

Professional Learning in STEM

Findings from the Annual STEM Practitioner Survey 2020/21

Community learning and development

April 2022

Table of contents

List of tables.....	3
List of figures.....	3
Introduction	4
Key findings	5
Annual STEM CLD Practitioner Survey 2020/21	8
About the survey	8
About you	10
STEM in your setting	12
Your professional learning	13
STEM in your practice	23
Education Scotland response	25
Appendix: Survey questions.....	28

List of tables

Table 1. Number of responses to the Professional Learning in STEM surveys	10
Table 2. Types of professional learning accessed by practitioners and the impact on learning	16
Table 3. Organisations that provided STEM professional learning	17
Table 4. Main barriers to accessing professional learning in STEM	20
Table 5. Top STEM professional learning priorities in 2018/19 and 2020/21	21
Table 6. STEM professional learning opportunities with greatest anticipated impact from 2017/2018 and 2018/2019 surveys	22

List of figures

Figure 1. Number of responses by organisation type	10
Figure 2. Number of responses by role	11
Figure 3. Respondents' work pattern.....	11
Figure 4. STEM partner(s) from private, public or third sector.....	12
Figure 5. Finding STEM partner organisations.....	13
Figure 6. Number of hours of STEM professional learning accessed by sector	14
Figure 7. Hours of STEM professional learning accessed in 2020/21 in comparison with the previous year	14
Figure 8. Impact of different types of professional learning	15
Figure 9. Organisations providing STEM professional learning for CLD practitioners	17
Figure 10. Ease of accessing professional learning in STEM	18
Figure 11. Main barriers to accessing professional learning in STEM.....	19
Figure 12. STEM professional learning priorities for academic year 2020/21	21
Figure 13. STEM professional learning opportunities that would deliver greatest impact	22
Figure 14. STEM practice in CLD.....	23
Figure 15. Practitioner confidence in delivering discrete areas of STEM	24

Introduction

This report presents the key findings from Education Scotland's Annual STEM Community Learning and Development (CLD) Practitioner Survey covering academic year 2020/21.

Education Scotland has continued to gather and analyse this data from the CLD sector since 2017/18 to inform and support the ongoing implementation of the STEM Education and Training Strategy (2017)¹.

The findings from the surveys² provide valuable insights into the professional learning needs of practitioners; the challenges they face in accessing professional learning and their professional learning priorities. The survey findings have been used by Education Scotland to help shape the national professional learning offer, including the projects supported through the Enhancing Professional Learning in STEM Grants Programme. A wide range of partner organisations have also used the survey findings to help them align their professional learning programmes and strategies to the needs of practitioners.

Education Scotland will continue to measure progress against the following STEM Strategy key performance indicator³:

II. Increased practitioner confidence in STEM learning in the early years, primary years and in CLD settings and increased practitioner engagement in STEM professional learning opportunities. (Excellence)

- Increase the cumulative hours of STEM professional learning accessed by early years, schools, college and CLD practitioners annually.

Progress against this key performance indicator, and others, are reported on annually with detailed findings available through the First⁴, Second⁵ and Third STEM Strategy Annual Reports⁶.

Due to the COVID-19 pandemic, the survey was not issued in 2019/20. In addition, the 2020/21 survey coincided with the COVID Omicron wave, resulting in a significant reduction in the response rate in comparison to previous years. Care should, therefore, be taken when comparing results year on year.

¹ STEM Education and Training Strategy for Scotland: <https://www.gov.scot/publications/science-technology-engineering-mathematics-education-training-strategy-scotland/>

² A summary of STEM resources: <https://education.gov.scot/improvement/learning-resources/a-summary-of-stem-resources/>

³ STEM strategy: key performance indicators: <https://www.gov.scot/publications/stem-strategy-key-performance-indicators/>

⁴ STEM Strategy for Education and Training in Scotland - First Annual Report: <https://www.gov.scot/publications/stem-strategy-education-training-scotland-first-annual-report/>

⁵ STEM Strategy for Education and Training in Scotland - Second Annual Report: <https://www.gov.scot/publications/stem-strategy-education-training-scotland-second-annual-report/>

⁶ STEM Strategy for Education and Training in Scotland - Third Annual Report: <https://www.gov.scot/publications/stem-strategy-education-training-scotland-third-annual-report/>

Key findings

Number of responses – The number of survey responses decreased by 80.1% from 141 responses in the 2018/19 survey to 28 responses in the 2020/21 survey. It is important to note that the information contained within this report is based on a much smaller sample size than previous surveys and care should be taken when drawing comparisons or identifying trends.

STEM practice in community learning and development – For the first time, the 2020/21 survey asked CLD practitioners what areas of STEM CLD they had been involved in during the 2020/21 academic session. The top three responses were:

1st.	Digital learning with adults	42.9% (12 responses)
2nd.	Maths or numeracy support with adult learners	39.3% (11 responses)
3rd.	Youth work with a focus on practical science	25.0% (7 responses)

STEM partner or partners – In the 2020/21 survey, 37.0% of respondents confirmed that their service was engaging with a STEM partner(s) from the private, public or third sector. This was broadly in line with the 2018/19 survey (35.2%).

Practitioner professional learning hours – The total number of cumulative hours of professional learning accessed by the 28 survey respondents between 1 August 2020 and 31 July 2021 was 264 cumulative hours. During this period the average cumulative hours of STEM PL per CLD practitioner was 9.4 hours. This was a decrease of 37.7% from 15.1 hours per practitioner in the 2018/19 academic year. Despite this, 79% of respondents said that they had completed the same or more hours of STEM PL in comparison to the previous year. The small sample size for the 2020/21 survey may be attributed to the disparity between these two measures.

Types of professional learning accessed by practitioners – Responses showed that the most common forms of STEM professional learning for CLD practitioners in 2020/21 were:

1st.	Collegiate working within my organisation	64.3% (18 responses)
2nd.	Online learning	60.7% (17 responses)
3rd.	Professional reading and engaging with research	60.7% (17 responses)

Impact of different types of professional learning – When asked about the impact of various professional learning formats they had engaged with, the following three formats were ranked highest by practitioners in terms of positive impact (i.e. ‘valuable’ or ‘very valuable’):

1st.	External company coming into my organisation	100% (5 responses)
2nd.	Collegiate working with other similar organisations	100% (13 responses)
3rd.	Collegiate working within my organisation	94.4% (17 responses)

Organisations providing STEM professional learning – When asked which organisation provided the STEM professional learning they had engaged with, the three most popular responses were:

1st.	My employer (or colleagues)	50.0% (14 responses)
2nd.	Education Scotland	42.9% (12 responses)
3rd.	Science centres/festivals	21.4% (6 responses)

Accessing professional learning in STEM – Despite the challenges presented by the COVID-19 pandemic, there was a 10% increase in the proportion of CLD practitioners finding it ‘easy’ or ‘very easy’ to access STEM professional learning. This rise may be related to the increased number of online learning opportunities.

The most common barriers to accessing professional learning in STEM were:

1st.	Difficulty in attending professional learning due to other commitments	53.6% (15 responses)
2nd.	Changing role or workload due to COVID-19	35.7% (10 responses)
3rd.	Lack of funding to pay for professional learning	28.6% (8 responses)

STEM professional learning priorities for 2021/22 – The top three priorities were:

1st.	Learning approaches to deliver STEM learning within a CLD context	42.3% (12 responses)
2nd.	Understanding of the concepts and knowledge that underpin digital skills within a CLD context	42.3% (12 responses)
3rd.	Support for National Qualifications	35.7% (10 responses)

Support for STEM professional learning with the greatest anticipated impact –

Practitioners were asked which type(s) of support would have a positive impact on their professional learning in STEM. The most common responses related to online resources and practitioner networks.

1st.	More dedicated online professional learning resources for CLD practitioners	82.1%% (23 responses)
2nd.	Access to an online network of practitioners to share practice and resources	71.4% (20 responses)
=	More information from Education Scotland on what professional learning is available	71.4% (20 responses)
=	National networking and good practice events	71.4% (20 responses)
=	Regional networking and good practice events	71.4% (20 responses)

Practitioner confidence – Practitioners were asked about their confidence in relation to discrete areas of STEM. Of those who answered each question, the proportion of practitioners who responded ‘agree’ or strongly agree’ to the statement “I feel confident in delivering [discrete area of STEM]” were:

• Sciences	39.1% (9 out of 23 responses)
• Technologies	42.9% (9 out of 21 responses)
• Digital learning	60.0% (15 out of 25 responses)
• Engineering	27.3% (6 out of 22 responses)
• Mathematics and numeracy	45.8% (11 out of 24 responses)
• Gender balance, equity and equalities	60.0% (15 out of 25 responses)

Annual STEM CLD Practitioner Survey 2020/21

About the survey

Background

The aim of the Annual STEM CLD Practitioner Survey is to track enhancements in STEM professional learning undertaken by practitioners in the community learning and development sector.

