

The image features a dark background with a complex, multi-colored digital mesh or network structure. The colors transition from green and blue on the left to purple and red on the right. The word "INTERFACE" is written in large, white, sans-serif capital letters across the center of the graphic.

INTERFACE

ATTITUDES TOWARDS SCIENCE AT REGENT COLLEGE

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1. INTRODUCTION AND OBJECTIVES

A campus-wide survey of attitudes towards science was designed during the Fall Term 2020 and answered by 163 members of the Regent College community in November 2020. This initiative was carried out by the Interface project, which, for the academic year 2020-2021, focuses on *engaging science in ministry education*. Interface is supported by the American Association for the Advancement of Science (AAAS) Dialogue on Science, Ethics, and Religion (DoSER) program.

Similar surveys had been conducted in Winter 2018 and Spring 2019 in relation to previous stages of the project. Relevant comparison between past and current results can therefore be established, even though the surveys are not fully identical.

The following constitute the main objectives of the recent survey and of the present report:

1. to track major shifts of attitudes towards science among the Regent College community;
2. to assess the positions of the community on relevant present-day issues and to encourage further debate concerning those issues;
3. to extract relevant information in order to improve the current stage of the Interface project.

2. METHODOLOGY AND LIMITATIONS

The design of this survey was partially based on that of previous surveys which applied standard inventory methods as the Kluckhohn Cultural Values Inventory and the Cognitions and Beliefs about Technology & Science (CABATS). These components were, however, shortened (especially in the case of questions relating to cultural values) or rephrased for clarity. The present report does not envision a detailed correlation analysis, therefore there was no rationale to collect extensive demographics or cultural data. These changes enabled in turn the addition of an increased number of *ad hoc* questions pertaining to concrete, present-day issues, as well as a new set of questions on the relevance of science for church ministry.

The answers were collected on a seven-point Likert-type scale yielding quantitative information.



Color scheme used for graphic representation in the sequel.

1=entirely disagree; 2=mostly disagree; 3=somewhat disagree; 4=neither agree nor disagree; 5, somewhat agree; 6=mostly agree; 7=entirely agree.

Weighted averages were used to compare present and past results and to contrast the answers from different subgroups (per sex and per experience in the science fields). A few qualitative questions were included in order to obtain further feedback from the respondents, particularly in what concerns scientific areas/topics regarded as conflicting with religious beliefs and scientific areas/topics to be addressed in ministry education.

Participation in this survey was entirely voluntary. The initiative was divulged by email and through the weekly Regent community newsletter. The data was collected online using SurveyMonkey.com. A draw for gift cards to the Regent Bookstore was announced to increase participation. The high number of respondents points to the success of these efforts. On the other hand, one should notice that the survey was conducted during the lockdowns caused by the coronavirus pandemic, which means that students, staff and faculty were less keen to engage in additional online initiatives. It is likely that the survey attracted mostly those members of the Regent community who possessed an *a priori* interest in the subject.

3. DEMOGRAPHICS

AGE. The respondents are adult members of the Regent College community of varied age, although with a slight predominance of people younger than 40 years old (~57%) which corresponds naturally to the age range of the majority of the student body.

SEX. The poll is roughly equitable in terms of sex distribution: 53% of male respondents and 47% female.

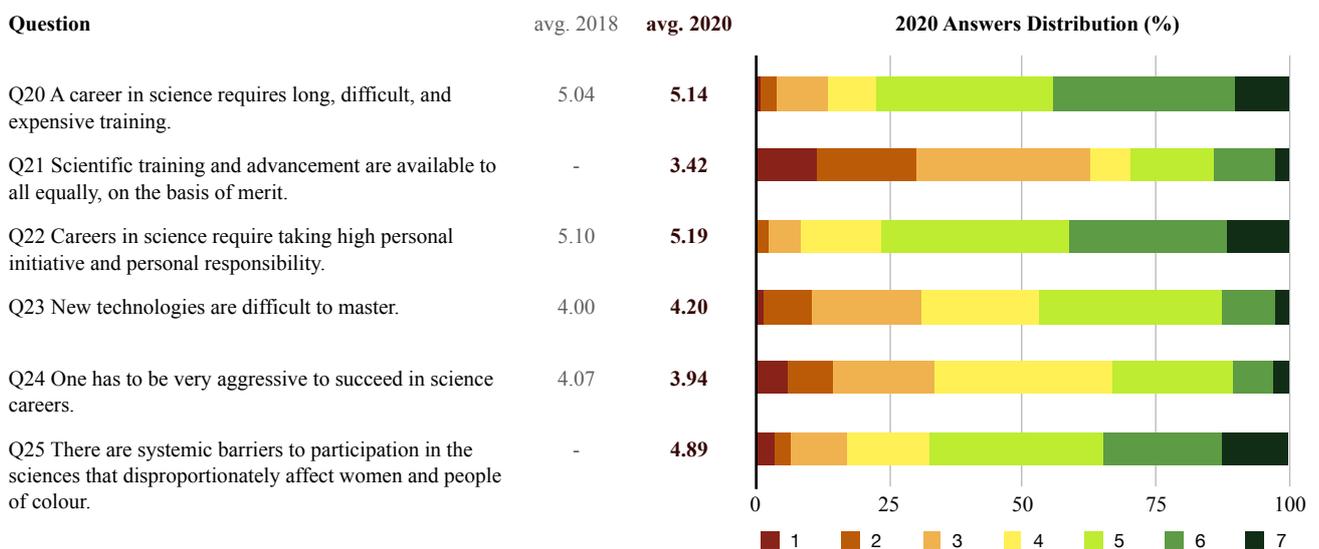
STATUS AND EDUCATION. Most of the respondents are current Regent College students (~79% plus ~5% occasional students and auditors) but members of staff and faculty also took the survey. Therefore, we can posit that the results are representative of the entire Regent community. It should be pointed out that the respondents show very high levels of formal education: >95% of the respondents have at least a bachelor degree and ~50% hold some type of graduate degree.

