



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 2021 and answered by 97 members of the Regent College community in November 2021. This initiative was carried out by the Interface project, which, between 2020 and 2022, 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, Spring 2019 and Fall 2020. Relevant comparison between past and current results can therefore be established. These surveys were not fully identical; a greater degree of consistency was implemented across the surveys conducted in 2020 and 2021.

The following constitute the main objectives of the 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 further stages of the Interface project and/or of the science-and-faith dialogue at Regent College.

2. METHODOLOGY AND LIMITATIONS

The design of this survey was 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). However, the component on cultural values was shortened to reduce the overall survey length as per the feedback received in the previous survey. Moreover, as the present report does not envision a detailed correlation analysis, there was no rationale to collect extensive demographics or cultural data. These changes enabled in turn the addition of small number of *ad hoc* questions pertaining to concrete, present-day issues and based on the recommendations made in the previous survey.

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 number of respondents was significant but less than in the previous year. This might be partially due to communication issues experienced with the Regent weekly newsletter during the period of divulgation. Engagement increased significantly with a campus-wide email sent by the Regent comms team. It is likely that the survey attracted mostly those members of the Regent community who have 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 predominance of people younger than 40 years old (~63%) which corresponds naturally to the age range of the majority of the student body.

SEX. There were more male respondents (56) than female (41).

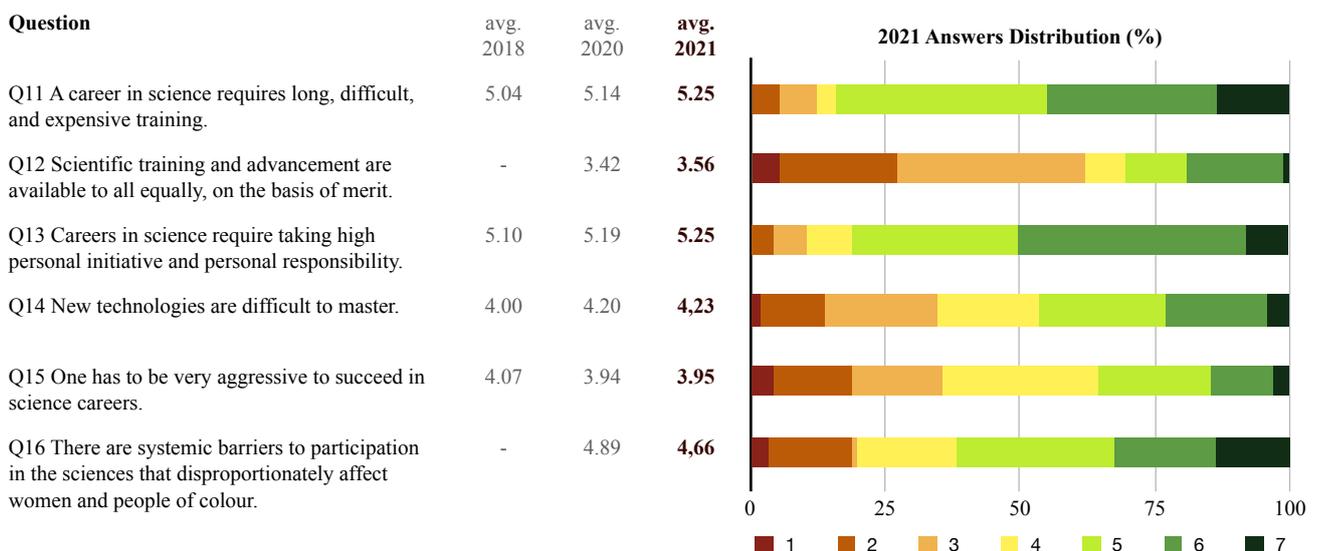
STATUS AND EDUCATION. Most of the respondents are current Regent College students (~68% plus ~3% occasional students and auditors) but members of staff and faculty also took the survey. Therefore, we can posit that the results are representative of the entire Regent community. It should be pointed out that the respondents show very high levels of formal education: ~98% 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 (38%). The most prevalent areas are in which respondents have trained/ worked are: 1) medical sciences and other health sciences; 2) computer sciences and IT; 3) engineering (mechanical, electric, civil); 4) bachelor degrees in several hard sciences (physics, biology, geology); 5) environmental sciences and ecology; 6) social sciences.

