Geospatial Training Survey Summary (2017)

State Agency GIS Collaborative

Training Workgroup

State of Minnesota

11/2/2018

Contents

Geospatial Training Survey Summary

The purpose of the State Agency GIS Collaborative is to plan, promote, and facilitate state agency communication and collaboration for state employees interested in geospatial topics and technology, including learning, networking opportunities, and technical resources. More can be learned on the Collaborative's SharePoint site.[1]

This is a summary of the results of the State Agency GIS Collaborative Training Survey that was open to Minnesota state employees from October 9 to November 3, 2017. The survey was designed by the Collaborative's training workgroup [2] to identify state agency employees' geospatial training needs. The survey was publicized in a newsletter update from the collaborative that is sent to the internal mailing list of state agency staff who have indicated an interest in GIS.[3] The committee also sent direct communication to the Collaborative's point of contacts from each agency asking them to forward it to appropriate or interested staff. Although we are unsure of exactly how many people were informed of the survey, 512 state employees participated; with 96% responding to the majority of the survey questions.

The survey was broken into ten major sections as described in this document. Key findings include:

1. Overall, we are very experienced with geospatial technology with the majority of us having 10 or more years of experience.
2. We consider our skill level intermediate when it comes to desktop GIS solutions, however lack skills with more specific technologies such as web mapping technology, remote sensing, or database management software.
3. Not many of us have formal geospatial training, and we spend more than half of our time learning the technology on our own.
4. We consider time the biggest obstacle to accessing training, next to money; however nearly 60% of us don't include geospatial training in our professional development plans.
5. All of us, regardless of years of experience, would like basic GIS and cartography training.

[1] Collaborative's SharePoint URL is https://mn365.sharepoint.com/sites/MNIT-MnGeo/Collaboration/SitePages/Home.aspx

[2] Training Workgroup members include Lindsey Danielson, Catherine Hansen (chair), Jim Krumrie, Anne Morris, Tim Tabor, Jennifer Johnson, and Nancy Rader.

[3] The Collaborative's newsletter subscription had 813 members at the time of the survey.

Section 1: Who are we and where do we work?

This section sought to determine which agency the respondent worked for, their job classification, and their office location. By asking to define the classification of our job titles, the hope was to explore the variety of positions utilizing geospatial technology. The graph and map below further illustrate that not all areas are equally represented and not all counties in Minnesota had state employees responding to the survey.

How do we classify our job titles? Common Job Description

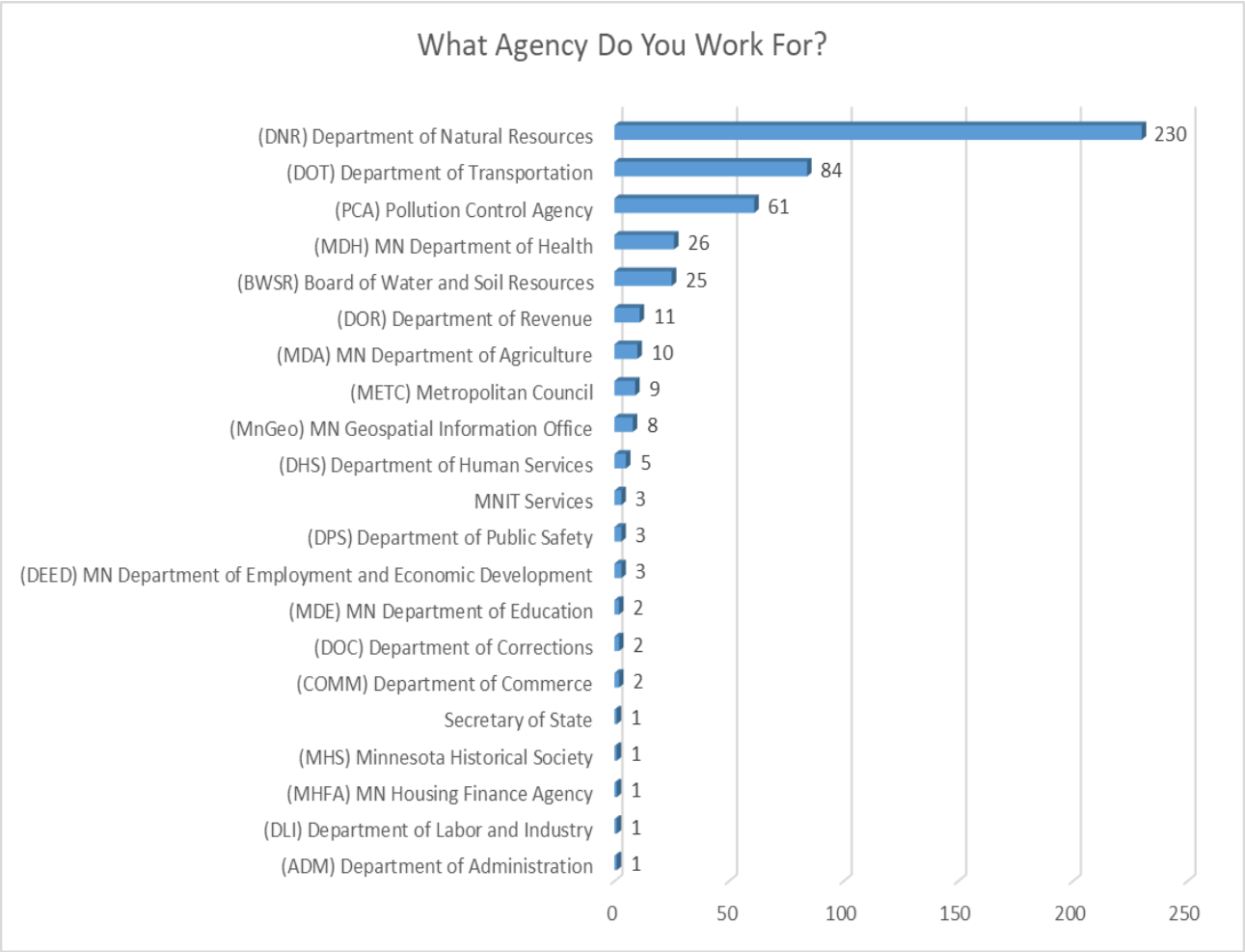
We have a wide variety of job classes, regardless of experience or expertise. With over 1,200 class specifications for state employees posted at the MMB site[4], the response was difficult to analyze. Showing the results graphically as a word cloud[5] seemed appropriate. Overall, a large majority of responses included work with natural resources in the title. This is reflective of the agency response as well.

[4] Minnesota Management and Budget https://mmb.extranet.mn.gov/mmb-extranet/hr-toolbox/job-class-specs/i.jsp

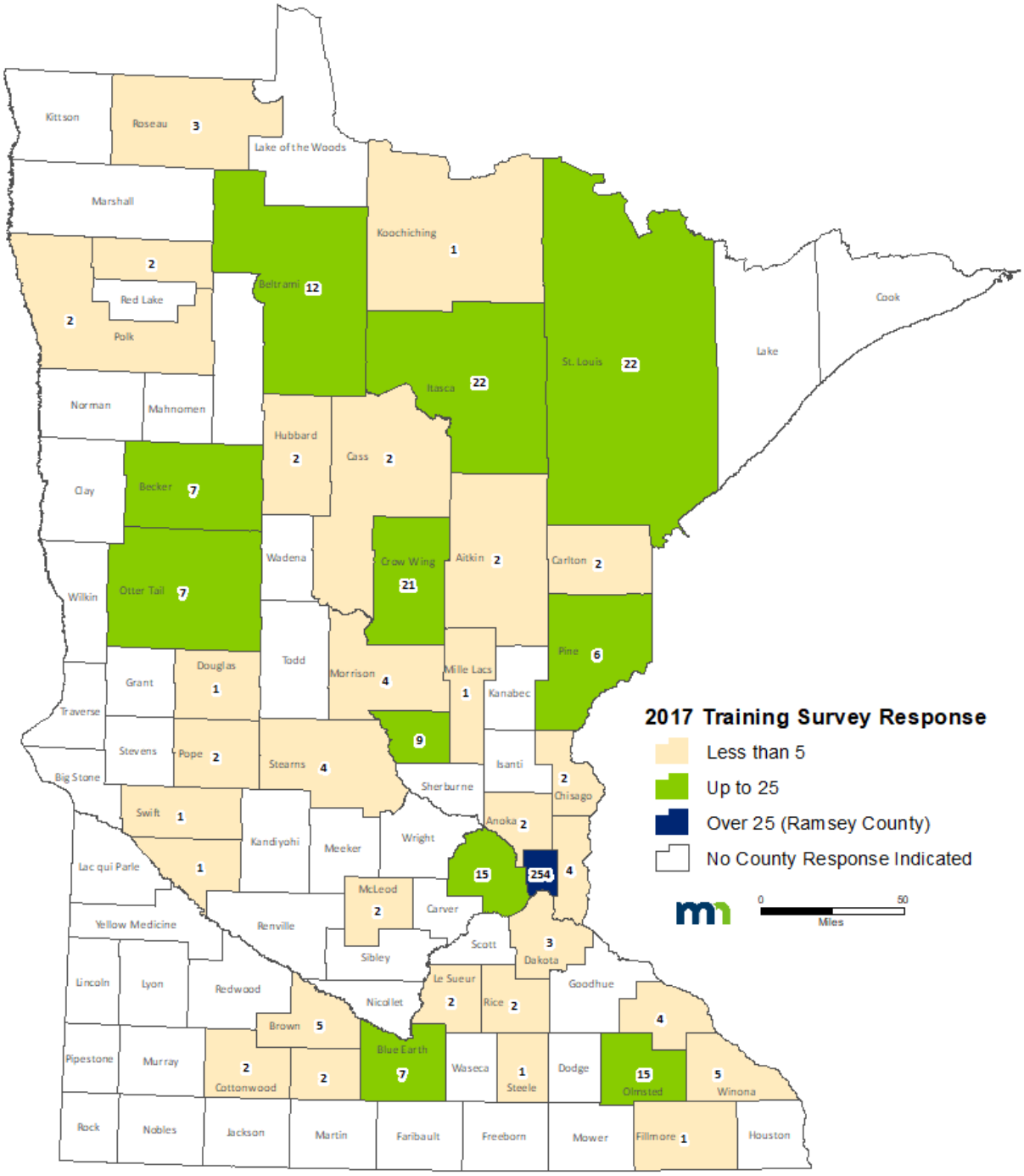
[5] WordItOut.com was used to generate this word cloud.

What agency do we work for?

Fifty-three of the 492 employees indicated they were with MNIT employees partnering with a state agency.



Where do we work? Job Location

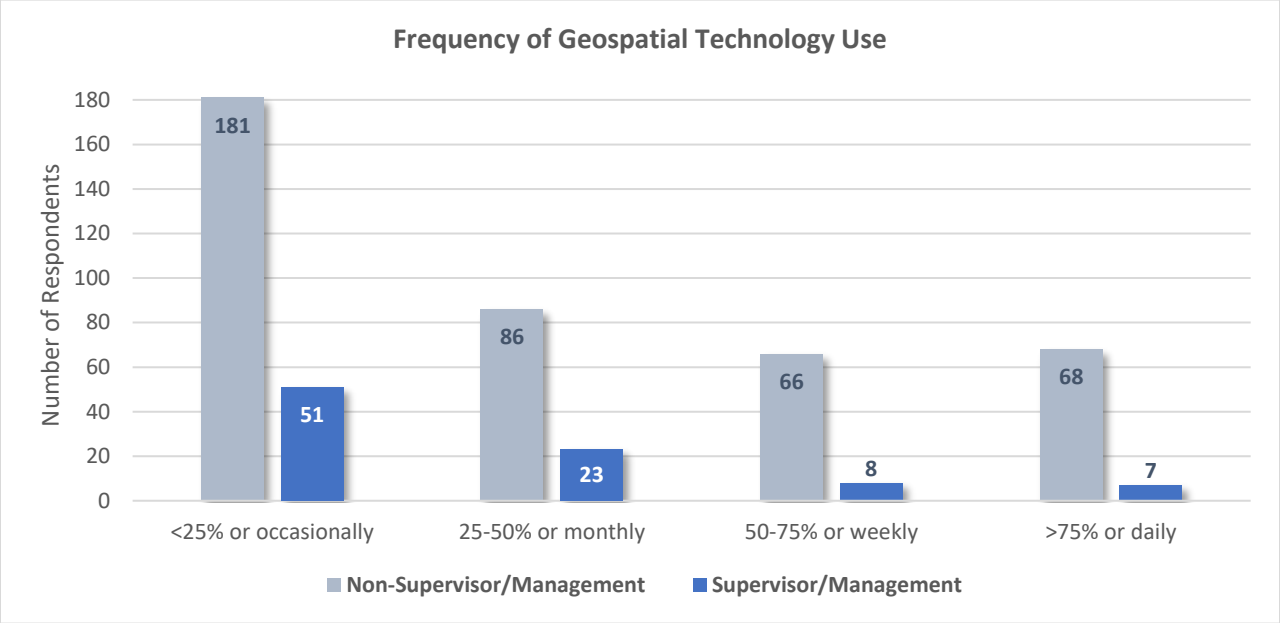


Section 2: Experience and Frequency of Geospatial Technology Use

This section explores how much experience and training respondents had, specifically in GIS, along with how we use GIS in our current job. The graphs indicate that respondents collectively have a lot of years of experience and very few years of formal training. A majority are occasional or semi-occasional GIS users. This highlights a possible leaning toward learning on the job as the job workflows may dictate the level of GIS required. Even those with two or fewer years of experience indicated they had little formal training in GIS. This signals perhaps that those with less GIS experience may not directly have GIS-specific degrees or job titles.

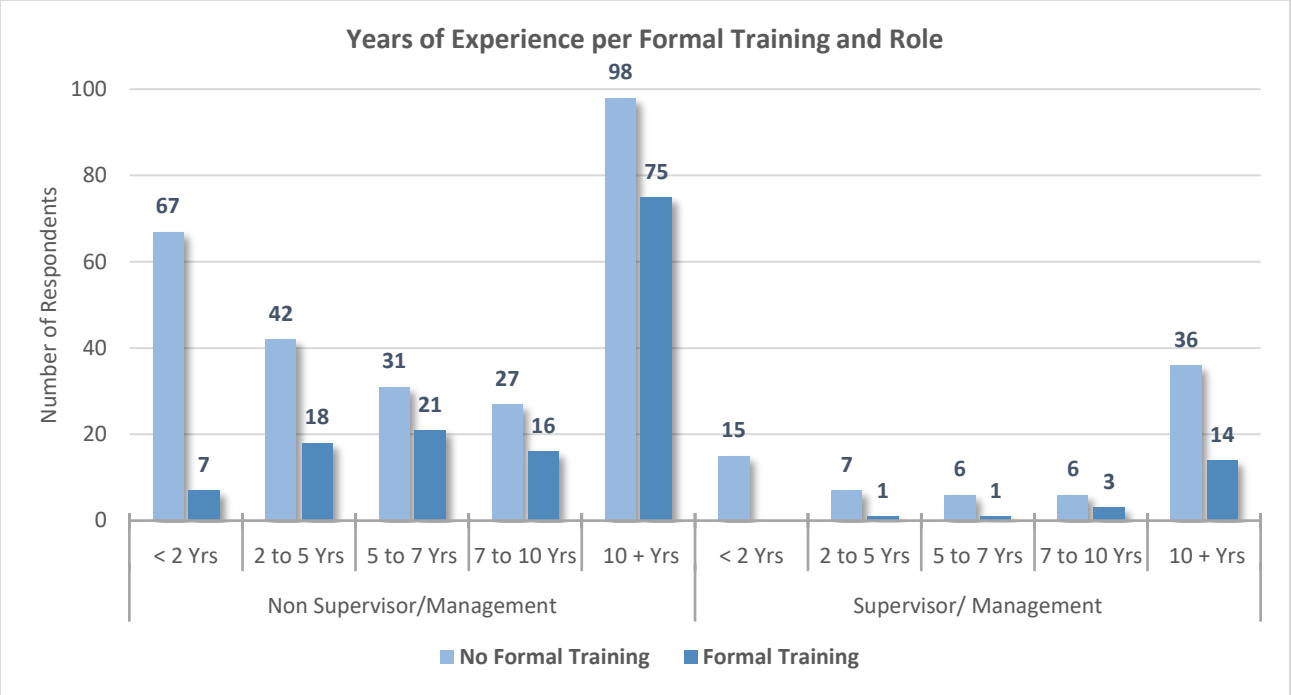
How often do we use geospatial technologies in our jobs?

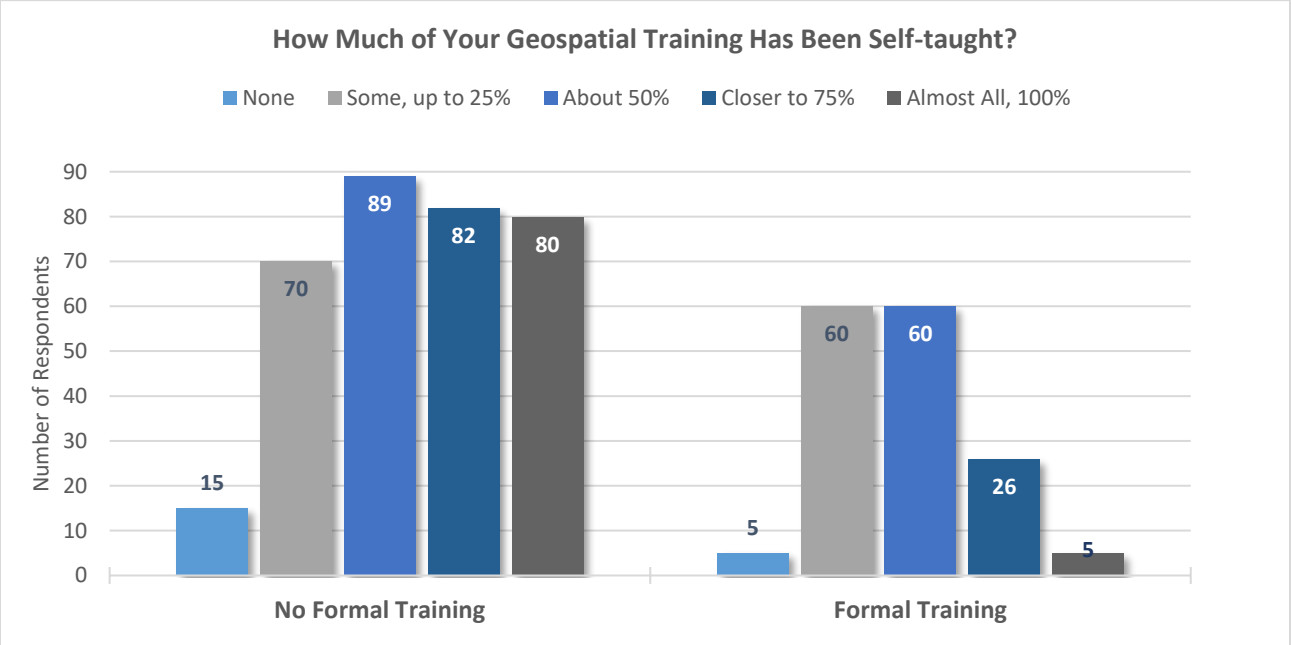
We cross-referenced years of experience and formal training with whether or not a respondent was in a supervisory position. The graph below demonstrates that we collectively have years of experience in GIS but very little formal training. The idea was to see how job position and years of experience influence the use of technology in different ways.



How experienced are we with geospatial technology? Do we have formal/informal training?

Although it is a challenge to define what one considers formal or informal training, we attempted to identify simply what respondents thought. A great majority of us consider our training to be more informal than formal. Informal training can include on-the-job training or training on-demand. It also reflects that changes in software occur more quickly than formal software training can be implemented. In essence, formal training on any given software platform becomes obsolete as technology advances and grows. The following chart shows that all respondents rely more on informal training. The respondents that have been most likely to receive format training are experienced users who are not in supervisor/management roles.