The survey covers aspects such as:

- Number of hours of STEM professional learning accessed
- Practitioners' confidence in delivery of STEM learning
- STEM professional learning priorities of practitioners
- Barriers to accessing professional learning.

Three further surveys were issued in 2020/21 to gather data from other sectors including:

- Early learning and childcare and schools, including additional support needs (ASN)
- School-based technical support staff
- Organisations that provide STEM professional learning.

The data presented in the 2020/21 survey findings was collected during an unprecedented period of disruption to the Scottish education system. Survey questions were adapted from previous years to take cognisance of the impact of the COVID-19 pandemic on the professional learning of practitioners. The response rate to the 2020/21 survey was significantly lower than previous years. This was largely the result of the rapid spread of the COVID Omicron variant, shortly after the survey had been issued. Education Scotland reduced its promotion of the surveys accordingly to avoid putting undue pressure on practitioners. Therefore, care should be taken when comparing data from the 2020/21 survey with previous years as these results provide a limited snapshot of STEM professional learning within the wider context of education recovery.

Structure and purpose

The survey was available made available to all practitioners via an online survey. It was promoted widely via Education Scotland and Scottish Government communication channels.

The survey findings have played, and will continue to play, a crucial role in shaping the implementation of the professional learning actions in the STEM Education and Training Strategy (<http://bit.ly/STEMstrategy>).

The findings from previous surveys have directly influenced the framing of the Enhancing Professional Learning in STEM Grants Programme which has seen over £4 million awarded to support professional learning programmes since its inception in 2018. The ambition of the grants programme is to ensure that practitioners in relevant sectors, and in various geographical

locations, have access to high-quality professional learning which meets their needs. The survey highlights priority areas for action and gaps that need to be addressed. The evidence provided by the surveys are also directly informing the work of and the professional learning offer from Education Scotland's regional teams. These teams play a key role in supporting and coordinating professional learning in STEM.

In addition, the survey data allows Education Scotland to track progress against the following key performance indicator in the STEM Education and Training Strategy:

II. Increased practitioner confidence in STEM learning in the early years, primary years and in CLD settings and increased practitioner engagement in STEM professional learning opportunities. (Excellence)

- Increase the cumulative hours of STEM professional learning accessed by early years, schools, college and CLD practitioners annually.

About you

Number of survey responses

2017/18 STEM Practitioner Survey (CLD practitioners)	139 responses
2018/19 STEM Practitioner Survey (CLD practitioners)	141 responses
2019/20 STEM Practitioner Survey (CLD practitioners)	Survey not issued
2020/21 STEM Practitioner Survey (CLD practitioners)	28 responses

Table 1. Number of responses to the Professional Learning in STEM surveys

Responding organisations

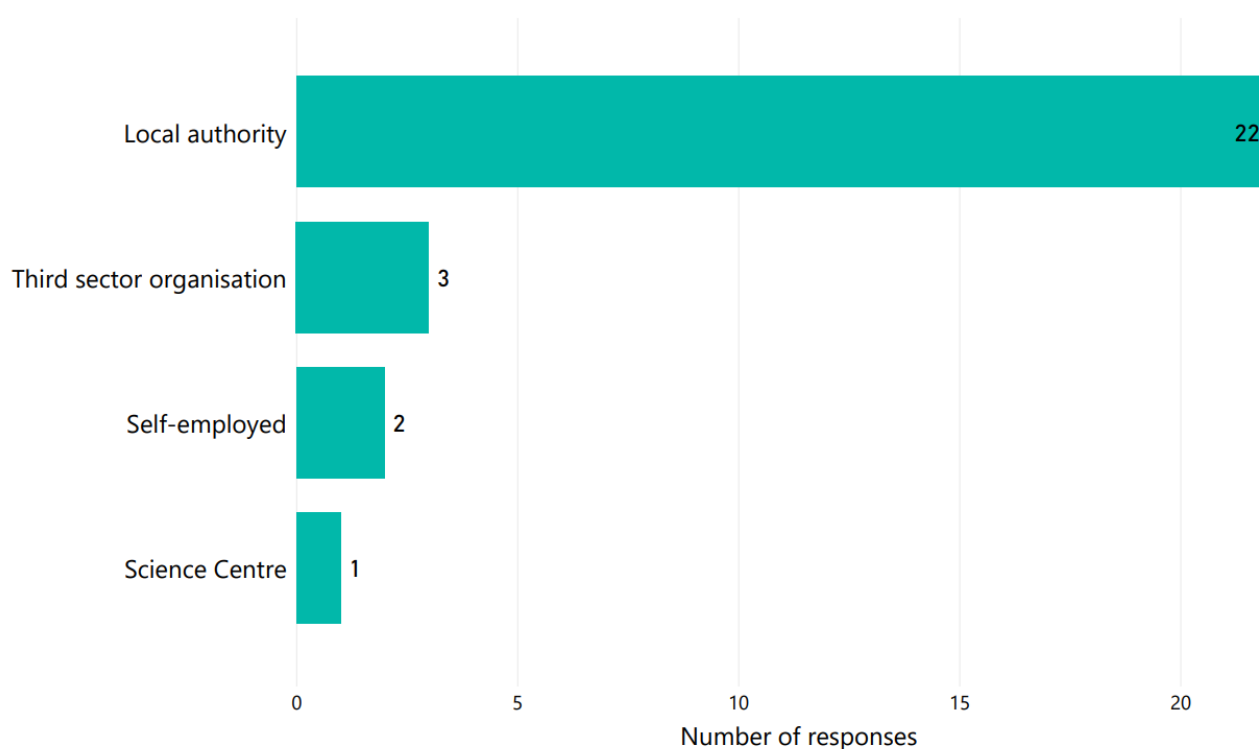


Figure 1. Number of responses by organisation type

Response by role

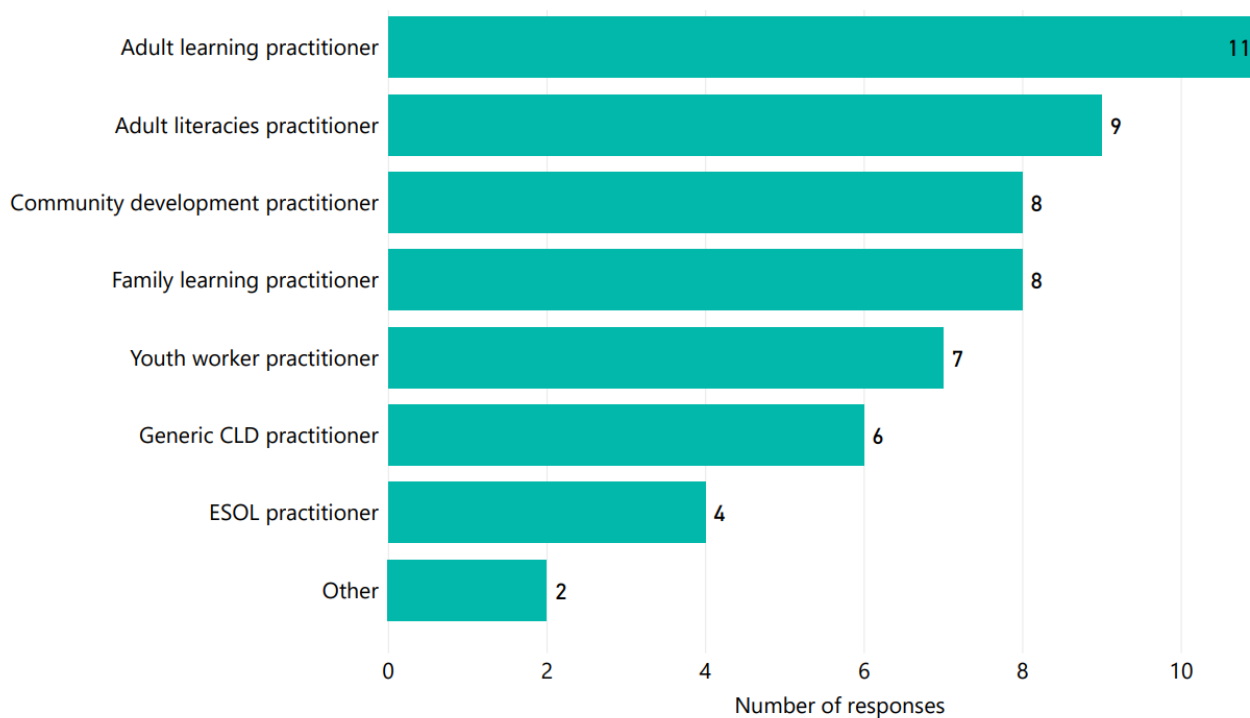


Figure 2. Number of responses by role

Note. The number of practitioner responses in this figure exceeds the total number of responses as multiple selections were possible for this question in the online survey.