4. ANALYSIS PER SECTION

i. The Work of Science

This section surveyed perceptions concerning requisites to access scientific training and scientific careers. The 2021 results align with the 2020 trend toward a higher appreciation of the difficulty of scientific training/careers.

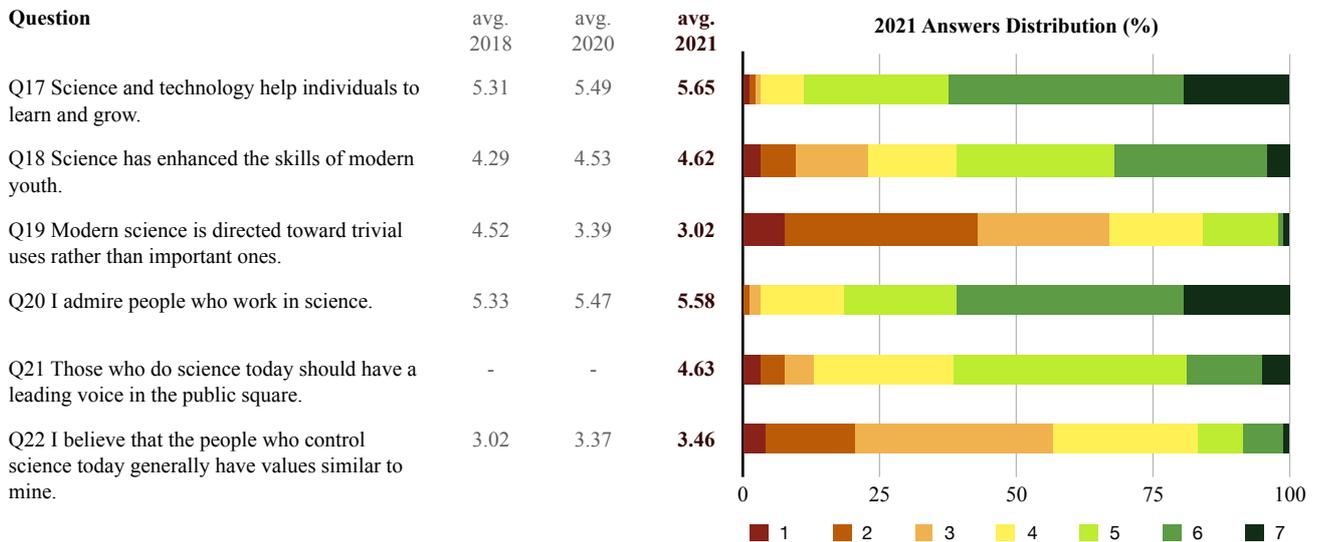


Two new questions were included in 2020 to assess views on the role of merit (Q12) and on the existence of systemic barriers (Q16) to participation in the sciences. Generally speaking, the Regent community tends to agree more strongly with the latter assertion (3.56) than with the assumption of equal access on the basis of merit (4.66), but the discrepancy noted in the answers to these two assertions is narrower in 2021.

It is worth signalling that filtered results for Q12 show greater levels of disagreement among people with no previous experience in the sciences compared to individuals with training or professional experience (avgs. 3.37 and 3.89). Furthermore, women tend to agree more strongly with Q25 on the existence of systemic barriers to participation in the sciences (avg. 5.10 compared to 4.33 among men). These indicators are consistent with the 2020 results.

ii. Science and Human Capabilities

The results in this section continue to display a significant shift towards higher levels of approval of science and its contribution for personal development, as well as of scientists and their personal motivations and values. The major shift from 2018 to 2021 concerns the appreciation of the uses of science: in 2018 there was some agreement that “modern science is directed toward trivial uses” (avg. 4.52) but the average view is now one of clear disagreement (avg. 3.02). Based on the chronological data (collected in 2018, 2020 and 2021) we conjecture that this shift is correlated with a positive view of how the scientific community has dealt with the COVID-19 pandemic. This does not mean necessarily that scientists should have a *leading voice* in the public square (since avg. agreement with Q21 is slightly lower than, for example, Q20) but it does mean that one should heed the scientific voice when facing major crises (see also strong agreement with Q51 and the entire section ix on COVID-19 and Vaccination).

