The Impact of 2006-2012 CReSIS Summer Research Programs that Influence Student's Choice of a STEM Related Major in College

Dr. Darnell Johnson
Mentor
CERSER
Elizabeth City State University
djohnson@mail.ecsu.edu

Dr. Linda Hayden
Principal Investigator
CERSER
Elizabeth City State University
haydenl@mindspring.com

Courtney Farmer
Sophomore
CERSER
Elizabeth City State University
cmfarmer133@students.ecsu.edu

Jessica Hathaway
Freshman
CERSER
Elizabeth City State University
jhathaway103@students.ecsu.edu

Alicia Reynolds
Freshman
CERSER
Elizabeth City State University
acreynolds013@students.ecsu.edu

Malcolm McConner
Senior
CERSER
Elizabeth City State University
mkmcconner688@students.ecsu.edu

***Abstract*— Researchers, policymakers, business, and industry have indicated that the United States will experience a future shortage of professionals in the Science, Technology, Engineering, and Mathematics (STEM) fields. Several strategies have been suggested to address this impending shortage, one of which includes increasing the representation of females and minorities in the STEM fields. In order to increase the representation of underrepresented students in the STEM fields, it is important to understand the motivational factors that impact underrepresented students' interest in STEM academics and extracurricular programs. Research indicates that greater confidence leads to greater interest and vice versa (Denissen et al., 2007). In this paper, the mathematics research team examined the role of practical research experience during the summer for talented minority secondary students studying in STEM fields. An undergraduate research mathematics team focused on the link between summer research and the choice of an undergraduate discipline. A Chi Square Statistical Test was used to examine Likert Scale results on the attitude of students participating in the 2006-2012 Center for Remote Sensing of Ice Sheets (CReSIS) Summer Research Programs for secondary students. This research was performed at Elizabeth City State University located in northeastern North Carolina about the factors that impact underrepresented students' choices of STEM related majors in college. Results can be used to inform and guide educators, administrators, and policy makers in developing programs and policy that support and encourage the STEM development of underrepresented students.**

***Index Terms*— Science, Technology, Engineering, and Mathematics, (STEM), Chi Square Test, Underrepresented students.**

I. Introduction

For the last 50 years, many would say that the United States has been the world leader in science and technology providing its comparative advantage in the global economy. The United States has only 5% of the world's population yet employs one-third of the scientific and engineering researchers (Freeman, 2005). Students from across the globe flock to U.S. institutions to build their educational framework and collaborate with American researchers (Freeman).

Researchers, policymakers, business, and industry have indicated that the United States will experience a shortage of engineers as a result of retirements and a stagnant number of students entering postsecondary engineering programs, graduating with engineering degrees, and entering the workforce. The extent of the engineering shortage is disputed; however, it is clear that the share of scientists and engineers in the United States is decreasing rapidly (Freeman, 2005). STEM fields play a critical role in shaping our culture through innovation, creation, and problem solving. If the United States is to remain globally competitive it must improve technological literacy in the K-12 classroom and commit to a critical

initiative of equitable education ensuring that all students develop the knowledge and skills to fully participate in society.

In 2005, a committee representing the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine was convened to examine the state of education, the workforce, the economy, and the global competitiveness of the United States and described their findings in an extensive report entitled *"Rising Above the Gathering Storm."* The report was drafted in response to a congressional request to create a list of the top 10 priority actions that federal policymakers could initiate to increase economic vitality, ensure prosperity, and improve the global competitiveness of the United States. Many of the recommendations in the original report were directly related to science and engineering (e.g., 10,000 Teachers, 10 Million Minds: Increase America's talent pool by vastly improving K–12 science and mathematics education.

Five years later, the committee from the National Academies was reconvened to examine the nation's progress on the recommendations from the 2005 report. Their assessment resulted in the recent publication, *Rising Above the Gathering Storm Revisited: Rapidly Approaching Category 5* (2010). Comments in regard to K-12 education made by the committee suggested that despite some valiant educational efforts during the previous five years, the public school system (14,000 systems) has improved very little, particularly in the areas of math and science. The report lists numerous facts that support their evaluation including:

Sixty-nine percent of the U.S. public school students in fifth through eighth grade are taught mathematics by a teacher without a certificate in mathematics. Ninety-three percent of the U.S. public school students in fifth through eighth grade are taught the physical sciences by a teacher without a degree or certificate in the physical sciences. According to the ACT College Readiness report, 78 percent of high school graduates did not meet the readiness benchmark levels for one or more entry-level college courses in mathematics, science, reading, and English. The United States ranks 20th in high school completion rate among industrialized nations and 16th in college completion rate. The United States ranks 27th among developed nations in the proportion of college students receiving undergraduate degrees in science or engineering. Almost one-third of U.S. manufacturing companies responding to a recent survey say they are suffering from some level of skills shortages. (National Academies, 2010, p. 7-11).