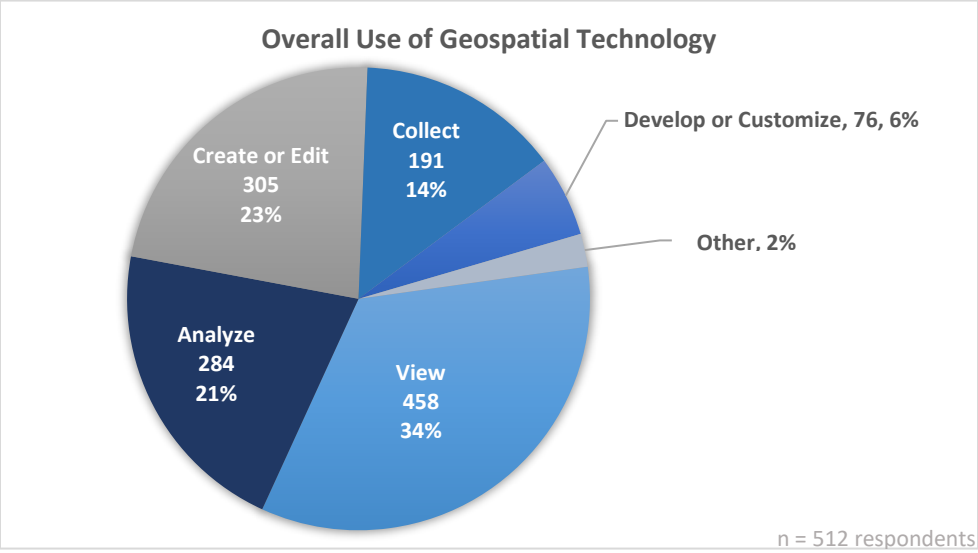


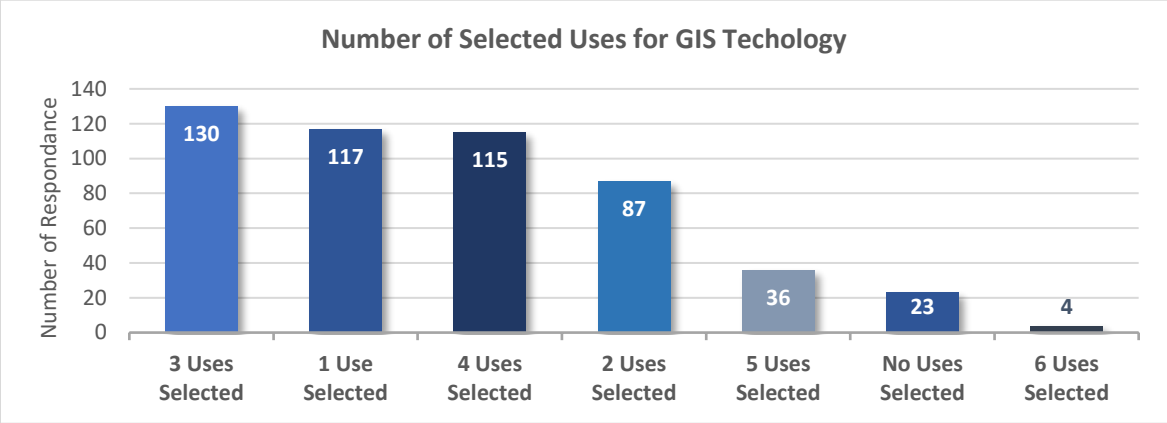


Clearly those with no formal training self teach GIS skills, as the graph shows. Also interesting is that responders who indicate they have had formal training self-teach 25-50% of the time. As GIS professionals, these charts indicate that we are in essence professional on-the-job learners.

How do we use geospatial technology?

This question sought to explore the different ways we use GIS by providing multiple answer choices. The majority of us do indeed use GIS to view spatial data, relationships and patterns, and also use GIS in more than 3 of the choices. Twenty-three people did not choose any of the options but perhaps provided some of the "other" use options listed below.





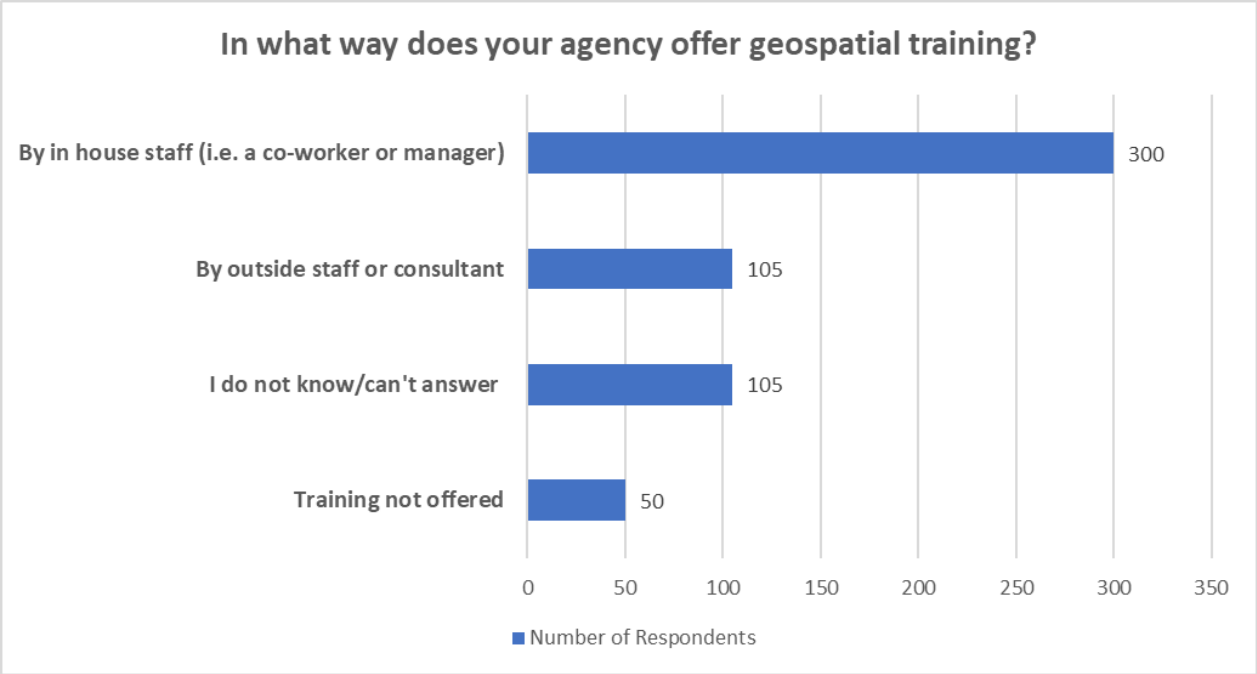
Selection of Interesting Other Uses of Geospatial Technologies:

- Data Steward for a database system using replicated database checkouts
- Direct contractors in data collection or problem solving
- GIS/tabular data maintenance, analysis, and Extract Transform Load (ETL) through scripting w/ Python
- Manage projects that sometimes involve sophisticated GIS work done by others
- Provide guidance to smarter GIS programmers regarding needed tools and analyses
- Implement Participatory Geographical Information Systems (PGIS) at public meetings
- GIS Support for Others
- Unmanned aerial system (UAS)

Section 3: Training Options

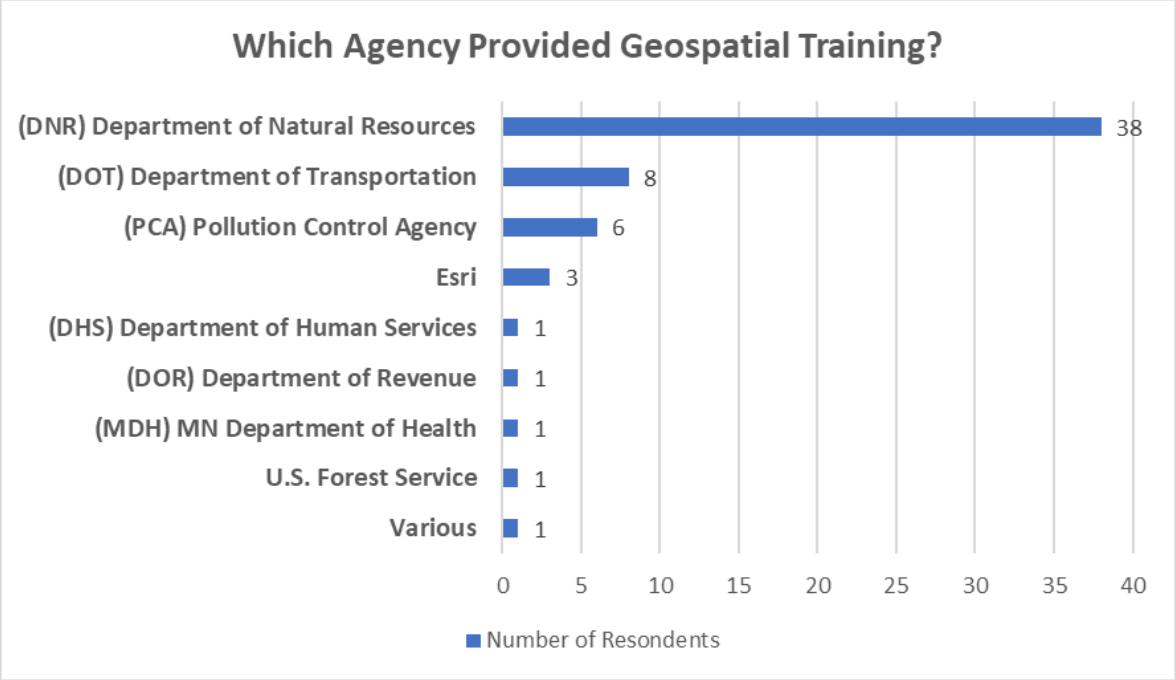
The questions in this section focused on the existing training landscape within Minnesota agencies. We asked about existing and preferred geospatial technology training opportunities as well as perceived obstacles to training. Other goals were to identify our self-defined skill level, learn whether we have geospatial training identified in our professional development plans, and whether we discuss training with our supervisors. Most of our training is provided by "in house staff" such as other co-workers. The idea of geospatial mentors is introduced in this section.

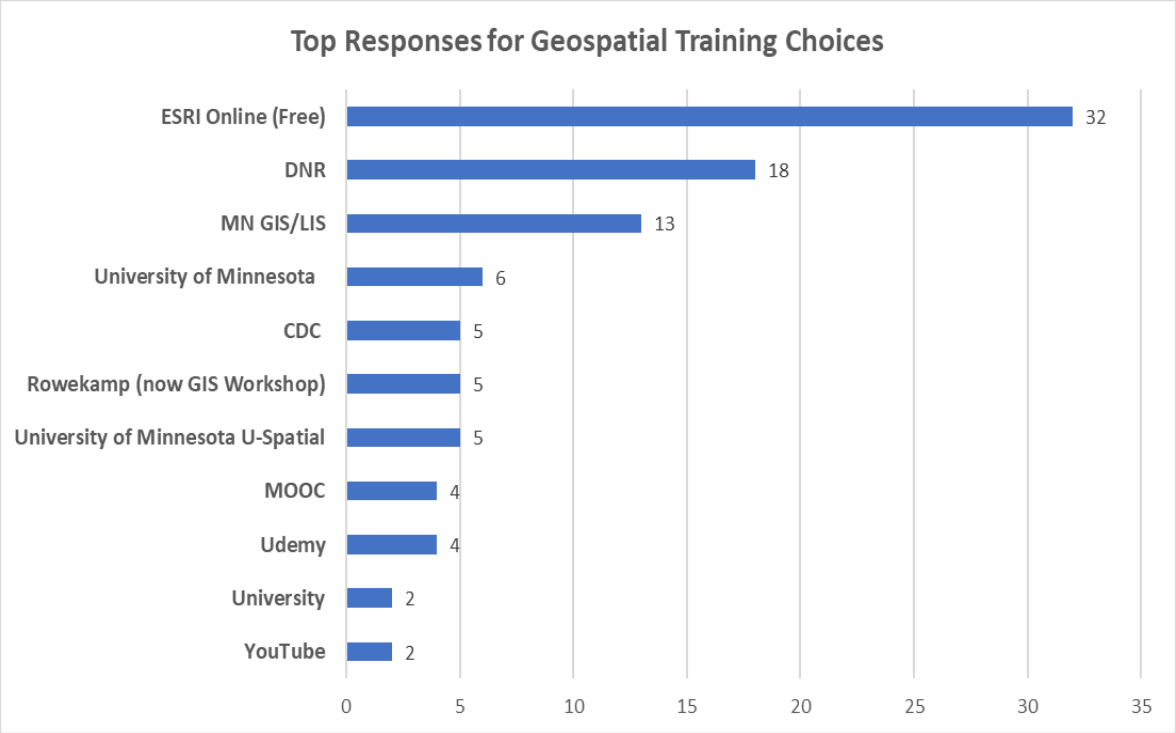
In what ways do our agencies offer geospatial training?



What training would we recommend?

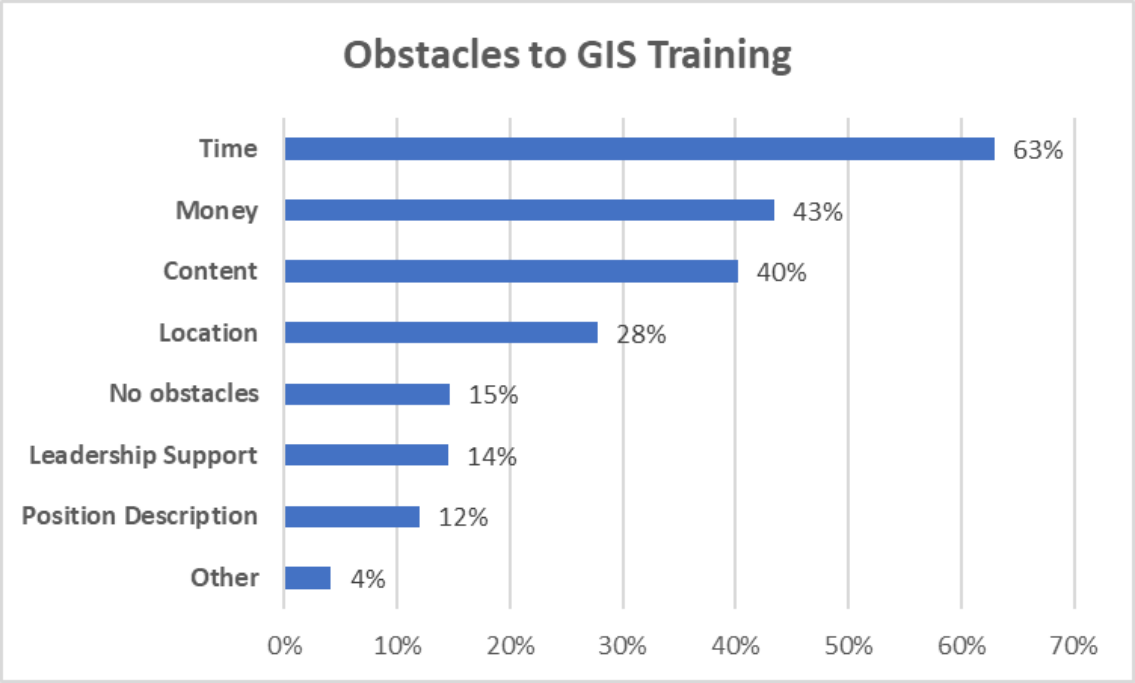
An open-ended question asked for course recommendations. We identify that the Department of Natural Resources, Pollution Control Agency, and the Department of Transportation offer established GIS courses internally. We value the Minnesota GIS/LIS Consortium events. The free ESRI learning resources (webinars, e-Learning and Massive Open Online Course (MOOCs)) are also popular recommendations.





What obstacles do we face to advancing our geospatial skills?

We clearly agree that time and money are the two major obstacles to getting GIS training. A smaller percentage of us consider leadership support or our position description to be obstacles to getting trained. Four wrote in that not knowing about training options is an obstacle and four noted a lack of support from IT or an in-house GIS expert.

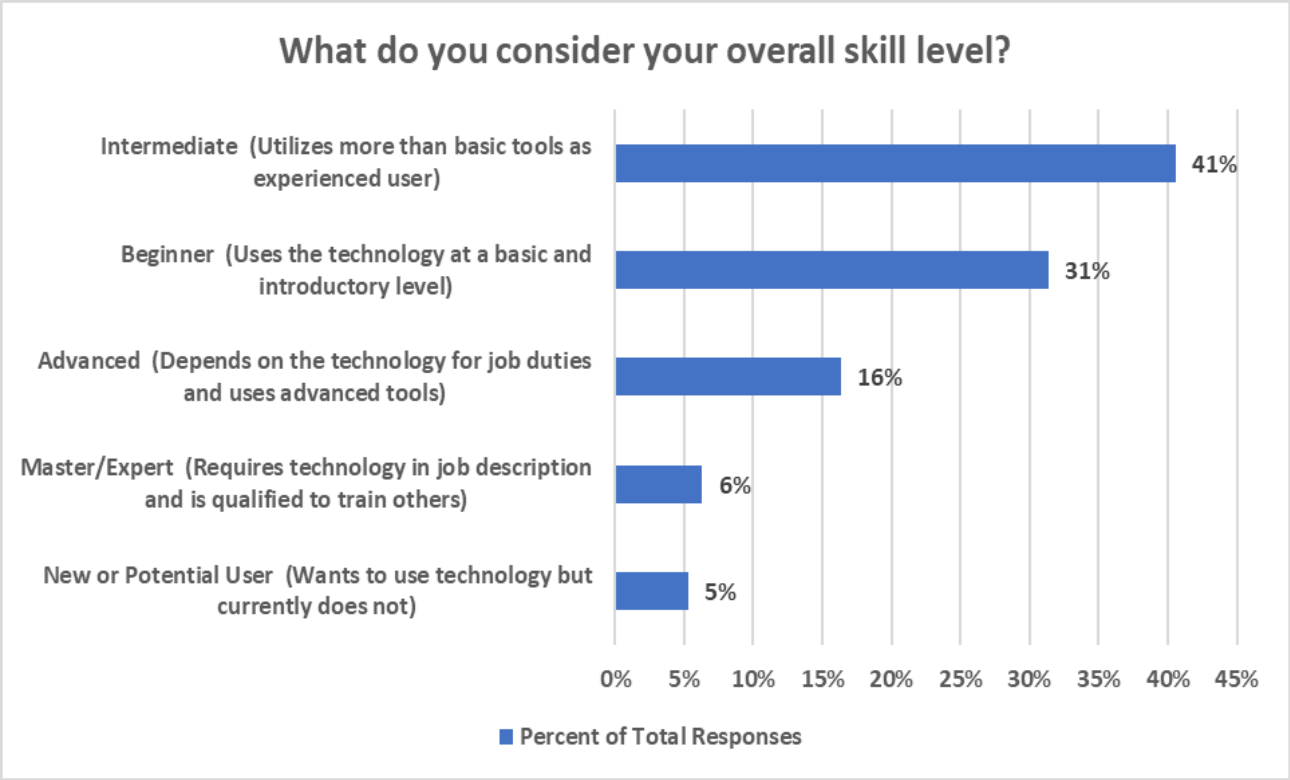


How important is geospatial training to our professional development?

More than half of us (59%) do not have geospatial training identified in our professional development plans, or know what professional development plans are. This may be interpreted to mean that nearly 60% of state employees taking this survey do not specify geospatial training as a professional goal or discuss it with their supervisors even though they use GIS in their positions.

At what skill level do we consider ourselves?

We consider our overall skill level as either intermediate or beginning users of geospatial technologies.

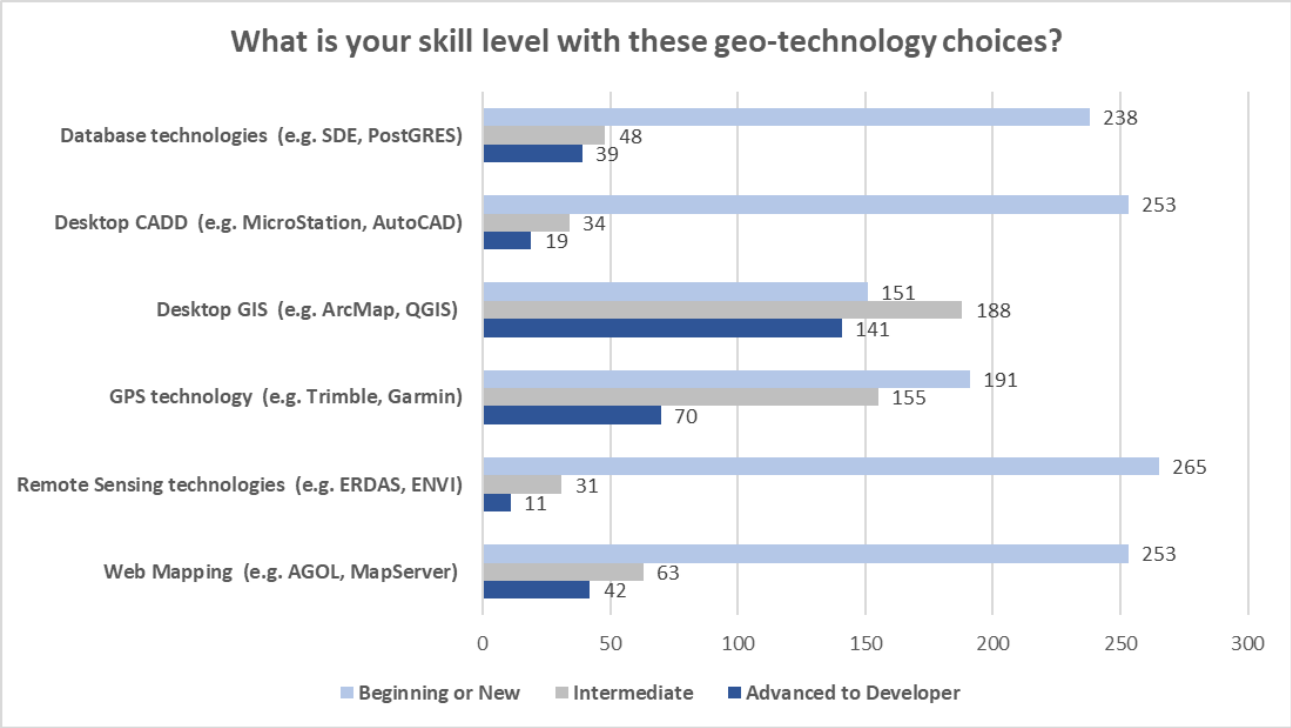


With this base information in section 3, we looked to further define what current technologies we use and at what level of expertise with each type. Sections 4 and 5 look deeper at specific geospatial technologies and skills.

