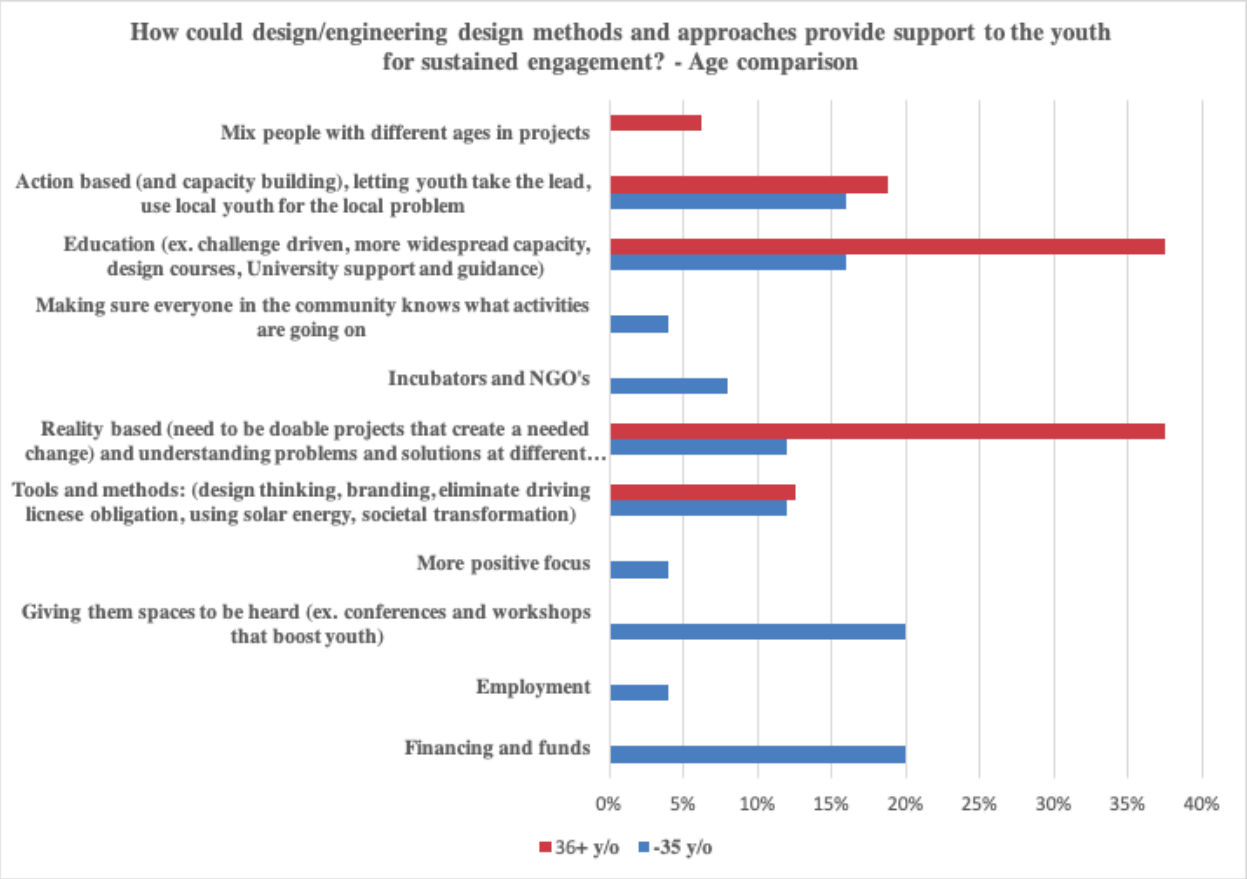
"Good engineering design methods can support & promote non-motorized transport infrastructure."

"Design and engineering methods would help them with expertise like how to design proper waste management systems and recycling plants. It would also help them understand and get technical expertise to develop tech solutions if they need them."

"They will support stakeholder engagement which will increase chances of acceptability of the proposed product/solutions."

"Youths are now relying on hydroponics in agriculture which does not rely on the burning of fuels or use of chemicals."

Age comparison



The analysis is based on 41 respondents, with unlimited answering options. The younger age group consisted of 25 respondents and hence the percentage is based on that, the older group consisted of 16 respondents and the percentage is based on that. Some of the respondents' answers consisted of multiple answers, and all these were taken into consideration.

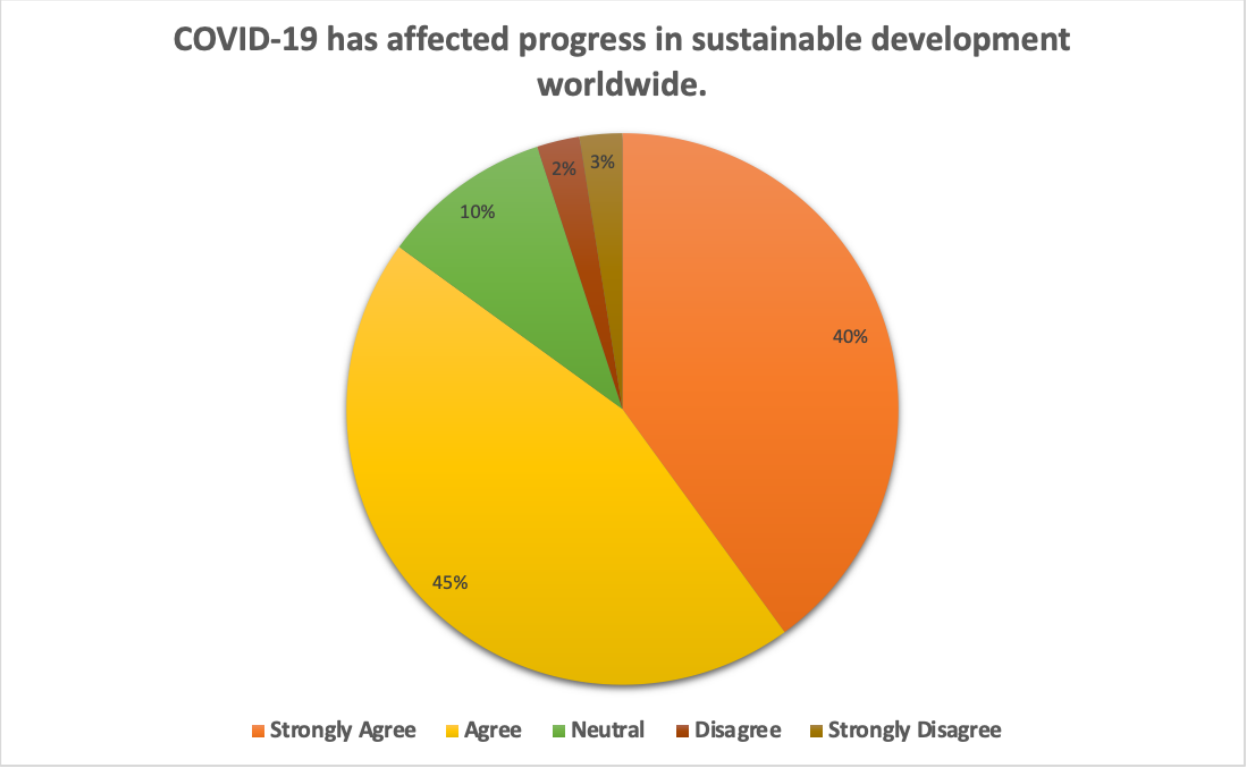
The younger group answered more broadly, whilst the older group were focused on a few solutions such as education and the approach. The categories that only the younger age group have answered for, are, to a larger extent, more concrete solutions than others, that both age groups have answered for.

4.2 Section 2 - Questions in concern of the COVID-19 Pandemic

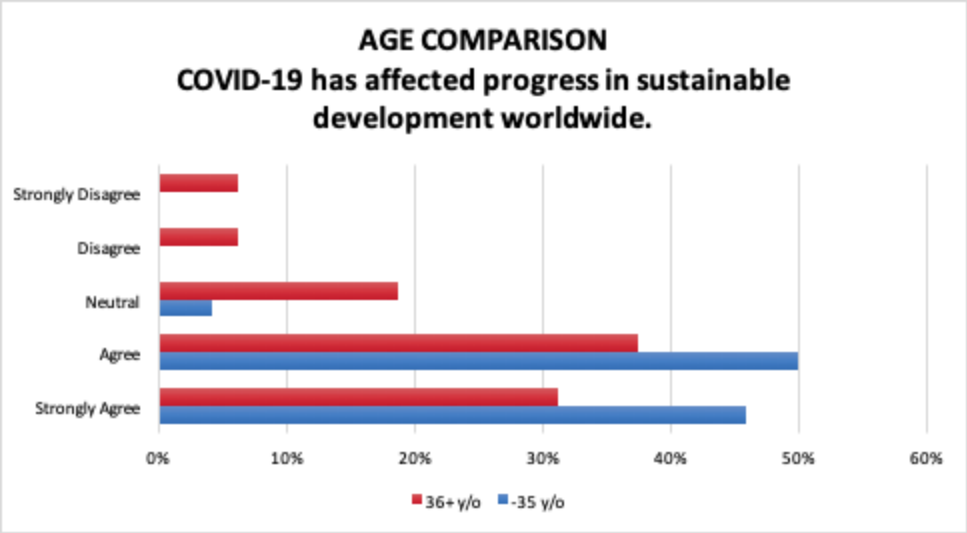
This section of the survey related to COVID-19 and how it has affected sustainable development and collaboration, locally and globally, as well as if the pandemic provided any challenges or opportunities.

11. COVID-19 has affected progress in sustainable development worldwide.

In the regional analysis, there were four respondents from the Americas, seventeen respondents from Africa, while the number of respondents from Europe dropped to nineteen and is discussed in further detail throughout this section to determine where there are differences and similarities between regions.