EXPERIENCE IN THE SCIENCES. There is a significant subgroup of respondents with previous training or work experience in the sciences (37%). The most prevalent areas are in which respondents have trained/ worked are: 1) medical sciences and other health sciences; 2) bachelor degrees in several hard sciences (physics, biology, geology); 3) environmental sciences and ecology; 4) computer sciences and IT; 5) engineering (mechanical, electric, civil).

4. ANALYSIS PER SECTION

i. The Work of Science

This section surveyed perceptions concerning requisites to access scientific training and scientific careers. In comparison to the 2018 results, there is a slight shift towards a higher appreciation of the difficulty of scientific training.

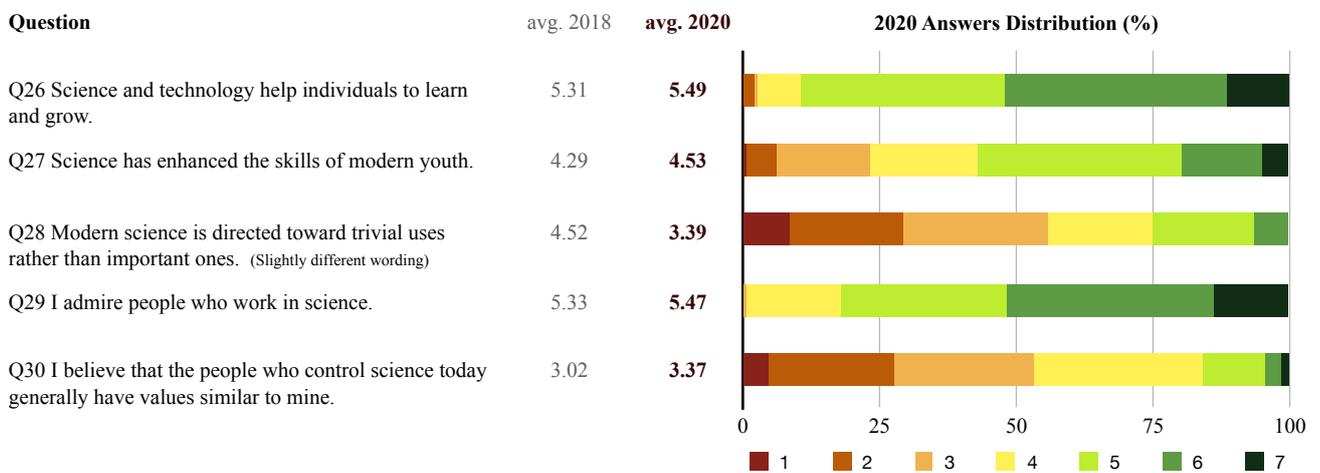


Two new questions were included in this section to assess views on the role of merit (Q21) and the existence of systemic barriers (Q25) to participation in the sciences. Generally speaking, the Regent community tends to agree more strongly with the latter assertion (4.89) than with the assumption of equal access on the basis of merit (3.42).

It is worth signalling that filtered results for Q21 show greater levels of disagreement among women than among men (avgs. 3.27 and 3.55 respectively) and among people with no previous experience in the sciences compared to individuals with training or professional experience (avgs. 3.28 and 3.64). Furthermore, women tend to agree more strongly with Q25 on the existence of systemic barriers to participation in the sciences (avg. 5.32 compared to 4.51 among men) as do individuals with no experience in the sciences (avg. 5.01 compared to 4.70 among those who some experience).