Respondents' work pattern

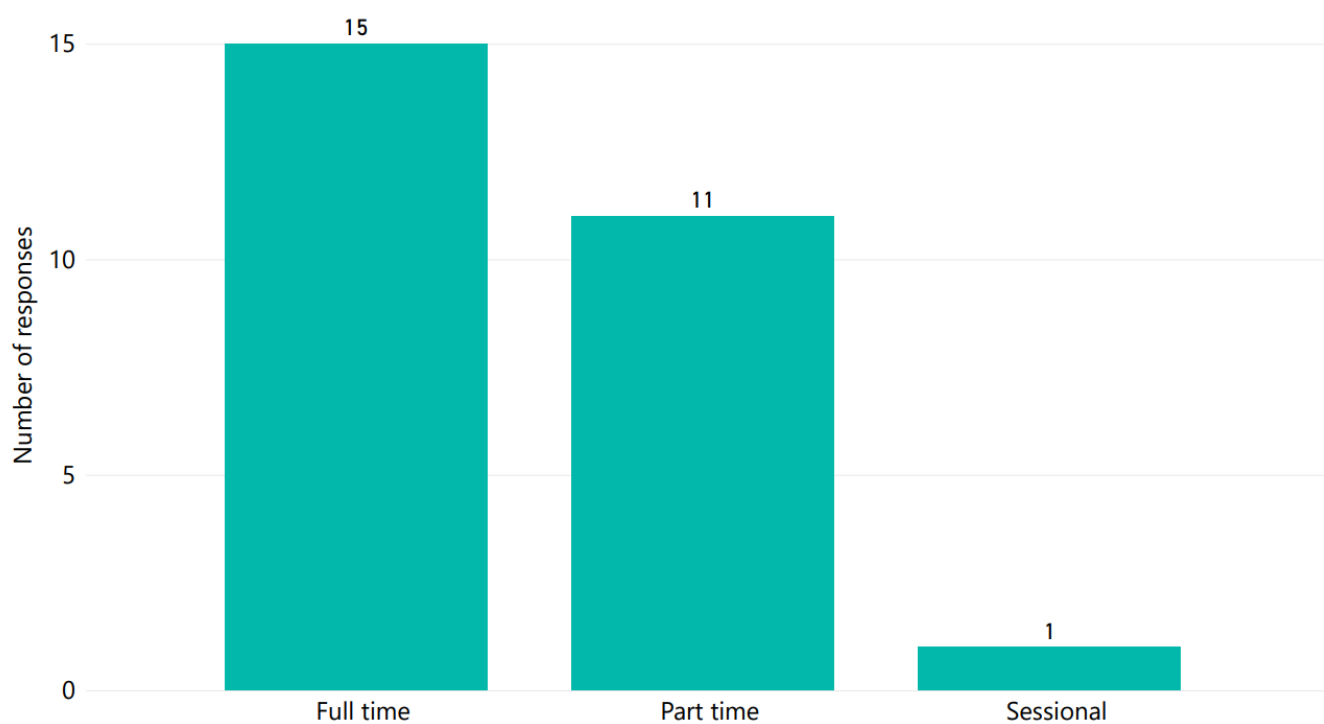


Figure 3. Respondents' work pattern

Note. Only 27 respondents provided a reply to this question.

STEM in your setting

STEM partners

Practitioners were asked whether they had a STEM partner in the 2020/21 academic session, the responses are shown in Figure 4.

37.0% (10 responses) confirmed that their service had a STEM partner(s) from the private, public or third sector.

A further 3.7% (1 response) stated that their service hoped to have a STEM partner(s) in session 2021/22.

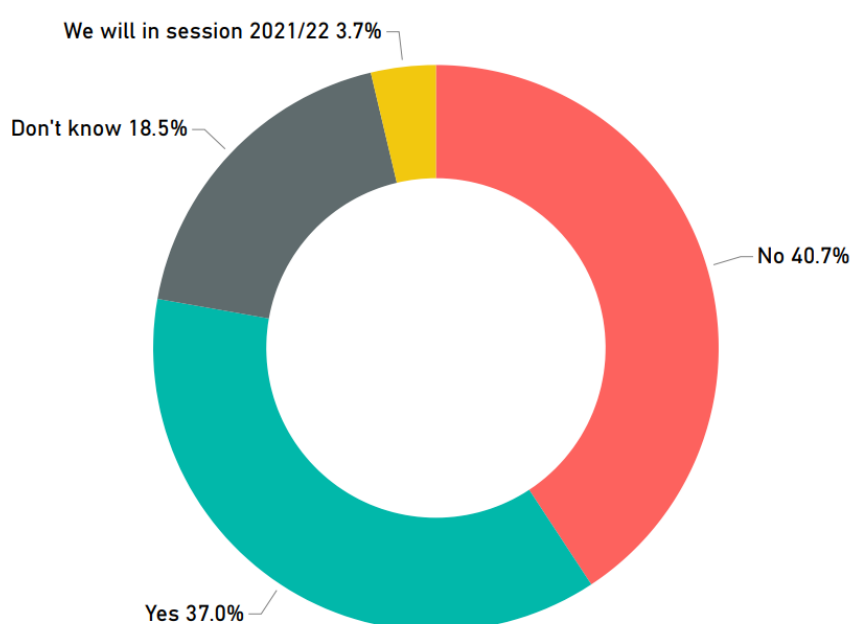


Figure 4. STEM partner(s) from private, public or third sector

Note. Only 27 respondents provided a reply to this question.

Practitioners were also asked how they found out about STEM partner organisations. The responses in Figure 5 show that networking events were the most common approach. However, a significant number of CLD practitioners were unsure how their existing STEM partnership had been established.

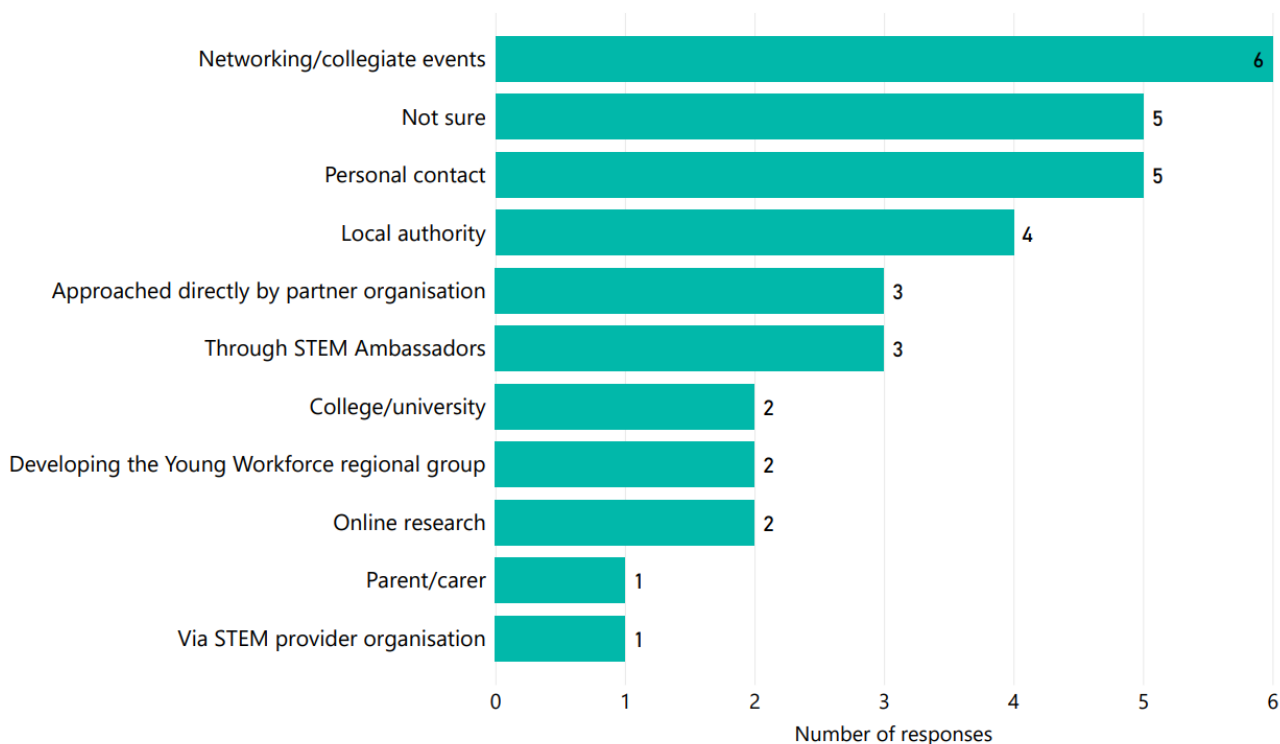


Figure 5. Finding STEM partner organisations

Note. The number of practitioner responses in this figure exceeds the total number of responses as multiple selections were possible for this question in the online survey.