Section 4: Current Technology Use

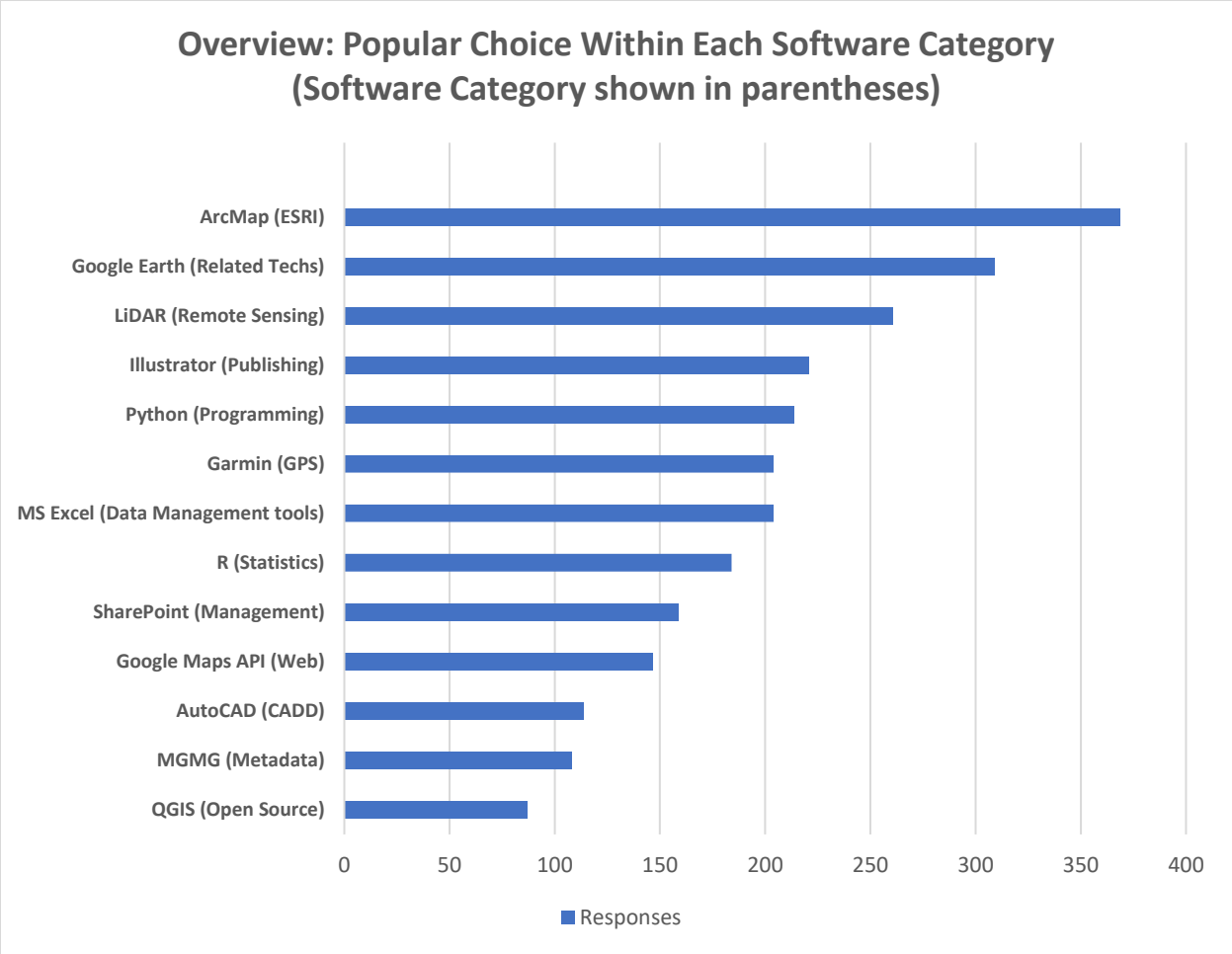
To gauge a pattern of our self-declared skill levels at the current technology use, we asked a question to break up skill level by geo-technology group. For each choice, respondents picked their skill level, either beginning or new, intermediate, or advanced with the technology group. As a group, we feel we are the most experienced with desktop GIS and least experienced with remote sensing. Overall, by the count of responses below, we consider ourselves to be beginning or new users in most technology groups.

What technologies do we use, and at what expertise level?

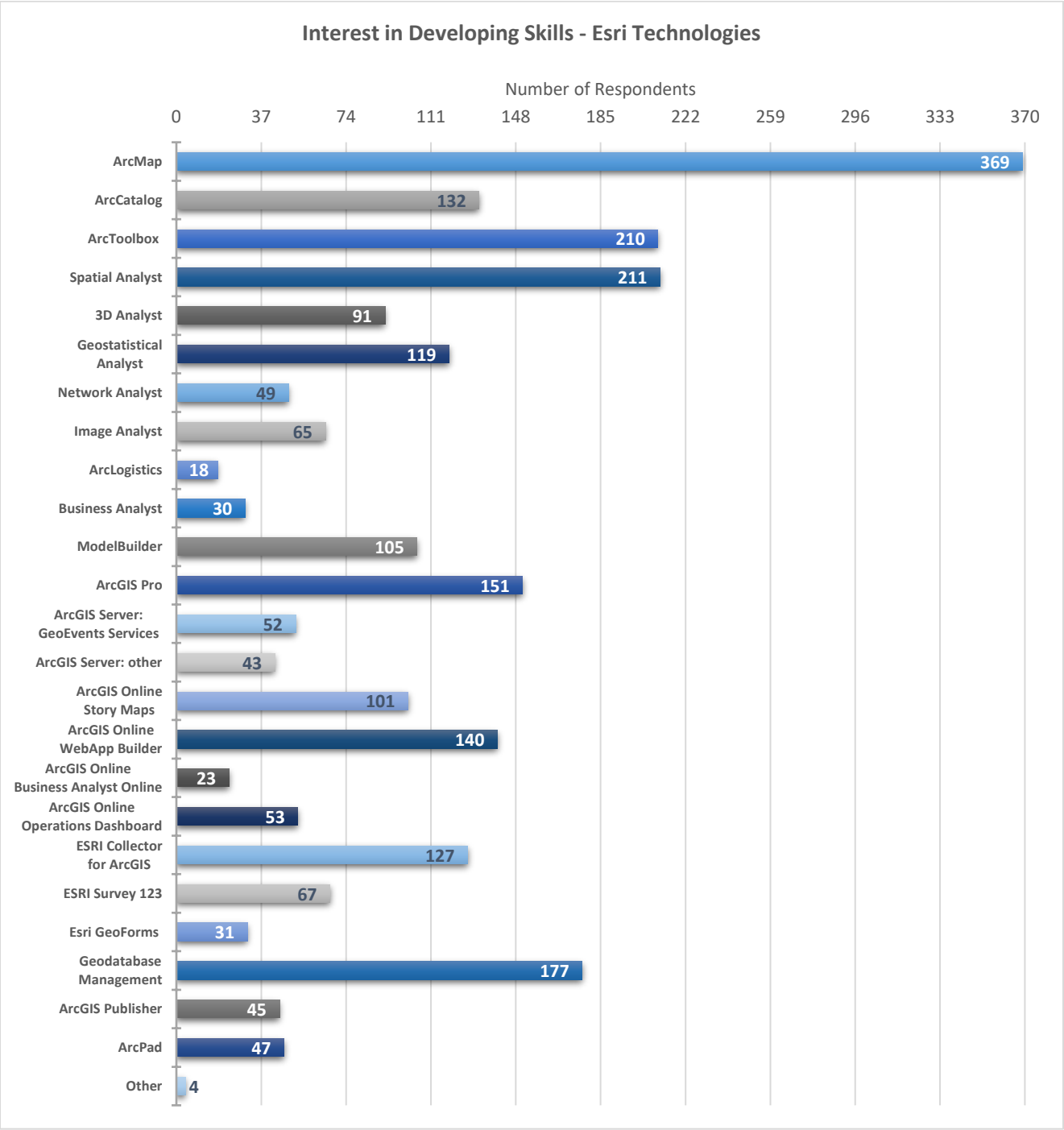


Section 5: Software Skills Training Wanted

This section asked what geospatial-related software skills respondents would be interested in developing. The questions were broken into technology groupings: Esri-specific, web, remote sensing, open source, CAD, programming, GPS, database, statistics, publishing, project management, metadata, and other geo-spatial related technologies. The overall goal was to create an inventory of those technologies for desired training. More than a few provided comments indicating they were unaware of some of these technologies but interested in knowing what they were. The responses also show us the overall popularity of the software choices. Here is an overview of all the popular choices in this section:



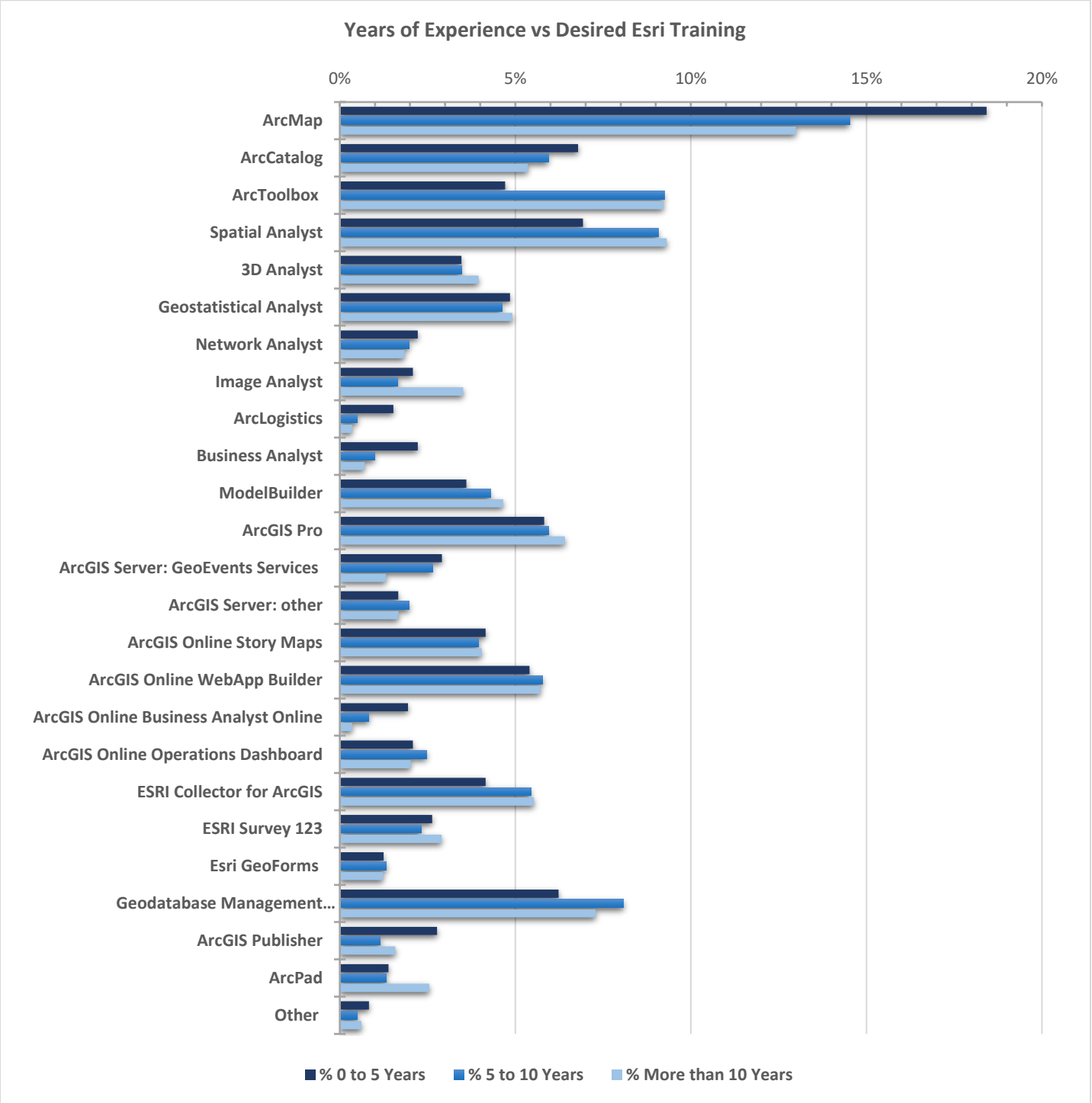
Software Skills: Esri



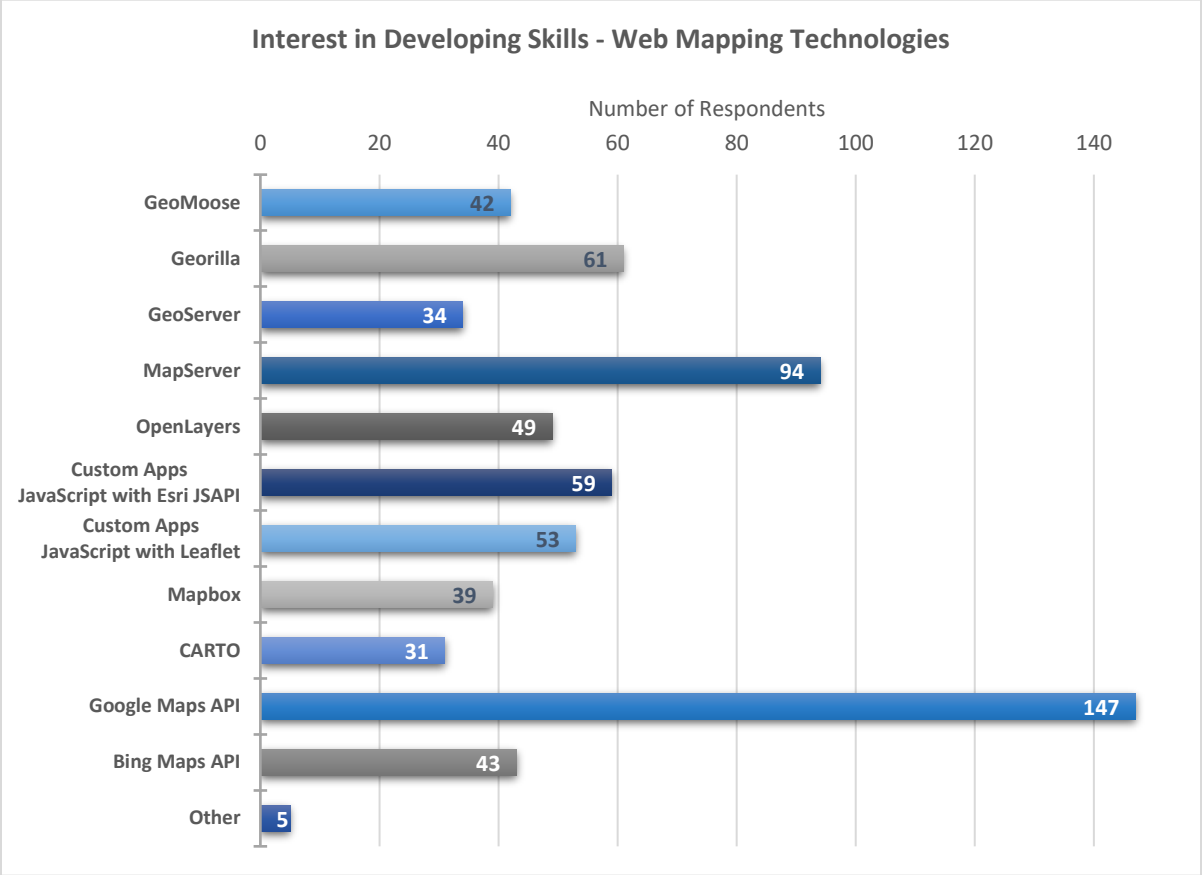
Other Esri Technologies:

- ArcGIS Online Community Analyst (1)
- ArcHydro (1)
- Esri Insights (1)
- ArcGIS Tracking Analyst (1)

To break up the popularity contest with the responses above, the workgroup looked to compare our years of experience to the choices available. For example, the graph below shows that 18% of the responses from those with 5 or less years of experience picked ArcMap.



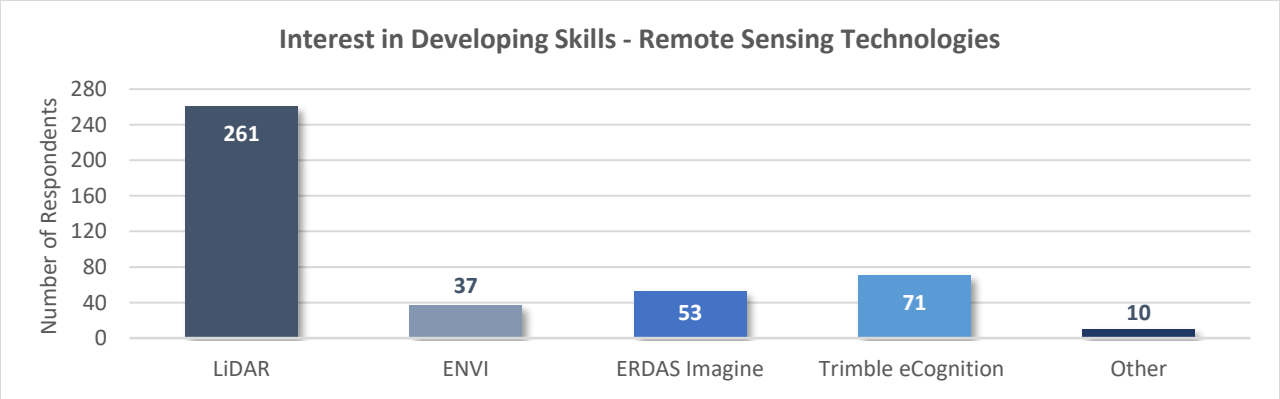
Software Skills: Web Mapping Technologies



Other Web Mapping Technologies:

- 3D Mapping APIs (1)
- D3.js (2)
- MAPublisher by Avenza & Related Software (1)
- MnMAP (AGOL) (1)

Software Skills: Remote Sensing Technologies

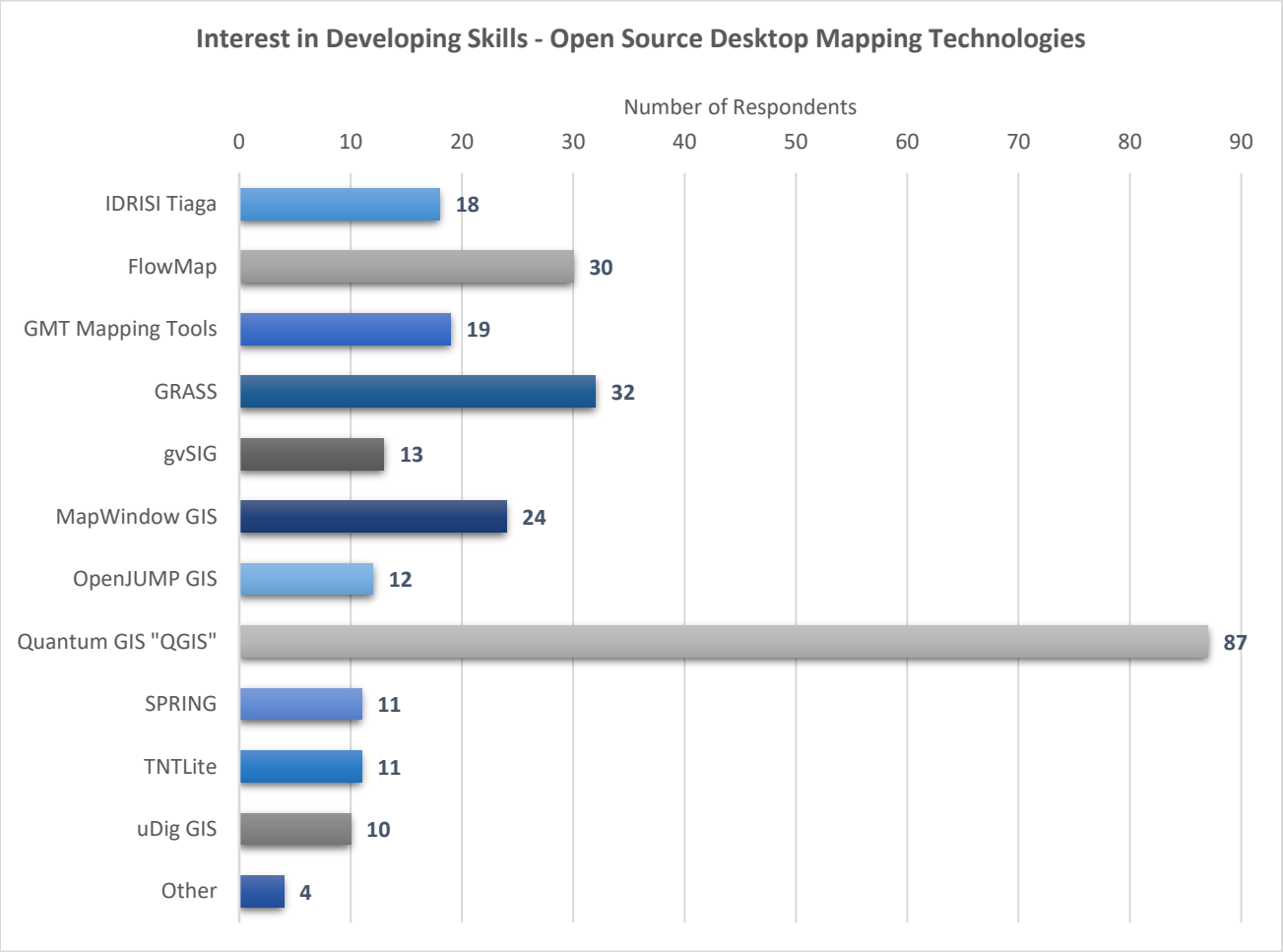


There was a good response to “Other Remote Sensing Technologies” as listed here and on the next page:

- Garmin (1)
- GeoNet (1)
- Google Earth Engine (1)
- QGIS SCP (1)
- StreetLight (BIG data) (1)
- Photoscan by Agisoft, Pix4D, Other Photogrammetric Software (1)
- Processing Images Collected w/ Different Sensors (1)
- Drone Mapping Software (1)
- TerrSet (Formerly IDRISI) (1)
- Open Source Object Based Modeling (1)

Software Skills: Open Source Desktop Mapping Technologies

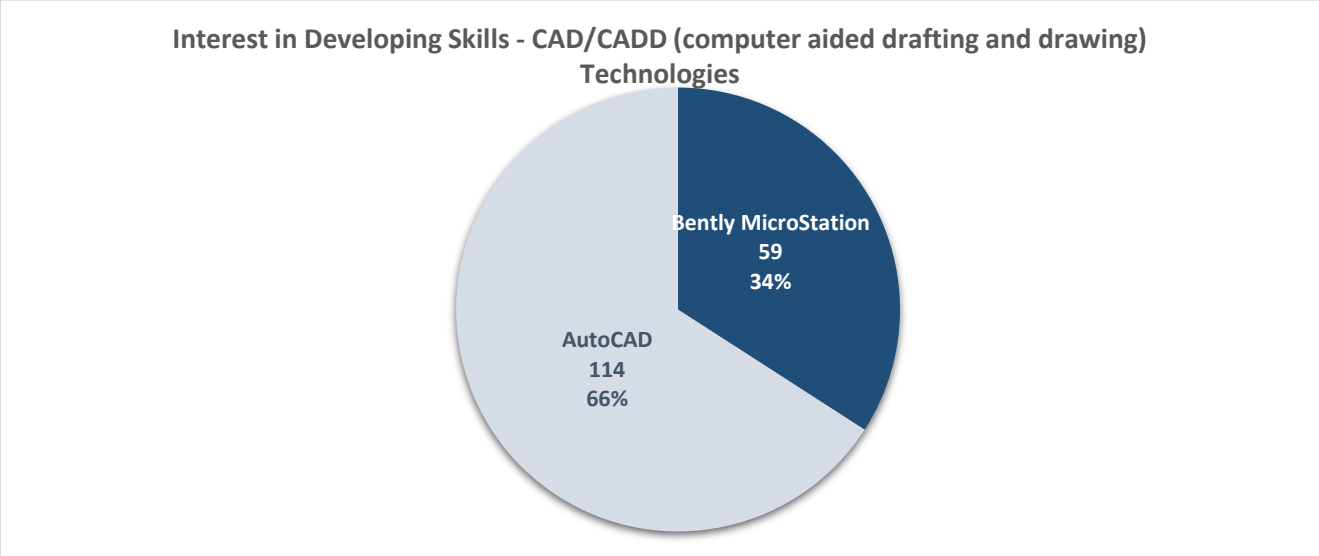
Clearly QGIS was a popular choice. GRASS, FlowMap and MapWindow GIS are noted as well.



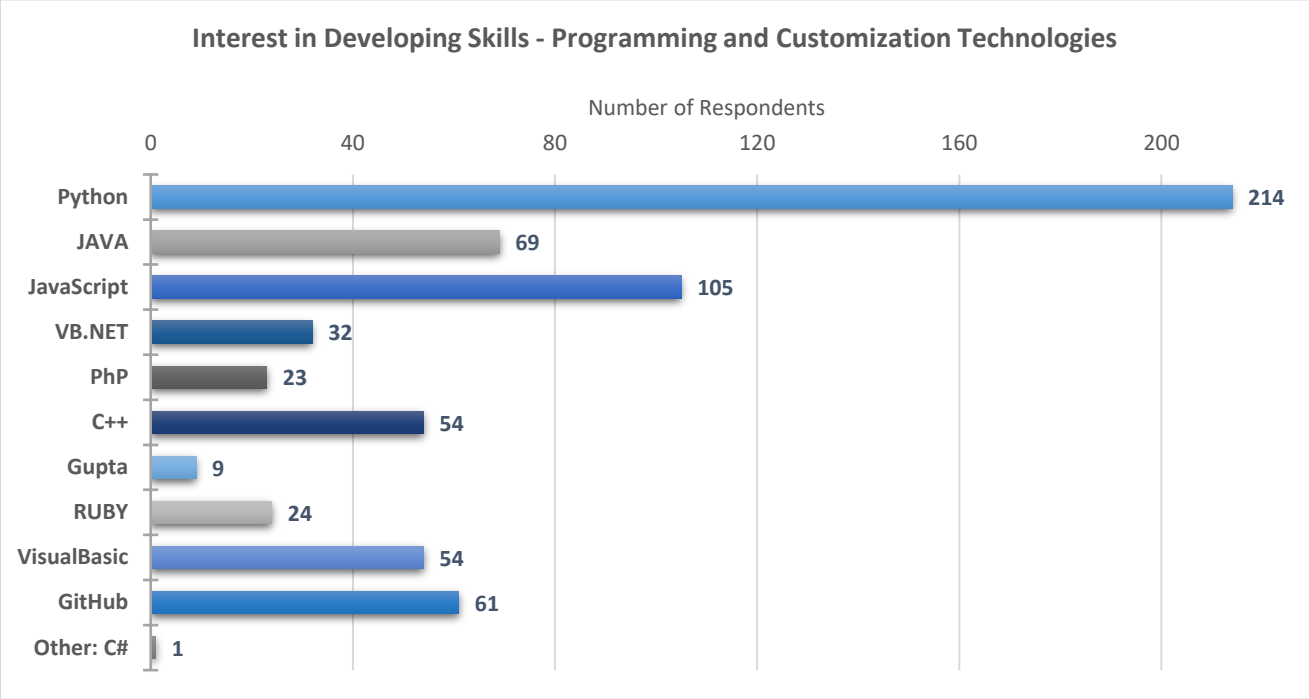
Other Open Source Desktop Mapping Technologies:

- GeoRAS (1)
- Similar to Landview (2)
- WhiteBox (1)

Software Skills: CAD/CADD Technologies[6]

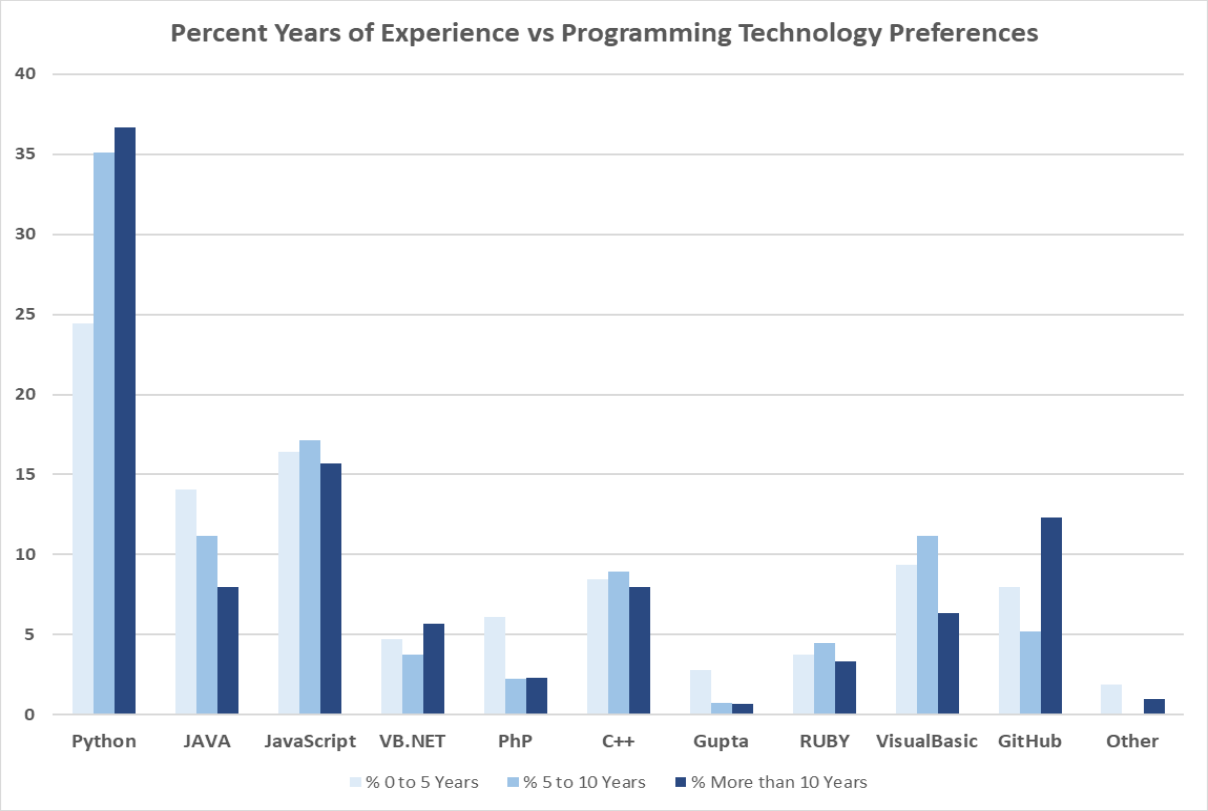


Software Skills: Programming and Customization Technologies

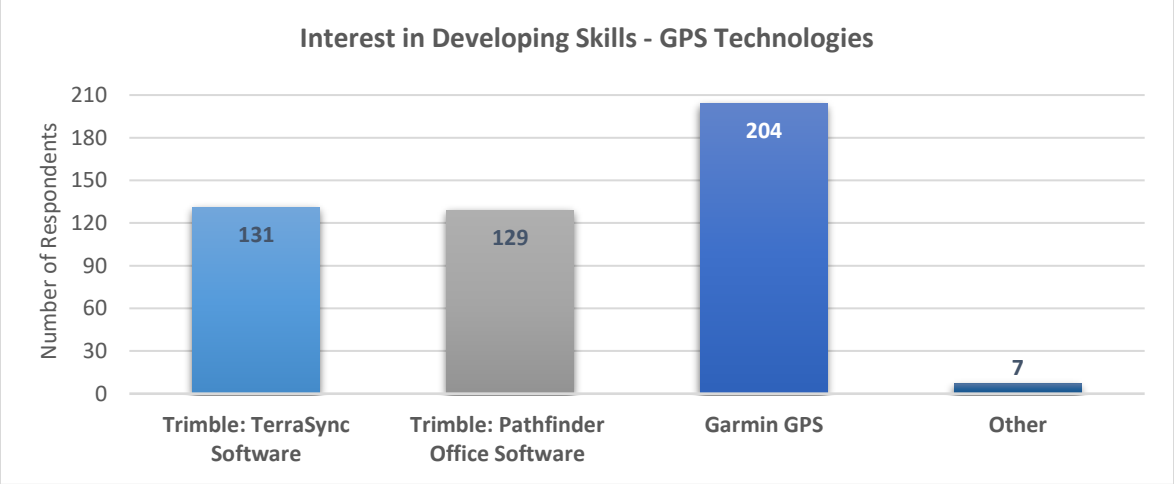


With so many responses to Python, the workgroup wanted to see if comparing someone's years of experience to programming and customization technology choices made any differences. The graph below shows a small peek for GitHub interest for those with more than 10 years of experience and JavaScript for those with 5 to 10 years of experience.

[6] Note that there was a typo in the original survey with Bently. It should be Bentley MicroStation.



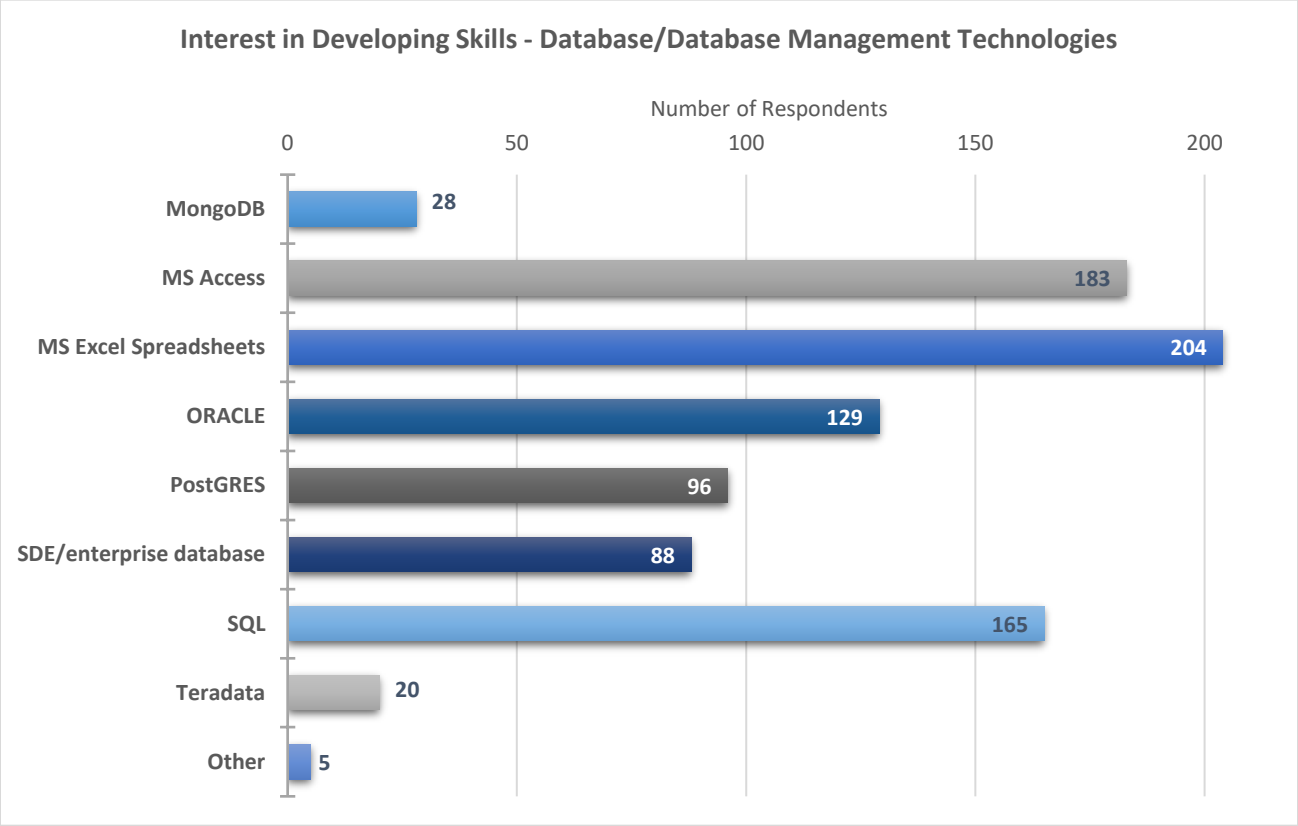
Software Skills: GPS Technologies



Note, responders could pick multiple answers here. Some of the other GPS Technologies listed included:

- Trimble Business Center (3)
- Trimble Office Geomatics (1)
- Trimble Positions Desktop (2)
- Trimble TerraFlex (1)

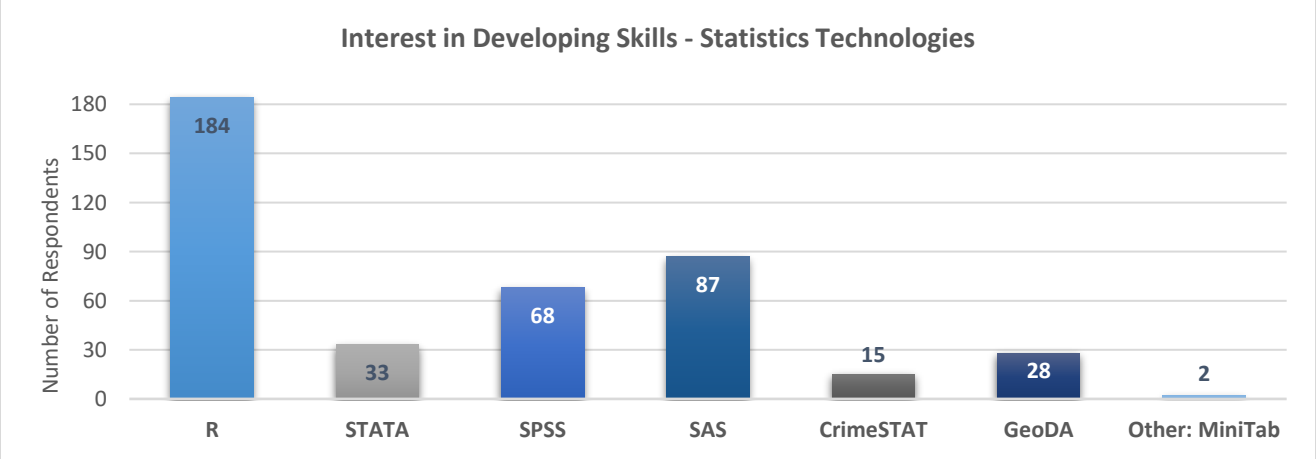
Software Skills: Database/Database Management Technologies



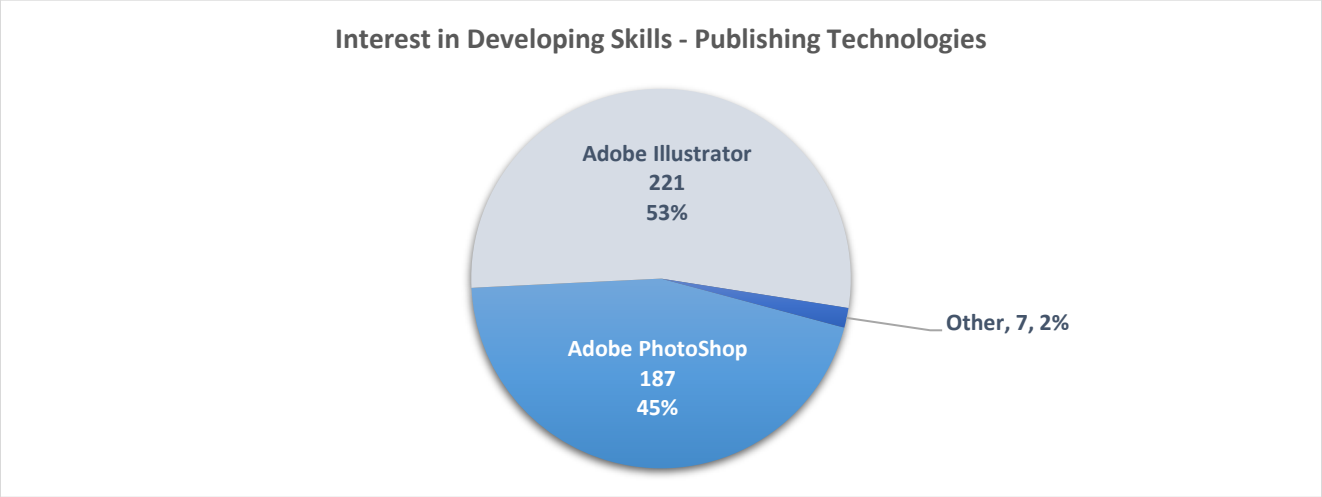
Other Database Management Technologies:

- Salesforce (1)
- Crystal Reports (1)
- Equis (1)
- Hadoop (1)
- MarkLogic and/or Multi-Modal NoSQL Database (1)