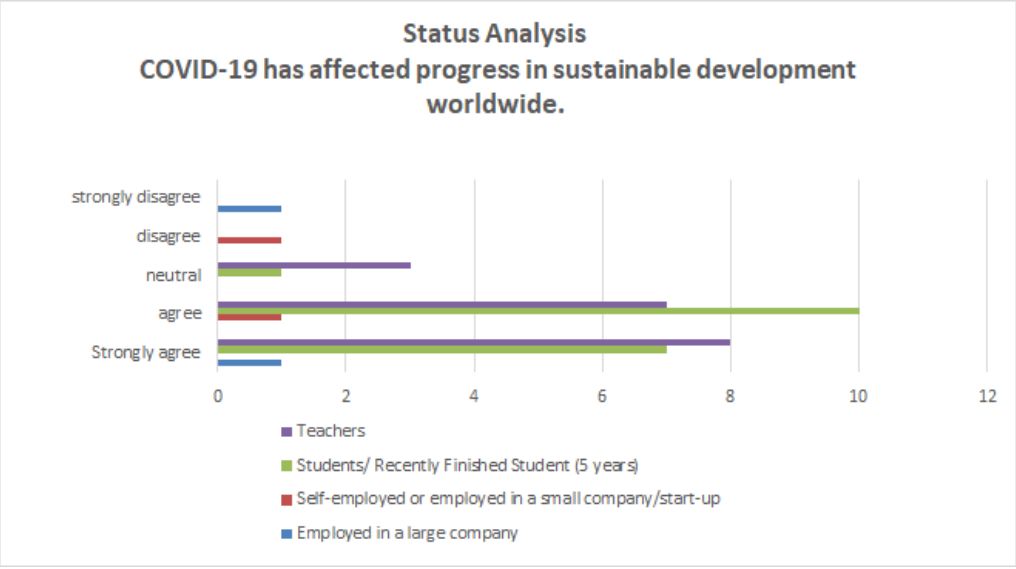
Age comparison



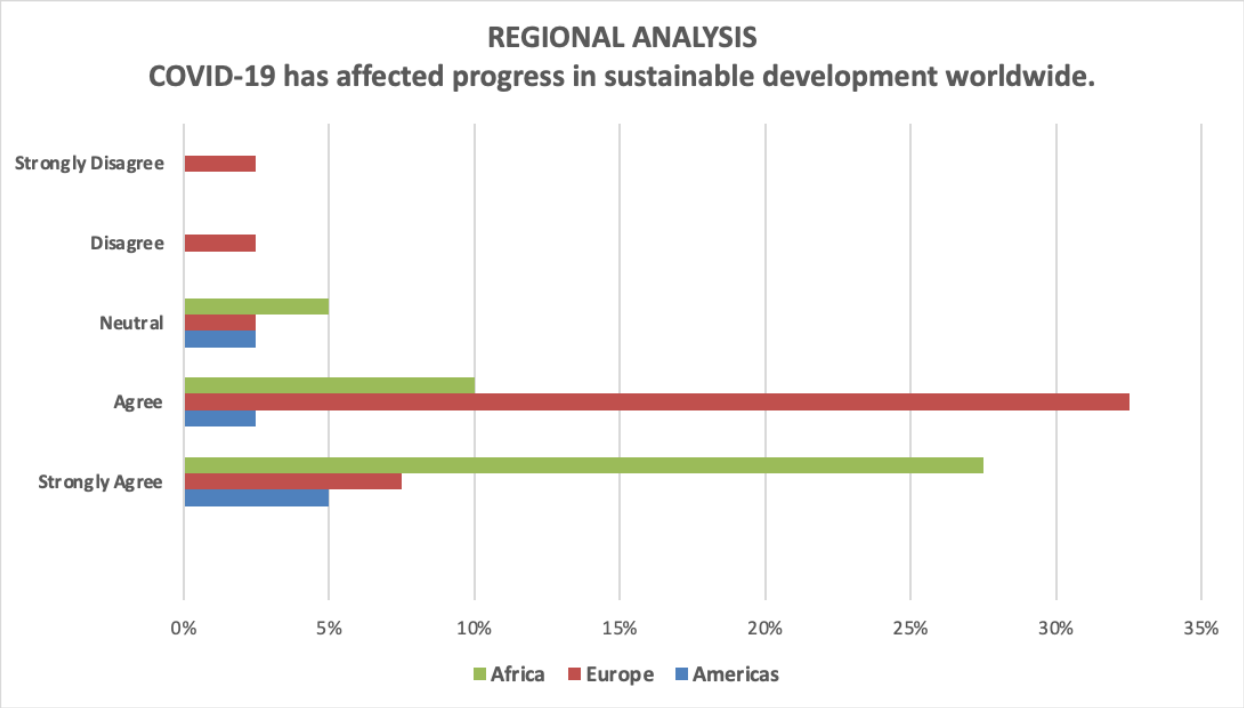
The age comparison is based on what percentage of each age group that answered the different alternatives. For example, when 50 % of the respondents in age group -35 y/o have answered *agree*, it means 50 % of all respondents who are younger than 36 y/o have answered this. Hence, not in concern of the total number of respondents. This is due to the difference in how many respondents there are in the two age groups and to be able to compare the age groups equally against each other.

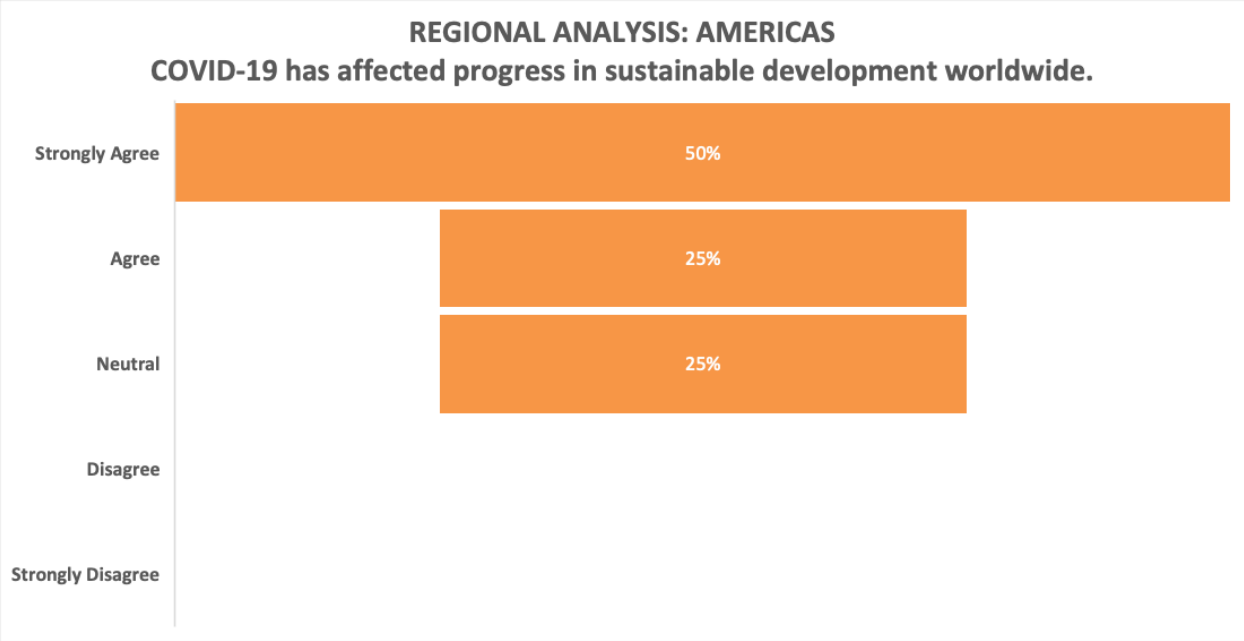
The younger age group answered more similar to each other, in agreement with the statement whilst the respondents from the older age group varied more to one another. All respondents who disagreed with the statement were part of the older age group.

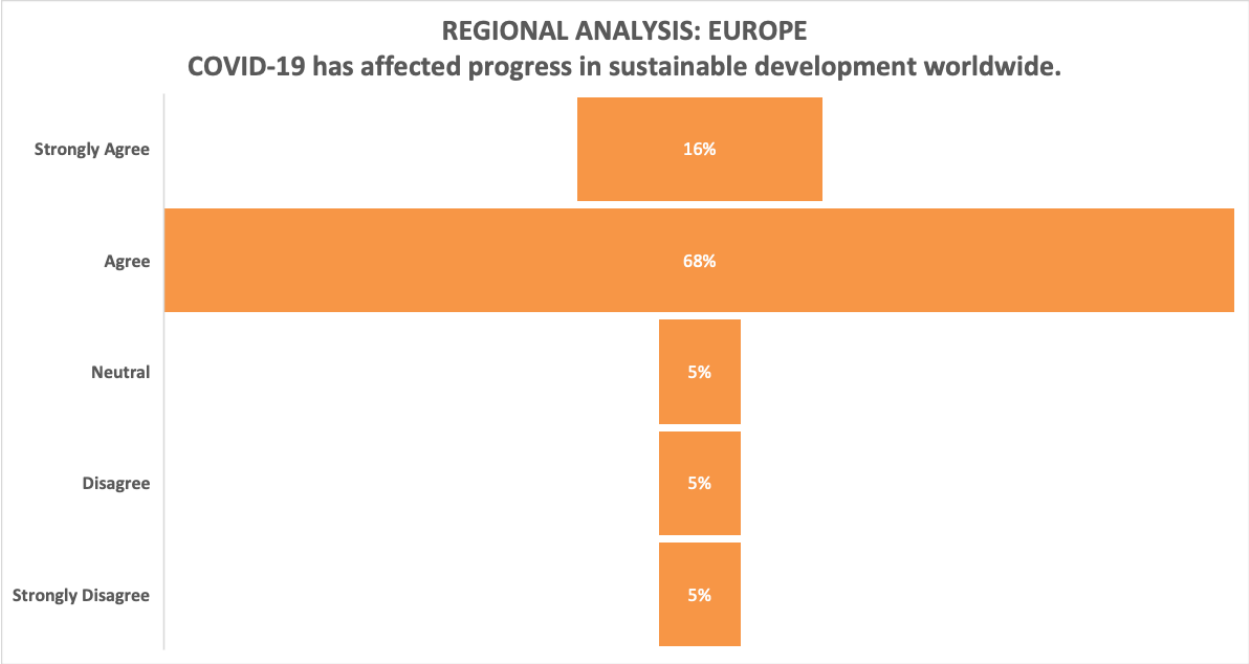
Status Analysis

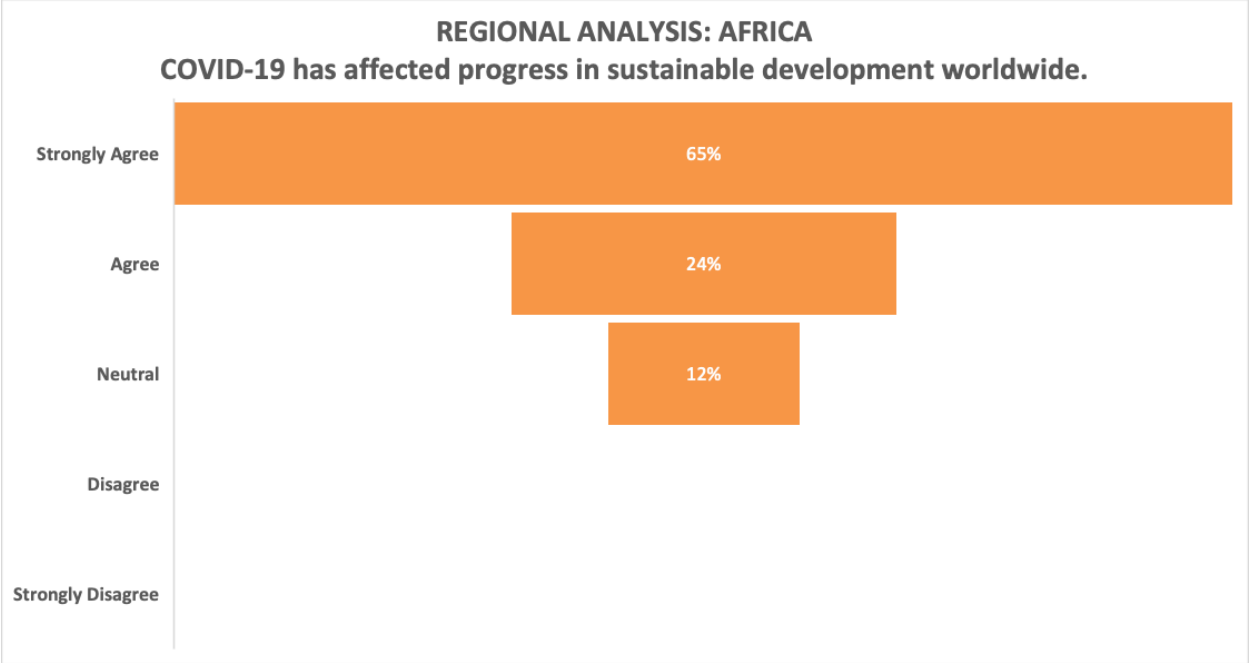


Regional Comparison


REGIONAL ANALYSIS
COVID-19 has affected progress in sustainable development worldwide.
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
0%
5%
10%
15%
20%
25%
30%
35%
Africa
Europe
Americas


REGIONAL ANALYSIS: AMERICAS
COVID-19 has affected progress in sustainable development worldwide.
Strongly Agree
50%
Agree
25%
Neutral
25%
Disagree
Strongly Disagree


REGIONAL ANALYSIS: EUROPE
COVID-19 has affected progress in sustainable development worldwide.
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
16%
68%
5%
5%
5%


REGIONAL ANALYSIS: AFRICA
COVID-19 has affected progress in sustainable development worldwide.
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
65%
24%
12%

Q12. Please elaborate on the question above, and provide examples.

Strongly Agree	Push in sustainable materials and environmental issues	Positive
	Increase in technological development	Positive
	Less traveling	Positive
	Change in action based solutions (bottom up solutions)	Positive
Agree	Restarting the economy	Positive
	Reduced emissions and waste	Positive
	Possbilities for new perspectives (possible to work from home)	Positive
	More focus on sustainability	Positive
	ICT spread and increase	Positive
	Reduced traveling	Positive
	Learned to change behaviour	Positive
	Increased global thinking	Positive

Strongly Agree	Lockdown limits action	Negative
	Increase in use of non sustainable materials and products	Negative
	No focus on sustainability	Negative
	Limited resources for sustainable actors	Negative
	Poverty	Negative
	(Clean) Water problem	Negative
	Food security problem	Negative
	Individuals with limited access to rescources are left behind (students without ICTs)	Negative
	Fear and spread of COVID-19	Negative
Agree	Buy online	Negative
	Restricts goal achieving and projects	Negative
	Buying more	Negative
	Shared systems adversity	Negative
	Less focus on environment and sustainibility	Negative
	New directions are not viable for all (amount of clean water needed to wash hands)	Negative
	Drop in econmy	Negative
	Reduced international collaboration	Negative
	Less focus on others/egoistical thinking	Negative

Neutral	Sped up sustainable progress	Positive
	Some issues highlighted/ some pushed back	Positive & Negative
	Maybe a bit less impact due to reduction in travelling in general.	Positive
	Too early to tell	

Strongly Disagree	Huge programs with a sustainable basis	Negative
Disagree	Rise of various start-ups aiming to tackle SDGs	Positive

The spike in online buying increased the amount of packaging used for transport and delivery thus is interpreted negatively.