Your professional learning

Total number of hours of professional learning in STEM

The **total number of cumulative hours** of practitioner professional learning in STEM accessed by the 28 survey respondents between 1 August 2020 and 31 July 2021 was **264 hours**. This is an average of **9.4 cumulative hours per practitioner per annum**. This shows a decrease of almost six hours per practitioner from the previous 2018/19 CLD survey result of 15.3 hours per practitioner per annum.

Figure 6 shows the distribution of professional learning hours across different sectors of CLD.

More than half of the 2020/21 respondents said they completed about the same number of hours of STEM professional learning as they did in 2019/2020. Figure 7 also shows that a quarter of respondents completed more or a lot more STEM related professional learning than they did in the previous year.

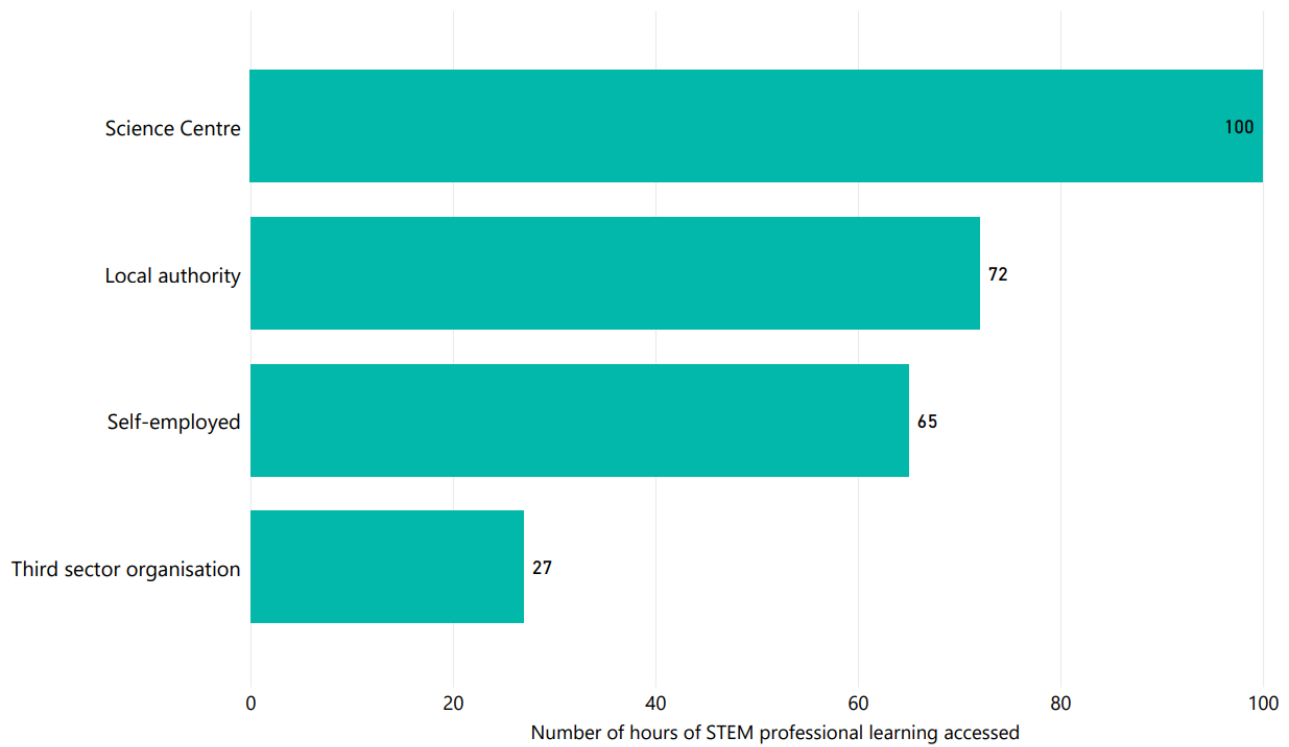


Figure 6. Number of hours of STEM professional learning accessed by sector

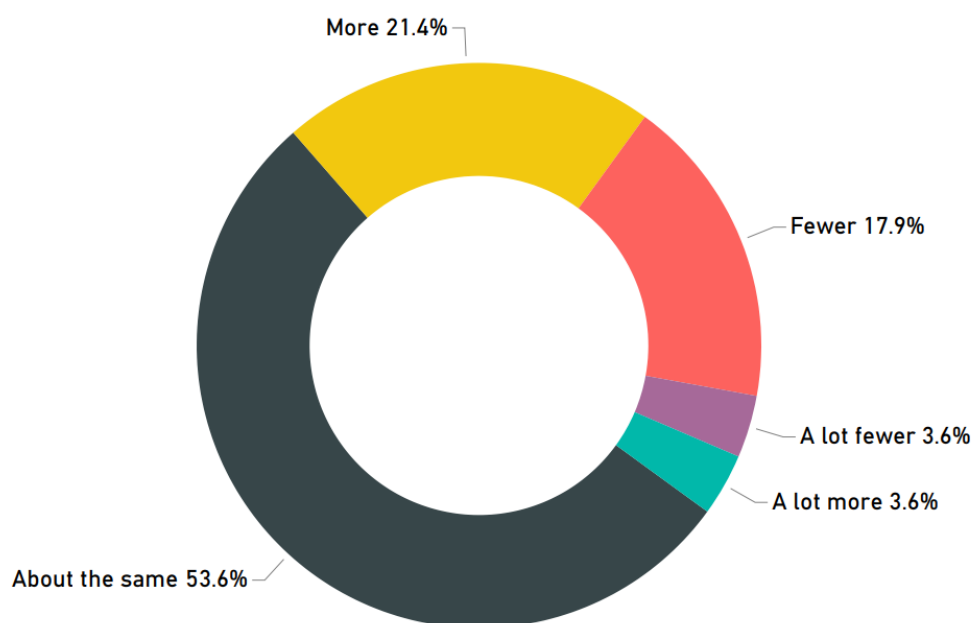


Figure 7. Hours of STEM professional learning accessed in 2020/21 in comparison with the previous year

Types of professional learning accessed and perceived value

Practitioners were surveyed about which types of STEM professional learning they accessed during the 2020/21 academic year and were also asked to rate how valuable they found each format. The most common responses remain unchanged from the 2018/19 survey namely online learning, collegiate working within an organisation and professional reading and engaging with research. Table 2 shows that the proportion of practitioners participating in online and collegiate professional learning has increased between 2018/19 and 2020/21.

The final column in Table 2 shows the perceived impact of different professional learning formats. Of the respondents who participated in each type of professional learning, those who rated the experience as 'valuable' or 'very valuable' were included in the analysis. The professional learning formats deemed to be the most valuable were external companies coming into an organisation and collegiate working with other similar organisations. Only one respondent who engaged with professional learning via social media found this to be 'very valuable'.

Although the top three responses remain unchanged from the 2018/19 survey it is worth noting that the proportion of practitioners engaging with online learning has risen by 18.1% and professional learning through collegiate work within an organisation has risen by 22.5%. Conversely, the proportion of practitioners attending an external course and having an external company coming into their setting reduced by 9.1% and 11.2% respectively. These changes could possibly be attributed to changed ways of working during the COVID-19 pandemic. However, it is worth considering whether a strengthened online professional learning offer will support practitioners in the long term by removing barriers such as travel and costs associated with physical venues.