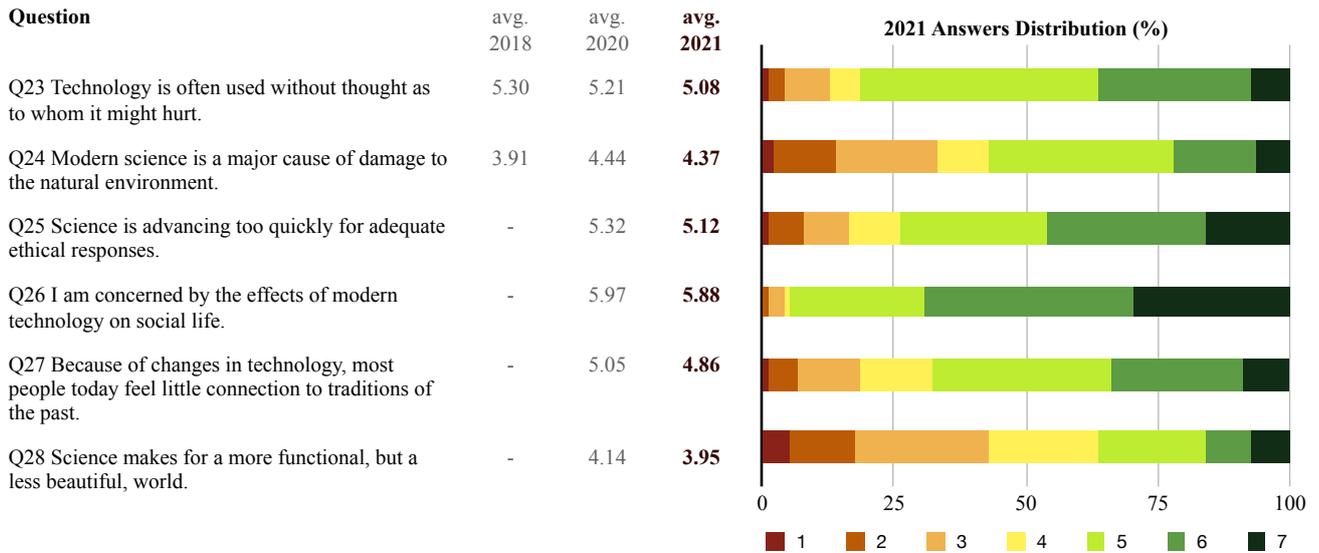


Filtered results show that approval of science is stronger among women than among men (for example, women’s avg. in Q20 is 5.76 whereas man’s avg. is 5.44).

iii. Social and Environmental Effects of Science

This section assesses views on the potential negative effects of science. The concern with the effects of science on the environment and with negative changes that it might bring to social life and cultural traditions remains high. Questions Q25 to Q28 were included in 2020 for the first time and the results in 2021 are consistent with those of 2020. The slight decrease that can be observed across the values in this section is not significant (≤ 0.20).

Note that Q26 remains among those with the highest avgs. in the survey (5.88) thus showing that the Regent community shows a continuous and strong concern for how technology affects our social life.



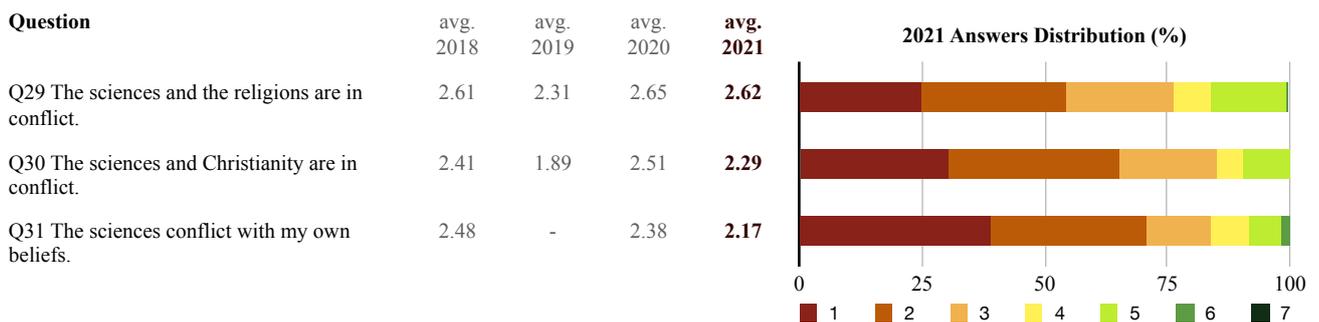
These results are overall similar among the two sexes except for a slight discrepancy concerning Q24 since women tend to agree more strongly that science causes damage to the environment (avg. 4.66 compared to 4.15 among men). The same tendency had been verified in the 2020 survey.