Software Skills: Statistics Technologies



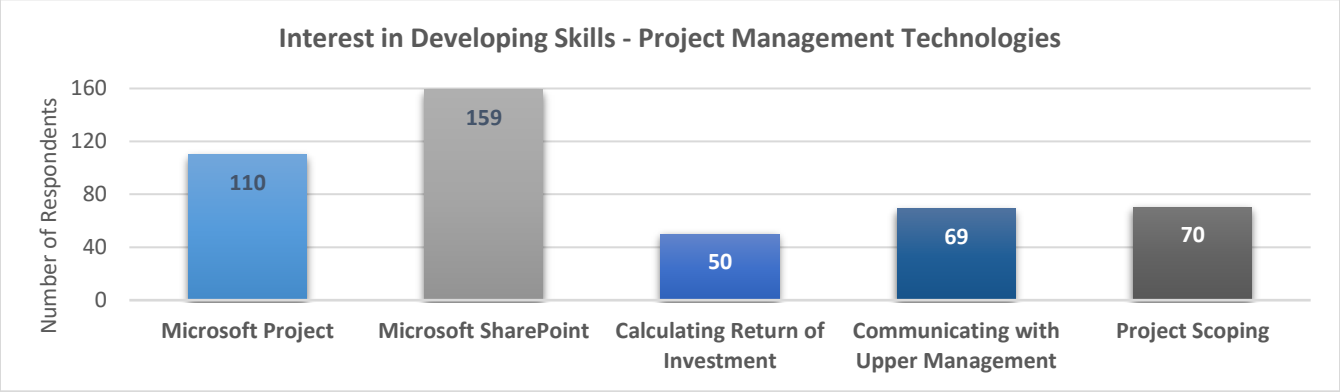
Software Skills: Publishing Technologies



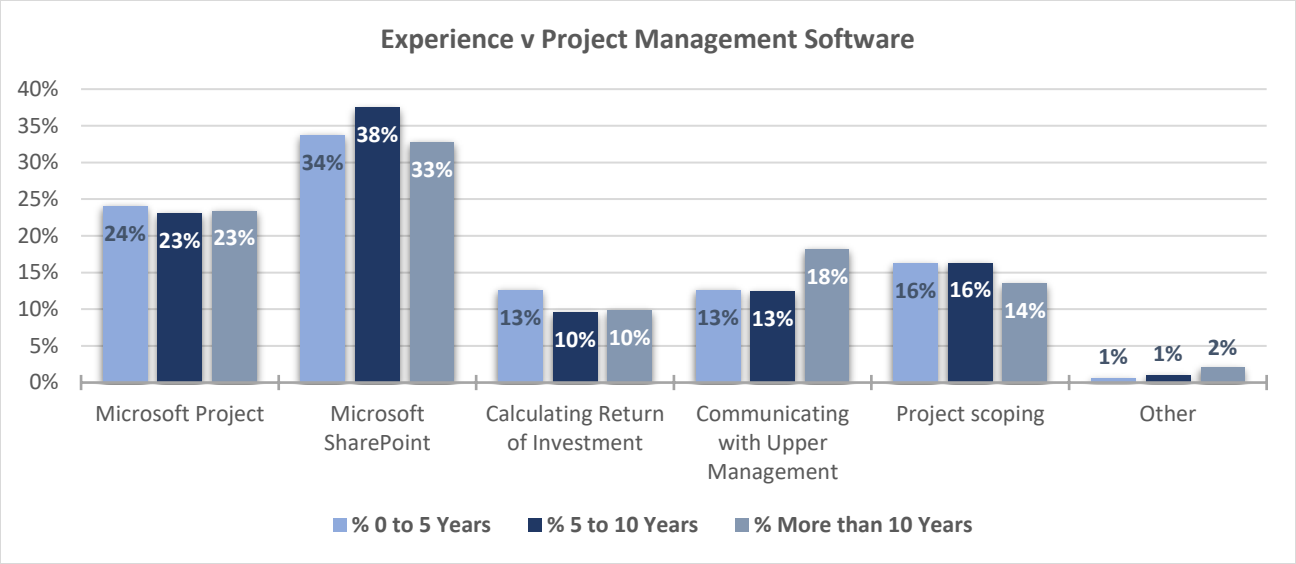
Other Publishing Technologies:

- CorelDraw (1)
- InkScape (2)
- GiMP (1)
- Microsoft Publisher
- MaPublisher (1)
- Adobe InDesign (1)

Software Skills: Project Management Technologies

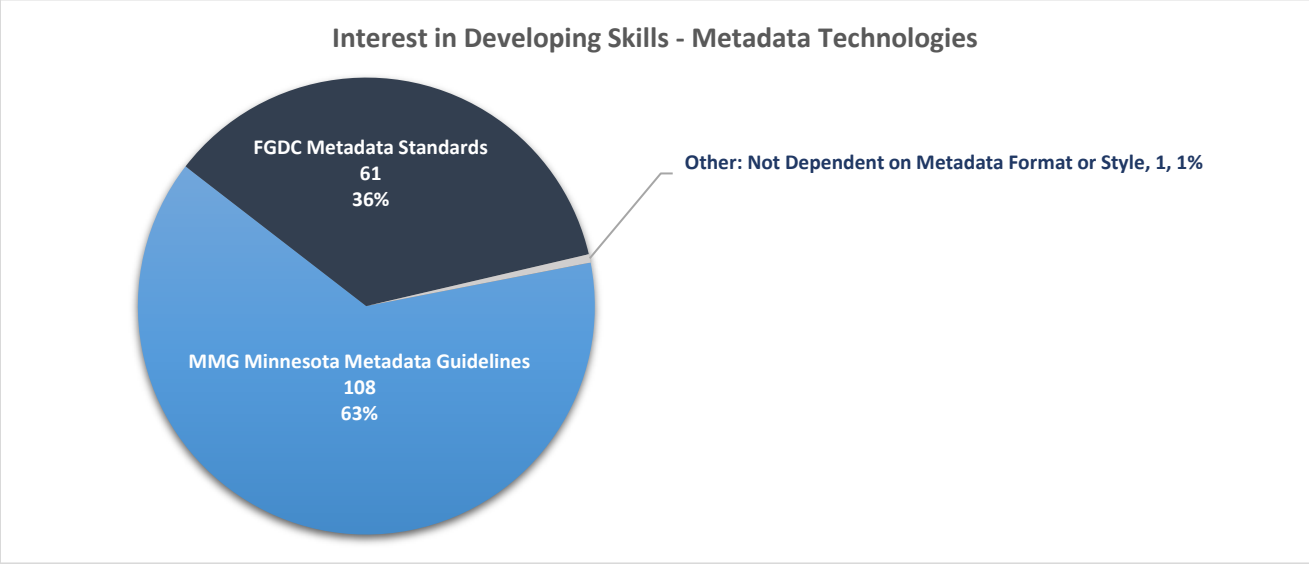


The workgroup wanted to break out project management technology choices by years of experience as well. No surprise that those with more than 10 years have a larger response to “communicating with upper management” but we all are interested in Microsoft SharePoint!



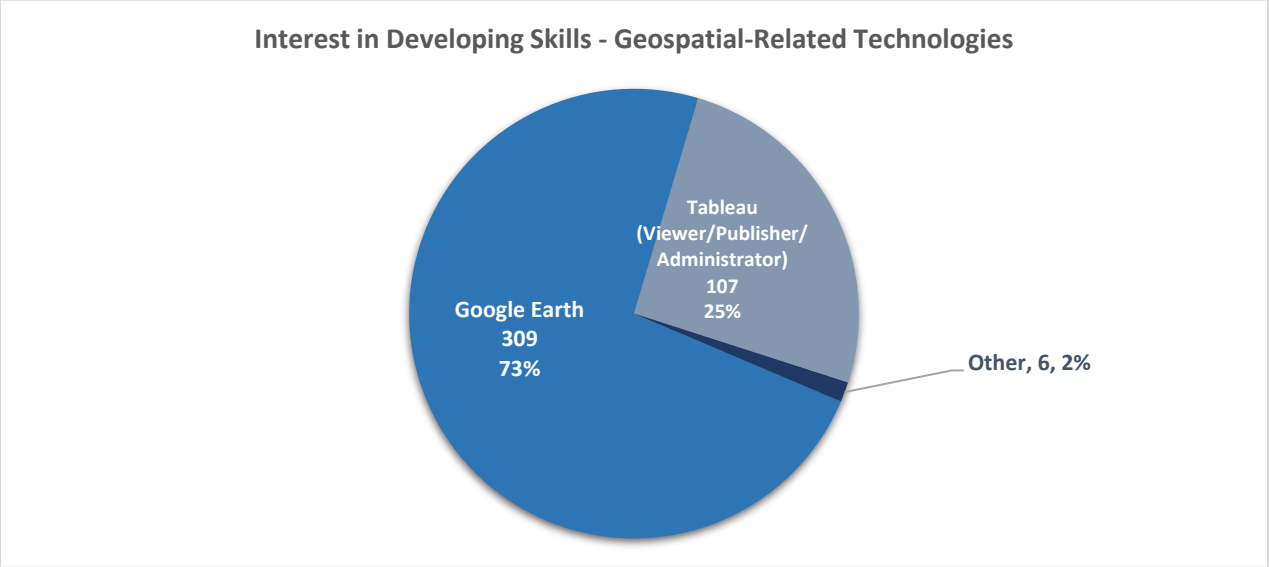
Software Skills: Metadata Technologies

There is an interest in developing skills for using the MGMG Minnesota Geographic Metadata Guidelines. This is perhaps an opportunity for the collaborative group to support training here.[7]



[7] There was a typo in the original survey. MMG Minnesota Metadata Guidelines should technically be called "MGMG Minnesota Geographic Metadata Guidelines"

Software Skills: Geospatial Related Technologies



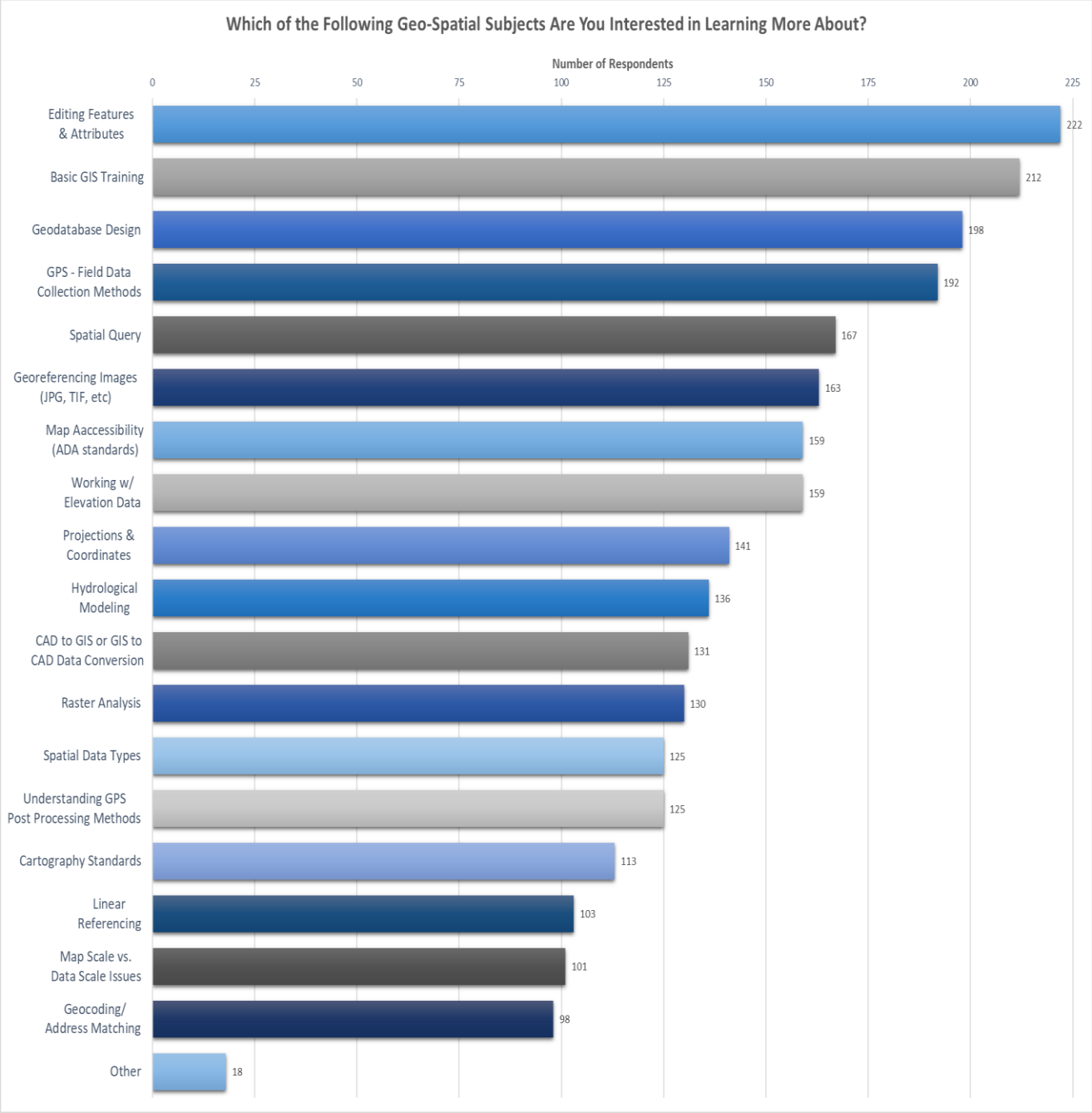
It is clear here that Google Earth is not only popular, but also a strong interest to those responding. About a quarter of us are interested in Tableau as well as some of these other noted Geospatial-Related Technologies:

- Avenza Maps (1)
- GDAL (X/MIT licensed translator library) (1)
- LAS Tools (1)
- Map Plus (Mobile Mapping App) (1)
- Photo GPS Extract (1)
- Maptitude (1)

Section 6: Subject Matter Training Wanted

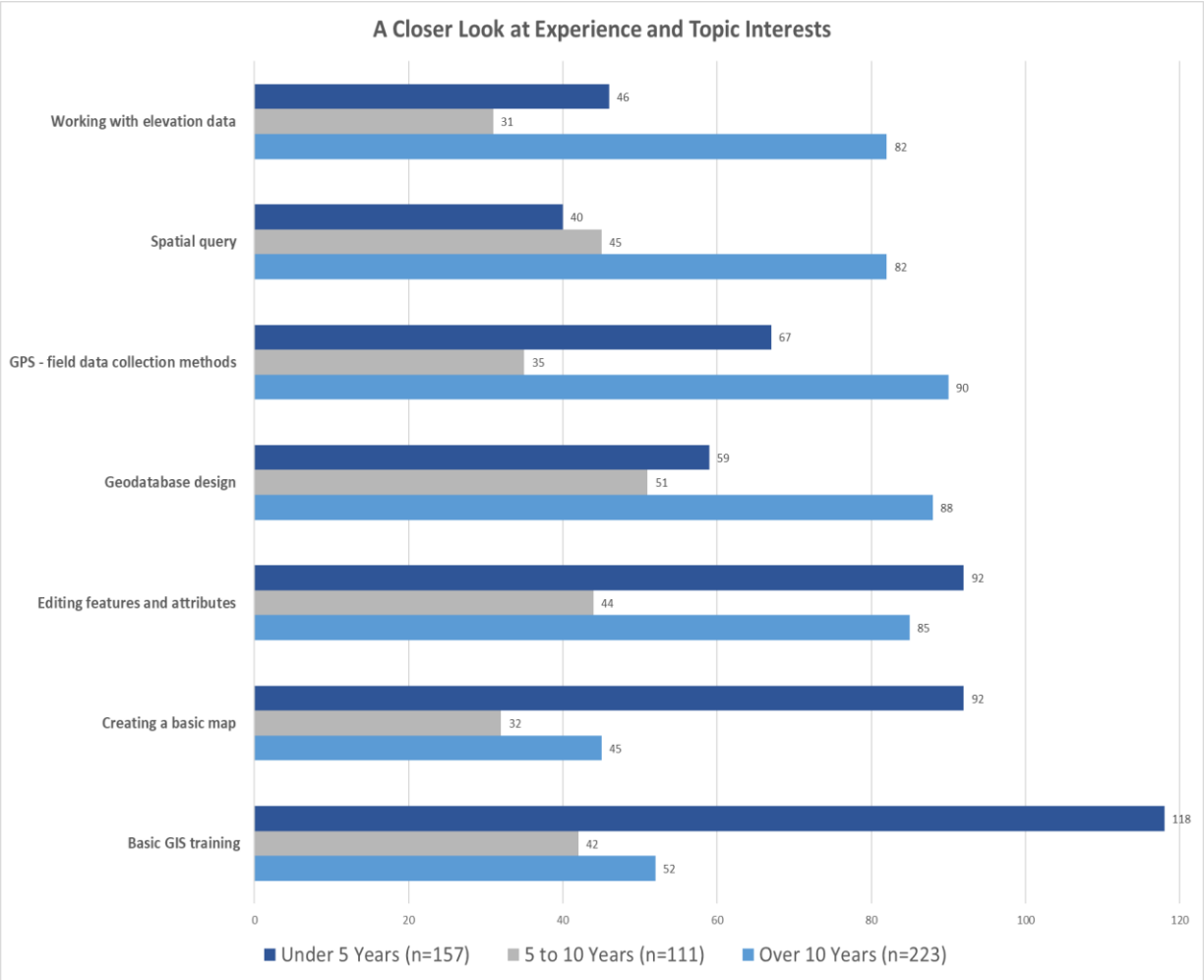
Independent of the specific technology, this section looks to understand what GIS subjects were of most interest to us. This section provided a list of possible subject matters to choose and allowed for multiple choices. As the graphs show in this section, Editing Features and Attributes, Basic GIS Training, and Geodatabase Design win the top three popular vote counts.

What subjects are we interested in learning more?



There was a good response to “Other Geospatial-Related Technologies” of interest including a refresher for Basic Use of ArcGIS , Finding official geospatial data sources/options (GDRS, Georilla, SDW, MnMap, Basemap), RDMS inefficiencies, SDE management, Security, Accessibility (not ADA type), Drawing voting districts, Visually attractive maps, Analyze distances, Data publishing, i.e. agency procedures for publishing to gisdata.mn.gov, Using EQUIS with GIS, and “I don’t know enough to answer this question.”

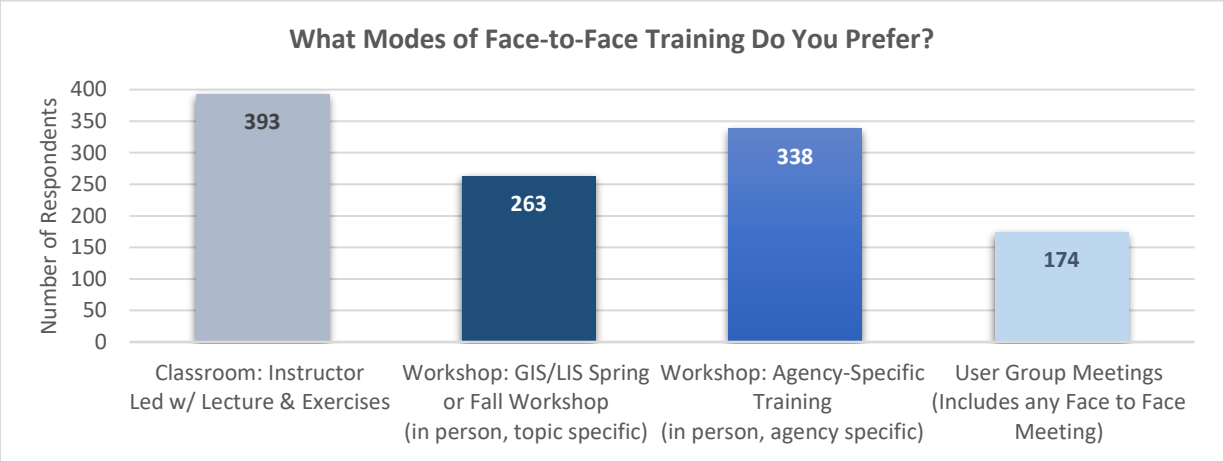
The workgroup was curious if years of experience with geospatial technology would alter the subject matters we were interested in. The graph below shows how years of experience impact the answer, and pulls out only the top choices. Those with more than 10 years of experience had a higher percentage in response to GPS and field data collection, for example, over creating a basic map. Those between 5 and 10 years show more interest in data management and spatial query subjects.