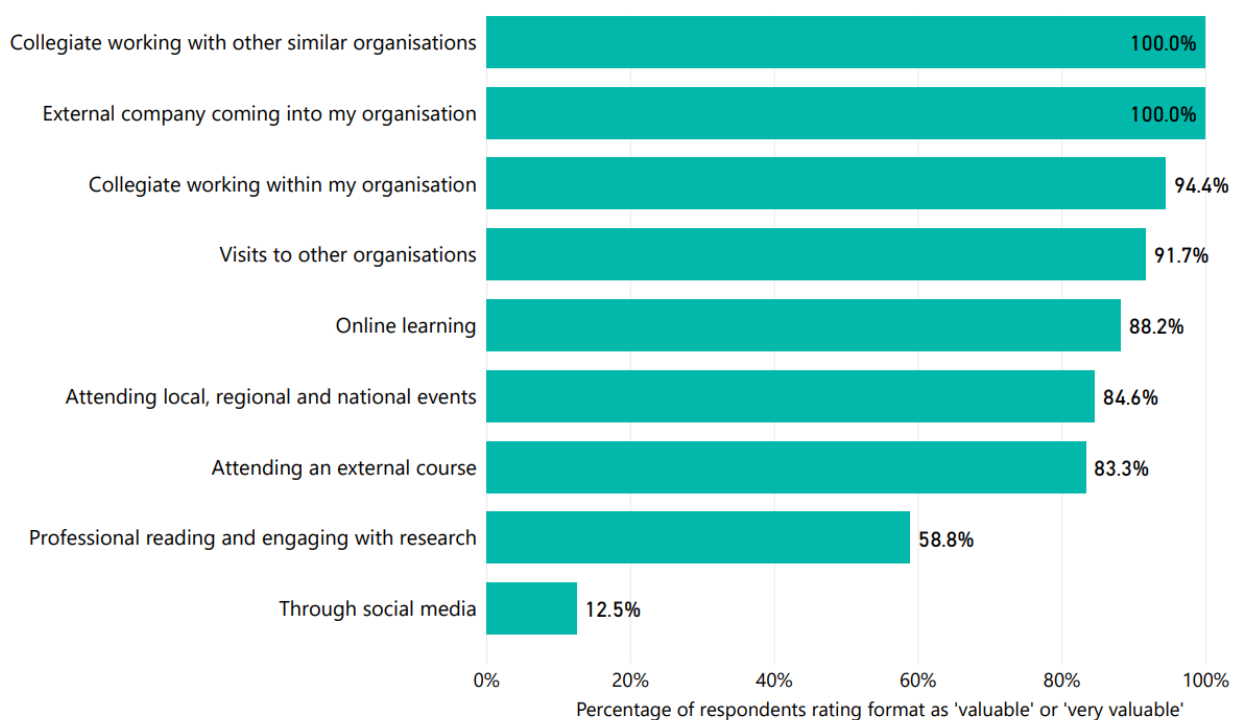


Figure 8. Impact of different types of professional learning

Types of professional learning	2017/18 Response % (count)	2018/19 Response % (count)	2019/20 Response % (count)	2020/21 Response % (count)	2020/21 Impact
Online learning	8.6% (12)	42.6% (60)	—	60.7% (17)	88.2% (15)
Attending an external course	6.5% (9)	30.5% (43)	—	21.4% (6)	83.3% (5)
External company coming into my organisation	5.8% (8)	29.1% (41)	—	17.9% (5)	100% (5)
Collegiate working within my organisation	7.2% (10)	41.8% (59)	—	64.3% (18)	94.4% (17)
Collegiate working with other similar organisations	2.9% (4)	22.7% (32)	—	46.4% (13)	100% (13)
Through social media	*	29.8% (42)	—	28.6% (8)	12.5% (1)
Attending local, regional and national events	*	34.8% (49)	—	46.4% (13)	84.6% (11)
Visits to other organisations	*	21.3% (30)	—	42.9% (12)	91.7% (11)
Professional reading and engaging with research	*	53.9% (76)	—	60.7% (17)	58.8% (10)
Other	*	14.2% (20)	—	—	—

Table 2. Types of professional learning accessed by practitioners and the impact on learning

Note: ■ Indicates top 3 responses
 * Question not included in the 2017/18 survey
 — Data not available as survey was not issued in 2019/20

Recent surveys show a growing trend in collaborative working relating to STEM professional learning both within and between CLD organisations. The vast majority of practitioners engaging in this type of professional learning report that collaborative work is ‘valuable’/‘very valuable’ therefore consideration should be given to developing opportunities for collaboration when designing future professional learning programmes.

Organisations that provided STEM professional learning

Respondents were asked which organisations provided STEM professional learning. Table 3 outlines the top three responses from recent surveys.

	2017/18	2018/19	2019/20	2020/21
1	My employer	My employer	–	My employer
2	National or local voluntary sector organisation	Education Scotland	–	Education Scotland
3	Education Scotland	National or local voluntary sector organisation	–	Science centres/ festivals

Table 3. Organisations that provided STEM professional learning

Note: 2019/20 data is not available as survey was not issued.

Figure 9 shows the remaining responses to this question. The proportion of practitioners accessing STEM professional learning through their employer reduced from 66.7% in 2018/19 to 50% in 2020/21. However, the additional comments provided by respondents highlighted some examples of informal peer to peer learning. This prompted a change of category from ‘My employer’ to ‘My employer (or colleagues)’ to recognise both informal peer learning opportunities and traditional training courses delivered by an employer. There will be an opportunity in future surveys to look deeper at formal professional learning opportunities provided by employers and collaborative working and peer to peer learning between colleagues. Three respondents accessed STEM professional learning from ‘other’ sources – it was clear from comments provided in the survey that these responses related to online study but the provider of the learning was not noted.

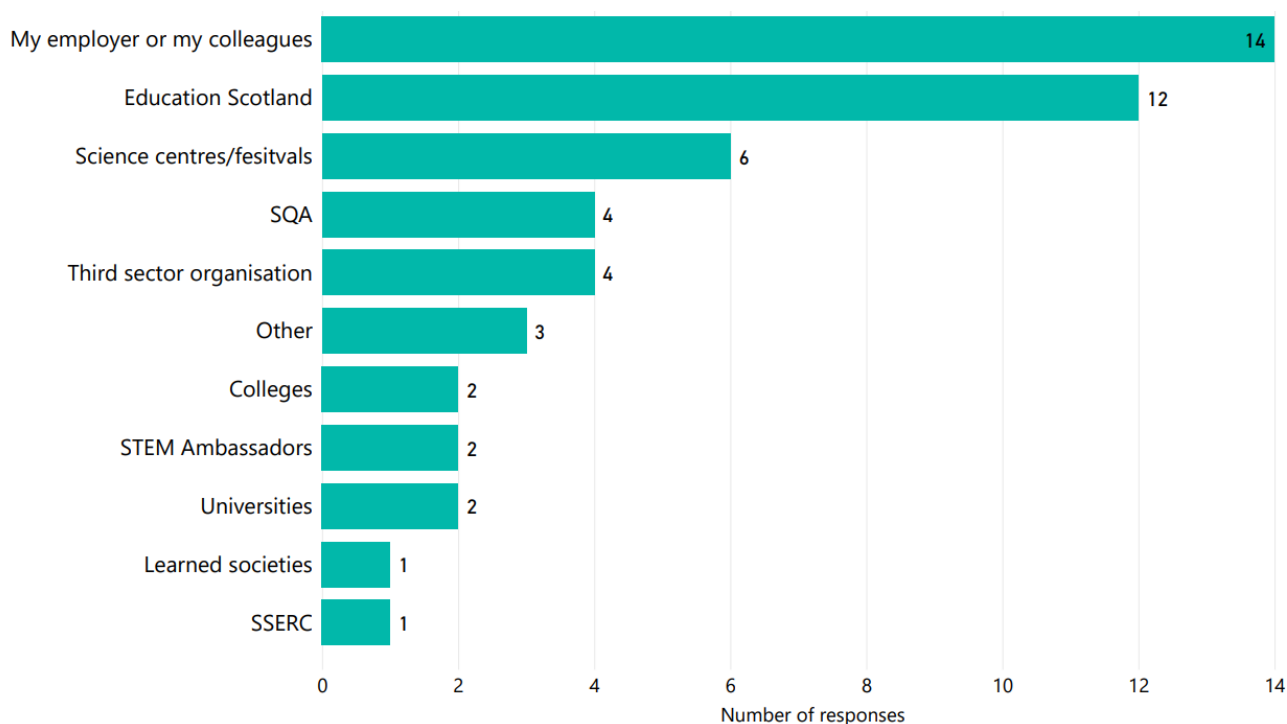


Figure 9. Organisations providing STEM professional learning for CLD practitioners

Note. The number of practitioner responses in figure 9 exceeds the total number of responses as multiple selections were possible for this question in the online survey.