ii. Science and Human Capabilities

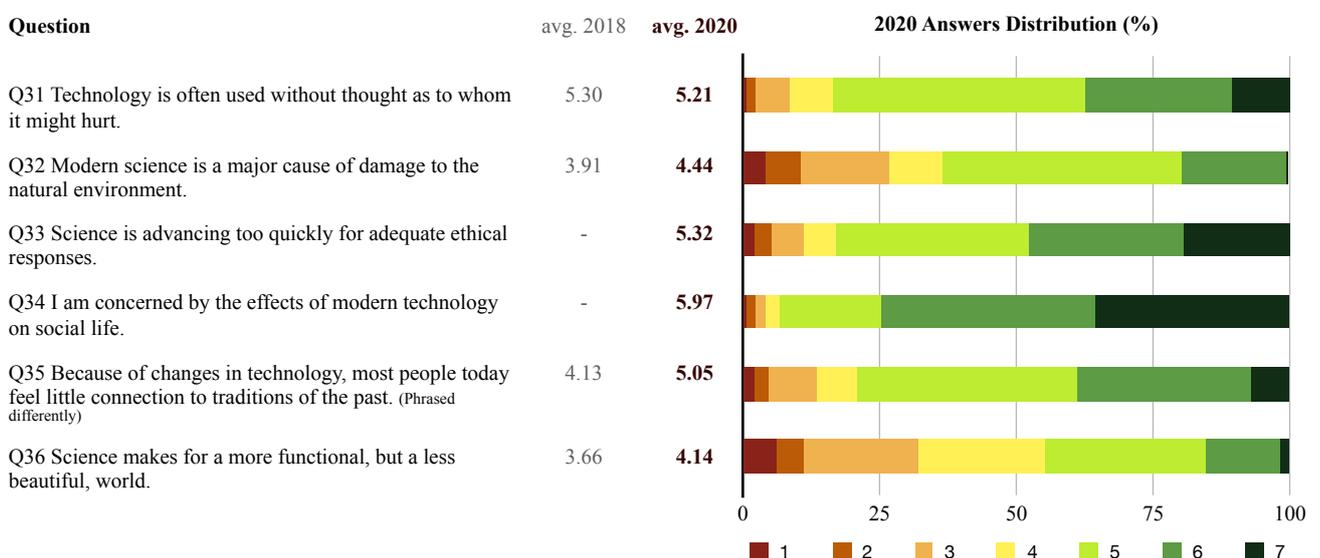
The answers in this section display a consistent and significant shift towards higher levels of approval of science and its contributions for personal development, as well as of scientists and their personal motivations and values. The major shift occurs in Q28 concerning the uses of science: the 2018 tendency to agree that “modern science is directed toward trivial uses” (avg. 4.52) is reversed in 2020 for the average lies now on the disagreement range (avg. 3.39). One can posit (albeit with no hard evidence) that this shift might be correlated with how the scientific community has dealt with the COVID-19 pandemic.



Filtered results do not show significant differences between sexes and individuals with or without previous experience in the sciences.

iii. Social and Environmental Effects of Science

This section assesses views on the potential negative effects of science. The results show that the 2020 poll tends to be significantly more concerned with the effects of science on the environment and with the negative changes that it might bring to social life and cultural traditions.



Q33 and Q34 replace questions previously formulated in a different way, hence no comparison is possible. But one should remark that the answer distributions for these questions show that ethical concerns regarding the pace of science and regarding its effects on social life are prevalent among the Regent community. In particular, agreement concerning the latter assertion (Q34) is among the highest recorded in this survey (5.97). Here again one might posit direct effects of massive resorting to online means of communication and work due to the recent lockdowns.

These results are overall similar among the two sexes and among individuals with and without experience in the sciences, except for a slight discrepancy concerning Q32. Women tend to agree more strongly that science causes damage to the environment (avg. 4.67 compared to 4.22 among men).

iv. Personal Attitudes Towards Science and Religion

This section assesses views concerning the existence of a conflict between science and religion/Christianity/ personal beliefs. These views were tracking positively from 2018 and 2019 but disagreement concerning the existence of such conflict(s) is attenuated in the 2020 results. This signals a potential negative trend (presupposing that rejection of the so-called ‘conflict thesis’ is positive). This shift might be explained by the a poll consisting in great part of a new cohort which did not benefit from previous stages of the Interface project (note that several Interface lectures in 2018-2019 addressed alternative models of relationship between science and religion). On the other hand, based on the results for Q39, the conflict that might be perceived impinges more on religions and Christianity in general than on one’s individual beliefs.



Conflict perceptions are slightly higher among those who have no past experience training or working in science than among those who do; for example, for Q37, the former avg. 2.72 whereas the latter 2.53. Even more significant (and more surprising) conflict perceptions among women are higher than among men; for Q38, the average is 2.71 among female respondents and 2.33 among male respondents.

The respondents were asked to provide examples of instances of conflict between science and their own beliefs (if any). The answers typically fit into one of the following categories (ordered by frequency):