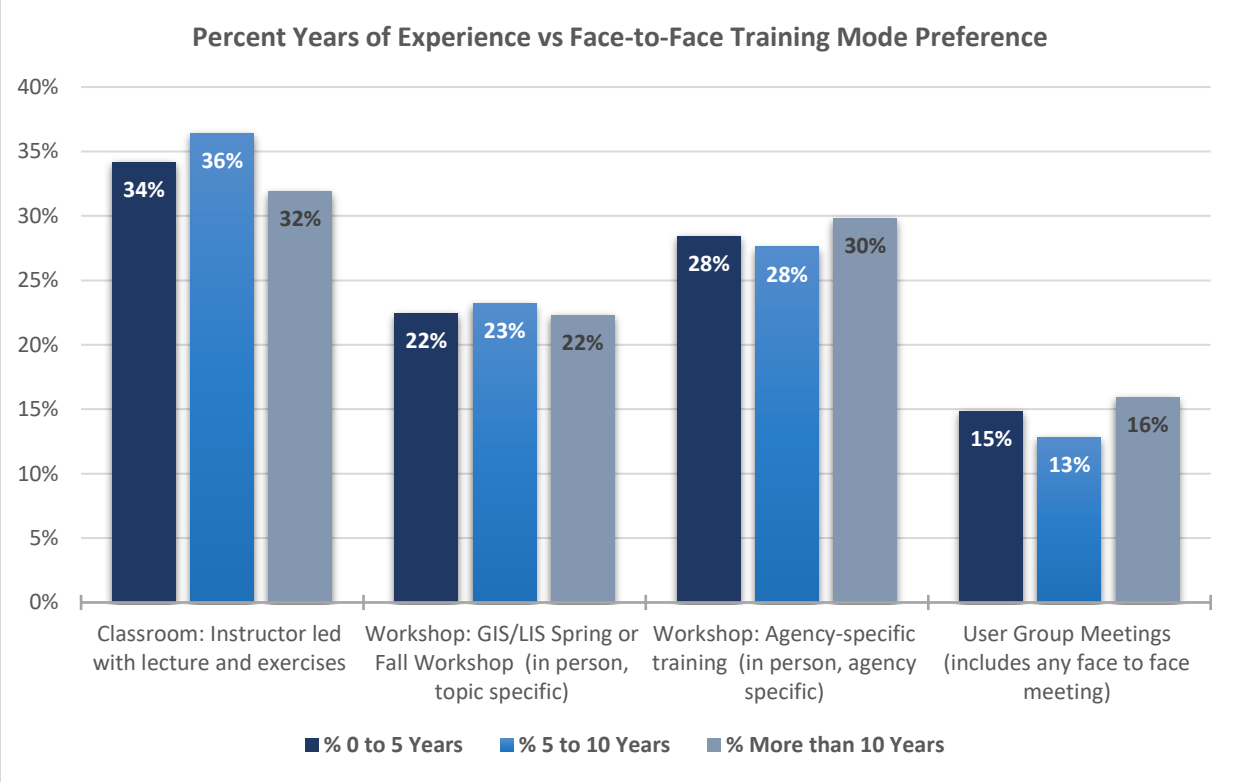
Section 7: Venue/Mode of Training

This section asked what types of training respondents prefer such as face to face versus online venues. The charts below compare the responses.

What types of face-to-face training do we prefer?

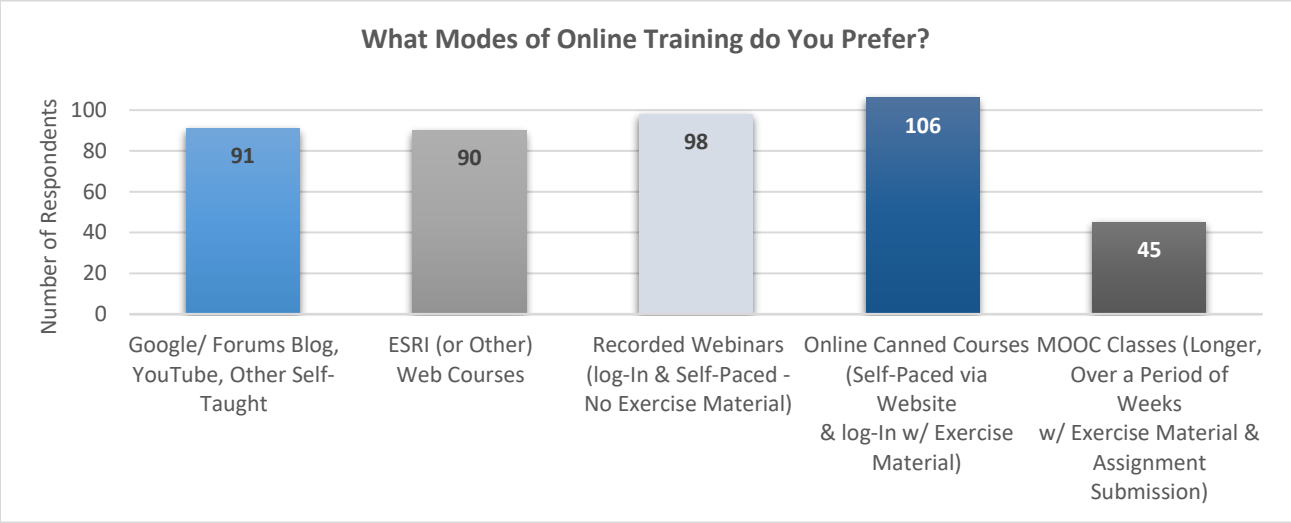


The workgroup was curious if years of experience with geospatial technology would make a difference in preferred mode of training delivered. Overall, the classroom still wins where approximately a third of each experience group chose this option, however agency-specific training is a close second preference.

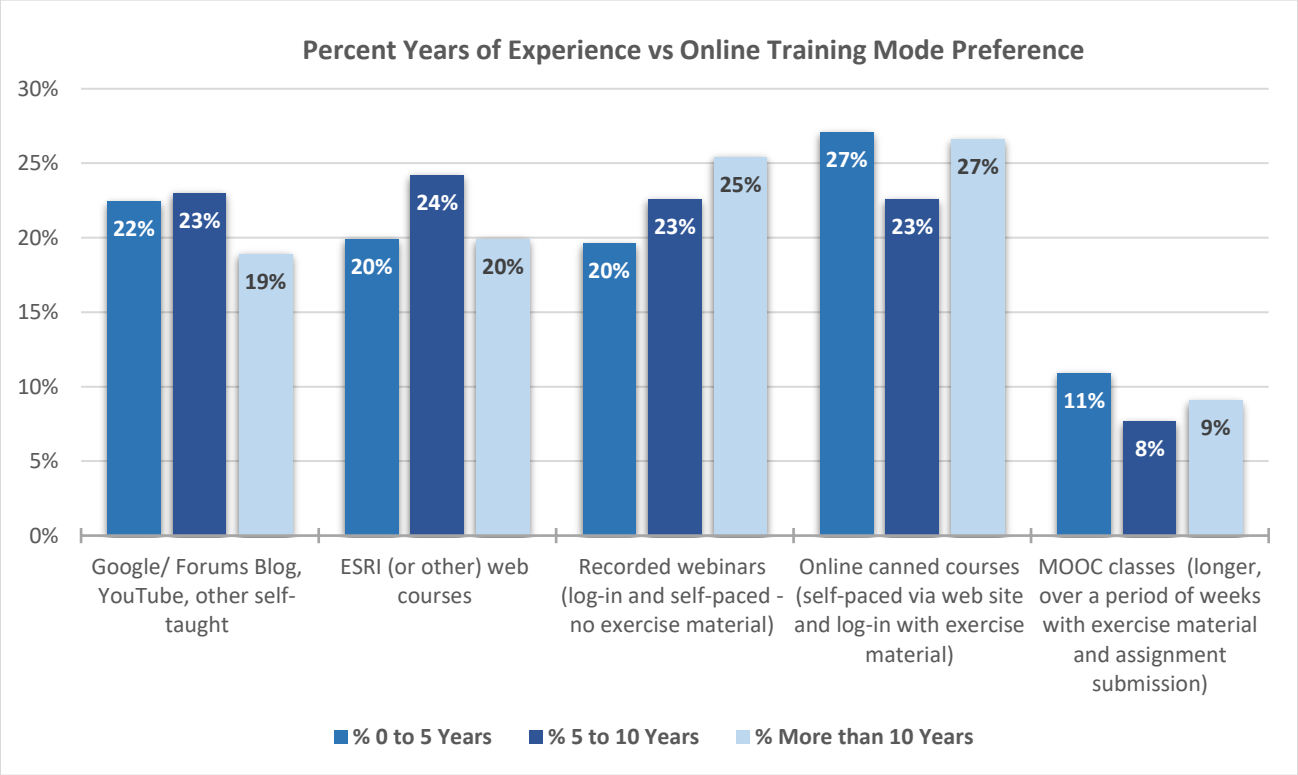


What online training methods do we prefer?

We wanted to see if there were any preferences between the different online learning methods. Respondents could choose more than one answer here, so there is no surprise that the choices are close. Interestingly, the longer MOOC courses are not a favorite choice here even though often mentioned in Section 3 above. It appears that we like faster, shorter online experiences.

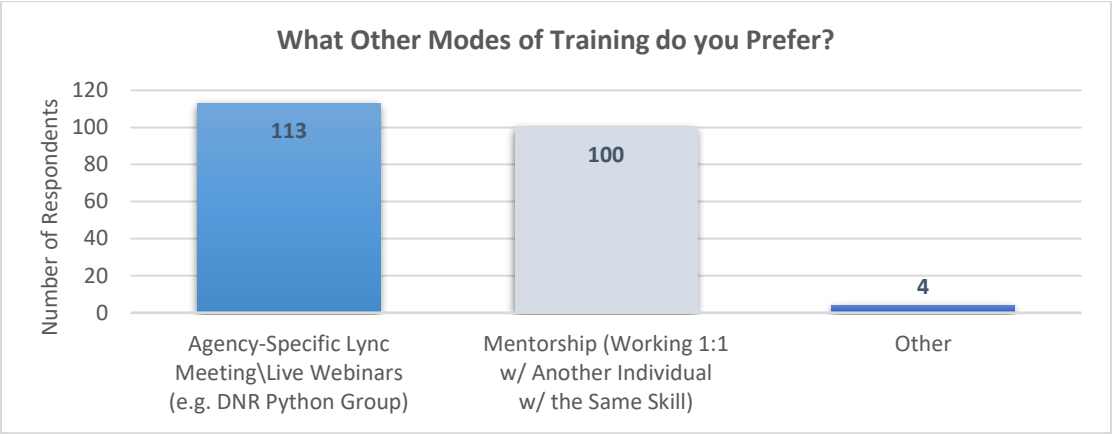


Again, curious if the graph would change when compared to years of experience. Are younger, or less-experienced GIS users more likely to enjoy online training? The breakdown shows that mid-level experienced users are pretty equal with the choices. Online canned courses are more popular to those with either less than 5 years or more than 10 years' experience.



What other ways do we prefer training?

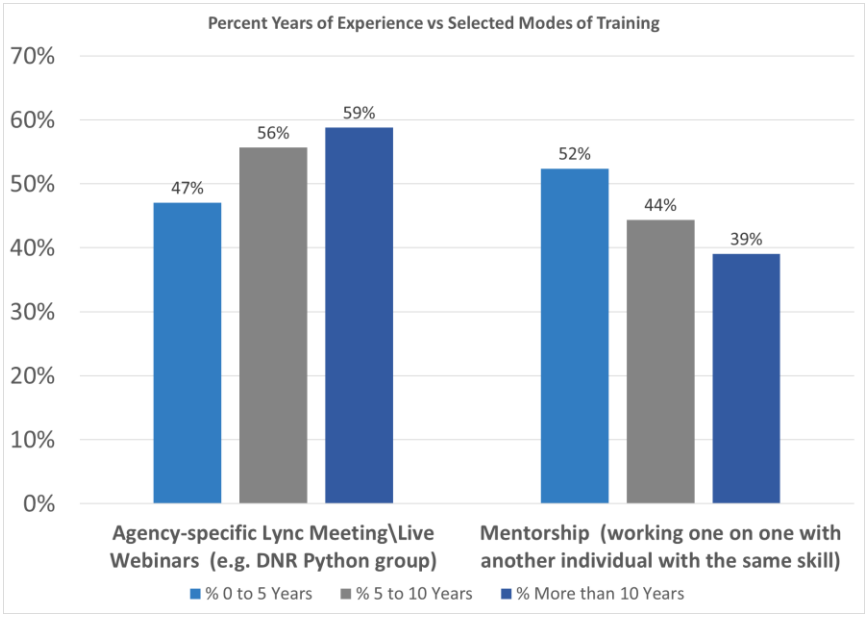
The workgroup recognized that there are many ways to learn geospatial technology skills. Hoping to capture any other choices respondents may have, this last question asked for other options and included mentoring, or the choice of working 1:1 with another person. The question was slightly flawed as was pointed out by at least one response that a mentor should not have the same skill but be at least slightly advanced over the mentee!



Other Preferred Modes of Training:

- Cross agency user groups, smaller agencies would benefit from a larger pool of users of say Python (1)
- Meetups like Lunch N' Learn and Maptime (2)
- One-on-One Training (1)

It makes sense that those with fewer years of experience would be the most interested in mentorships, however even employees with over 10 years of experience are still interested in mentorships and value agency-specific meetings the most.

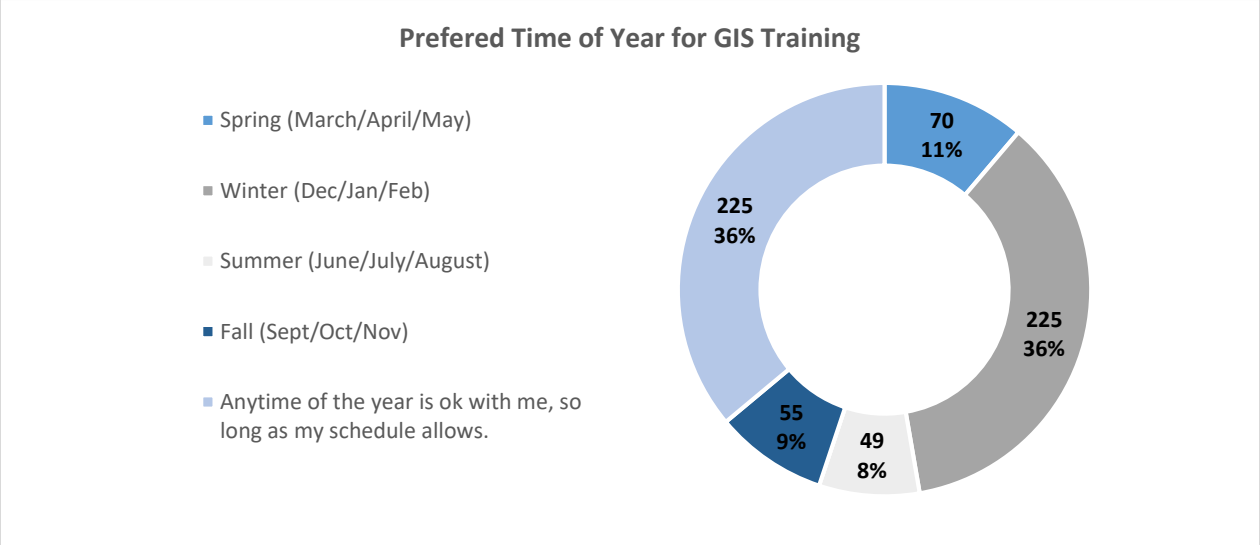


Section 8: Timing

State employees have unique seasons of work load sometimes broken into two seasons referred to as "field season" and "desk season". This section tried to determine respondents' preferred scheduling of training activities.

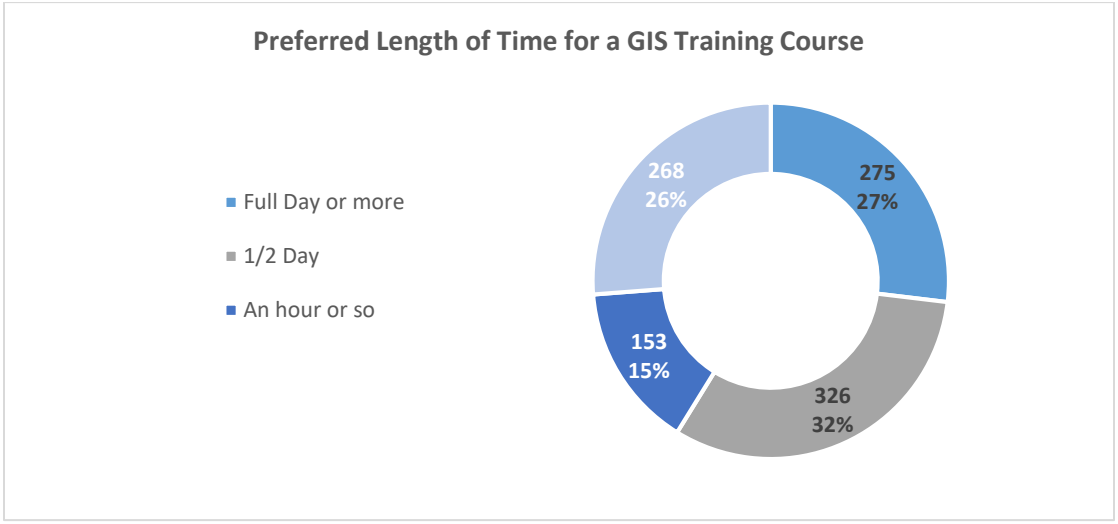
What time of the year do we prefer?

Combined, the big winner for time of year was either winter or anytime that the schedule would permit. With a large percent of the respondents coming from the Department of Natural Resources or the Department of Transportation, there is no surprise that "field season" summer, spring and fall, would score much lower here.



What is the preferred length of class?

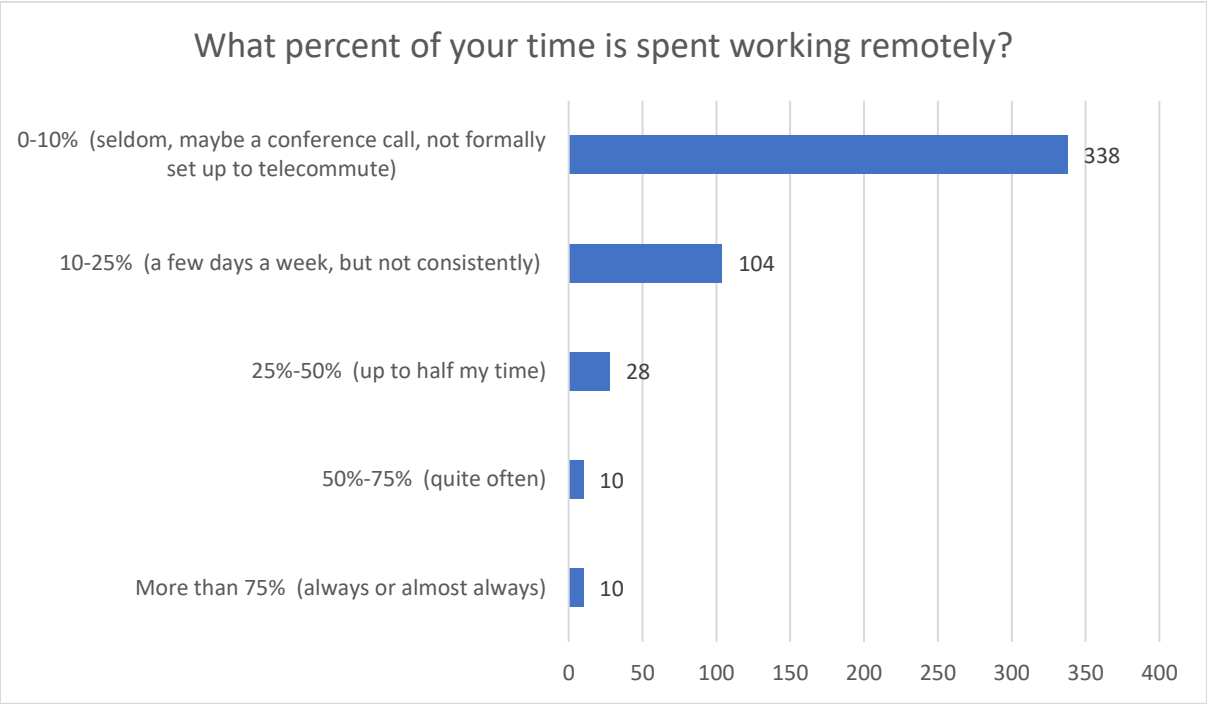
There is a slight lead for preferring a half day of training, however a full day or self-paced lengths were very close in percentage. Only 15% thought an hour or so would be preferred which would be typical for a lunch and learn.



Section 9: Telecommute Behavior

This section asked respondents how much of their time is spent working remotely. With opportunities available for online training, we were curious how often we are telecommuting to work which may indicate more dependence on online environments. Overall, we don't work remotely all that often, as the number of responses are shown in the graph below.

How often do we work remotely?



Section 10: Interest in Being a Mentor

One of the ideas from the Collaborative's training workgroup is supporting a geospatial mentoring network across state agencies. This section asked respondents if they would like to be a GIS mentor. Although many responded that they are not interested in being a geospatial mentor, we were able to create a healthy list of individuals interested in doing so. The State Agency GIS Collaborative and the Training Workgroup will continue efforts to develop training options and a mentor network for state employees using geospatial technologies. To start, a Yammer Group was established in 2017 in order to increase communication about mentoring opportunities.