Moreover, the results show great discrepancy between respondents with prior experience in the sciences and those with no experience (except with Q26) suggesting that those who have worked or trained in the sciences are significantly less concerned with its effects and ethical issues. This intriguing tendency had not been noted in previous surveys.

Question	No Exp.	Exp. in sciences
Q23 Technology is often used without thought as to whom it might hurt.	5.17	4.91
Q24 Modern science is a major cause of damage to the natural environment.	4.67	3.89
Q25 Science is advancing too quickly for adequate ethical responses.	5.38	4.69
Q26 I am concerned by the effects of modern technology on social life.	5.90	5.86
Q27 Because of changes in technology, most people today feel little connection to traditions of the past.	5.10	4.46
Q28 Science makes for a more functional, but a less beautiful, world.	4.00	3.86

iv. Personal Attitudes Towards Science and Religion

This section assesses views concerning the existence of a conflict between science and religion/Christianity/ personal beliefs. The numbers do not show a consistent trend overtime, possibly denoting different cohorts, but they show consistently strong disagreement with a conflict model. Moreover, the conflict that might be perceived impinges more on religions in general than on Christianity or on one’s individual beliefs.



Like in the 2020 survey, conflict perceptions among women are higher than among men; for example, for Q31 the average is 2.34 among female respondents and 2.04 among male respondents. More surprisingly, and unlike the results of the 2020 survey, general conflict perceptions are higher among those who have past experience training or working in science than among those who do not, but the situation is reversed in what concerns conflict with one’s own beliefs:

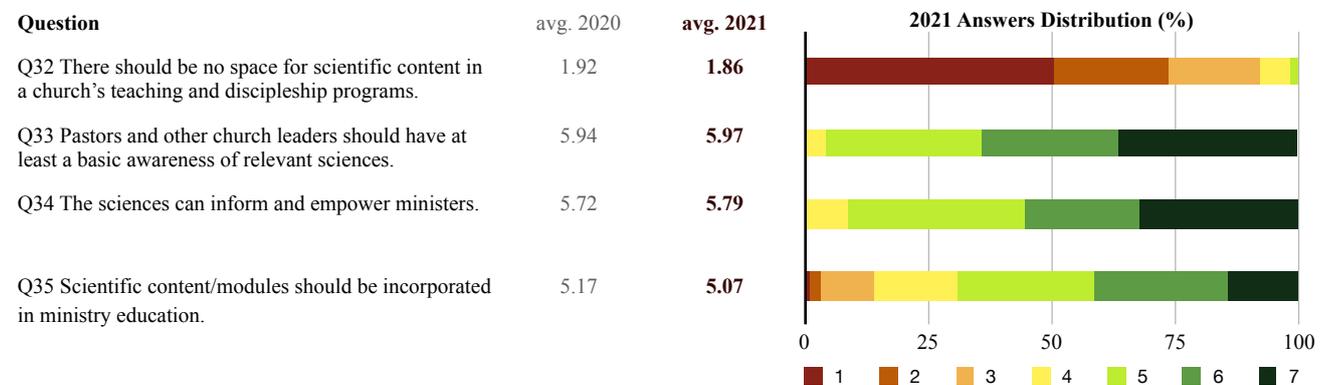
Question	No Exp.	Exp. in sciences
Q29 The sciences and the religions are in conflict.	2.45	2.91
Q30 The sciences and Christianity are in conflict.	2.16	2.53
Q31 The sciences conflict with my own beliefs.	2.22	2.09

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. creation vs. evolution);
3. i. Uncertainty re: climate change.
ii. Sex/gender issues.

v. Relevance of Science in the Context of Church Ministry

This 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. The 2021 results are consistent with those from the 2020 survey. 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.