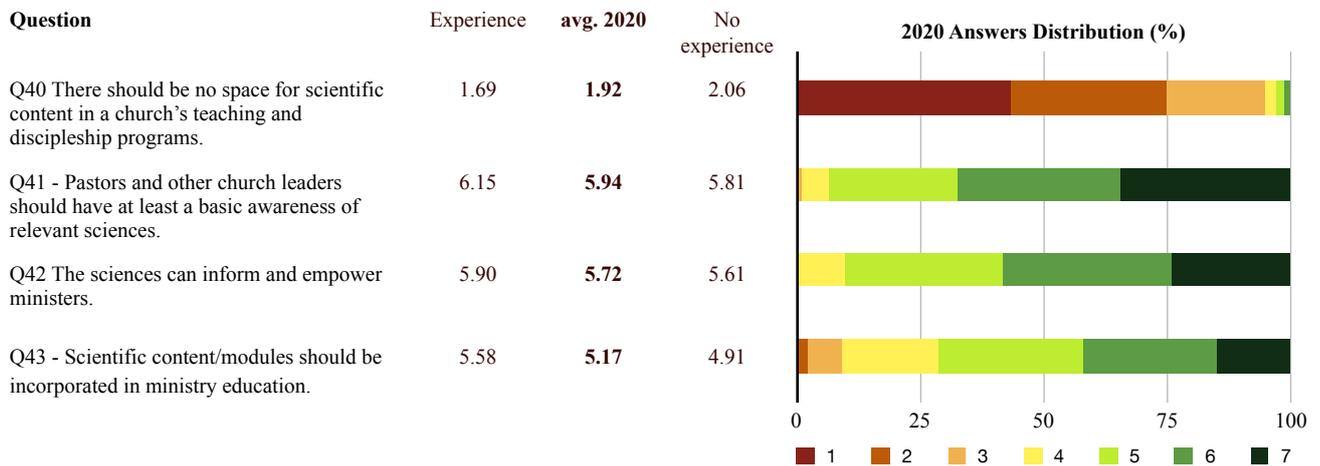
1. Presuppositions and worldview that seem to be inherent to scientific activity (materialism and rationalism favouring an atheistic worldview with no space for the spiritual);
2. Issues concerning the origins of life (esp. human life; creation vs. evolution);
3. Excessive and non-humanistic use of technology;
4. Ethical issues arising from biogenetics (stem cell research, gene editing) as well as MAID (Medical Assistance in Dying).

v. Relevance of Science in the Context of Church Ministry

This new section assesses views concerning the relevance of science for church ministry, in particular to train individuals for ministry. These questions are directly related to the current stage of the Interface project and will be included in future surveys to track the effect of the initiatives implemented during this stage.

As a baseline, one notes that the Regent community tends to disagree strongly with the assertion that science does not belong in the church’s teachings. Hence, pastors and leaders can be empowered in their ministries through knowledge of the relevant sciences. Note however that the level of agreement concerning the incorporation of scientific content in ministry education is slightly less (perhaps some respondents would argue that ministers and leaders should acquire the necessary knowledge informally, on their own).

The results filtered by previous experience in science show important differences and are displayed below. Those who have trained or worked in the sciences are significantly more keen to have it included in church programs and ministry education.

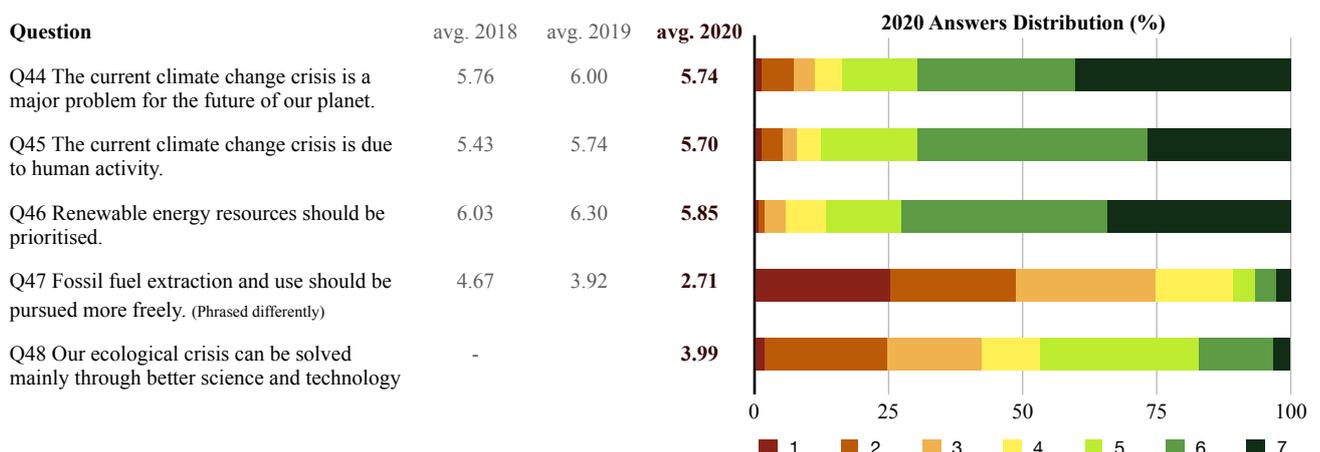


The respondents were asked to provide examples of scientific areas/topics that should be prioritized in ministry education. The answers typically fit into one of the following categories (ordered by frequency):

1. Human biology, evolution and origins of life;
2. Earth science, ecology, creation care;
3. Psychology, psychiatry, neuroscience and human health;
4. The history and the work of science, scientific paradigms and models that relate it to faith;
5. Contemporary ethical issues (MAID, genetics, abortion);
6. Technology, its proper use and its impact on human beings;
7. Physics and cosmology.

vi. Assessing Positions On Relevant Issues - Climate and Ecology

This section assesses views concerning climate change and ecology. The Regent community is generally strongly concerned with environmental issues though a few divergent views were registered in the open feedback. The results are roughly similar to those recorded in previous surveys. It is worth signalling a tendency towards a stronger opposition to the use of fossil fuel (Q47). A new question was added to this section on the importance of science and technology to solve the ecological crisis (Q48); the answers show a great and balanced diversity of views across the spectrum.