According to Bottoms and Uhn (2007), employers are looking for candidates who possess strong science, technology, engineering, and math backgrounds. As a result, schools are charged with ensuring that students are prepared for careers in STEM fields by providing rigorous math, science, and technology courses using experiential methodologies. Jeffers, Safferman, and Safferman (2004) note, "children lose interest in science and math when they do not see the connection to the real world around them" (p. 396). If the demand for engineers is accurate and the success of the global economy is critical, then it will be essential to engage underrepresented populations in the educational process to increase the number of women and ethnic minorities pursuing and persisting to a degree in STEM. The creations and advancements that emerge from science and engineering will drive the future economy and will result in the creation of jobs (*Gathering Storm, Revisited,* 2011).

II. Statement of the Problem

It is well documented in the literature that if the United States is to remain globally competitive, it must increase the number of professionals entering the science and engineering pipeline (Bottoms & Uhn, 2007; Freeman, 2005; Jeffers et al., 2004; Sanoff, 2001). In order to address the shortfall of science and engineering professionals, efforts must be made to engage underrepresented populations specifically women and ethnic minorities. Workforce projections for 2018 by the U.S. Department of Labor indicated that nine of the 10 fastest growing occupations would require substantial science or mathematics education (National Science Board, 2010).

Research has shown that the gender gap in middle and high school math and science test scores and achievement are no longer statistically significant (AAUW, 2008; AAUW, 2010; COE, 2009; NCES, 2007) and while girls are performing as well as boys in math and science, there is a distinct loss in interest and lack of confidence in STEM areas that begin early on in their academic experience (AAUW, 1999; Fennema &Sherman, 1978; James & Smith, 1985; White, 1992)

III. Purpose

The purpose of this study was to understand the experiences that influence underrepresented students' choice of a STEM related major in college by analyzing data from the 2006-2012 Center for Remote Sensing of Ice Sheets (CReSIS) Summer Research Programs for secondary students at Elizabeth City State University STEM assessment survey. Understanding the factors that influence underserved students' interest in science and mathematics will inform strategies that may potentially increase participation in these areas for this population.

IV. Research Questions

The following research questions guided this study.

1. What is the impact of students participating in STEM courses in the choice of college majors?
2. What is the impact of CReSIS Summer Programs in the choice of college majors?
3. What is the impact of STEM activities/labs in the choice of college majors?
4. What is the impact of STEM curriculum in the choice of college majors?

V. Methodological Approach

A survey research methodological approach was used for this study. Grovesetal. (2004) noted that A survey is a systematic" method for gathering information from (a sample of) entities for the purposes of constructing quantitative descriptors of the attributes of the larger population of which the entities are members" (p. 2). The survey research methodology was deemed appropriate for this study because

the goal was to collect information from underserved students regarding factors that may impact their interest in mathematics and science defined as their choice of a STEM discipline for college in this study.

This study was conducted at Elizabeth City State University in notheastern North Carolina with over 2,900 students, and one of the most culturally diverse universities in the state. A survey instrument was designed that was broadly applicable to secondary students; however, the focus of this study was to look at impact of the CReSIS summer research program had on underserved students. The 20 question survey instrument was divided into 4 short sections. The data analysis decision for Likert items was made at the questionnaire development stage. A series of individual questions were created that had Likert response options for CReSIS program participants to describe a personality trait or attitude. Likert questions were unique and analyzed as Likert-type items. The use of means and standard deviations are the appropriate statistical tools to use. The decision between Likert-type and Likert scale was been made to have the appropriate statistics assess the program data. The first section comprised 5 Likert-scale questions that addressed STEM interests in their career choice and major. The second section comprised 5 Likert-scale questions that asked respondents to indicate how the CReSIS program impacted their choice of major. The third section included 4 Likert-scale questions that asked students to rate the importance of specific motivations in choosing a major. The fourth section asked respondents to rate the importance of specific influences on choices of major using 6 Likert-scale questions.