Conflicting responses:

- More focus on sustainability vs. less and no focus on sustainability
- Restarting the economy vs. drop in the economy
- ICT spread and increase vs. limited access to ICT resources

Africa

Positive viewpoints:

- Reduced emissions and waste
- Faster ICT spread and increase in usage
- Reduced travelling amounting to less emissions and pollution

Negative viewpoints:

- Lockdown and restriction on movement means limited action
- Less or no focus on sustainability

- Limited resources for actors interested in sustainability
- Poverty heightened
- Lack of clean water
- Food security problems
- Individuals with limited access to resources such as ICT are left behind
- Fear, spread and focus on COVID-19
- Projects and goal achievement are restricted
- Shared systems adversity
- Drop in economy
- Reduced international collaboration
- Difficult to travel

Europe

Positive viewpoints:

- Increase in technological development
- Change in action-based solutions (bottom up solutions)
- Economy has been restarted
- More focus on sustainability and sustainable progress sped up
- Faster ICT spread and increase in usage
- Changed behaviors
- Increased global thinking
- Rise of start-ups aiming to tackle SDG's
- Huge programmers with sustainable basis

Negative viewpoints:

- Increased use of non-sustainable products and materials
- Less or no focus on sustainability
- Excessive online buying and purchasing in general
- New directives are not viable for all (amount of clean water needed to wash hands vs. access to clean water)
- Reduced international collaboration
- Less focus on others/ egotistical thinking

Americas

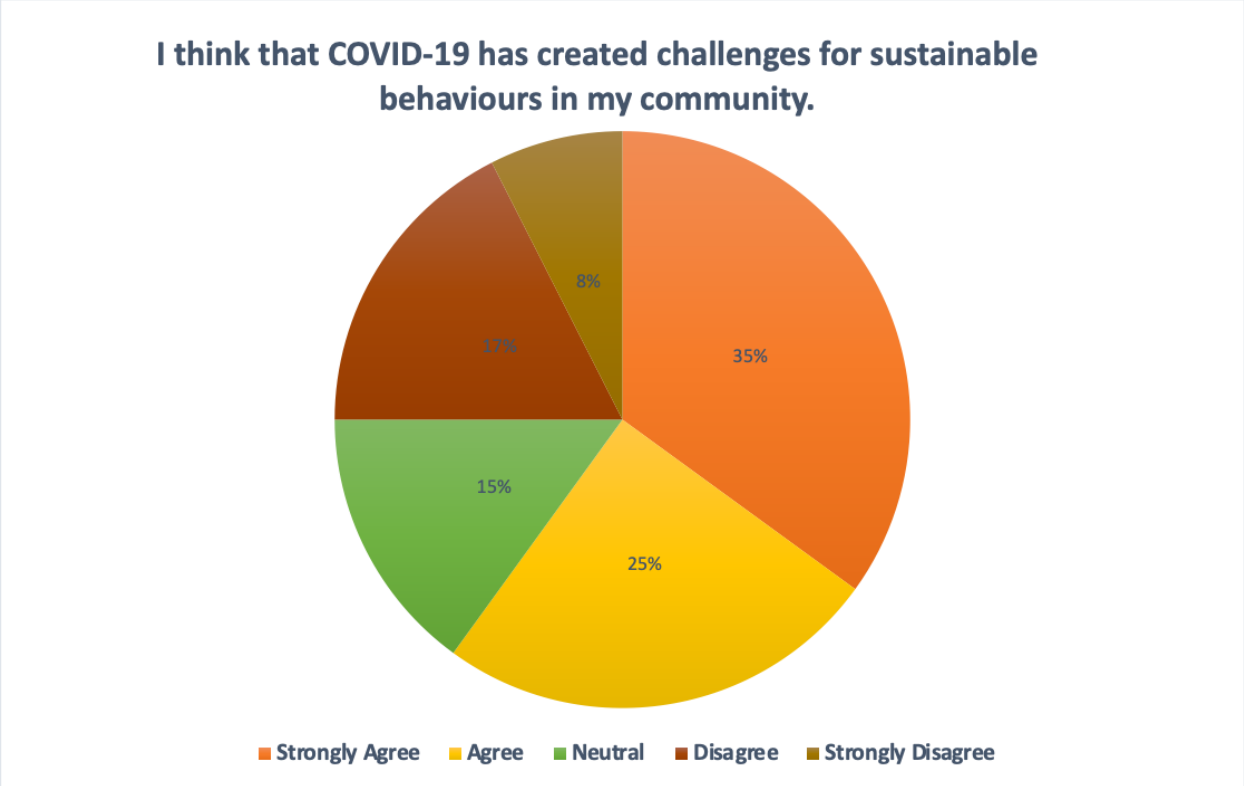
Positive viewpoints:

- Push in sustainable materials and environmental issues
- Reduced emissions and waste
- Some issues have been highlighted

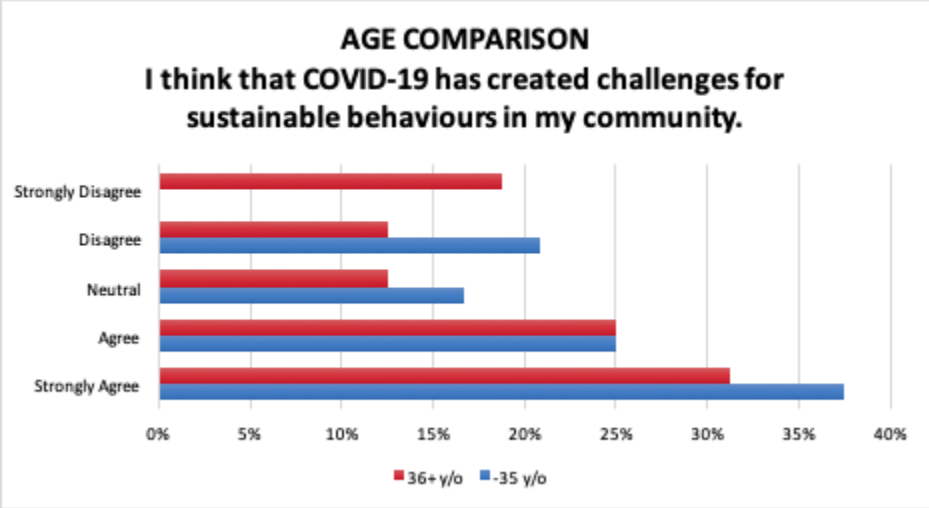
Negative viewpoints:

- Lockdown and restriction on movement means limited action
- Increased use of non-sustainable products and materials
- Less or no focus on sustainability
- Less focus on environment

Q13. I think that COVID-19 has created challenges for sustainable behaviors in my community.



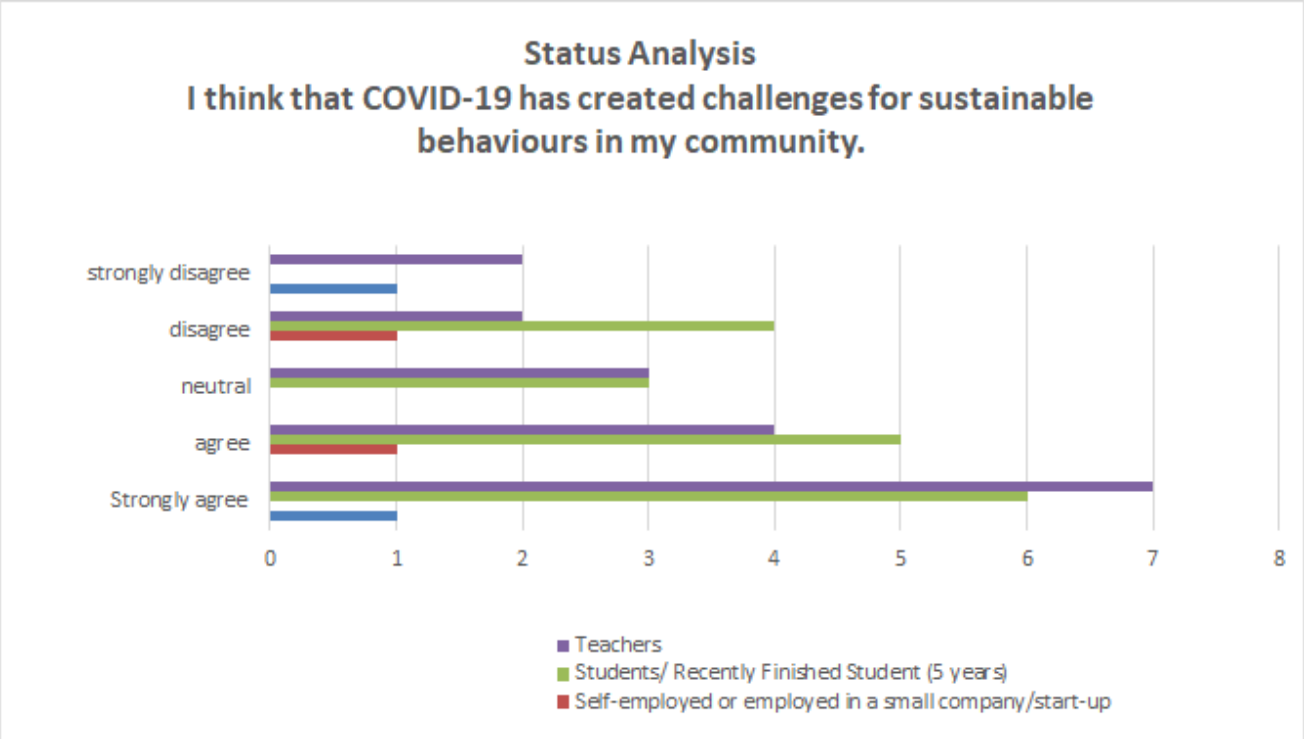
Age comparison



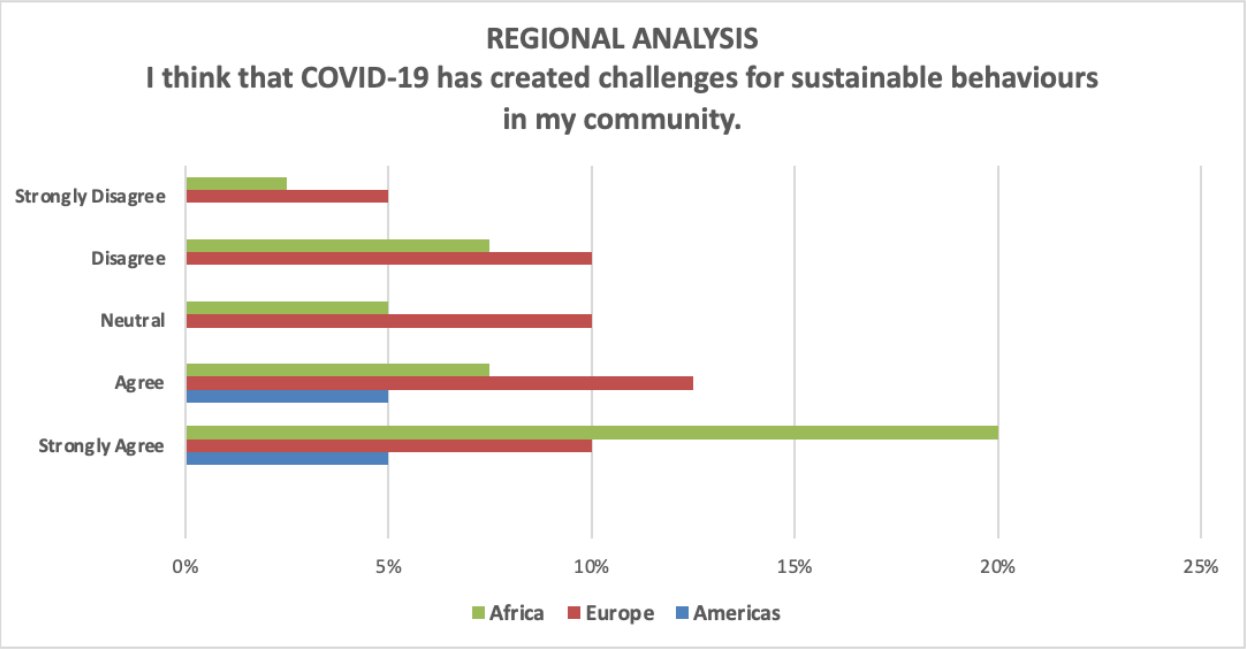
The age comparison is based on what percentage of each age group that answered the different alternatives. This is due to the difference in how many respondents there are in the two age groups and to be able to compare the age groups equally against each other.