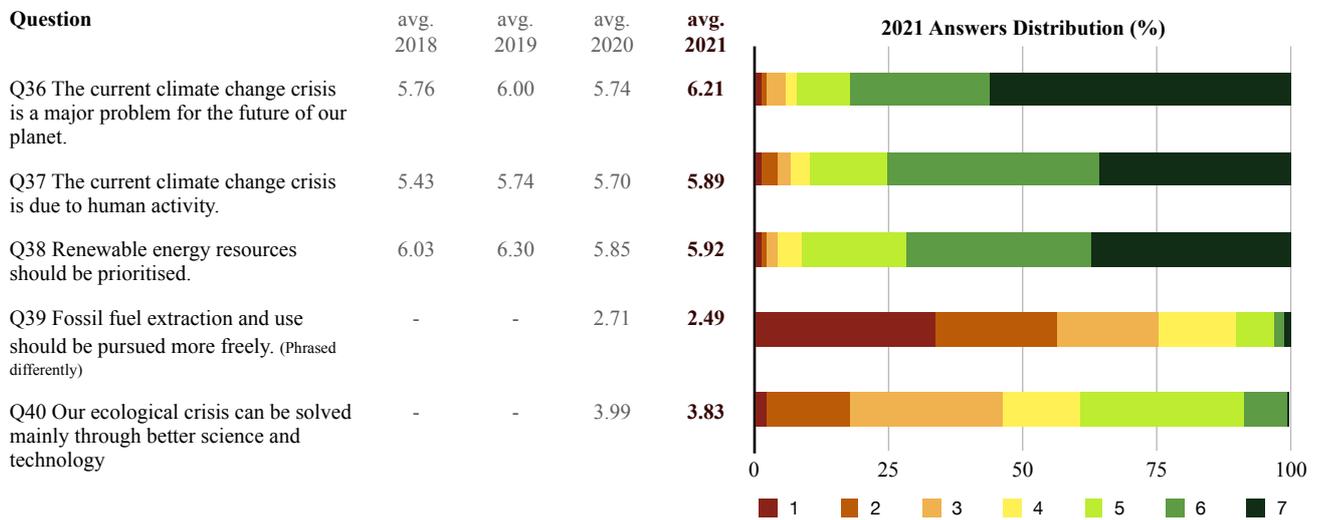


The respondents were asked to provide examples of scientific areas/topics that should be prioritized in ministry education. The answers typically fit into one of the following categories (ordered by frequency):

1. Earth science, ecology, creation care;
2. Psychology and mental health;
3. Human biology, evolution and origins of life;
4. Reproductive health and sexuality;
5. The history and the work of science, scientific paradigms and the limits of science;
6. Human health; epidemiology and infectious diseases;
7. Bioethics and contemporary ethical issues (end of life care, beginning of life, etc);
8. The impact of technology and social media;
9. Statistics and basic research skills.

vi. Assessing Positions On Relevant Issues - Climate and Ecology

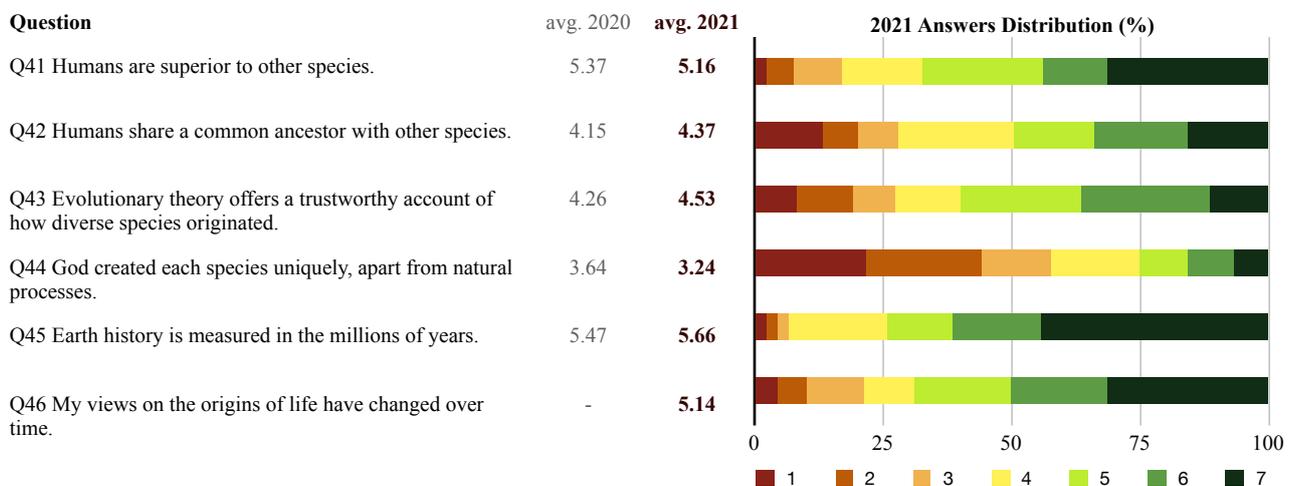
This section assesses views concerning climate change and ecology. The Regent community is generally strongly concerned with environmental issues though a few divergent views were registered in the open feedback. While, the averages have fluctuated slightly in previous surveys, the concern with the climate crisis is stronger in 2021. Opposition to the use of fossil fuel has grown (Q39). There is significant diversity of views concerning the use of science and technology to solve the ecological crisis (Q40).