The survey focused primarily on underserved students in six through twelfth grade. The study was approved by the University Institutional Review Board prior to recruitment of students for the study. The questionnaire was administered for a two week time period that covered research programs during the summers of 2006-2012. Those who agreed to participate in the survey were given a questionnaire and a matching envelope. After completing the survey questionnaire, students placed their response sheet in the envelope, sealed it, and returned it to the URE math team by mail. Participation in the study was anonymous and strictly voluntary. The procedure took about 5 minutes to complete at home. All completed survey forms were collected by the team faculty mentor for security purposes.

A. Analyzing Likert Response Items

To properly analyze Likert data, one must understand the measurement scale represented by each. Numbers assigned to Likert-type items express a "greater than" relationship; however, how much greater is not implied. Because of these conditions, Likert-type items fall into the ordinal measurement scale. Descriptive statistics recommended for ordinal measurement scale items include a mode or median for central tendency and frequencies for variability. The chi-square measure of association is the analysis procedure appropriate for ordinal scale items.

Likert scale data, on the other hand, are analyzed at the interval measurement scale. Likert scale items are created by calculating a composite score (sum or mean) from four or more type Likert-type items; therefore, the composite score for Likert scales should be analyzed at the interval measurement scale. Descriptive statistics recommended for interval scale items include the mean for central tendency and standard deviations for variability. Tables 2-5 provide examples of data analysis procedures for Likert-type and Likert scale data.

VI. Survey Instrument

The 2013 undergraduate research experience (URE) mathematics team conducted a needs assessment for the 2006-2012 CReSIS summer outreach program. The team faculty mentor met with a team of researchers to discuss the outreach program's history and purpose for the needs assessment. The information gained from the needs assessment was used to inform decisions regarding the educational outreach activities conducted by the URE math team that was directed toward the impact of the exploration of STEM related fields by underrepresented students. With content input from the faculty mentor, the URE math team designed the 20-item paper survey instrument (Appendix A) used for data collection with the secondary students that attended the CReSIS summer outreach program.

The survey instrument consists of only 1 part. This section was titled School math and science classes, inquires about the attitude of the math and science classes participants are taking, the feelings of the parents for or against the math and science classes, asking participants about their experiences in their math and science classes relative to teaching factors (e.g., my teacher encourages makes learning math/science fun), and the future careers associated with majoring in STEM related fields. In these 20 questions, participants were asked to select their level of agreement with each of the statements first for their math class and second for their science class with 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.

VII. Sample and Participants

The data collected and analyzed in this study is from the data collection that took place with students who participated in the 2006-2012 CReSIS Summer Research Programs at Elizabeth City State University. The participants in the summer programs consisted of 133 secondary school students from rural, urban and suburban northeastern North Carolina and urban Portsmouth, Virginia. 56 % of students responding were secondary school girls (n = 55) and 44 % of students responding were secondary school boys (n = 43) completed and returned the surveys for a 74 % response rate. Participants' grades ranged from 7th grade to college with a median grade level was 11^{th} grade for males and 10^{th} grade for females. Human Subjects approval was granted for the initial data collection and follow up with the Elizabeth City State University Institutional Review Board indicated no further approval was needed for the data analysis in this study. A frequency distribution of participant demographic characteristics is reported in **Table I.**

TABLE I.

Frequency Distribution for Participant Demographics							
Grade Level	***7***	***8***	***9***	***10***	***11***	***12***	***College***
Male	1	4	5	9	12	8	4
Female	2	8	14	12	8	4	7
Total	3	12	19	21	20	12	11

TABLE II.

Five Liker-Type CReSIS Survey Question: "Impact of STEM on College Major"			
	Strongly Disagree/Disagree	Neutral	Strongly Agree/Agree
Science, Technology, Engineering, & Math (STEM) courses are exciting.	0	4	94
My family is interested in the STEM related courses I take.	3	1	94
I will make it into college and major in a STEM related discipline.	1	4	93
A career in a STEM discipline would enable me to work with others in meaningful ways	0	3	95
To me, a career in Science, Technology, Engineering, & Math means a lot.	0	4	94

A. CReSIS Survey Questions Group A

1A. 95% of the students, male and female, agreed that the STEM courses were exciting. 5% said that they were neutral in their opinions of STEM classes.

12A. Approximately 94% of the participants have family members that are interested in the STEM related courses, 3% disagreed, 1% was neutral.