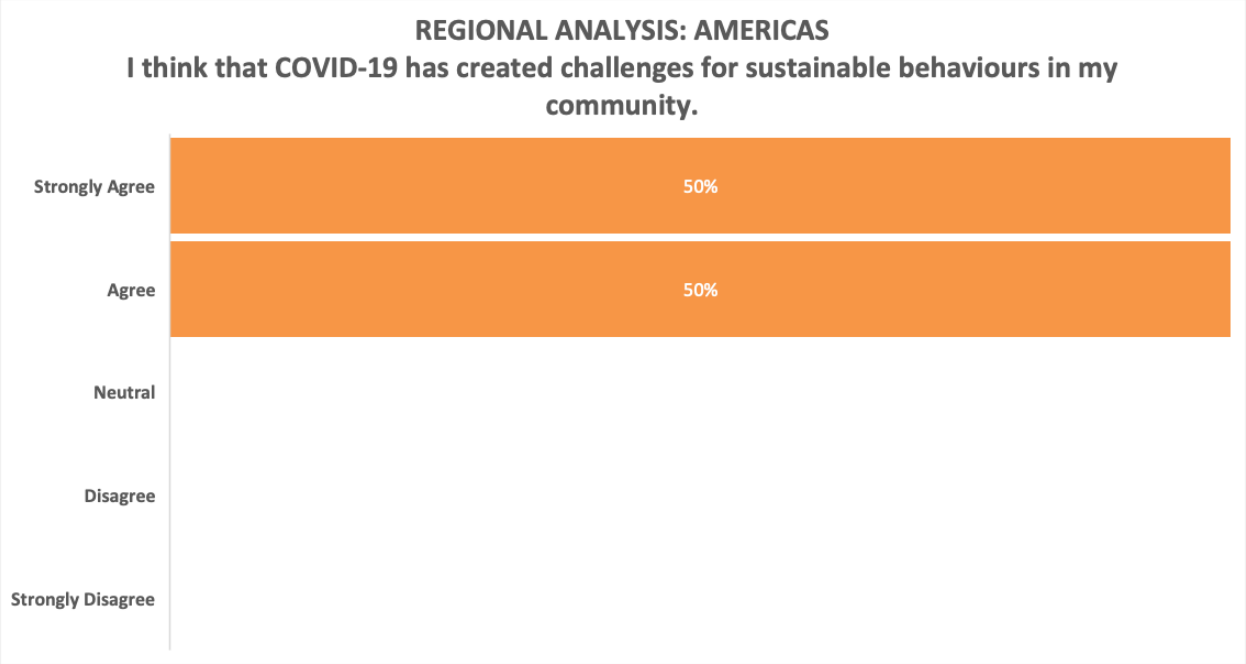
There is a greater variety in the responses from the older age group in comparison to the younger age group.

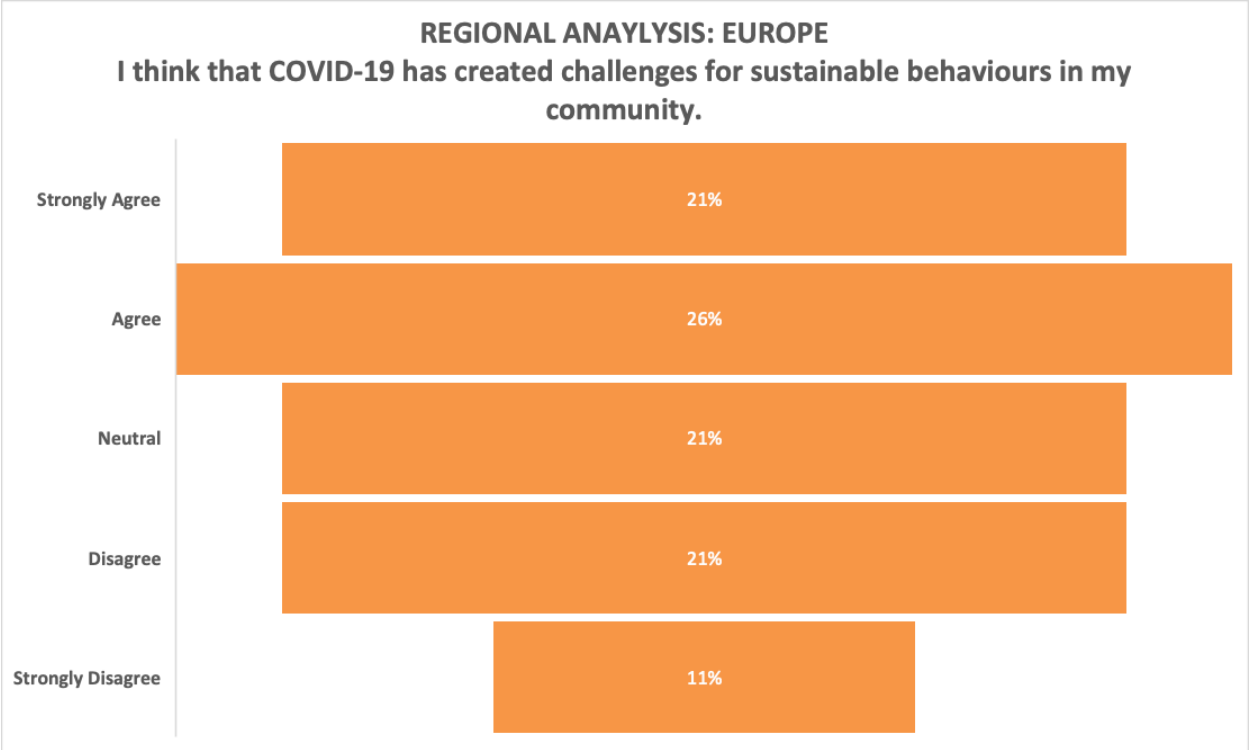
Status Comparison

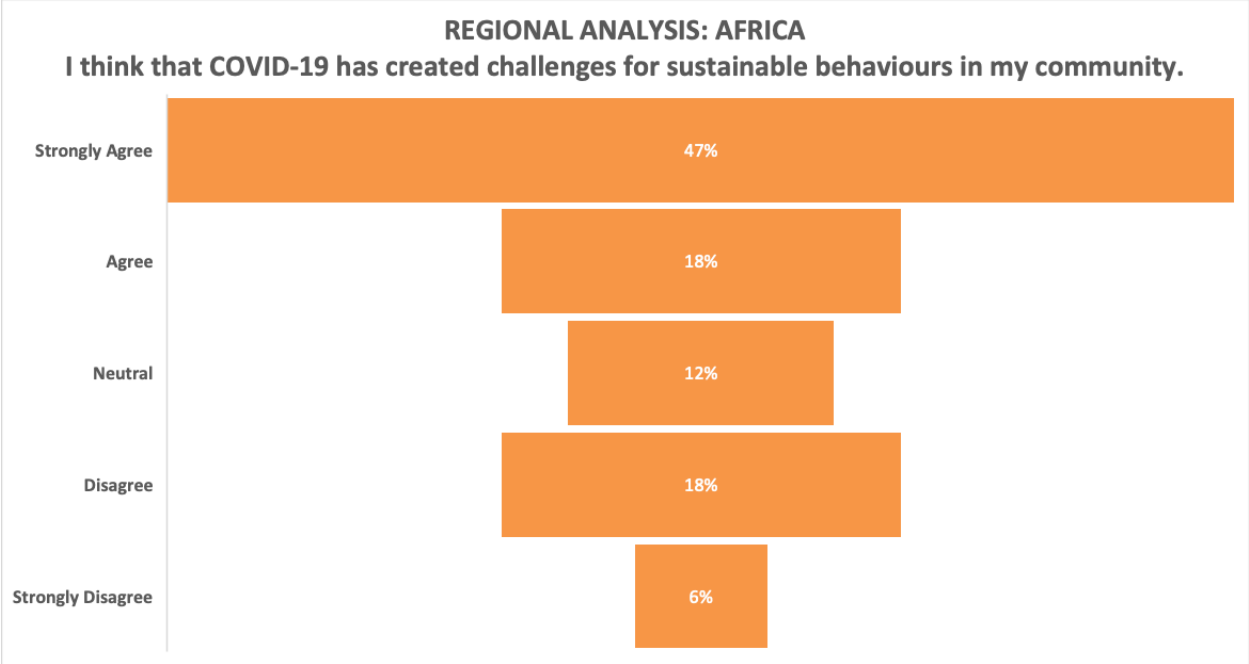


Regional Comparison






REGIONAL ANAYLYSIS: EUROPE
I think that COVID-19 has created challenges for sustainable behaviours in my community.
Strongly Agree
21%
Agree
26%
Neutral
21%
Disagree
21%
Strongly Disagree
11%


REGIONAL ANALYSIS: AFRICA
I think that COVID-19 has created challenges for sustainable behaviours in my community.
Strongly Agree
47%
Agree
18%
Neutral
12%
Disagree
18%
Strongly Disagree
6%

Q14. Please feel free to elaborate on the question above.

Strongly Agree	Travel behaviour changed	Positive	**Agree**	Difficulties with inclusion	Negative
	Increased interest in green cities	Positive		Social interactions	Negative
Agree	Less flights	Positive		No focus on sustainibility	Negative
	Local collaboration	Positive		Lowered work efficiency	Negative
Strongly Agree	Increased electricity usage	Negative		Due to unemployment rates people stopped buying eco-food as other types of food is cheaper	Negative
	Transporation is difficult	Negative	**Strongly Agree**	Large changes in some industries	*Limited info.
	Development halted	Negative		Unreasonable to combine the two effects of a crisis and a climate challenge.	*Limited info.
	Non-safe environment to tackle sustainable development	Negative	**Agree**	More people having backyard gardens and poultry	*Limited info.
	Inequality, exclusion, & lack of social ineractions	Negative		Increased used of masks and vaccine	*Limited info.
	Single use masks	Negative		"Just in Time" is not sustainable/not resilient, more preparation is needed.	*Limited info.
	Foreign relationships on hold	Negative			
	Stop in eco-friendly products	Negative			

**Limited info.* - Information was too limited to determine a positive or negative opinion.

Neutral	Use of public transport has reduced, shifting traffic to personal cars, so that is bad.	Negative
	Use of cycling or walking as a transport alternative has increased.	Positive
Disagree	Covid-19 impact to daily activities minimal, no lockdowns, necessity of wearing masks and people continue with their daily activities as usual. Not a barrier to sustainable behaviour.	Positive
	Most people travel less, buy less in shops	Positive
	Recycling area is very clearly labeled and available & opportunities to limit electricity and water usage.	Positive
	Public is now aware of observing hygiene (washing hands, sanitizing)	Positive
	Imposed movement restrictions (lockdowns, curfew) contributed immersely to climate preservation	Positive
	Rise of various start-ups aiming to tackle SDGs	Positive
Strongly Disagree	Increased awareness	Positive
	Evident challenges	Negative

The lack of social interactions, difficulties with inclusion and inequality have increased in communities during the pandemic. The use of personal cars instead of using public transport meant higher emissions and pollution. On the contrary, respondents disagreed that challenges in their communities were brought on with COVID-19, mentioning that lockdowns have preserved

the environment, limited energy and water use, and increased awareness about sustainability, among others.

Conflicting responses:

- Travel behavior changed vs. transportation is difficult
- Using cars more vs. cycling more

Regional analysis

<u>Africa</u>

Positive viewpoints:

- Changed travel behavior
- No lockdowns or implemented protocols meant sustainable behavior continued as usual
- More awareness on hygiene
- Imposed lockdowns contributed to climate preservation

Negative viewpoints:

- Development has been halted
- Environment is not safe to tackle sustainable development issues
- Inequality, exclusion and lack of social interaction
- Foreign/international relations on hold
- Halt in eco-friendly products
- Lowered work efficiency as there is less supervision with 'work from home'

Limited information to determine if negative or positive viewpoint:

- Large changes in some industries
- More people have backyard gardens and chickens

<u>Europe</u>

Positive viewpoints:

- Changed travel behavior – cycling and walking has increased
- Increased interest in green cities
- Less flights
- Local collaboration
- Less buying in shops
- Increased awareness on sustainability
- Recycling still ongoing
- Less consumption and usage of electricity and water
- Rise of start-ups aiming to tackle SDG's
- Support local markets and producers more

Negative viewpoints:

- Inequality, exclusion and lack of social interaction
- Due to unemployment rates cheaper food is sought as opposed to eco-food
- Evident challenges
- Reduced public transport use and more use of personal vehicles leading to more pollution
- Too much plastic and packaging- not responsible consumption

Limited information to determine if negative or positive viewpoint:

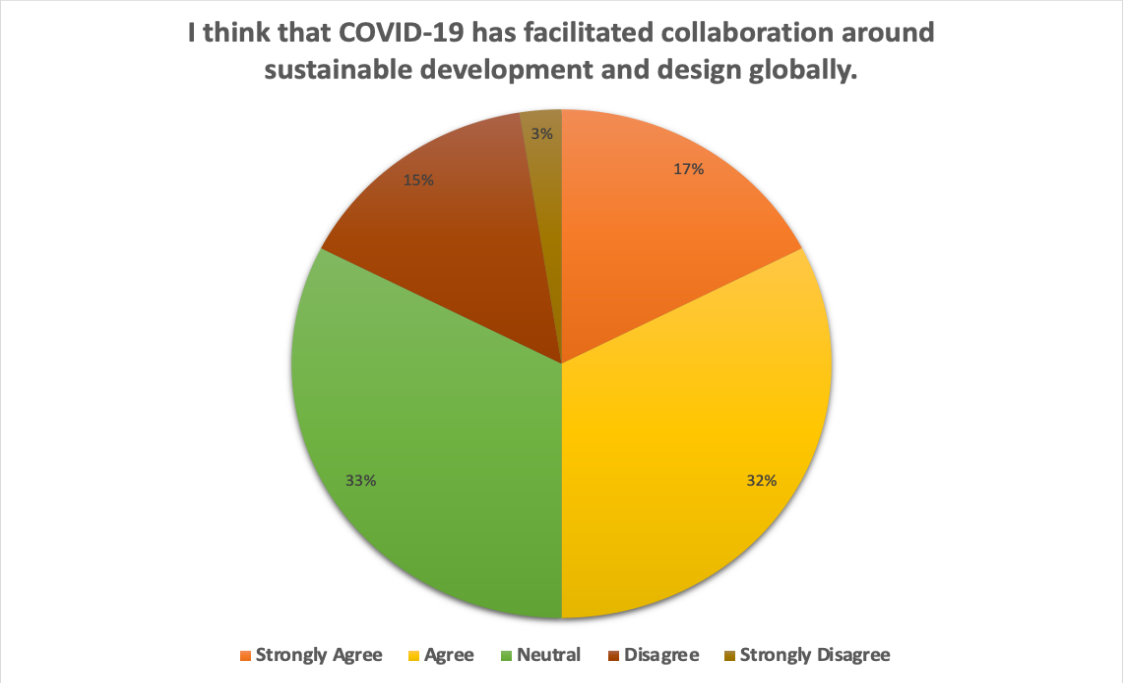
- Not reasonable to combine effects of a global crisis and a climate challenge
- Increased use of masks and vaccine
- More preparation needed in future

Americas

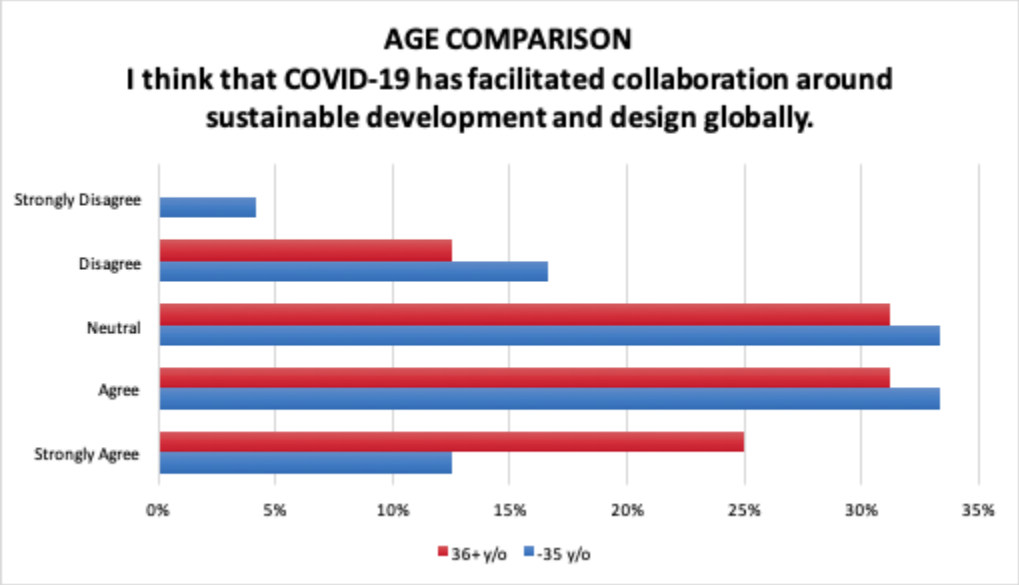
Negative viewpoints:

- Increased electricity usage
- Transportation is difficult
- Single use masks
- No focus on sustainability

Q15. I think that COVID-19 has facilitated collaboration around sustainable development and design globally.

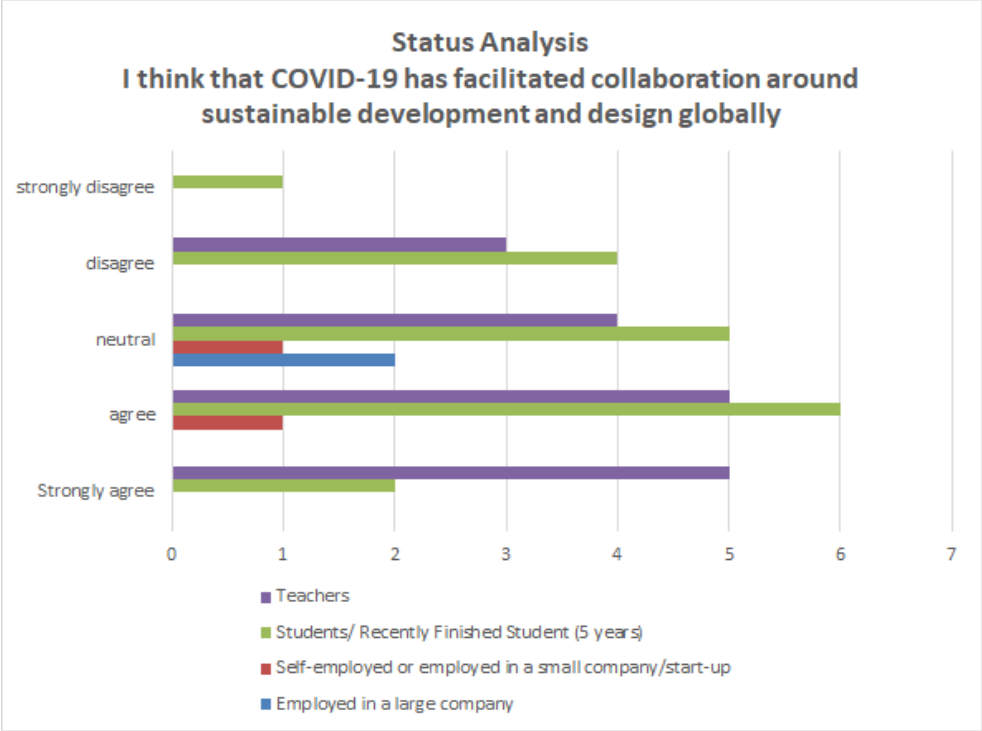


Age comparison

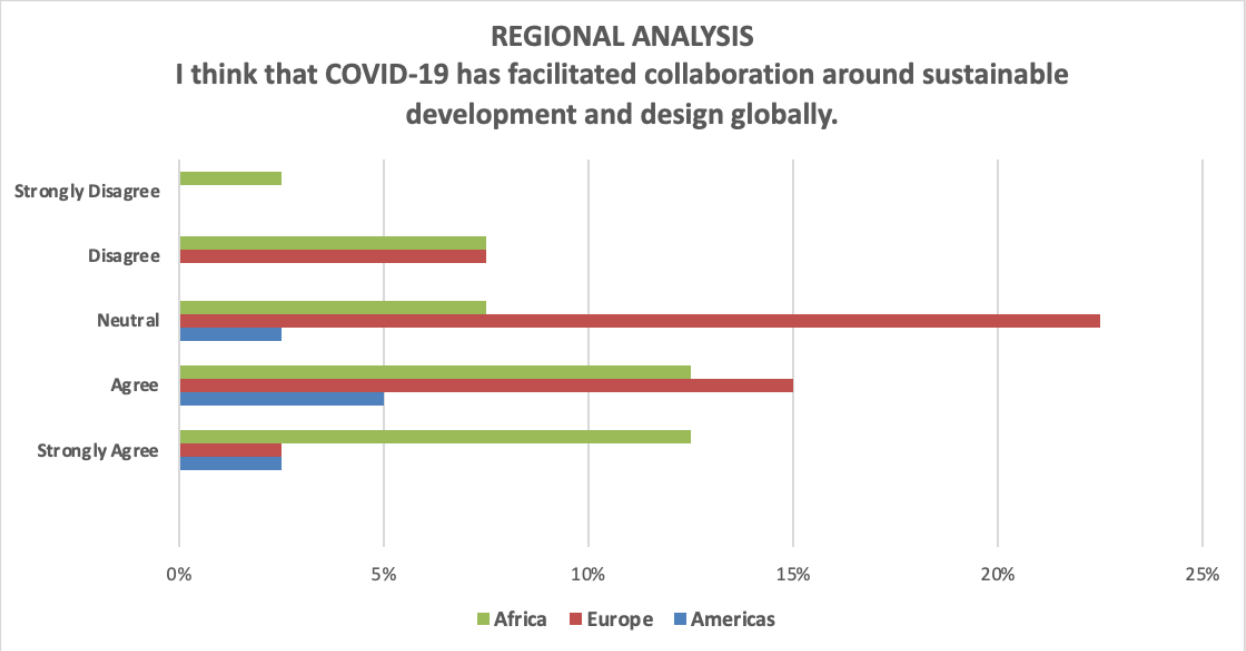


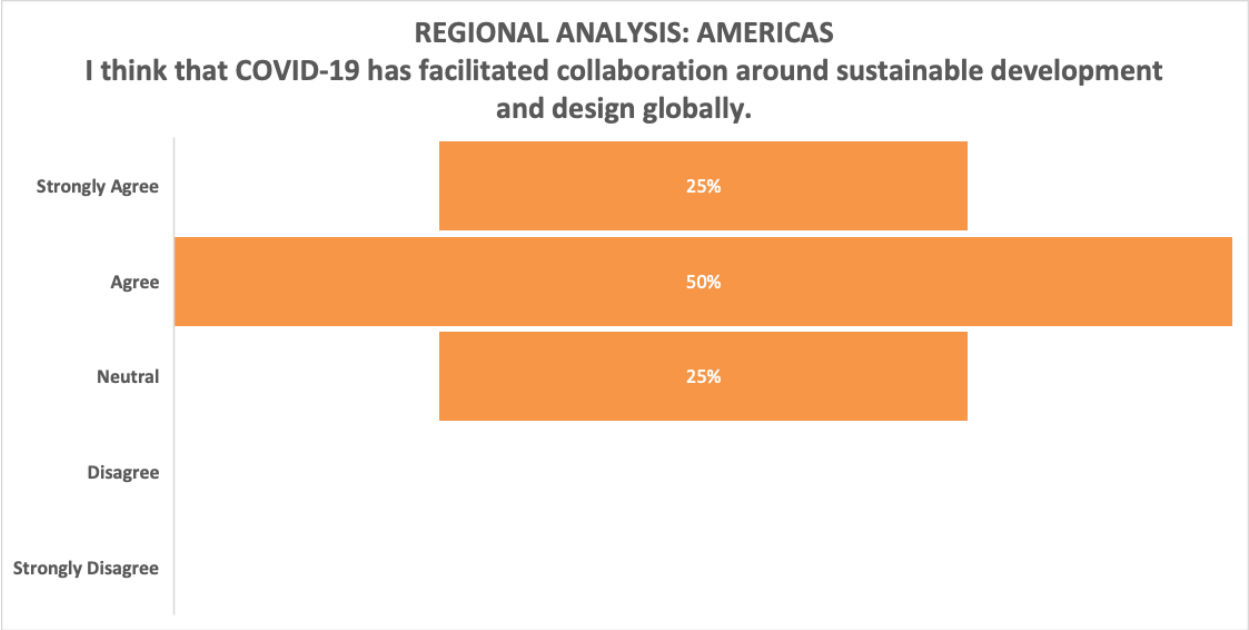
The age comparison is based on what percentage of each age group that answered the different alternatives. This is due to the difference in how many respondents there are in the two age groups and to be able to compare the age groups equally against each other.