Conclusions

Overall, here are our key conclusions from the survey:

- We are very experienced with geospatial technology. The majority of us having 10 or more years of experience.
- Most of us consider ourselves to have intermediate skill level with desktop GIS solutions. We say we lack skills with more specific technologies such as web mapping technology, remote sensing, or database management software.
- We are informal learners. We spend more than half of our time learning the technology on our own.
- We are often most limited by time. Our biggest obstacle to accessing training is time, next to money; however nearly 60% of us admit we do not dedicate geo-spatial training in our professional development.

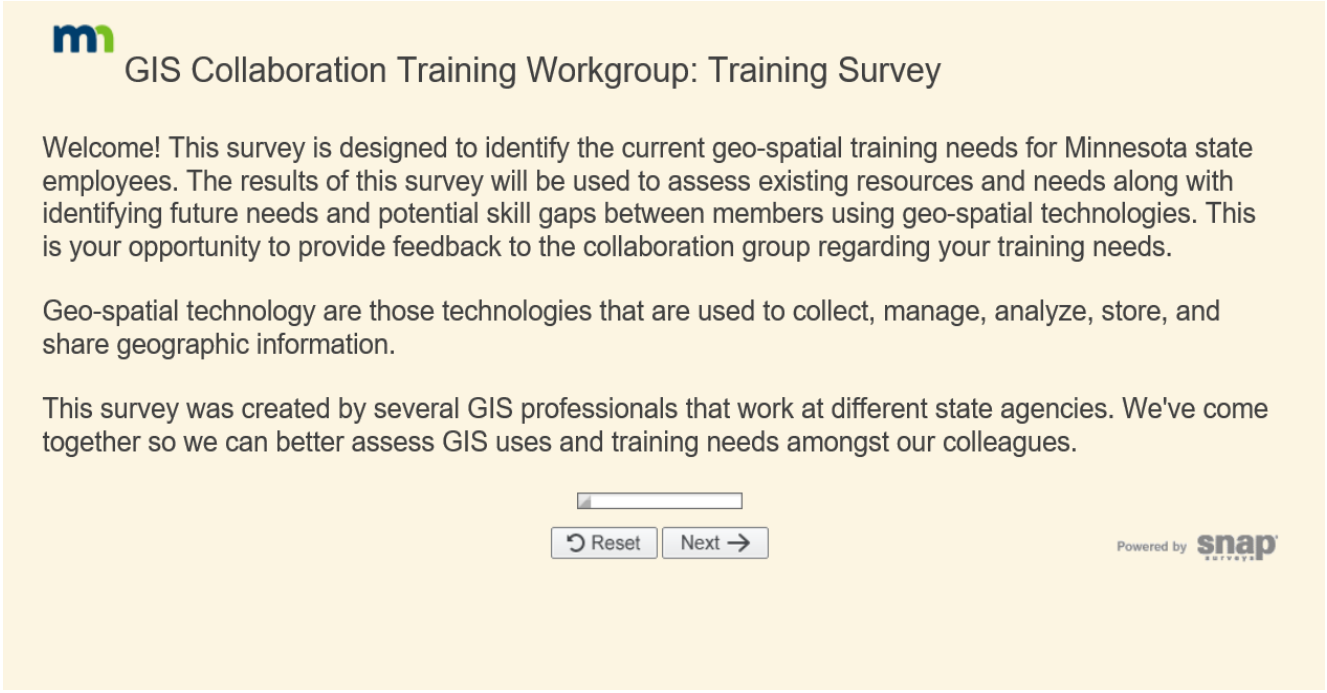
The results of this survey prompted the collaborative to initiate a GIS Training Day for state employees, by state employees. The training workgroup also established a yammer group for those interested in a collaborative geo-spatial mentoring network, where the structure of such a group is yet to be formalized. We shared the results, in particular the subject matter interests, with the GIS Bytes (lunch and learn/networking) workgroup who have solicited presentations and sharing of those ideas and topics (cartography, QGIS, python to name a few). Overall, we learned a lot about our training desires, current skills, and potential areas for collaboration among state agencies.

We learned a great deal from these results. The Collaborative is turning them into immediate actions and encourages people to:

- Use these results to try to make our GIS training environments even better
- Review their professional development and training plans and commit to GIS learning
- Share ideas with the collaborative
- Volunteering on one of the workgroups
- Participate in the mentor network
- Present at a GIS Bytes

This is the beginning of a learning opportunity to improve GIS across state agencies. The survey provided valuable results and should be repeated to document improvements or changes in the GIS community.

Appendix 1: 2017 Minnesota Agency Geospatial Training Survey



GIS Collaboration Training Workgroup: Training Survey

Welcome! This survey is designed to identify the current geo-spatial training needs for Minnesota state employees. The results of this survey will be used to assess existing resources and needs along with identifying future needs and potential skill gaps between members using geo-spatial technologies. This is your opportunity to provide feedback to the collaboration group regarding your training needs.

Geo-spatial technology are those technologies that are used to collect, manage, analyze, store, and share geographic information.

This survey was created by several GIS professionals that work at different state agencies. We've come together so we can better assess GIS uses and training needs amongst our colleagues.

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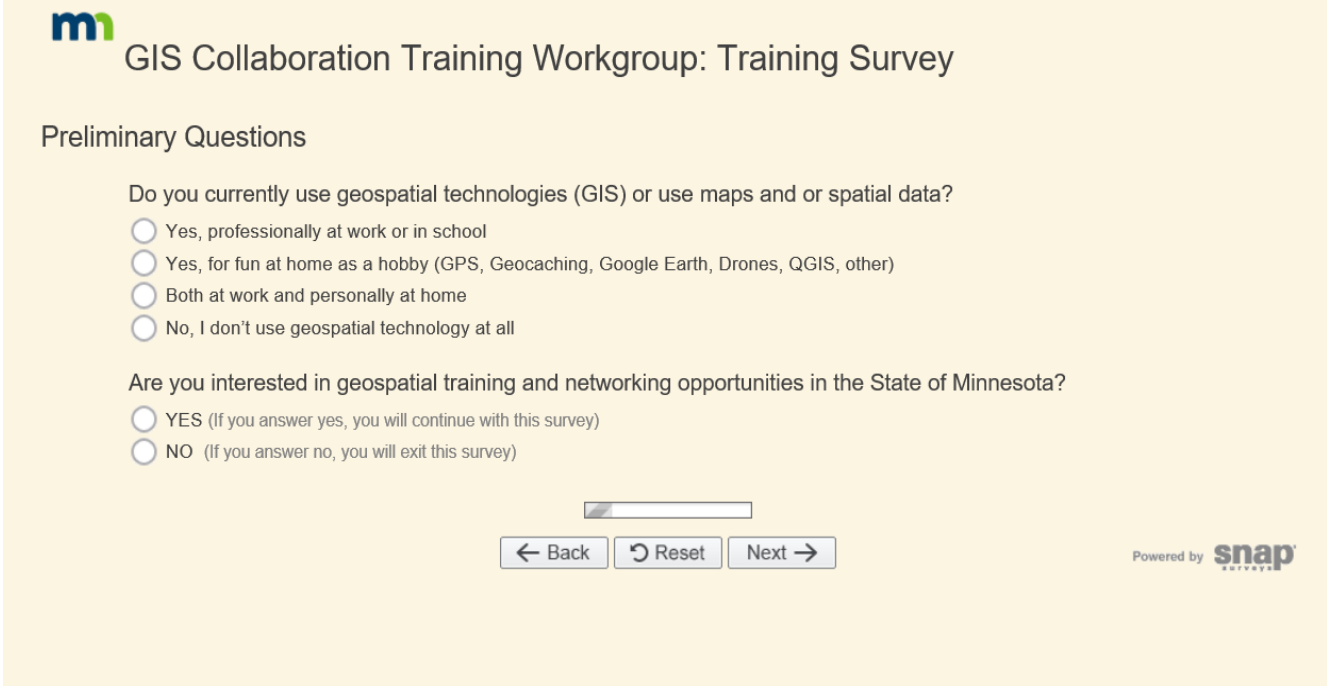

GIS Collaboration Training Workgroup: Training Survey

Preliminary Questions

Do you currently use geospatial technologies (GIS) or use maps and or spatial data?

- ○ Yes, professionally at work or in school
- ○ Yes, for fun at home as a hobby (GPS, Geocaching, Google Earth, Drones, QGIS, other)
- ○ Both at work and personally at home
- ○ No, I don't use geospatial technology at all

Are you interested in geospatial training and networking opportunities in the State of Minnesota?

- ○ YES (If you answer yes, you will continue with this survey)
- ○ NO (If you answer no, you will exit this survey)

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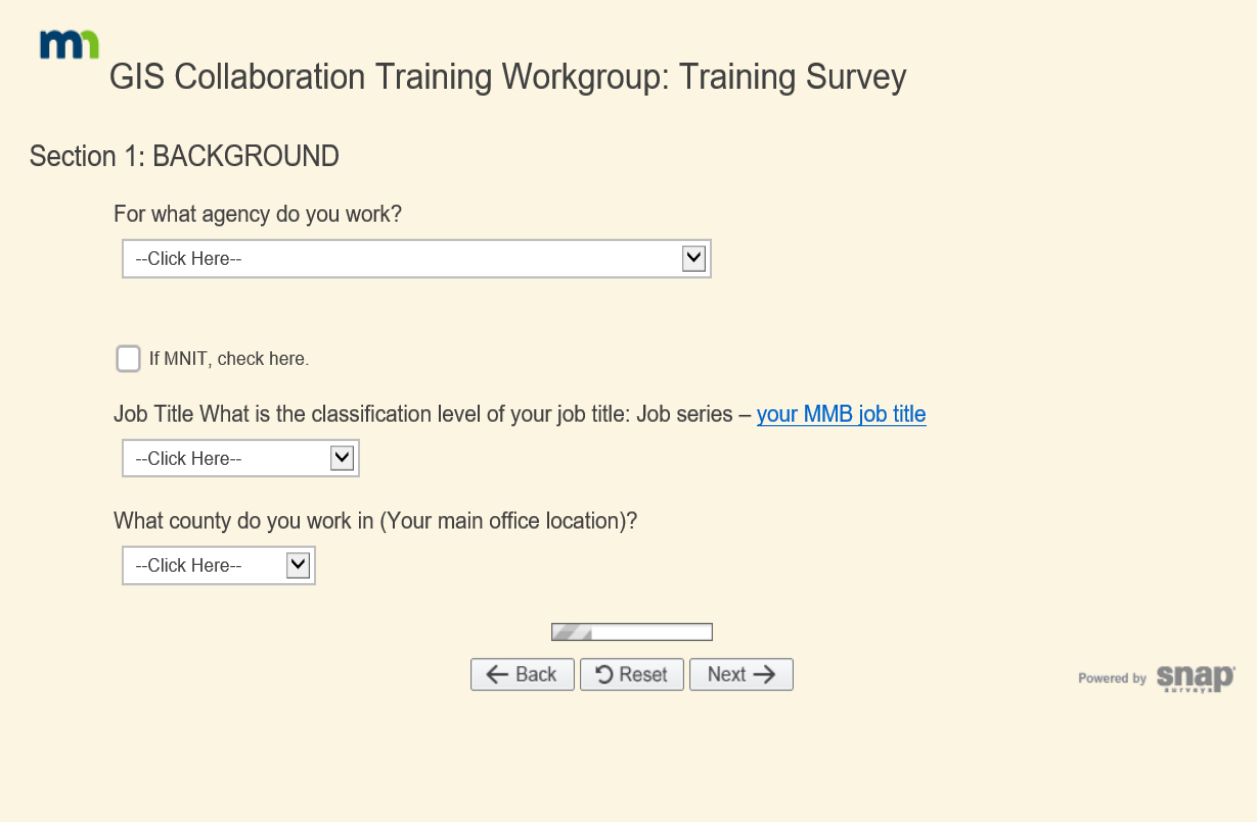
GIS Collaboration Training Workgroup: Training Survey
Section 1: BACKGROUND
For what agency do you work?
--Click Here--
If MNIT, check here.
Job Title What is the classification level of your job title: Job series – your MMB job title
--Click Here--
What county do you work in (Your main office location)?
--Click Here--
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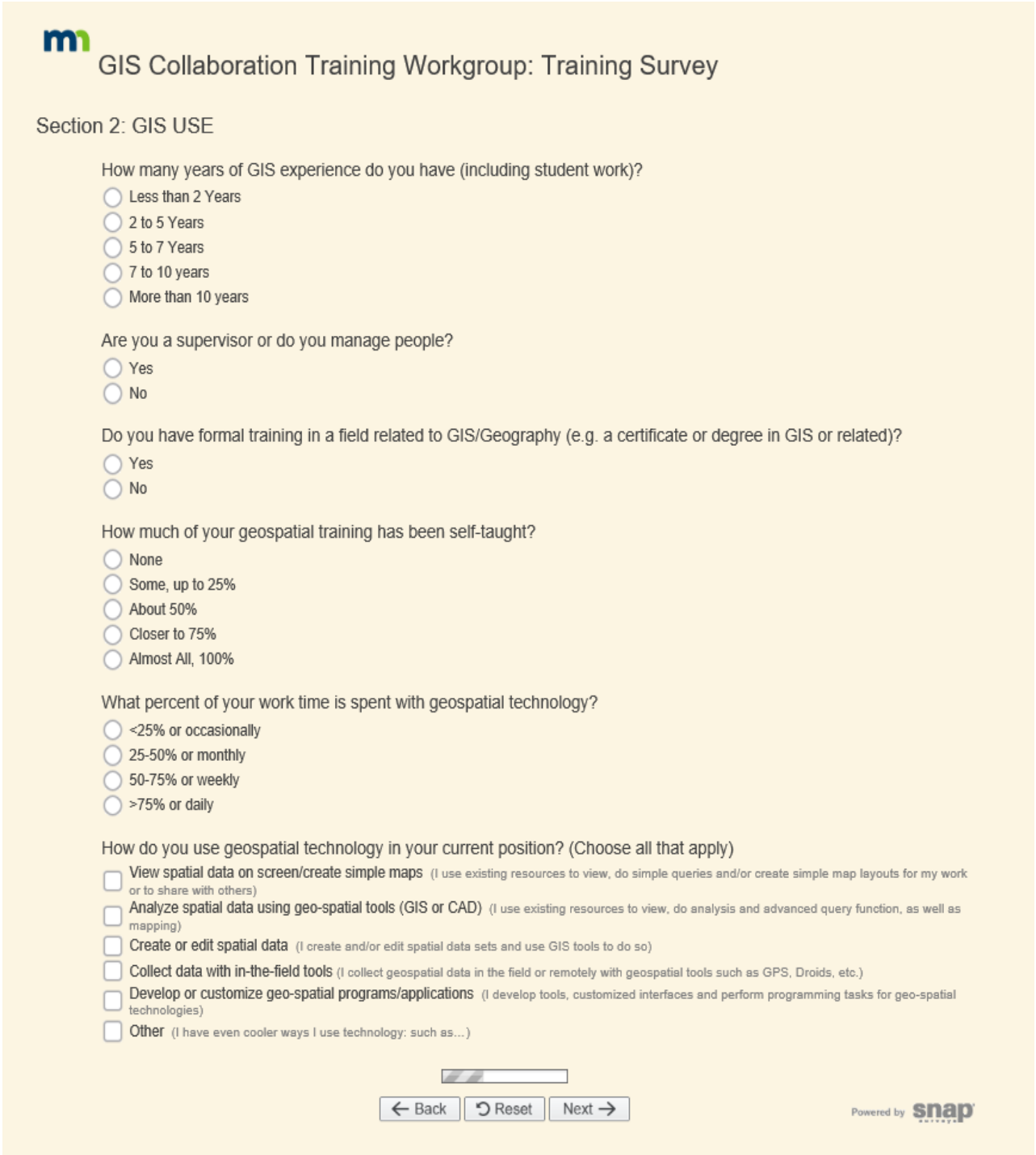

GIS Collaboration Training Workgroup: Training Survey

Section 2: GIS USE

How many years of GIS experience do you have (including student work)?

- ○ Less than 2 Years
- ○ 2 to 5 Years
- ○ 5 to 7 Years
- ○ 7 to 10 years
- ○ More than 10 years

Are you a supervisor or do you manage people?

- ○ Yes
- ○ No

Do you have formal training in a field related to GIS/Geography (e.g. a certificate or degree in GIS or related)?

- ○ Yes
- ○ No

How much of your geospatial training has been self-taught?

- ○ None
- ○ Some, up to 25%
- ○ About 50%
- ○ Closer to 75%
- ○ Almost All, 100%

What percent of your work time is spent with geospatial technology?

- ○ <25% or occasionally
- ○ 25-50% or monthly
- ○ 50-75% or weekly
- ○ >75% or daily

How do you use geospatial technology in your current position? (Choose all that apply)

- ☐ View spatial data on screen/create simple maps (I use existing resources to view, do simple queries and/or create simple map layouts for my work or to share with others)
- ☐ Analyze spatial data using geo-spatial tools (GIS or CAD) (I use existing resources to view, do analysis and advanced query function, as well as mapping)
- ☐ Create or edit spatial data (I create and/or edit spatial data sets and use GIS tools to do so)
- ☐ Collect data with in-the-field tools (I collect geospatial data in the field or remotely with geospatial tools such as GPS, Droids, etc.)
- ☐ Develop or customize geo-spatial programs/applications (I develop tools, customized interfaces and perform programming tasks for geo-spatial technologies)
- ☐ Other (I have even cooler ways I use technology: such as...)

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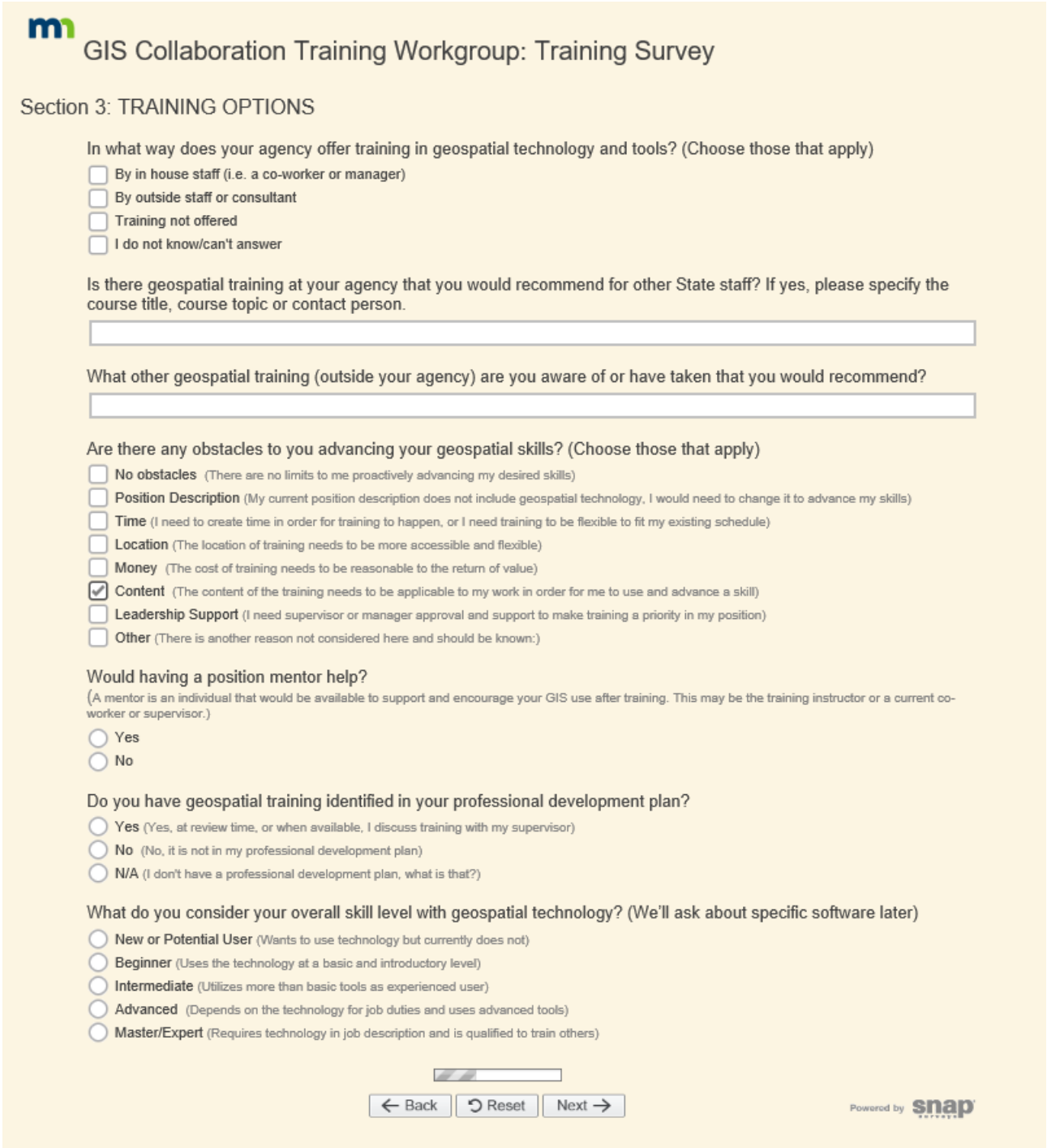

GIS Collaboration Training Workgroup: Training Survey

Section 3: TRAINING OPTIONS

In what way does your agency offer training in geospatial technology and tools? (Choose those that apply)

- [ ] By in house staff (i.e. a co-worker or manager)
- [ ] By outside staff or consultant
- [ ] Training not offered
- [ ] I do not know/can't answer

Is there geospatial training at your agency that you would recommend for other State staff? If yes, please specify the course title, course topic or contact person.