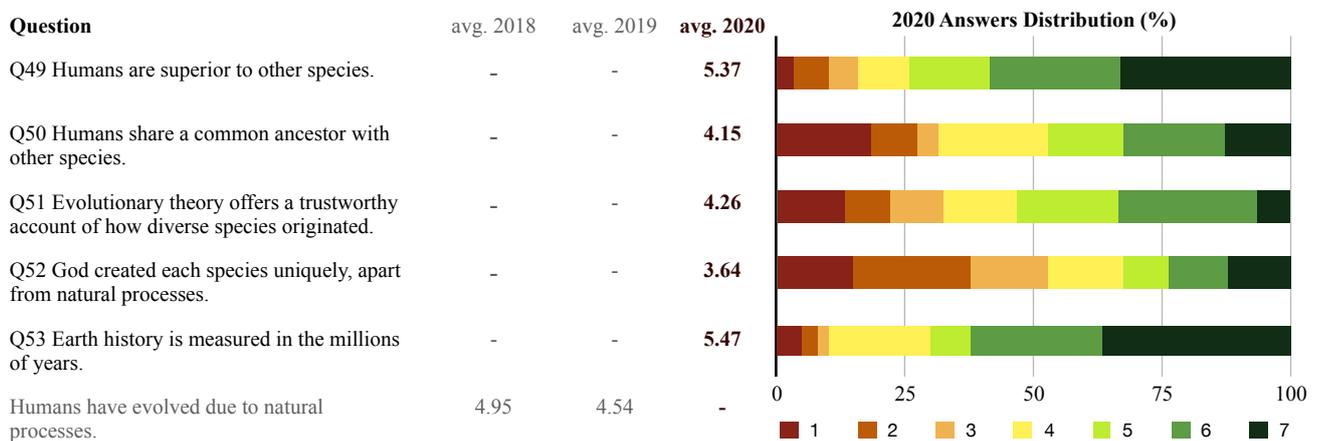


The results filtered by sex show that women tend to agree more strongly that climate change is a major problem (avg. 5.94 for Q44 compared to 5.54 among men) whereas men are more optimistic concerning the potential of science and technology to solve the ecological crisis (avg. 4.33 for Q48 compared to 3.61 among women).

vii. Assessing Positions On Relevant Issues - Humans, Other Species and Origins

This section assesses views concerning origins of life, other species and evolutionary theory. Most of the questions were rephrased from previous surveys and thus comparison with past results is not viable. Still, we can infer from the averages recorded in 2018 and 2019 for the question “humans have evolved due to natural processes” that the current cohort tends to be slightly less favourable to the evolutionary account (for instance, compare Q50 and Q51 with the past results shown in the final row of the table below).

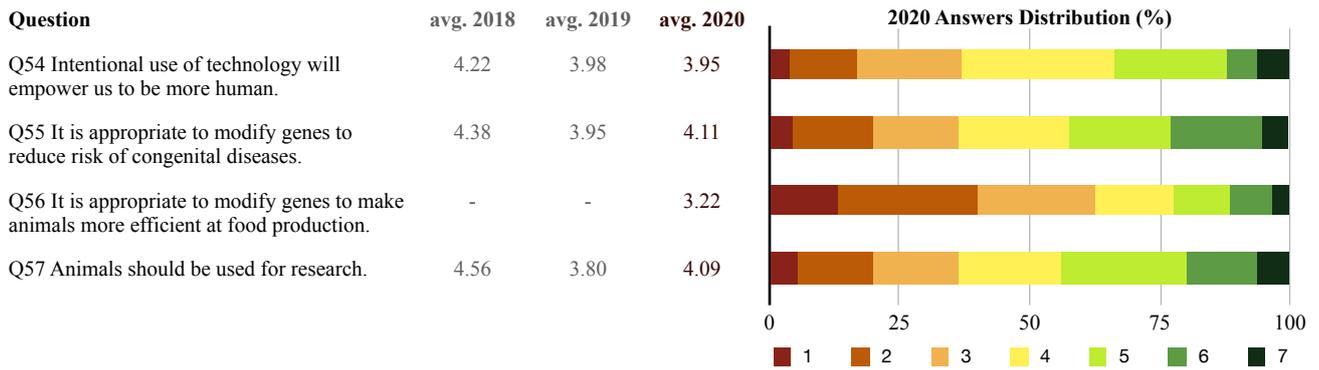
The answers distribution for this section show greater variety than for any of the other sections. Among the Regent community there are strong views in both directions concerning origins of life and evolutionary theory vs creationism. Awareness of this diverse landscape of views is relevant for curriculum preparation and for promoting lively, engaging and respectful dialogue among the community.