Consistent with the 2020 results, filtered responses by sex show that women tend to agree more strongly that climate change is a major problem (avg. 6.49 for Q36 compared to 6.00 among men) whereas men are more optimistic concerning the potential of science and technology to solve the ecological crisis (avg. 3.98 for Q40 compared to 3.64 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. Similarly to the 2020 results, the response distribution in this section shows greater variety than for any of the other sections, which shows that within the Regent community there are strong views in both directions concerning origins of life and evolutionary theory. Also in line with our previous report, we reiterate that awareness of this diverse landscape is important to promote lively, engaging and respectful dialogue within the community.



The filtered results replicate surprising trends from the previous survey. Individuals with no past experience in the sciences tend to agree more strongly with the tenets of evolutionary theory implicit in Q42 and Q43,

while those with experience in the sciences agree more strongly with Q45. Moreover, men show significantly stronger agreement with evolutionary theory than women; for example, averages for Q42 are 4.64 among men and 4.03 among women and averages for Q44 are 2.90 among men and 3.67 among women.

In the previous report we noted that the views concerning origins of life seemed to carry, overall, some level of inconsistency. Q46 was added to the 2021 survey to get an insight into that inconsistency: 69% of the respondents acknowledge that their views on this issue have changed over time. The changing nature of these views might explain, at least in part, the surprising trends recorded in these surveys, especially if we assume that such change can often be an ongoing process.

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

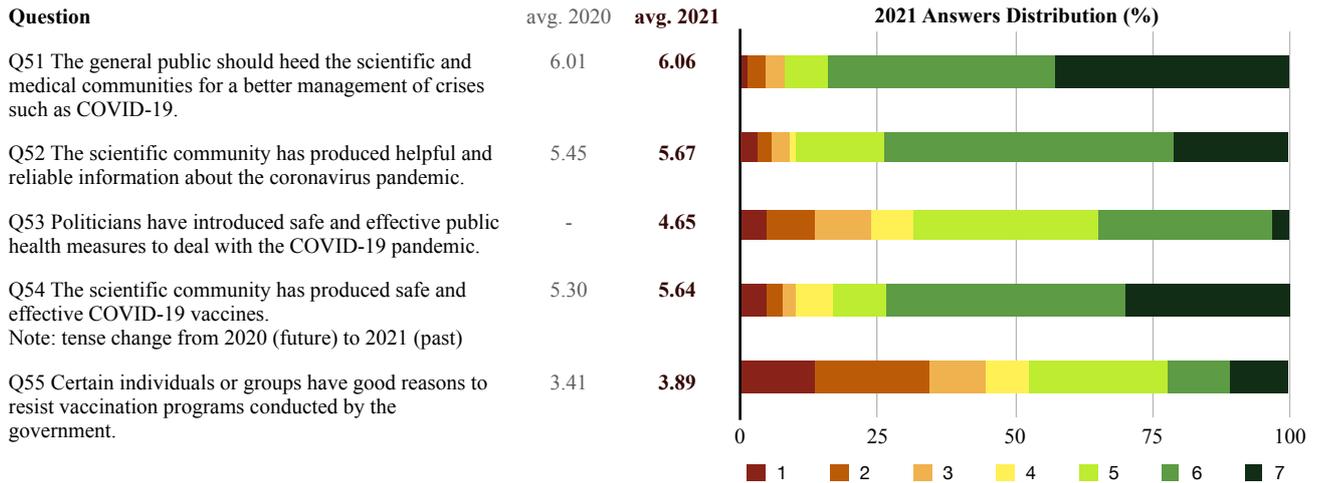
This section assesses views on technology, genetics, the use of animals in research, and ethical issues related to these areas. The results of the current cohort stand within the range of past results. The community holds a variety of views on these issues with the average for most questions being close to the mid-value 4. The exception, as in the 2020 survey, is a stronger disagreement with gene manipulation for food production.



Respondents who have previously trained or worked in the sciences tend to agree more strongly with Q50 (avg. 4.69 compared to 3.86 among those with no experience in the sciences). The differences between the sexes are also significant, with women showing greater reluctance in agreeing with these assertions similarly to the previous survey; for Q48 and Q50 they average within the disagreement range whereas men average within the agreement range.