17A. Approximately 93% of males & females agreed that majoring in STEM. 3% were neutral and 2% disagreed.

19A. Approximately 95% agreed that a career in STEM discipline would enable them to work with others in meaningful ways, 0% was neutral and 3% disagreed.

20A. Approximately 94% said that a career of Science, Technology, Engineering, & Math meant a lot to them, 0% disagreed and 4% were neutral

TABLE III.

Five Likert-Type CReSIS Survey Questions: "Impact of CReSIS Summer Programs on College Major"			
	Strongly Disagree/Disagree	Neutral	Strongly Agree/Agree
I enjoyed the research experiences in the CReSIS Summer Program	0	0	98
Participation in the CReSIS Summer Program enriched my learning experience about STEM	0	1	97
I would do the summer program again	2	1	95
The CReSIS Summer Program really made me think about majoring in a STEM discipline	1	3	94
I really enjoyed all the use of technology during the CReSIS Summer Program	1	4	93

B. CReSIS Survey Questions Group B

2B. 100% of the students males and females, agree that their experiences in the CReSIS summer program 4C. 94% of the students agreed that they were interested in the lecturer at the lunch seminar.

6B. Approximately 97% of the participants agreed that the CReSIS summer program enriched their learning in STEM, 0% disagree and 1% neutral.

7B. Approximately 95% of the participants agree that they would do the program again and 2% disagree, 1% neutral.

14B. Approximately 94% of the students agreed that the CReSIS Summer Program made them think about majoring in STEM, 1% disagreed and 3% neutral.

16B. Approximately 93% of males & females agreed that they enjoyed all the use of technology during the CReSIS summer program. 4% was neutral and 1% disagreed

TABLE IV.

Five Likert-Type CReSIS Survey Questions: "Impact of STEM Activities/Labs on College Major"			
	Strongly Disagree/Disagree	Neutral	Strongly Agree/Agree
The training in PowerPoint, GPS, camera, & hydrology were exciting and helpful.	1	1	96
I was interested in well-informed scientists who spoke at the lunch seminars.	1	5	92
The field trips to the Great Dismal Swamp, Virginia Aquarium, & boat cruises were enjoyable.	0	5	93
The workshop sessions made me interested in choosing a STEM career in college.	1	8	89

C. CReSIS Survey Questions Group C

3C. 98% of the students males and females, agree that the various trainings under CReSIS were helpful. 1% said that they disagree about the various program exercises and another 1% were neutral about their experiences.

4C. 94% of the students agreed that they were interested in the lecturer at the lunch seminar.

1% of the males did not enjoy the lunch seminar and the other 5% of the students had neutral feelings about the lunch seminar

5C. 95% of the students agreed that the field trips were enjoyable to them. 7% of the males had neutral feelings about the field trip. 3% of the female students also had neutral experiences of the field trips.

10C. Approximately 89% of participants agree the workshop sessions made them interested in choosing a STEM career in college, 1% disagree, 8% neutral

TABLE V.

Five Likert-Type CReSIS Survey Questions: "Impact of STEM Curriculum on College Major"			
	Strongly Disagree/Disagree	Neutral	Strongly Agree/Agree
I feel that an understanding of engineering is useful in present and future careers.	2	4	92
Obtaining good grades in all courses, especially STEM courses are important for college.	0	1	97
I enjoy participating in science fairs, computer club, & math competitions.	1	8	89
I believe that I will attend college after high school graduation.	0	1	97
My K-12 education has prepared me for college.	2	3	93
Having a career in science would be challenging.	1	0	97

D. CReSIS Survey Questions Group D

8D. Approximately 92% of the participants agree that they feel that they understanding of engineering is useful in present and future careers, 2% disagree, 4% neutral.

9D. Approximately 97% of the participants agree obtaining good grades in all courses, especially STEM courses are important for college, 0% disagree, 1% neutral.

11D. Approximately 89% of the participants enjoy science fairs, computer clubs and math competitions, 1% disagreed, and 8% was neutral.

13D. Approximately 97% of the students agreed that they will attend college after graduating, 0% disagreed, 1% was neutral.

15D. Approximately 93% of students agreed that their K-12 education prepared them for college, 2% disagreed, 3% was neutral.

18D. Approximately 97% agreed that science would be a challenging career, 1% disagreed and 0% was neutral.