The filtered results show some remarkable but inconsistent trends. For example, individuals with no past experience in the sciences tend to agree more strongly with the tenets of evolutionary theory implicit in Q50 and Q51, but they also agree more strongly with Q52 which would be at odds with said theory. The differences between the two sexes are also worth noting, with men showing significantly stronger agreement with evolutionary theory than women; for example, averages for Q50 are 4.44 among men and 3.83 among women and, for Q52, 3.14 among men and 4.21 among women. Moreover, men also drive the strong agreement concerning Q49 on the superiority of the human species (avg. 5.67 among men and 5.04 among women).

viii. Assessing Positions On Relevant Issues - Technology, Research and Ethics

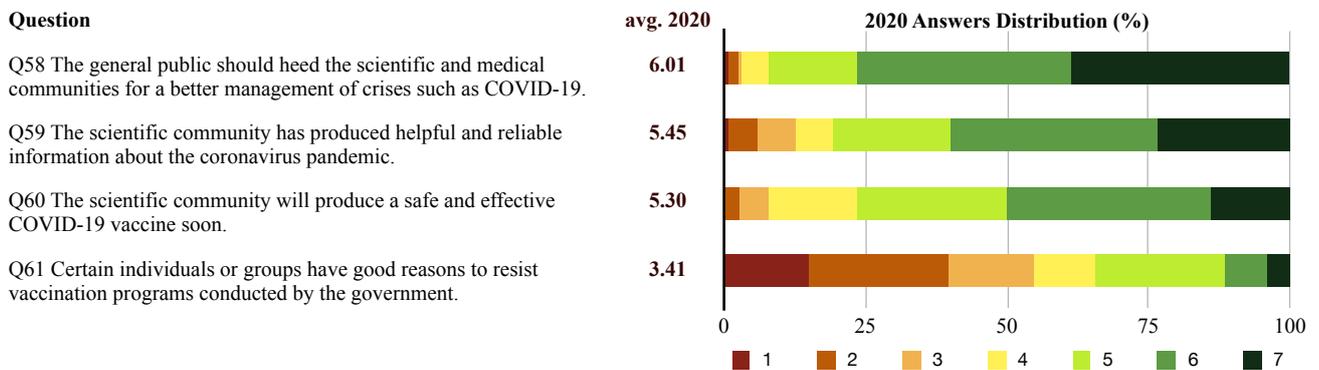
This section assesses views on technology, genetics, the use of animals in research, and the ethical issues related to these areas. The results of the current cohort stand within (or close to) the range of past results. Overall there are diverse views among the community and the average for most questions is close to the mid-value 4. The exception is Q56, a new question concerning modification of genes for food production: the tendency among the respondents to disagree with this type of genetic manipulation is stronger than any other tendency registered in this section.



Filtered results show levels of agreement slightly stronger with all these assertions among those who have previously trained or worked in the sciences. But, once again, the differences between the sexes are more significant. Women consistently show greater reluctance in agreeing with these four assertions; for Q54, Q55 and Q57 they average well within the disagreement range (<3.65) whereas men average within the agreement range (>4.20).

ix. Assessing Positions On Relevant Issues - COVID-19 and Vaccination

This is a new section to assess views concerning the role of science and the work of the scientists in the context of the COVID-19 pandemic. The Regent community shows strong levels of approval for the efforts of the science community during the pandemic (Q58 and Q59) although confidence diminishes slightly regarding the production of a vaccine soon (Q60). The final question in this section (Q61) was added to assess perceptions/knowledge about historical issues associated to government vaccination programs among minority groups; however, it is possible that the respondents were considering instead the anti-vaxxer movement which is more part of the present common knowledge.



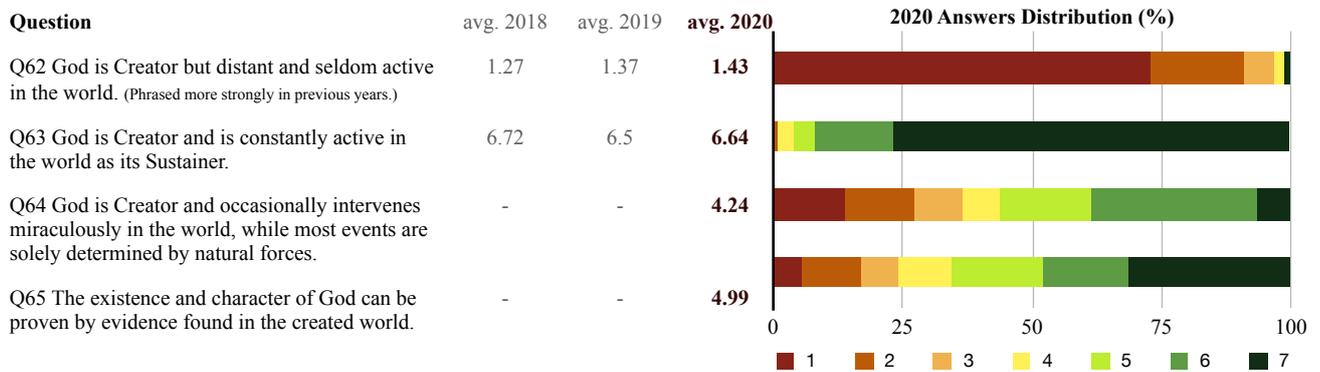
Filtered results do not show significant differences. The only aspect worth remarking is the higher levels of confidence among men concerning the production a COVID-19 vaccine soon (Q60). This is consistent with the more favourable views among men regarding the potential benefits of technology and the sciences that we have observed throughout the report (see Q48, section vi).