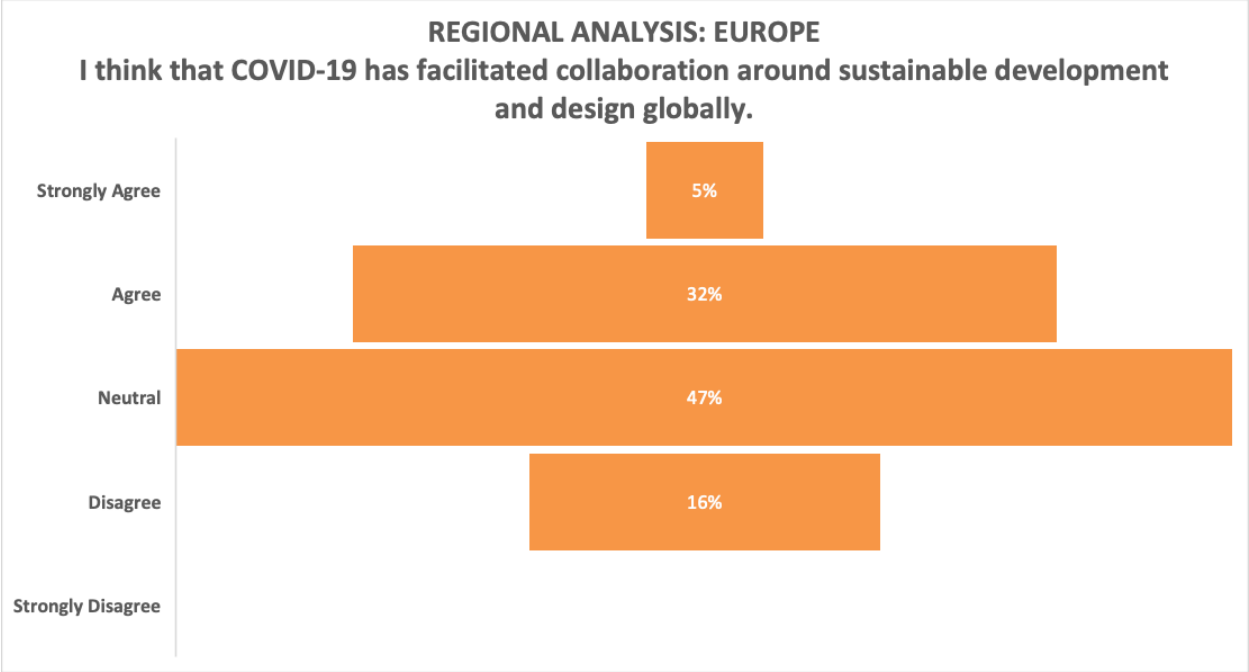
Status Comparison

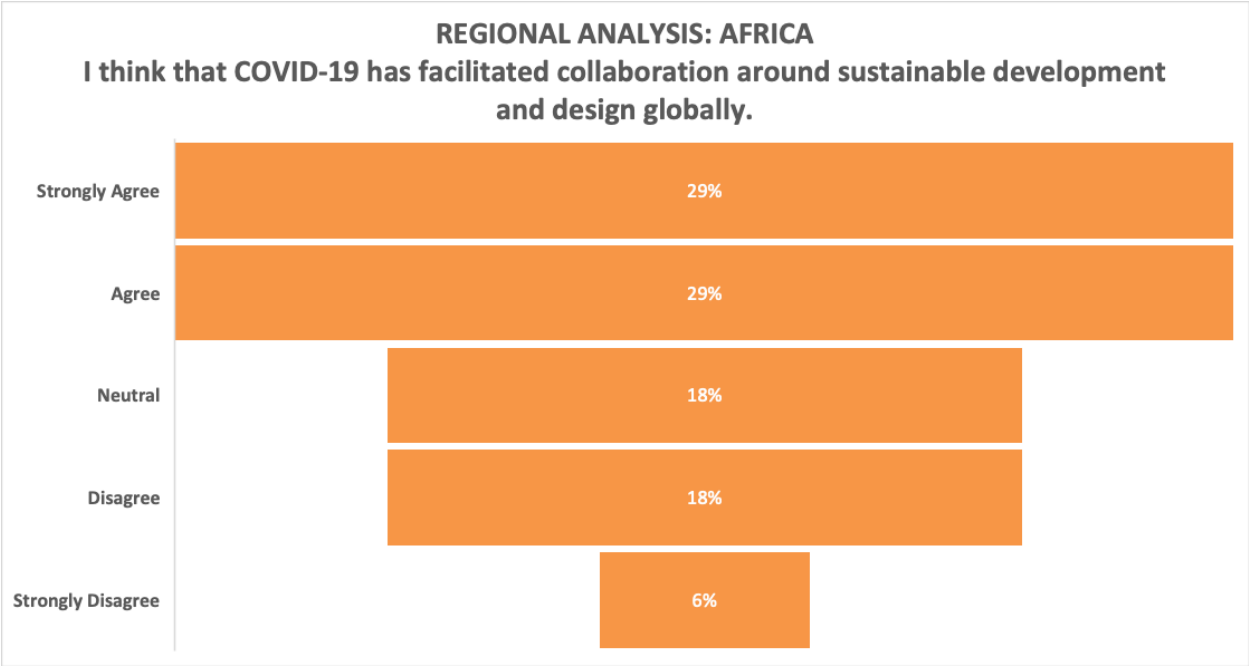


Regional Comparison




REGIONAL ANALYSIS: AMERICAS
I think that COVID-19 has facilitated collaboration around sustainable development and design globally.
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
25%
50%
25%


REGIONAL ANALYSIS: EUROPE
I think that COVID-19 has facilitated collaboration around sustainable development and design globally.
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
5%
32%
47%
16%



Q16. Please feel free to elaborate on the question above.

Strongly Agree	Increased international collaboration	Positive
	Sustainable traveling behavior	Positive
Agree	Utilization interactive platforms	Positive
	More collaboration	Positive
	Increase in vaccine development	Positive
	Spread of awareness	Positive
	More acceptance of the need to use eco-products	Positive
	Effective decision making	Positive

Strongly Agree	Online shopping --> More shopping	Negative

Neutral	A global realization that we must collaborate	Positive
	Equality has becomes questioned, in terms of who deserves vaccine and to be saved first	Negative
	Virtual communication can enhance collaboration, not clear if it has though	*Limited info.
	If there is collaboration, it not visible for everyone	*Limited info.
Strongly Disagree	No collaboration, only drawbacks	Negative
Disagree	Less opportunities	Negative
	So much resources are needed to make everything work	Negative
	Selfishness	Negative
	Masks etc. are not sustainable	Negative
	Focus in on survival	Negative
	No international collaboration	Negative
	No interactions and meetings	Negative

**Limited info.* - Information was too limited to determine a positive or negative opinion.

There are multiple conflicting responses. Some respondents believe international collaboration has increased and some believe it has not. Likewise, some respondents believe there are less opportunities yet others believe new opportunities have arrived.

Regional analysis
<u>Africa</u>

Positive viewpoints:

- Increased (international) collaboration
- Sustainable travelling behavior
- Utilization of interactive platforms
- Effective decision making

Negative viewpoints:

- No collaboration including international, only drawbacks
- Selfishness and self-protection
- Focus on survival

<u>Europe</u>

Positive viewpoints:

- Increased (international) collaboration
- Utilization of interactive platforms
- Increased spread of awareness
- More acceptance towards the use of eco-friendly products

Negative viewpoints:

- Equality and social class have become questioned ("Raised the question of social sustainability, like differences with who gets the vaccine. Differences in deaths has been shown between social groups.")
- Less opportunities
- Masks are not sustainable
- No interactions and meetings

Limited information to determine if negative or positive viewpoint:

- Virtual communication can enhance collaboration though unsure if this has occurred

<u>Americas</u>

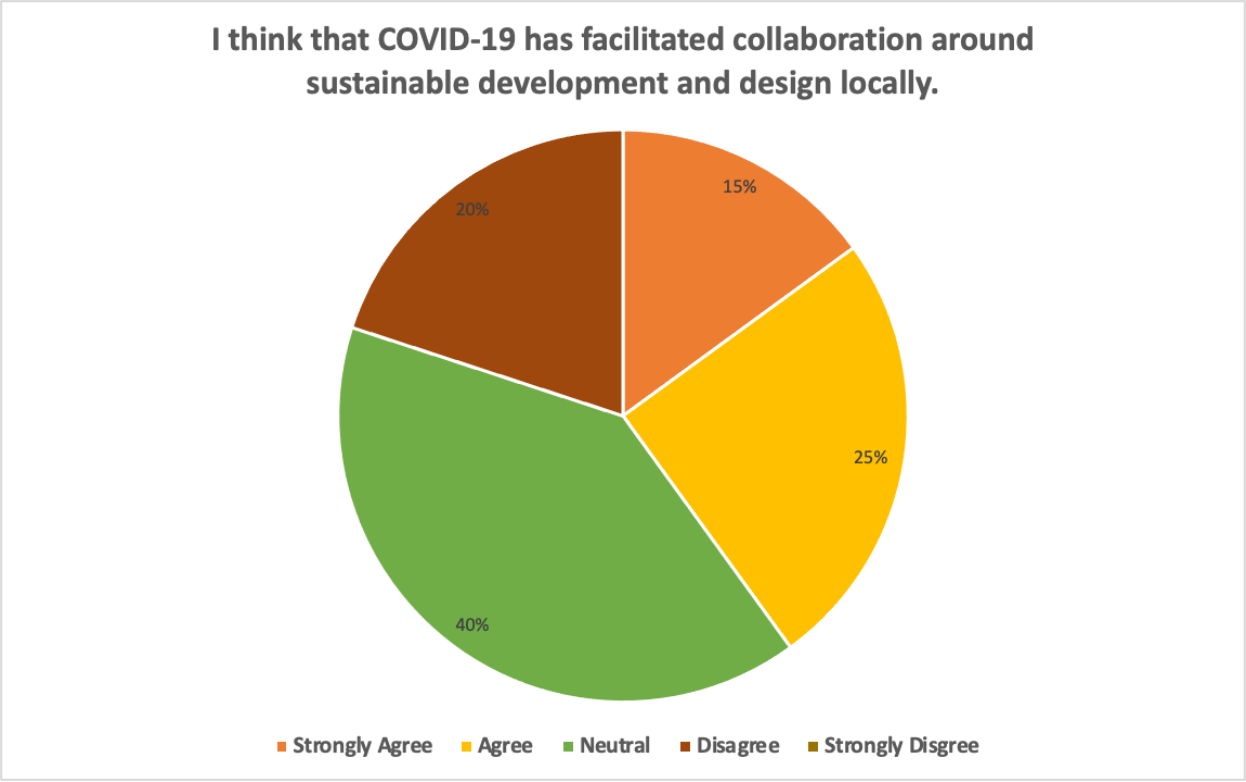
Positive viewpoints:

- Increased (international) collaboration
- Global realization that collaboration is a must

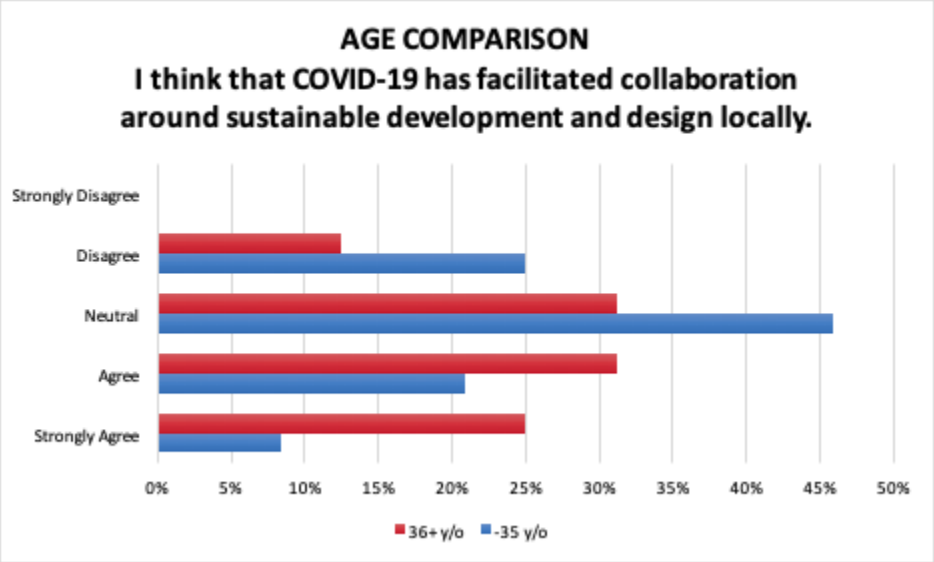
Negative viewpoints:

- Increased online shopping means increased sales of fast fashion

Q17. I think that COVID-19 has facilitated collaboration around sustainable development and design locally.