Ease of accessing professional learning in STEM

Figure 10 shows how easy respondents found it to access STEM professional learning. The proportion of respondents reporting that it was 'easy' or 'very easy' to access STEM professional learning rose by 10% from 27.0% in the 2018/19 survey to 37.0% in 2020/21.

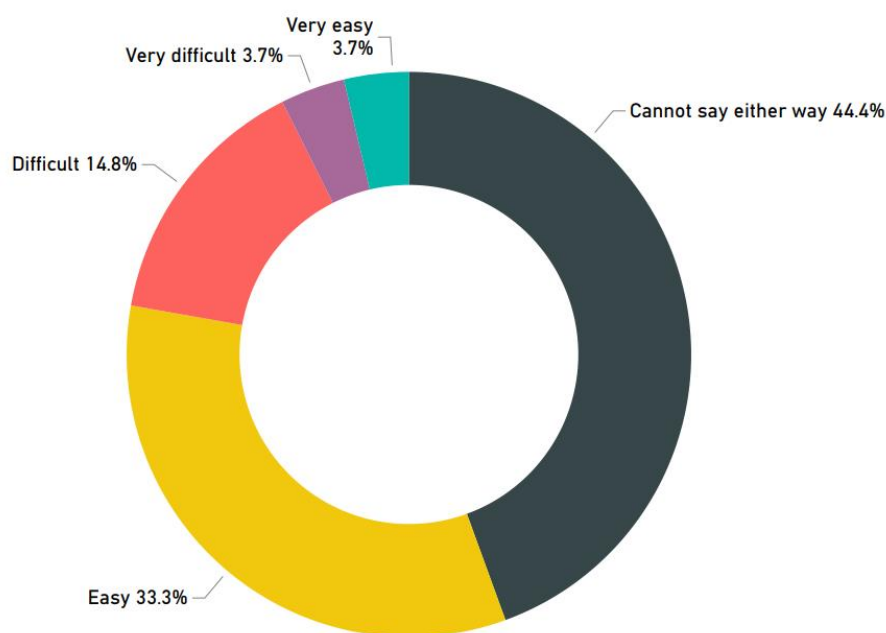


Figure 10. Ease of accessing professional learning in STEM

Note. Only 27 respondents provided a reply to this question.

Main barriers to accessing professional learning in STEM

The 2020/21 survey highlighted a number of barriers to accessing professional learning in STEM. The responses to this question are shown in Figure 11. Due to the global pandemic two new responses relating to the impact of Covid-19 on role/workload and the impact of furlough were included in the 2020/21 survey.

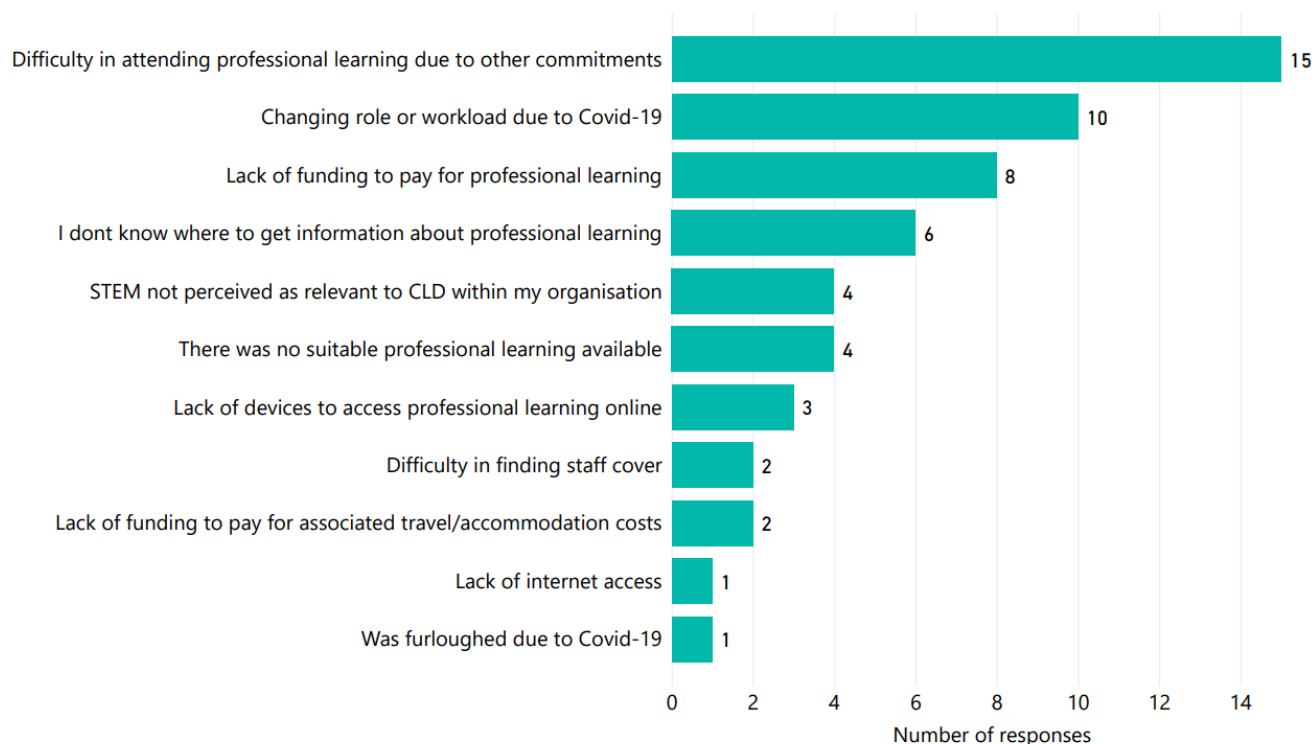


Figure 11. Main barriers to accessing professional learning in STEM

Note. The number of practitioner responses in this figure exceeds the total number of responses as multiple selections were possible for this question in the online survey.

In addition to the options listed in Figure 11, respondents were able to provide additional comments. A number of these reported positively that practitioners did not experience barriers to accessing STEM professional learning:

“I didn't see any barriers beyond the restrictions imposed by Covid so we couldn't run face to face sessions”

“We had a STEM ambassador that cascaded down information and resources.”

Of those who did experience barriers to accessing STEM professional learning, the themes of workload/competing priorities and lack of funding remained from previous years.

Table 4 lists the top three barriers to accessing professional learning in STEM over recent surveys.

	2017/18	2018/19	2019/20	2020/21
1	Lack of funding to pay for professional learning	Difficulty in attending professional learning due to other commitments	–	Difficulty in attending professional learning due to other commitments
2	Difficulty in attending professional learning due to other commitments	Lack of funding to pay for professional learning	–	Changing role or workload due to Covid-19
3	Difficulty in finding staff cover	I don't know where to get information about professional learning	–	Lack of funding to pay for professional learning

Table 4. Main barriers to accessing professional learning in STEM

Note: 2019/20 data is not available as survey was not issued.

STEM professional learning priorities for academic year 2021/22

In the 2020/21 STEM professional learning survey practitioners were asked what their professional learning priorities were for the year ahead. Table 5 compares the top three responses from the 2020/21 survey with the previous 2018/19 survey. Learning approaches to deliver STEM learning remains a key priority. It is likely that the COVID-19 pandemic and associated national lockdown has resulted in an increased need for digital skills to support online learning.

2018/19 survey	2020/21 survey
1. Awareness about resources and support available for STEM	1. Learning approaches to deliver STEM learning within a CLD context
2. Learning approaches to deliver STEM learning	2. Understanding of the concepts and knowledge that underpin digital skills within a CLD context
3. How to lead and coordinate STEM	3. Support for National Qualifications

Table 5. Top STEM professional learning priorities in 2018/19 and 2020/21

Figure 12 shows the full range of responses to this question. Only one respondent indicated that STEM professional learning was not a priority for them in the year ahead.