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

This section was introduced in the 2020 survey to assess views concerning the role of science and the work of scientists in the context of the COVID-19 pandemic. The Regent community continues to show strong levels of approval for the efforts of the science community during the pandemic (Q51 and Q52). Vaccine confidence is high among the community (Q53). Question Q54 was added in order to infer the relative approval of scientists compared to politicians. Even though the Regent community tends to have a positive view of how the latter have dealt with the pandemic, approval of the scientific community is significantly stronger. The final question in this section (Q55) assesses perceptions/knowledge about historical issues associated to government vaccination programs among minority groups. As noted in the 2020 survey report, the respondents might be considering instead the anti-vaxxer movement which is more part of the present common knowledge. Nevertheless, there was a slight increase in average which can be a sign of greater awareness among the Regent community concerning these historical issues.



The strong agreement in Q51, Q52 and Q54 is driven by those who have worked or trained in the sciences. For example, these individuals average 6.00 for Q52 whereas those with no experience in the sciences average 5.49.

x. On How God Interacts with the Natural World

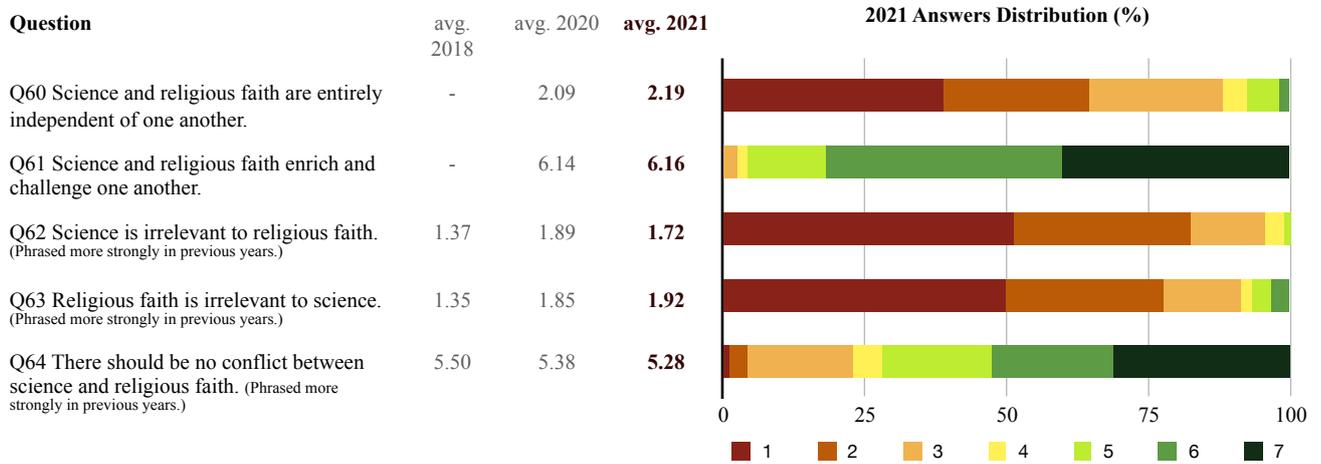
This section assesses perceptions concerning different models to explain God’s interaction with the natural world. The Regent College community strongly favours the view that God is constantly active in the world (Q57) as opposed to the view that God’s present actions are discrete and rare (Q58). In fact, similarly to the 2020 survey, these two questions recorded the higher and lower average results overall (respectively, 6.82 and 1.34). This shows, once again, 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. Also, the averages obtained for these questions are consistent with past results. The answer distribution is more diverse for question Q58 which states a somewhat middle-ground view.



The average recorded for Q59 (4.77) 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.” However, similarly to what was noted in the 2020 report, women show a significantly stronger level of agreement with Q59 than men (avg. 5.33 among women and avg. 4.33 among men).

xi. Relationship Between Science and Faith

This section complements section iv in assessing views on the relationship between science and faith. Overall, the respondents tend to agree strongly with the possibility of a harmonious (Q64) and mutual enriching relationship (Q61) between science and religious faith as opposed to models that portray science and religious faith as entirely independent (Q60) or irrelevant to each other (Q62, Q63).



Filtered results for these questions do not show significant discrepancies.