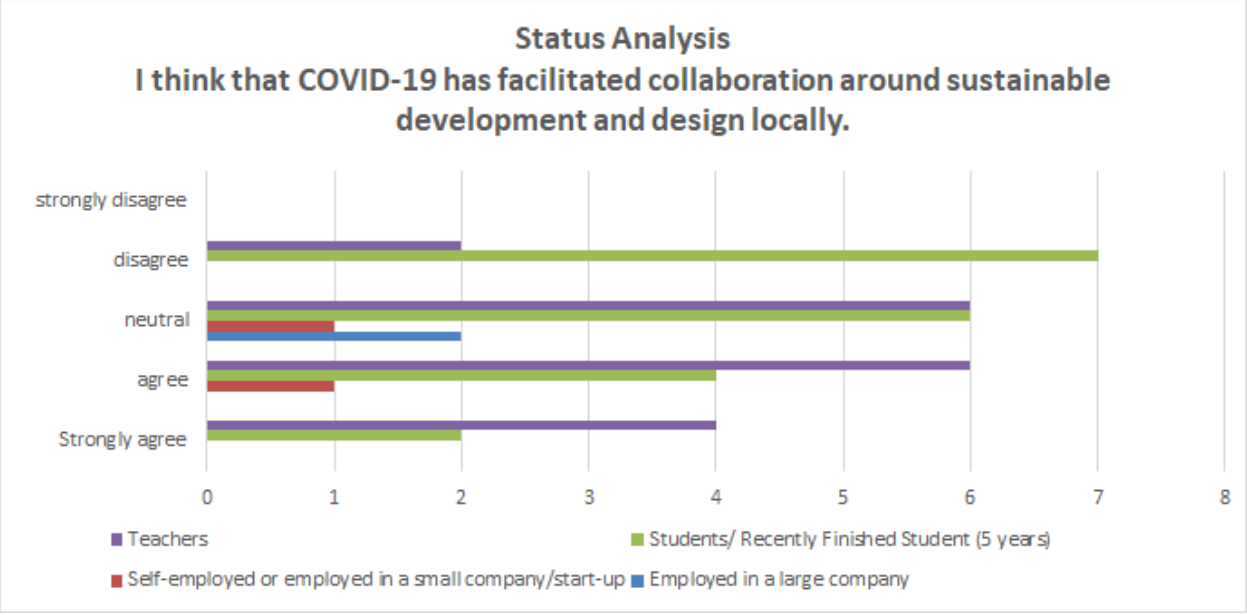
Age comparison



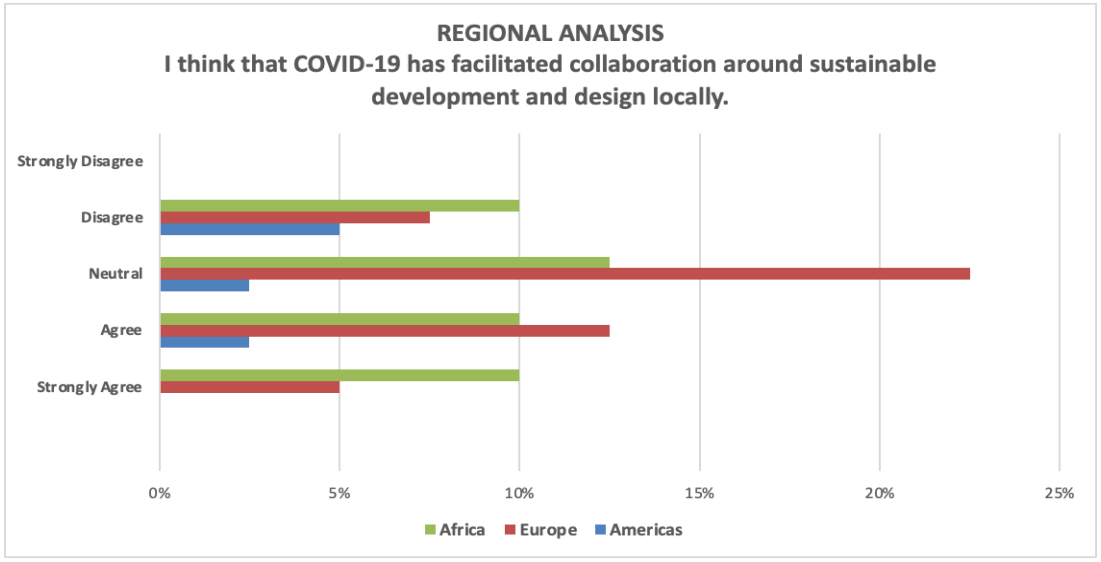
The age comparison is based on what percentage of each age group that answered the different alternatives. This is due to the difference in how many respondents there are in the two age groups and to be able to compare the age groups equally against each other.

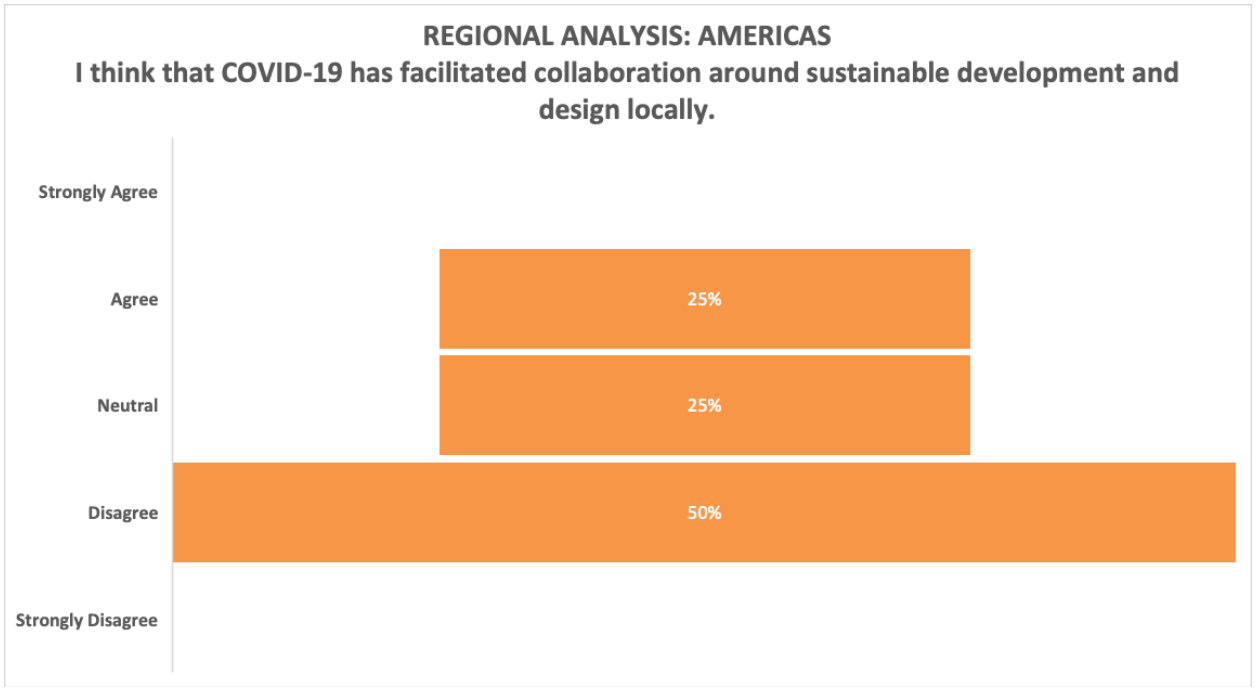
A larger percentage of the younger age group were neutral to this question than in the older age group. According to the chart, the older age group were collectively, slightly more in agreement with the statement than the younger age group.

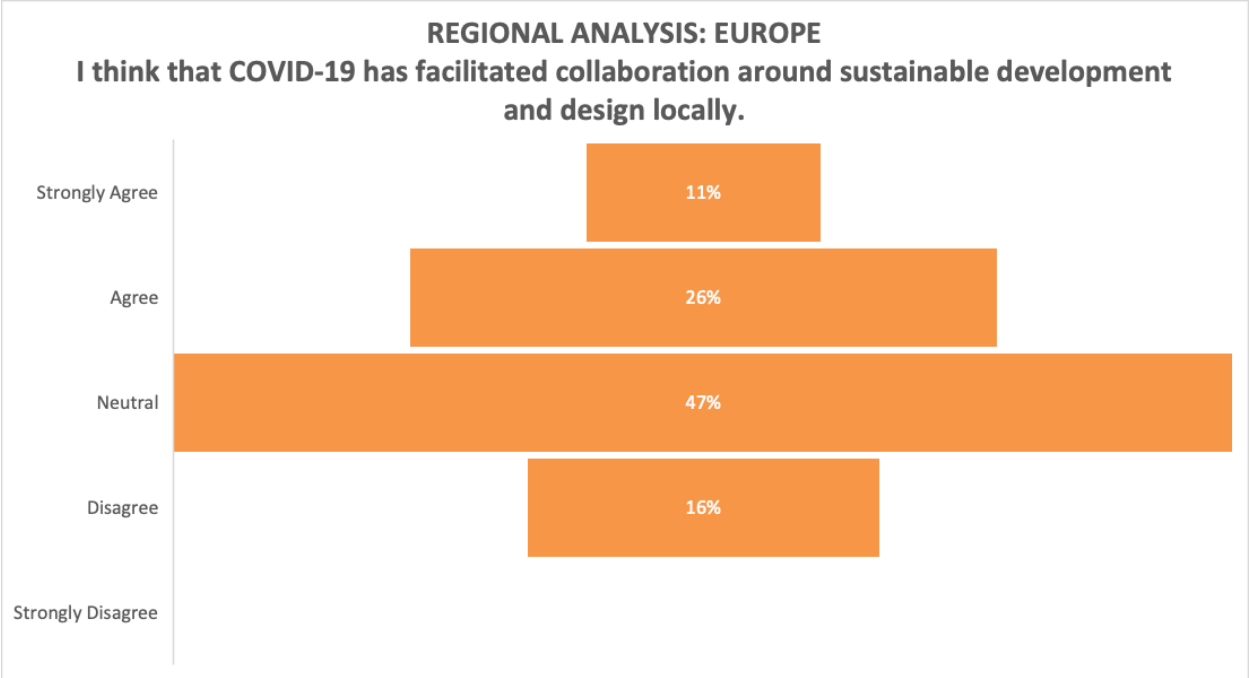
Status Comparison

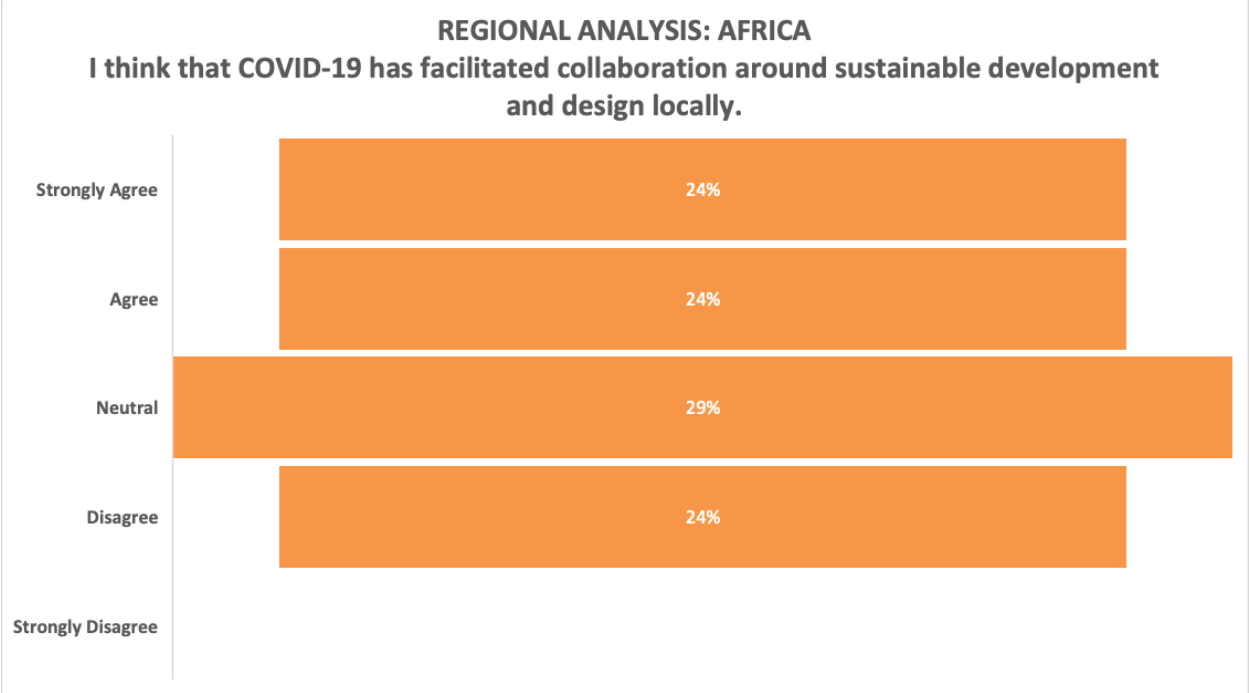


Regional Comparison






REGIONAL ANALYSIS: EUROPE
I think that COVID-19 has facilitated collaboration around sustainable development and design locally.
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
11%
26%
47%
16%


REGIONAL ANALYSIS: AFRICA
I think that COVID-19 has facilitated collaboration around sustainable development and design locally.
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
24%
24%
29%
24%

Q18. Please feel free to elaborate on the question above.