VIII. Chi-square Statistics

With the set of figures in Appendix B, we calculate the chi-square statistic as follows:

$$\text{Chi} - \text{square} = \text{Sum of} \frac{(observed \times frequency - expected \times frequency)^2}{(expected \times frequency)}$$

E. Chi-square statistic was calculated for each survey question

5.50580E-10	5.16869E-12	1.83725E-08	1.08184E-11
2.51135E-11	1.82438E-09	3.08154E-09	1.08184E-11
6.95077E-10	2.40174E-08	1.19673E-10	1.74411E-09
1.08991E-08	5.73724E-10	4.33474E-11	1.33238E-10
9.82298E-10	5.788861E-09	5.33211E-10	1.71341E-10

The Chi-Square Test showed a comparison of observed and expected values, which are listed above and concludes that the impact of the CReSIS Summer Program would be considered as a positive factor to influence students in this survey to choose a STEM related major in college. The significance level for all questions are less than 20% and conclude that males are independent of females in choosing STEM as a college major. The Chi Square indicates whether a statistically significant relationship exists.

Conclusion

After analyzing our data it was concluded that the students who participated in the CReSIS Summer Programs through the years 2006-2012 were positively impacted. The CReSIS program has done an effective job exposing underserved students to STEM related fields. CReSIS will continue to support secondary students and preparing them for the rigorous, yet engaging content of science, technology, engineering and mathematics. Future CReSIS programs will contribute greatly to encourage students in their pursuit of a major and career in STEM.

Acknowledgments

The 2013 URE Math Team would like to thank:

- CERSER Principal Investigator: Dr. Linda B. Hayden
- Mentor: Dr. Darnell Johnson
- Students that participated in the CReSIS summer programs past, present and future

References

[1] Bottoms, G., & Uhn, J., (2001). Research Brief: *Project Lead the Way works: A new type of career and technical program.* Southern Regional Education Board. Atlanta, GA.

[2] Bronfenbrenner, U., (2005). *Making human beings human: Bioecological Perspectives on human development.* Thousand

Oaks, CA: Sage Publications, Inc

[3] Denissen, J.J., Zarrett, N.R., & Eccles, J.S. (2007). I like to do it, I'm able, and I know I am: Longitudinal couplings between domain-specific achievement, self-concept, and interest. *Child Development*, *78*(2), 430-447

[4] Freeman, R.B., (2005). *Does globalization of the scientific/engineering workforce threaten U.S. economic leadership?* Cambridge, MA: National Bureau of Economic Research

[5] Green, S.B., & Salkind, N.J. (2008). *Using SPSS for windows and macintosh: Analyzing and understanding data (5th ed.).* Upper Saddle River, NJ: Pearson Prentice Hall.

[6] Jeffers, A., Safferman, A., & Safferman, S. (2004). Understanding K-12 engineering outreach programs. *Journal of Professional Issues in Engineering Education and Practice*, *130*(2), 95-108

[7] National Center for Education Statistics, National Assessment of Educational Progress, Science Assessments (2000). U.S. Department of Education. Retrieved from http://nces.ed.gov/nationsreportcard/pdf/main2000/2002452.pdf

[8] National Science Board (2010). *Science and Engineering Indicators 2010*. (NSB-10- 01). Arlington, VA: National Science Foundation

[9] *Rising Above the Gathering Storm*. N.p.: National Academies, 2010. Print.

[10] Rose, Andresse St. "OCWW | Vol 39, Issue 1 | Features." *OCWW | Vol 39, Issue 1 | Features*. Association of American Colleges and Universities, 2013. Web. 09 Apr. 2013.

[11] Wallace, J.E., & Haines, V.A. (2004). The benefits of mentoring for engineering students. *Journal of Women and Minorities in Science and Engineering, 10*, 594-597

Appendix A Survey Instrument

STEM Survey

This questionnaire is designed to assess your interest in a STEM discipline as a college major/career choice. It should require about 5 minutes of your time. Please respond with your first impression, without giving the statements much thought. Your answers will remain confidential.