5. MAIN CONCLUSIONS

Key Remarks: Generally speaking, for the most part, the main tendencies recorded in this report had already been affirmed in the 2020 report but they can now be asserted with greater confidence since there is a strong level of consistency and continuity between the results of this survey and past surveys. Therefore we can reiterate the following key findings which provide great insight into the *landscape* of views that characterize the Regent community:

- (1) 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. Such agreement is driven by individuals with past experience in the sciences but the gap between the two groups (those with and those without experience working or training in the sciences) decreased in comparison to the previous survey. This might constitute an important hint that the Interface project has helped to raise awareness of the usefulness of science for ministry across the groups.
- (2) The tendency towards a higher appreciation of the work of science, scientific careers, and the individual benefits brought by science continues, most likely propelled by a positive view of how the scientific community has dealt with the pandemic (relative to politicians, for example).
- (3) The Regent community shows a very high level of approval for the work of scientific and medical communities during the COVID-19 pandemic and is strongly in favour of heeding the scientists in the context of crises; agreement decreases when asked if scientists should have the “leading voice” in the public square. Vaccine confidence is strong among the community. These levels of approval/confidence are driven by those who have previous experience working or training in the sciences.
- (4) The Regent community tends to have strong and clearly defined views on the environmental crisis in comparison to other ethical issues (ex. gene modification, animal use, etc.). Concern with the climate crisis reached its highest value in 2021 and opposition to the use of fossil fuels intensified. Note that the conversation on other ethical issues has not been absent at Regent; in fact, they have been addressed through Regent Interface initiatives (ex. lecture on Animal Ethics by Prof. David Clough) but these initiatives have not led to homogeneous views across the community in either direction.
- (5) 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 or past surveys. Most respondents acknowledge that their views on this topic have changed over time, which helps to explain a level of inconsistency that is revealed by the data.

Recommendation: 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.

- (6) Significant differences between the two sexes were recorded in the previous survey and reiterated in the present survey in several instances:
 - the level of agreement with the existence of systemic barriers to women and people of colour participating in the sciences is significantly stronger among women;
 - women show consistently higher levels of concern with the ethical and environmental dimensions of science and technology;
 - perception of conflict between science and religion and reluctance concerning evolutionary theory are stronger among women.

Note, however, that in the previous survey we noted that men had generally a more positive view of science and technology but that finding is not validated in this survey; while women show stronger concern with the use of science and its ethical dimensions, we can affirm, based on this report, that such concern does not yield a more negative view of science *per se* when compared to men.

Recommendation: The differences detected between the two sexes show the importance of establishing conversations on science and faith that intentionally involve both men and women. These perspectives can certainly complement, inform and enrich one another.

The main instances in which we found great discrepancy with previous results had to do with the results filtered by past experience in the sciences for sections iii - Social and Environmental Effects of Science and iv - Personal Attitudes Towards Science and Religion. The results in these two instances are intriguing and difficult to explain; they would need to be monitored to test if they point towards a tendency (and to study the reasons for such tendency) or if they are only casual discrepancies that can be dismissed with more data:

- (7) Levels of concern about science’s consequences and ethical dimension show great discrepancy between respondents with prior experience in the sciences and those with no experience suggesting that those who have worked or trained in the sciences are significantly less concerned with its effects and ethical problems.
- (8) Perceptions of conflict between science and religious faith have fluctuated slightly across the surveys, perhaps due to different cohorts. Overall, the Regent community shows strong disagreement with a conflict model. Still, there is a surprising element in that general conflict perception is higher among those who have past experience in science, though the situation is reversed in what concerns conflict with one own’s beliefs.

Finally, this report reiterates that the members of the Regent community tend to be significantly more emphatic when affirming theological views compared to when they affirm scientific, ethical or social views.

On the Form of the Survey

The open feedback received in the previous survey concerning the length of the survey and the ambiguity of the underlying concept of science prompted some changes in this edition of the survey. The length was reduced and an introductory note on the concept of science was added.

Recommendation: since there was no further negative feedback on these aspects, we conclude that the changes were duly implemented and we recommend that attention is given to these two issues in case there will be further surveys.

On The Definition of Science:
 The word 'science' can be understood in different ways and questions concerning science can therefore appear to be ambiguous. This survey aims to gather information on how people engage with science in their daily lives, in a generic way, thus a certain level of ambiguity is necessarily inherent to our goal. Nevertheless, we provide a working definition that respondents can keep in mind while answering this survey: “science is the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence” (taken from the Science Council website).