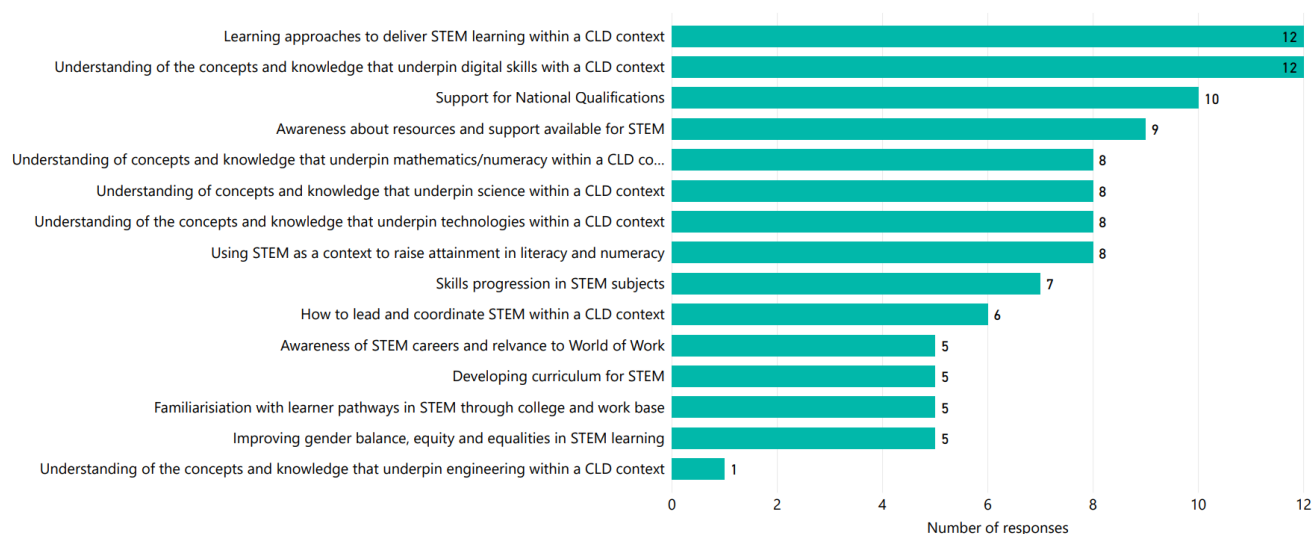


Figure 12. STEM professional learning priorities for academic year 2020/21

Note. The number of practitioner responses in this figure exceeds the total number of responses as multiple selections were possible for this question in the online survey.

Impact of future STEM professional learning opportunities

Respondents were asked which type(s) of support would have a positive impact on their professional learning in STEM. Figure 13 shows the opportunities that respondents ranked as likely to have ‘some impact’ or ‘strong impact’. The most common response was more dedicated online professional learning resources for CLD practitioners. There was also significant support for online, regional and national networks to support professional learning in STEM.



Figure 13. STEM professional learning opportunities that would deliver greatest impact

Note. The number of practitioner responses in this figure exceeds the total number of responses as multiple selections were possible for this question in the online survey.

2017/2018 survey	2018/2019 survey
1. Awareness about resources and support available for STEM	1. Dedicated online professional learning resources for CLD practitioners
2. Understanding how to incorporate STEM subjects into my current practice	2. More information from Education Scotland on what professional learning is already available to CLD and other education practitioners
3. Using STEM as a context to increase skills in numeracy	3. The opportunity to apply for professional learning grants to develop your practice

Table 6. STEM professional learning opportunities with greatest anticipated impact from 2017/2018 and 2018/2019 surveys

Table 6 shows the results from previous STEM professional learning surveys and allows a comparison with the 2020/21 data. Although the wording has changed slightly over the last three surveys, it is clear that CLD practitioners would still like to see more professional learning resources developed to specifically support practitioners delivering STEM in informal CLD settings as opposed to generic cross-sector support.

STEM in your practice

STEM practice in community learning and development

Practitioners were asked what areas of STEM-related community learning and development they had been involved in during the 2020/21 academic session. Responses, shown in Figure 14, showed a clear focus on digital learning and numeracy support. This question was not asked in the previous 2018/19 CLD survey.

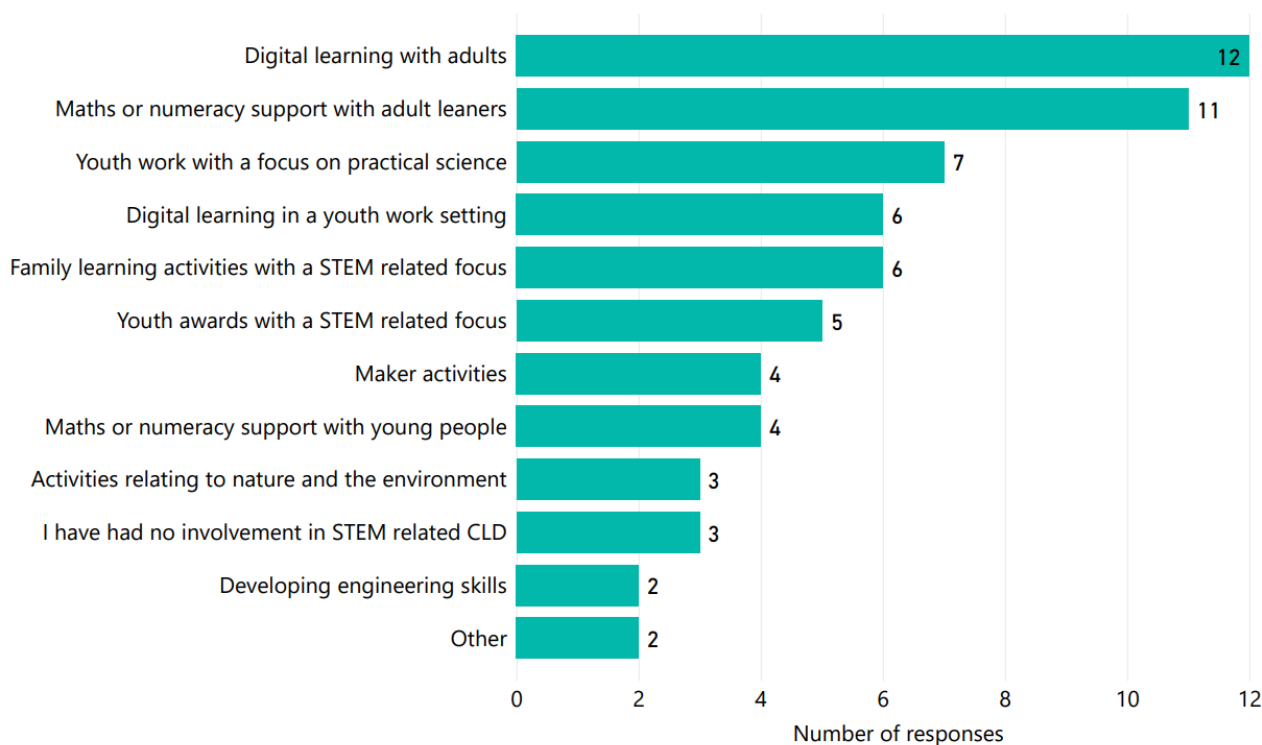


Figure 14. STEM practice in CLD

Note. The number of practitioner responses in this figure exceeds the total number of responses as multiple selections were possible for this question in the online survey.

Practitioner confidence

The 2020/21 survey asked practitioners about their confidence in relation to discrete areas of STEM. The visual below shows the proportion of practitioners who responded ‘agree’ or ‘strongly agree’ with the statement “I feel confident in delivering [discrete area of STEM]”.