x. On How God Interacts with the Natural World

This section assesses perceptions concerning different models to explain God’s interaction with the natural world. The Regent College community favours the view that God is constantly active in the world (Q63) very strongly as opposed to the view that God’s present actions are discrete and rare (Q62). In fact, these two questions recorded the higher and lower average results overall (respectively, 6.64 and 1.43). This shows that the members of the Regent community tend to be more emphatic when asked about theological views

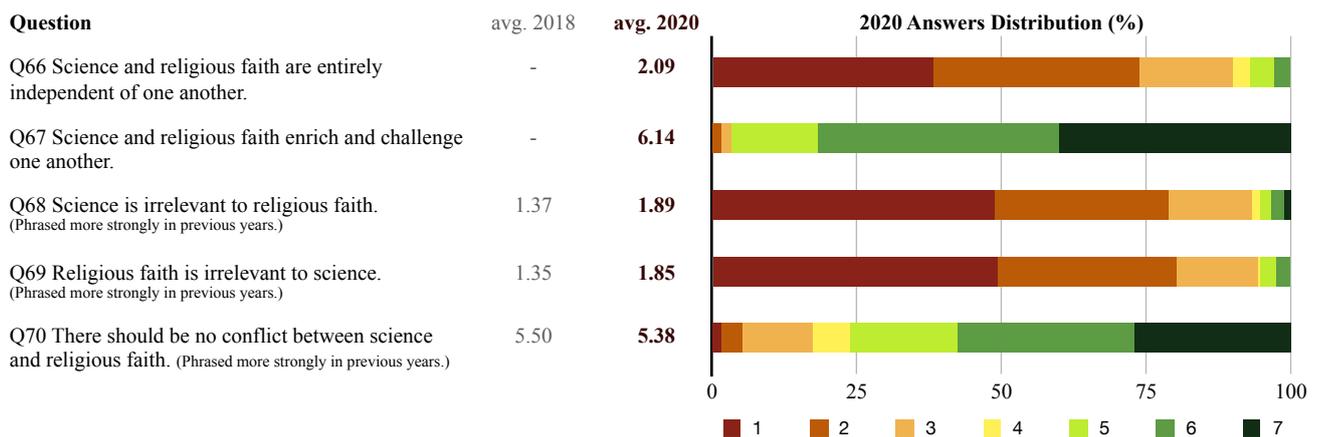
(compared to the other areas/issues assessed through this survey). Moreover, the averages obtained for these questions are consistent with past results. The answer distribution is more diverse for question Q64 which states a somewhat middle-ground view.

Finally, the average recorded for Q65 (4.99) shows that, generically, the Regent Community has a moderate level of confidence that “the existence and character of God can be proven by evidence found in the created world.” This is a new question and it might be pertinent to track this level of confidence as the current stage of the Interface project is implemented. An element for further analysis is that women show significantly stronger levels of agreement for Q65 than men (avg. 5.43 among women and avg. 4.59 among men).



xi. Relationship Between Science and Faith

This section complements section iv in assessing views on the relationship between science and faith. Some of the questions were included in previous surveys but phrased differently (ex. Q68 in 2018 read: “science is irrelevant *and dangerous* to religious faith”). Hence, the present data can only be used with due caution to track shifts among the Regent community. Overall, the respondents tend to agree strongly with the possibility of a harmonious (Q70) and mutual enriching relationship (Q68) between science and religious faith as opposed to models that portray science and religious faith as entirely independent (Q66) or irrelevant to each other (Q68, Q69).



Filtered results do not show significant discrepancies. Perhaps the one worth noting is that respondents with past experience in the sciences disagree even more strongly that religious faith is irrelevant to science than those respondents who do not have such past experience (the former average is 1.66 for Q69 whereas the latter average is 1.97).

xii. Qualitative Feedback

At the end of the survey, the respondents were invited to provide open, additional feedback. The feedback received falls primarily into one of the following categories (ordered by frequency):

1. Ambiguities and Presuppositions
 - a. Several respondents observed that there were some ambiguities or even presuppositions implicit in the use of specific terms or in the way the questions were phrased.
 - b. In particular, some commented that it was not clear what was meant by science: what areas are supposed to be encompassed by this term? Does it refer solely to the knowledge produced within those areas or also to the application of that knowledge and to the worldview that might often be presumably inherent to it? (These distinctions play a role in how one perceives conflict between science and religion.)
 - c. Some respondents commented that a few questions were phrased in a compounded way that made it difficult to agree or disagree (ex. Q62 in which respondents could agree that “God is creator” while disagreeing that “[God] is distant and seldom active in the world”).
2. Encouragement and Request for Survey Results
 - a. Several respondents provided encouraging feedback, congratulating the survey initiative and expressing their expectation to benefit from further initiatives on science at Regent College.
 - b. Among these responses, many also suggested the release of the survey results.
 - c. In addition, a few respondents commented that the survey was itself a helpful tool to reflect on their own views concerning science.
3. Challenging Common Views - There were a couple of comments that can be interpreted as “push-back” against prevailing views at Regent College and at Interface, concerning issues such as climate change and the ecological crisis and evolutionary theory. A couple of respondents suggested that creationism and ID should be equally taught at Regent.
4. Time - A couple of respondents observed that the time needed to take the survey was significantly higher than that indicated in the invitation e-mail.