Gender: ☐M ☐F **Current Grade Level:** ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐College

CReSIS Secondary School Summer Program

Indicate the extent to which you agree or disagree by filling in the appropriate bubble. Please address your response based on the statements which range from "1" Strongly Disagree to "5" Strongly Agree as they are represented across the row. ***Please respond based on your experience with the summer school program.***	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Science, Technology, Engineering, & Math (STEM) courses are exciting.	①	②	③	④	⑤
I enjoyed the research experiences in the CReSIS Summer Program.	①	②	③	④	⑤
The training in PowerPoint, GPS, camera, & hydrology were exciting and helpful.	①	②	③	④	⑤
I was interested in well-informed scientists who spoke at the lunch seminars.	①	②	③	④	⑤
The field trips to the Great Dismal Swamp, Virginia Aquarium, & boat cruises were enjoyable.	①	②	③	④	⑤
Participation in the CReSIS Summer Program enriched my learning experience about STEM.	①	②	③	④	⑤
I would do the summer program again	①	②	③	④	⑤
I feel that an understanding of engineering is useful in present and future careers.	①	②	③	④	⑤
Obtaining good grades in all courses, especially STEM courses are important for college.	①	②	③	④	⑤
The workshop sessions made me interested in choosing a STEM career in college.	①	②	③	④	⑤
I enjoy participating in science fairs, computer club, & math competitions.	①	②	③	④	⑤
My family is interested in the STEM related courses I take.	①	②	③	④	⑤
I believe that I will attend college after high school graduation.	①	②	③	④	⑤
The CReSIS Summer Program really made me think about majoring in a STEM discipline.	①	②	③	④	⑤
My K-12 education has prepared me for college	①	②	③	④	⑤
I really enjoyed all the use of technology during the CReSIS Summer Program.	①	②	③	④	⑤
I will make it into college and major in a STEM related discipline.	①	②	③	④	⑤
Having a career in science would be challenging.	①	②	③	④	⑤
A career in a STEM discipline would enable me to work with others in meaningful ways.	①	②	③	④	⑤
To me, a career in Science, Technology, Engineering, & Math means a lot.	①	②	③	④	⑤

Please return this survey by Monday, March 11, 2013 in the enclosed envelope

Appendix B Chi-square Statistics Table

1	Male	Female	Total
Agree	42	52	94
Disagree	0	0	0
Neutral	1	3	4
Total	43	55	98
2	Male	Female	Total
Agree	43	55	98
Disagree	0	0	0
Neutral	0	0	0
Total	43	55	98
3	Male	Female	Total
Agree	41	55	96
Disagree	1	0	1
Neutral	1	0	1
Total	43	55	98
4	Male	Female	Total
Agree	40	52	92
Disagree	1	0	1
Neutral	2	3	5
Total	43	55	98
5	Male	Female	Total
Agree	40	53	93
Disagree	0	0	0
Neutral	3	2	5
	43	55	98
6	Male	Female	Total
Agree	42	55	97
Disagree	0	0	0
Neutral	1	0	1
Total	43	55	98
7	Male	Female	Total
Agree	41	54	95
Disagree	1	1	2
Neutral	1	0	1
Total	43	55	98
8	Male	Female	Total
Agree	40	52	92
Disagree	1	1	2
Neutral	2	2	4
Total	43	55	98
9	Male	Female	Total
Agree	43	54	97
Disagree	0	0	0
Neutral	0	1	1
Total	43	55	98
10	Male	Female	Total
Agree	39	50	89
Disagree	0	1	1
Neutral	4	4	8
Total	43	55	98
11	Male	Female	Total
Agree	38	51	89
Disagree	0	1	1
Neutral	5	3	8
Total	43	55	98
12	Male	Female	Total
Agree	41	53	94
Disagree	2	1	3
Neutral	0	1	1
Total	43	55	98
13	Male	Female	Total
Agree	42	55	97
Disagree	0	0	0
Neutral	1	0	1
Total	43	55	98
14	Male	Female	Total
Agree	41	53	94
Disagree	0	1	1
Neutral	2	1	3
Total	43	55	98
15	Male	Female	Total
Agree	42	51	93
Disagree	1	1	2
Neutral	0	3	3
Total	43	55	98
16	Male	Female	Total
Agree	41	52	93
Disagree	0	1	1
Neutral	2	2	4
Total	43	55	98
17	Male	Female	Total
Agree	40	53	93
Disagree	0	2	2
Neutral	3	0	3
Total	43	55	98
18	Male	Female	Total
Agree	42	55	97
Disagree	1	0	1
Neutral	0	0	0
Total	43	55	98
19	Male	Female	Total
Agree	41	54	95
Disagree	0	0	0
Neutral	2	1	3
Total	43	55	98
20	Male	Female	Total
Agree	41	53	94
Disagree	0	0	0
Neutral	2	2	4
Total	43	55	98