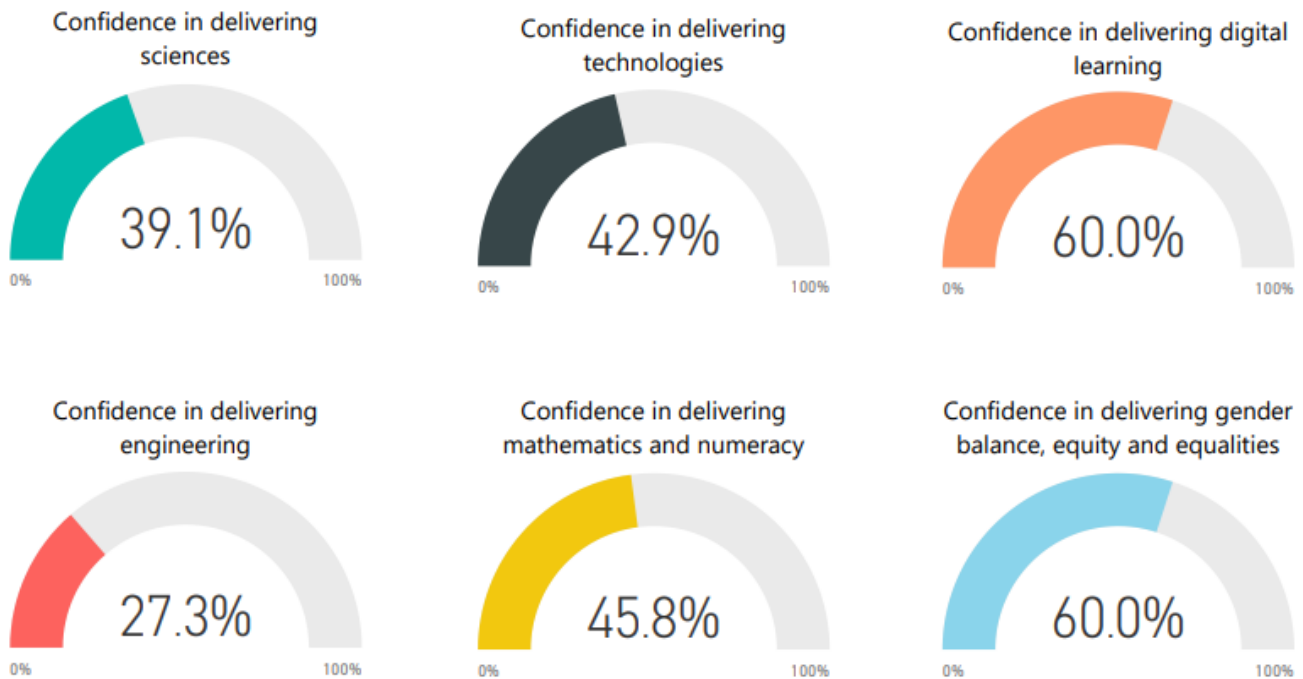


Figure 15. Practitioner confidence in delivering discrete areas of STEM

In comparison, the confidence levels of CLD practitioners for the discrete aspects of STEM in 2018/19 were: Sciences (28.4%), Technologies (32.6%), Digital (49.6%), Engineering (12.8%), Numeracy and Mathematics (63.1%), Gender balance and equalities (48.9%).

CLD practitioner confidence was highest in delivering digital learning and gender balance, equity and equalities. The confidence levels of CLD practitioners in these two areas was similar to the confidence levels of teachers and early learning and childcare practitioners when asked the same question in the 2020/21 practitioner survey. Similarly, confidence levels in delivering engineering received the lowest response rate across all sectors.

CLD practitioners reported a confidence level of 45.8% in relation to the delivery of mathematics and numeracy. This is significantly lower than the 81.0% confidence rate reported by practitioners in the early learning and childcare and school sectors in the 2020/21 practitioner survey.

Education Scotland response

Academic year 2020/21 marked the fourth year of implementation of the STEM Education and Training Strategy. During this period Education Scotland continued to put in place the key national infrastructure and resources required to address the priorities and needs identified by practitioners in relation to STEM. This included significant support in response to the COVID-19 pandemic.

CLD Network

ES also co-hosts an online STEM in CLD practitioners network in partnership with YouthLink Scotland, Learning Link Scotland and Glasgow Science Centre. Sessions are open to all CLD practitioners. Find out more about the Network and other resources and information on our CLD and STEM Wakelet. [CLD and STEM - Wakelet](#)

Engaging with partners

In recognition of the significant disruption to education and the pressures on educators to adapt to remote teaching during the national lockdown, the 2019/20 Professional Learning in STEM surveys were not issued. However, a number of STEM professional learning providers were still able to share very useful data as part of the 2019/20 Annual STEM Provider Data Gathering exercise.

The [provider data report](#) featured 105 responses from 82 unique providers. This included returns from settings and organisations in receipt of Enhancing Professional Learning in STEM grant funding from Education Scotland. The provider data covered the period from 1 August 2019 to 31 July 2020 and provided a useful snapshot of the provision of STEM professional learning throughout the academic year leading up to and including the pandemic.

The survey findings have been used by Education Scotland to help shape the national professional learning offer, including the projects supported through the third round of the Enhancing Professional Learning in STEM Grants Programme. A wide range of partner organisations have also used the survey findings to help them align their professional learning programmes and strategies to the needs of practitioners.

Enhancing Professional Learning in STEM Grants Programme

Education Scotland awarded a total of £430,000 of STEM professional learning grants in financial year 2021/22, supporting 84 projects in Round 3. This funding was aligned to the priorities and findings from the previous STEM annual practitioner surveys. Since the grants programme started in 2018, over £4 million has been awarded to 248 projects, including many with a CLD focus. An estimated 58,161 practitioners across all sectors have benefitted from the three funding rounds which have run to date. More information about the grants being supported is available from the [STEM summary page](#) on the National Improvement Hub.

Professional learning

Education Scotland's Community Learning and Development Officers have engaged widely with the CLD sector to support their STEM professional learning needs. This was supported in partnership with Education Scotland's regional STEM, Numeracy & Mathematics and Digital

Skills teams. STEM professional learning opportunities continue in session 2021/22 providing a blend of national and regional webinars across the STEM subjects. For more information please see Education Scotland's [Event page](#).

STEM Nation Award

From 2022, CLD agencies are invited to apply for the STEM Nation Award in recognition of innovative and inclusive STEM practice. The CLD application guidance was co-developed by Education Scotland and a working group of CLD practitioners from across Scotland. The award programme provides a framework to help evaluate existing practice, identify areas of strength and development needs and create an action plan for continued improvement in STEM. The award contains five elements which can be worked towards over a period of three years: Leadership in STEM, STEM learning in the community, Employability and STEM partnership working, STEM curriculum and learner pathways and Equity and equality in STEM. Education Scotland's Regional STEM Education Officers will provide ongoing support to CLD agencies interested in working towards and applying for the STEM Nation Award.

RAiSE Programme

The Raising Aspirations in Science Education (RAiSE) programme aims to build the capacity of practitioners, particularly in primary school settings, to deliver inspiring and engaging learning in science and STEM. The programme is led by Education Scotland and funded by The Wood Foundation, Scottish Government and participating local authorities. The programme was established in 2016 and is now being extended nationally, following its successful pilot. The local authorities that are participating, or have participated, in the programme to date include:

- Angus Council
- City of Edinburgh Council
- Clackmannanshire Council
- Comhairle Nan Eilean Siar
- Dumfries and Galloway Council
- Falkirk Council
- Fife Council
- Glasgow City Council
- Moray Council
- North Ayrshire Council
- North Lanarkshire Council
- Orkney Islands Council
- Renfrewshire Council
- South Ayrshire Council
- South Lanarkshire Council
- The Highland Council
- West Dunbartonshire Council
- West Lothian Council

Local authorities participating in the RAiSE Programme, are provided with co-funding to support the recruitment of a Primary Science Development Officer (PSDO). These officers coordinate and lead professional learning in science and STEM across authority establishments. Since it was established in 2016, the RAiSE Programme has reached 19,372 practitioners through 1675

professional learning sessions. This has resulted in over 57,500 cumulative hours of professional learning being provided.

RAiSE Officers also collaborated to produce a comprehensive [Science Planning Resource](#) and [context planners](#) which are freely available to all nationally.

RAiSE Officers within the local authorities above have sought to engage parents, families and communities in many ways to help build STEM capital. More information about the RAiSE programme can be found on the [National Improvement Hub](#).

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Appendix: Survey questions

2020/21 survey questions for community learning and development practitioners

Who do you work for?

Which local authority area/areas do you work in?

What is your specific role within CLD? Please select all that apply.

Please tell us more about your work pattern.

What areas of STEM-related CLD have you been involved in?

Did your service/organisation have a STEM partner(s) from the private, public or third sector during this period?

How did you find out about these partner organisations?

Approximately how many hours of professional learning in STEM did you complete between 01 August 2020 to 31 July 2021?

Was this more or fewer hours than the same period last academic year: i.e. from 01 August 2019 to 31 July 2020?

Please tell us more about the types of professional learning in STEM that you accessed between 01 August 2020 to 31 July 2021.

Please rate each of the options below based on how valuable this professional learning has been for you. If you didn't access the type of professional learning please select N/A.

Please use this field to share any additional If you completed another kind of professional learning please tell us about it in the box below.

Which, if any, of the following organisations provided you with professional learning support between 01 August 2020 to 31 July 2021.

How easy has it been for you to access professional learning in STEM?

What, in your opinion, were the barriers (if any) to you accessing professional learning in STEM?

What are your STEM related professional learning priorities for this academic year (01 August 2021 - 31 July 2022)?

To what extent do you agree with the following statements with regard to your STEM practice between 01 August 2020 to 31 July 2021?

What impact would the following options have on your STEM professional learning in the future?

What else can you tell us about your experiences or thoughts on STEM-related professional learning for CLD practitioners?

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