5. MAIN CONCLUSIONS

- (1) The members of the Regent College community tend to be significantly more emphatic when affirming theological views compared to when they affirm scientific, ethical or social views.
- (2) Perceptions of conflict between science and religious faith have increased slightly in comparison to previous surveys. This might be the consequence of a new cohort (which did not benefit from past Interface initiatives) and also from changes in the way questions were phrased. Further data is needed to study whether this shift corresponds to a higher level of acceptance of the conflict model.
- (3) In comparison with past results, there is a higher appreciation of the work of science, scientific careers, and the individual benefits brought by science. This is, however, combined with an ongoing and increasing concern regarding the social and environmental effects of science. We posit that these shifts might be correlated with changes of perception caused by the COVID-19 pandemic, but further inquiry into such changes is necessary for stronger conclusions.
- (4) The Regent community tends to have strong views on the environmental crisis in comparison to other ethical issues (ex. gene modification). Levels of agreement concerning ecological themes are roughly stable in comparison to previous surveys, with the notable exception being a significantly stronger opposition to the use of fossil fuels.
- (5) The Regent community tends to agree strongly with the view that proper knowledge and use of the sciences can empower church ministries. The level of agreement decreases slightly regarding the explicit incorporation of scientific areas/themes in ministry education.
- (6) Views on the origins of life and evolution are quite distributed across the spectrum with respondents expressing both strong agreement and disagreement. Such distribution is unlike any other topic assessed in this survey. As explained in the preceding analysis, the data suggests a level of inconsistency among these views.
- (7) The Regent community shows a very high level of approval for the work of scientific and medical communities during the COVID-19 pandemic. The optimism decreases slightly in terms of vaccine production.
- (8) Results show significant and somewhat surprising differences (according to conventional expectations) between the two sexes in several instances. For example, while men have generally a more positive view of science and technology (including in what regards the production of vaccines to COVID-19 and the use of technology to solve the environmental crisis), women show consistently higher levels of concern with the ethical and environmental dimensions of science and technology. Moreover, perception of conflict between science and religion and reluctance concerning evolutionary theory are stronger among women. Finally, both women and men tend to agree with the existence of systemic barriers to women and people of colour participating in the sciences but the level of agreement is significantly stronger among women.
- (9) Generally speaking, results filtered by sex showed more significant discrepancies than results filtered by past training/work experience in the sciences. Still, there were two instances in which the latter disclosed important differences: individuals with past experience in the sciences are consistently more strongly in favor of the use of science in church ministry and its incorporation in ministry education; moreover, these individuals show higher levels of disagreement when asked if religious faith is irrelevant to science.

6. RECOMMENDATIONS

The following recommendations should be taken into consideration during the current stage of the Interface project and/or when preparing upcoming surveys:

- ▶ The differences detected between the two sexes show the importance of establishing conversations on science and faith that intentionally involve both men and women; men hold generally more positive views on science and technology, while women express more ethical and environmental concerns. These perspectives can certainly complement, inform and enrich one another.
- ▶ Diverse and somewhat inconsistent views concerning human origins and evolutionary theory must be acknowledged as a baseline when preparing curricula, lectures or other initiatives on science and faith.
- ▶ We posit that the COVID-19 pandemic has contributed to changes of perception concerning science and its effects/benefits. Instruments to track and measure such changes can be added to upcoming surveys or other Interface initiatives.
- ▶ A number of questions were added to or rephrased in the current survey, requiring their repetition in upcoming surveys for comparison and to track eventual shifts among the community, especially since the Interface project seeks to address some of those questions. Among such questions, those concerning the relevance of science in the context of church ministry are particularly relevant for the current stage of the project. The results suggest that the Regent community will mostly approve the incorporation of scientific content within ministry education. It will be relevant to track the level of approval as such content is incorporated into core courses of the M.Div program.
- ▶ The very concept of science seems to be perceived as ambiguous among the community. For upcoming surveys, one might either provide a definition of science *or* include a note explaining why the term is intentionally left undefined. In any case, the Interface team might consider the possibility of establishing a working definition of science for all the Interface initiatives, so that everyone could enter the conversation on the same page.
- ▶ The shifts concerning perceptions of conflict between science and faith among the community show the necessity of repeatedly addressing the so-called conflict thesis and the alternative models to relate science and faith/theology. Each cohort should have the chance to learn and to consider these different models.
- ▶ Based on the feedback received, the present report should be made available to the Regent community.
- ▶ Based on the feedback received, upcoming surveys should have at most a similar length. If possible, they should be reduced for the sake of time.