Strongly Agree	Understanding benefits of collaboration	Positive
	Grassroots initiatives	Positive
	Researchers are locally collaborating (social challenges and local challenges)	Positive
Agree	Increased awareness	Positive
	Opportunities for problem solving	Positive
	In design	Positive
	Health sector	Positive
	In the health sector	Positive
	Local possibilities	Positive
	Prioritized	Positive
	Forced engagement from citizens	Positive
Strongly Agree	Short term no	Negative

Neutral	It depends on country	*Limited info.
	Individuals are only focusing on basic needs	Negative
	Do not know	*Limited info.
	No difference	*Limited info.
Disagree	Decrease in social interactions altogether	Negative
	No collaboration	Negative
	Bad economy turns focus away from sustainability thinking	Negative
	No focus on sustainable development	Negative
	The decrease in meetings and social interaction has decreased local collaboration	Negative
	Only drawbacks	Negative

	No changes	*Limited info.

**Limited info.* - Information was too limited to determine a positive or negative opinion.

Regional analysis

Africa

Positive viewpoints:

- Researchers are collaborating locally for social and local challenges
- Increased awareness on sustainability
- More opportunities in design and the health sector
- Engagement from citizens

Negative viewpoints:

- Only basic needs are being focused on
- Decrease in social interactions
- No collaboration
- Bad economy shifts focus from sustainable thinking

Limited information to determine if negative or positive viewpoint:

- No changes
- No difference in behavior on sustainable development as the status quo remained the same

Europe

Positive viewpoints:

- Understanding the benefits of collaboration
- Grassroots initiatives
- Increased awareness on sustainability
- More opportunities in design
- Local possibilities
- Important things have been prioritized

Negative viewpoints:

- Short term there have been no facilitation of collaboration

Limited information to determine if negative or positive viewpoint:

- Dependent on the country
- No changes

Americas

Positive viewpoints:

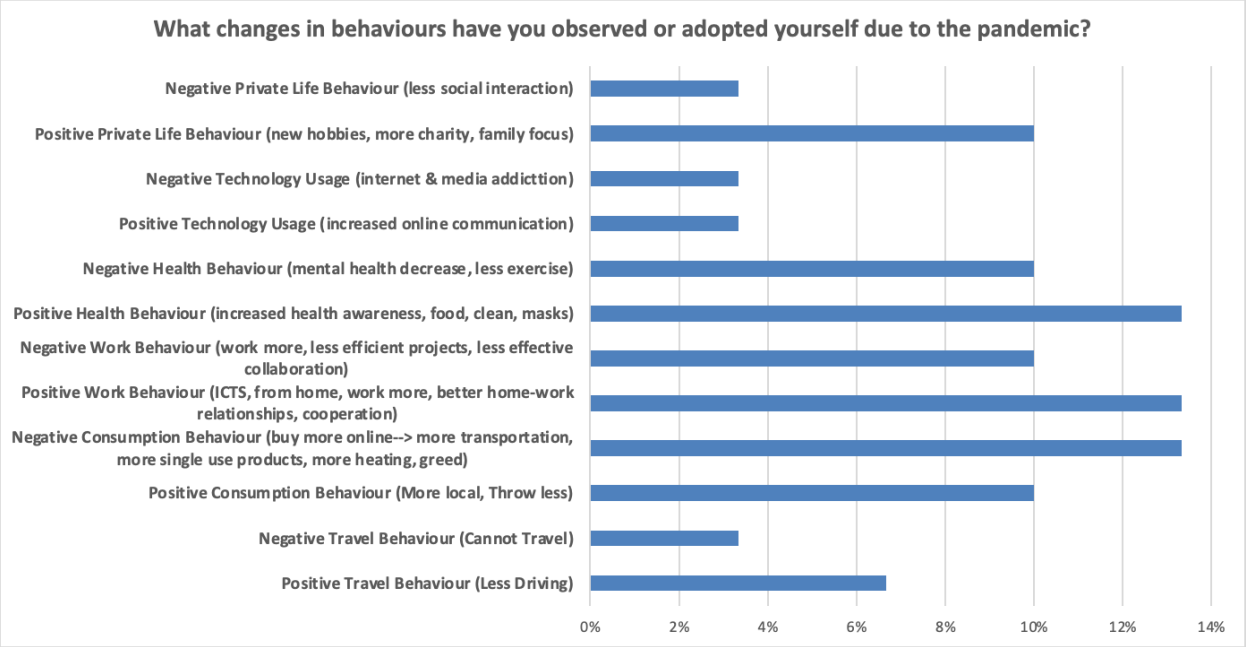
- Opportunities for problem solving

Negative viewpoints:

- Decrease in social interactions

Q19.What changes in behaviors have you observed or adopted yourself due to the pandemic? Elaborate on the scope of the impact, positive or negative. Please provide examples.

This was an optional question. The responses ranged from work, travel and consumption behaviors with both negative and positive implications. Whilst there was a majority of positive health and work behaviors, there was equal negative consumption behaviors.



Respondents observed changes in professional and economic aspects during the pandemic which included a shared economy, diversified revenue streams, and easier means of collaboration. Furthermore, personal changes and behavior for buying local, consuming less overall, more focus on physical health, increased learning and productivity were also evident during the pandemic.

On the other hand, conflicting responses were recorded, as the pandemic did not provide the same behavioral changes for all, these included:

- Eating healthier and being more aware of health vs. decreased mental health, less focus on physical exercise, more addiction to the internet and social media.
- More time for oneself vs. less social interaction
- Focusing on family and a better work/home relationship vs. working more
- Better cooperation vs. less effective and efficient collaboration

Q20. Relating to the previous question (Q19), what new opportunities have you observed due to these changes?

In this question the results were analyzed in concern of the region (Q1). The responses across regions had elements of similarity while some were some differences.

Africa:

- Easier and more collaboration opportunities locally and universally
- Diversified income and revenue streams
- Working from home benefits
    - more learning and productivity
    - flexible working
    - more effective working
- Health, wellness and lifestyle
    - fitness
- Increased remote working in developed countries
- More optimized and increase in technology
- Saving money on food and water
- More online workshops, meetings and conferences
- Increase in shared knowledge

- None

Europe:

- More time for oneself
- Easier and more collaboration opportunities locally and universally
- Working from home benefits
    - flexibility
    - less travel and conferences
      more time to spend with family
- Local awareness
    - local travel and benefits
    - regional awareness
    - local production
- More online workshops, meetings and conferences
- Shared economy advancement

- Benefits of online shopping
- Building trust online

- None

Americas:

- Increased health concerns
    - more friends are vegetarians
- Finding more enjoyment
- More optimized and increase in technology

When dividing up the responses regionally, the responses appeared more aligned. For example, the majority of the African responses were of positive sort. Another example is how African responses included saving money and diversified incomes and revenue streams, whilst European respondents expressed responses about spending money such as through online shopping. However, many responses were similar between the different regions. For example, that ICT usage and collaboration had increased was both expressed by African and European respondents, as well as the increase of health concerns for African and American respondents.

4.3 Section 4 - Directly related to the workshop

This section of the survey is directly related to the AFRICA-DESIGN workshop. Information about the respondent (e.g. names and email addresses) and if they will attend the workshop or not was collected here. Much of this information is private and will not be presented in this report.

Q.21 If you were to attend ICED21, what themes or topics do you believe should be addressed at the workshop?

Many responses were directly related to the UNs SDGs. Below is a figure of all the SDGs, those highlighted were directly outspoken by respondents to be of interest for the workshop.

Figure. SDG: 1, 2, 3, 5, 6, 8, 10, 12, 14, 17 were directly targeted by the respondents. Original picture from the United Nations website.

A few responses were closely related to specific SDGs: responses in concern of empowerment can be related to SDG 10 - reduced inequalities, “Off grid energy solutions and Renewable energy” is closely related to SDG 7 - affordable and clean energy. “Social sustainability and innovation” is related to several SDGs: Innovation is directly related to SDG 9 - Industry, innovation and infrastructure whilst social sustainability is a broad term which relates to several goals, especially those on the top row (SDG 1-6) and SDG 10.

However, the SDGs were mentioned in other ways too for example interests in how to balance between the different SDGs, design for SDGs, how to give tools and opportunities to students to develop their innovative skills to contribute to the UN goals and how to cultivate Global Partnership in sustainability: Organizations, Institutions or persons dealing with sustainability should be strongly connected to achieve the common goal.

Further, some answers were in consideration of the pandemic concerning for example the SDGs, innovation, and education during the pandemic and time after.

Some answers were action based and concrete such as how to make sustainability easier to understand, how to create collaboration in design with Africa, using engineering design for local impact, online adaptation of design methodology. Some responses were even suitable in consideration of the structure and usage of the workshop such as to have an action-based workshop, use it as an international collaboration opportunity, develop a country's case study and students can share their work with other students and earn awards through the workshop.

Other responses are more suitable as subjects for discussion such as lifestyle, behaviors and personal choices, the role of the public sector, the social impact on sustainability in developing countries. Other brought up subjects were *mobility, manufacturer cooperation, and regrowth.*

Q22. Please share any other comments, thoughts, ideas, or feedback here.

There were seventeen respondents for this question, which was optional. Responses ranged from comments on the survey itself citing that even though it was long and challenging to fill out that the questions were understandable. In addition to this, responses concerning what areas should be looked into for future conferences or workshops were mentioned. These included programmers on reduction and prevention of global warming, IT infrastructure for developing countries, how collaboration can enhance effective engagement in regard to sustainable development, how to brand sustainability, focusing on the Sustainable Development Goals, as well as providing funded invitations for students and members to be able to make workshops more productive.

5 Discussion

The results received from the survey though individually analyzed wholesomely present a percentage of the population that consists of both parties that are keen on sustainability in different degrees and those that are sustainability is not exactly a priority for them, we assume. This was also evident with the survey responses we got where out of the total responses we got only about half completed all the questions. The above paper does not seek to come up with a streamlined perspective or conclusion about sustainability but rather present the different perspectives received from our analysis. To summarize the general feel from the different results received is that from those who answered, humanity is interested in sustainability and even though some factors exist that hinder one from being as sustainable as they would like to, everyone is trying in their own way to keep or attain a habit or two. In the same extent we have those who are practicing it in their own unique way. This then relates to why we created the survey, results from the survey challenge and provide opportunities for one to go out and find answers to questions while challenging the existing systems. We aim and hope to share and present results from the survey in a way that inspires and promotes us to question ourselves in terms of our thoughts and our deeds and those around us in a manner that will bring positive impact in society.

In conclusion, there were differences in perspectives and behaviors between ages, regions and status in regard to sustainability and how Covid-19 has affected each respondent. There were a variety of positive and negative answers all depending on the question. We however feel we would have had a more streamlined conclusion or hypotheses if we had more respondents and a more even distribution of age, region and status. Nonetheless, the responses received were highly insightful and interesting. The responses looked at issues beyond the surface and not only at face value. The report provided both a global and a local/community perspective to issues.

6 Recommendations and Future Work

In concern of the results, recommendations for future research within the area would be to analyze in detail consumption behaviors and how to avoid over consumption as an action towards sustainability. Further, to target the question, why buying behaviors is (according to this research) the most sustainable behaviors adopted?

Furthermore, a follow up research in the post COVID-19 pandemic future would be interesting in concern of how much and how withstanding the behavioral effects from the pandemic are. That way it can be studied how to sustain new positive sustainable behaviors and improve or eliminate negative sustainable behaviors. For future understanding, such research can analyze what we have learnt for crises in the future, what can be and would be done differently and what would and/or should remain the same. For example, it was surfaced by this research how inequalities have increased during this crisis. Hence, how can we sustain social sustainability better in future crises'?

Recommendations for The Design Society would be continuous research on sustainability from the individual perspective, to enhance an understanding for how individuals act in concern of sustainability. Recommended research questions to study are:

- Do consumers look at the face value when purchasing 'sustainable' products or do they look further into how the products were created?
- When it comes to sustainability, how important is the behavior of individuals?
- What should be done to inspire individuals to take action?
    - Individual? Someone else? Government?
- Do we start with individual/ small scale changes first or do big ideas and large scale initiatives have more impact/ or lose steam faster if done for the wrong reasons?

These questions can support The Design Society in finding directives for how design can be sustainable and provide opportunities for individuals to make sustainable choices.

Future directives for the AFRICA-DESIGN initiatives would be to either study or discuss what have we learnt as individuals who undertook the survey analysis. Similarly, to create a dialog with the survey respondents, to understand how the survey affected them. These directives can be part of the planned workshop and an opportunity to further study this area of interest. A suggestion is to present the results from this research during the workshop to create a discussion around the surprising, powerful and/or questioning responses. Furthermore, the similarities and differences between the regions, ages, and statuses of the respondents. These subjects can also be analyzed and targeted as problem solving projects during the workshop, where participants together discuss these subjects with the intentions of solving the issues, or parts of issues that are surfaced through this research. Hence, the workshop becomes a prolongation of the research and also action based.

7 References

Bryman, A. and Bell, E. (2011), Business Research Methods, 3 ed. Oxford: Oxford University Press.