What other geospatial training (outside your agency) are you aware of or have taken that you would recommend?

Are there any obstacles to you advancing your geospatial skills? (Choose those that apply)

- [ ] **No obstacles** (There are no limits to me proactively advancing my desired skills)
- [ ] **Position Description** (My current position description does not include geospatial technology, I would need to change it to advance my skills)
- [ ] **Time** (I need to create time in order for training to happen, or I need training to be flexible to fit my existing schedule)
- [ ] **Location** (The location of training needs to be more accessible and flexible)
- [ ] **Money** (The cost of training needs to be reasonable to the return of value)
- [x] **Content** (The content of the training needs to be applicable to my work in order for me to use and advance a skill)
- [ ] **Leadership Support** (I need supervisor or manager approval and support to make training a priority in my position)
- [ ] **Other** (There is another reason not considered here and should be known:)

Would having a position mentor help?

(A mentor is an individual that would be available to support and encourage your GIS use after training. This may be the training instructor or a current co-worker or supervisor.)

- ○ Yes
- ○ No

Do you have geospatial training identified in your professional development plan?

- ○ **Yes** (Yes, at review time, or when available, I discuss training with my supervisor)
- ○ **No** (No, it is not in my professional development plan)
- ○ **N/A** (I don't have a professional development plan, what is that?)

What do you consider your overall skill level with geospatial technology? (We'll ask about specific software later)

- ○ **New or Potential User** (Wants to use technology but currently does not)
- ○ **Beginner** (Uses the technology at a basic and introductory level)
- ○ **Intermediate** (Utilizes more than basic tools as experienced user)
- ○ **Advanced** (Depends on the technology for job duties and uses advanced tools)
- ○ **Master/Expert** (Requires technology in job description and is qualified to train others)

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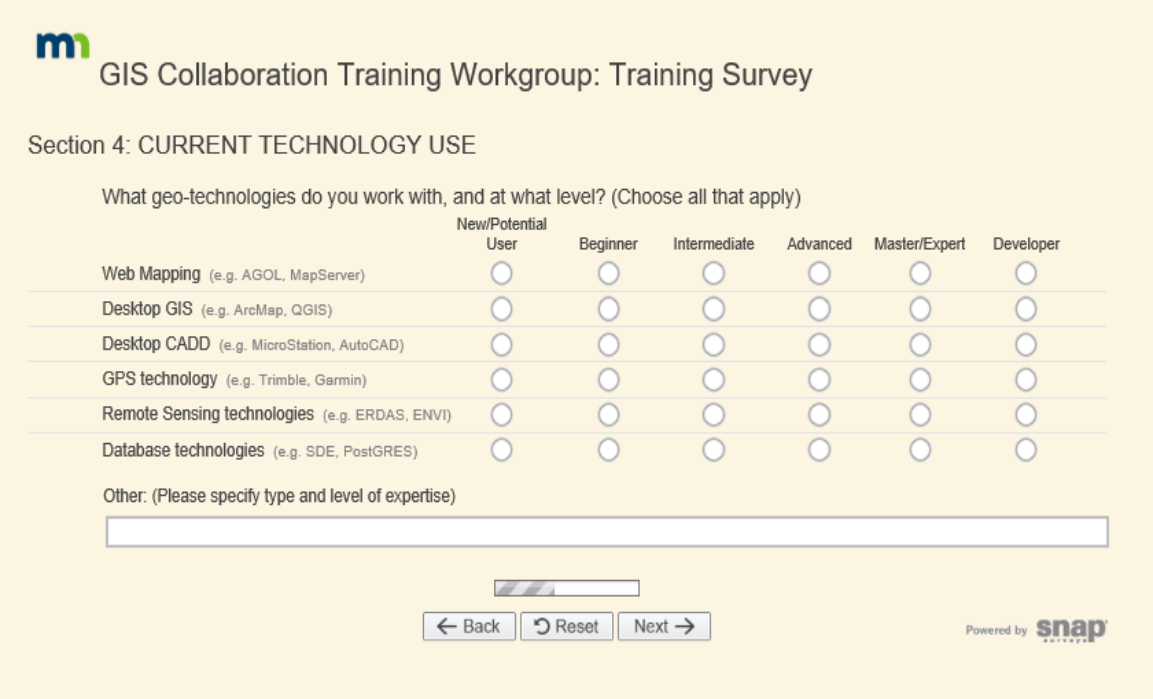
Geospatial Training Survey Summary



GIS Collaboration Training Workgroup: Training Survey

Section 4: CURRENT TECHNOLOGY USE

What geo-technologies do you work with, and at what level? (Choose all that apply)

	New/Potential User	Beginner	Intermediate	Advanced	Master/Expert	Developer
Web Mapping (e.g. AGOL, MapServer)	○	○	○	○	○	○
Desktop GIS (e.g. ArcMap, QGIS)	○	○	○	○	○	○
Desktop CADD (e.g. MicroStation, AutoCAD)	○	○	○	○	○	○
GPS technology (e.g. Trimble, Garmin)	○	○	○	○	○	○
Remote Sensing technologies (e.g. ERDAS, ENVI)	○	○	○	○	○	○
Database technologies (e.g. SDE, PostGRES)	○	○	○	○	○	○

Other: (Please specify type and level of expertise)

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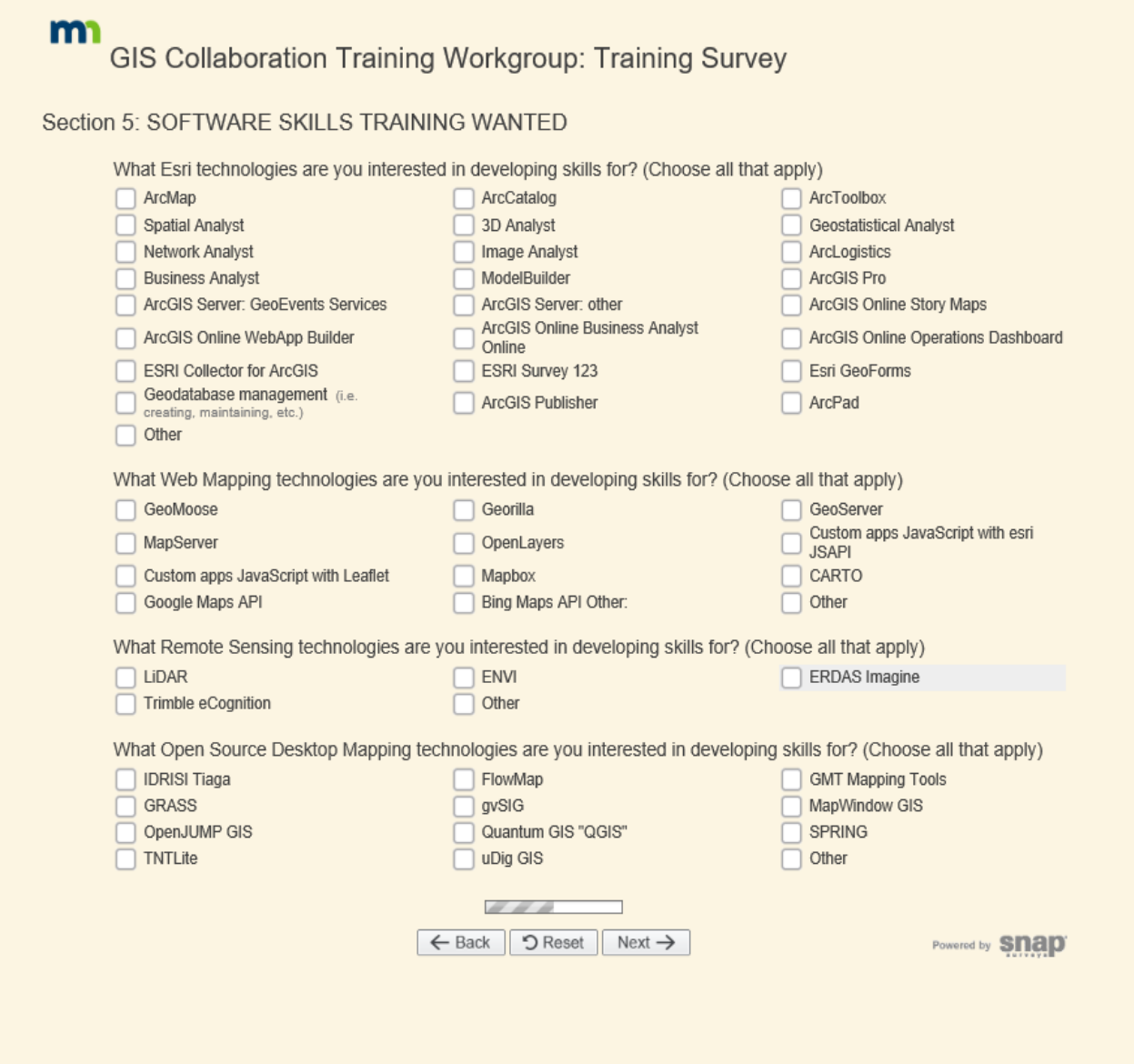

GIS Collaboration Training Workgroup: Training Survey

Section 5: SOFTWARE SKILLS TRAINING WANTED

What Esri technologies are you interested in developing skills for? (Choose all that apply)

- ☐ ArcMap
- ☐ ArcCatalog
- ☐ ArcToolbox
- ☐ Spatial Analyst
- ☐ 3D Analyst
- ☐ Geostatistical Analyst
- ☐ Network Analyst
- ☐ Image Analyst
- ☐ ArcLogistics
- ☐ Business Analyst
- ☐ ModelBuilder
- ☐ ArcGIS Pro
- ☐ ArcGIS Server: GeoEvents Services
- ☐ ArcGIS Server: other
- ☐ ArcGIS Online Story Maps
- ☐ ArcGIS Online WebApp Builder
- ☐ ArcGIS Online Business Analyst Online
- ☐ ArcGIS Online Operations Dashboard
- ☐ ESRI Collector for ArcGIS
- ☐ ESRI Survey 123
- ☐ Esri GeoForms
- ☐ Geodatabase management (i.e. creating, maintaining, etc.)
- ☐ ArcGIS Publisher
- ☐ ArcPad
- ☐ Other

What Web Mapping technologies are you interested in developing skills for? (Choose all that apply)

- ☐ GeoMoose
- ☐ Georilla
- ☐ GeoServer
- ☐ MapServer
- ☐ OpenLayers
- ☐ Custom apps JavaScript with esri JSAPI
- ☐ Custom apps JavaScript with Leaflet
- ☐ Mapbox
- ☐ CARTO
- ☐ Google Maps API
- ☐ Bing Maps API Other:
- ☐ Other

What Remote Sensing technologies are you interested in developing skills for? (Choose all that apply)

- ☐ LiDAR
- ☐ ENVI
- ☐ ERDAS Imagine
- ☐ Trimble eCognition
- ☐ Other

What Open Source Desktop Mapping technologies are you interested in developing skills for? (Choose all that apply)

- ☐ IDRISI Tiaga
- ☐ FlowMap
- ☐ GMT Mapping Tools
- ☐ GRASS
- ☐ gvSIG
- ☐ MapWindow GIS
- ☐ OpenJUMP GIS
- ☐ Quantum GIS "QGIS"
- ☐ SPRING
- ☐ TNTLite
- ☐ uDig GIS
- ☐ Other

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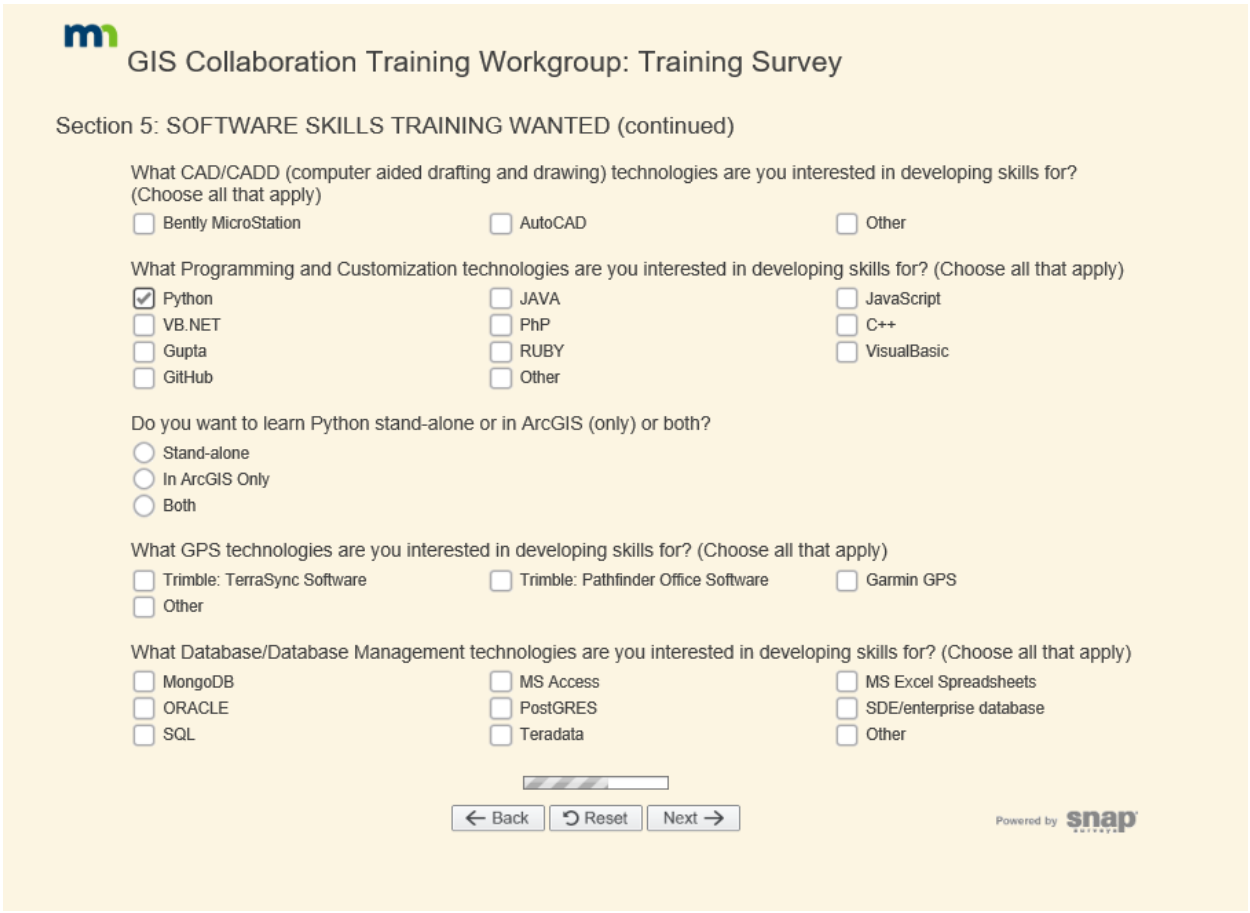
Geospatial Training Survey Summary



GIS Collaboration Training Workgroup: Training Survey

Section 5: SOFTWARE SKILLS TRAINING WANTED (continued)

What CAD/CADD (computer aided drafting and drawing) technologies are you interested in developing skills for? (Choose all that apply)

- [ ] Bently MicroStation
- [ ] AutoCAD
- [ ] Other

What Programming and Customization technologies are you interested in developing skills for? (Choose all that apply)

- [x] Python
- [ ] JAVA
- [ ] JavaScript
- [ ] VB.NET
- [ ] PhP
- [ ] C++
- [ ] Gupta
- [ ] RUBY
- [ ] VisualBasic
- [ ] GitHub
- [ ] Other

Do you want to learn Python stand-alone or in ArcGIS (only) or both?

- ( ) Stand-alone
- ( ) In ArcGIS Only
- ( ) Both

What GPS technologies are you interested in developing skills for? (Choose all that apply)

- [ ] Trimble: TerraSync Software
- [ ] Trimble: Pathfinder Office Software
- [ ] Garmin GPS
- [ ] Other

What Database/Database Management technologies are you interested in developing skills for? (Choose all that apply)

- [ ] MongoDB
- [ ] MS Access
- [ ] MS Excel Spreadsheets
- [ ] ORACLE
- [ ] PostGRES
- [ ] SDE/enterprise database
- [ ] SQL
- [ ] Teradata
- [ ] Other

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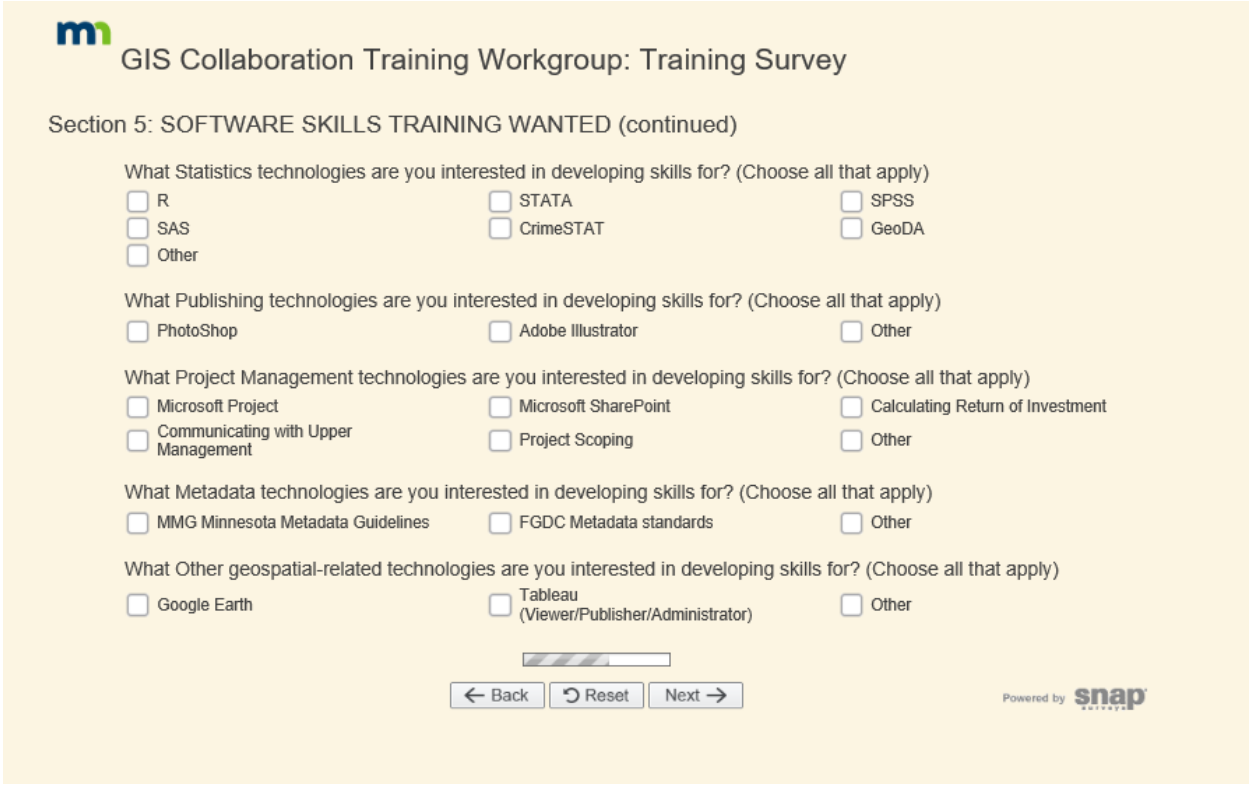

GIS Collaboration Training Workgroup: Training Survey

Section 5: SOFTWARE SKILLS TRAINING WANTED (continued)

What Statistics technologies are you interested in developing skills for? (Choose all that apply)

- [ ] R
- [ ] STATA
- [ ] SPSS
- [ ] SAS
- [ ] CrimeSTAT
- [ ] GeoDA
- [ ] Other

What Publishing technologies are you interested in developing skills for? (Choose all that apply)

- [ ] PhotoShop
- [ ] Adobe Illustrator
- [ ] Other

What Project Management technologies are you interested in developing skills for? (Choose all that apply)

- [ ] Microsoft Project
- [ ] Microsoft SharePoint
- [ ] Calculating Return of Investment
- [ ] Communicating with Upper Management
- [ ] Project Scoping
- [ ] Other

What Metadata technologies are you interested in developing skills for? (Choose all that apply)

- [ ] MMG Minnesota Metadata Guidelines
- [ ] FGDC Metadata standards
- [ ] Other

What Other geospatial-related technologies are you interested in developing skills for? (Choose all that apply)

- [ ] Google Earth
- [ ] Tableau (Viewer/Publisher/Administrator)
- [ ] Other

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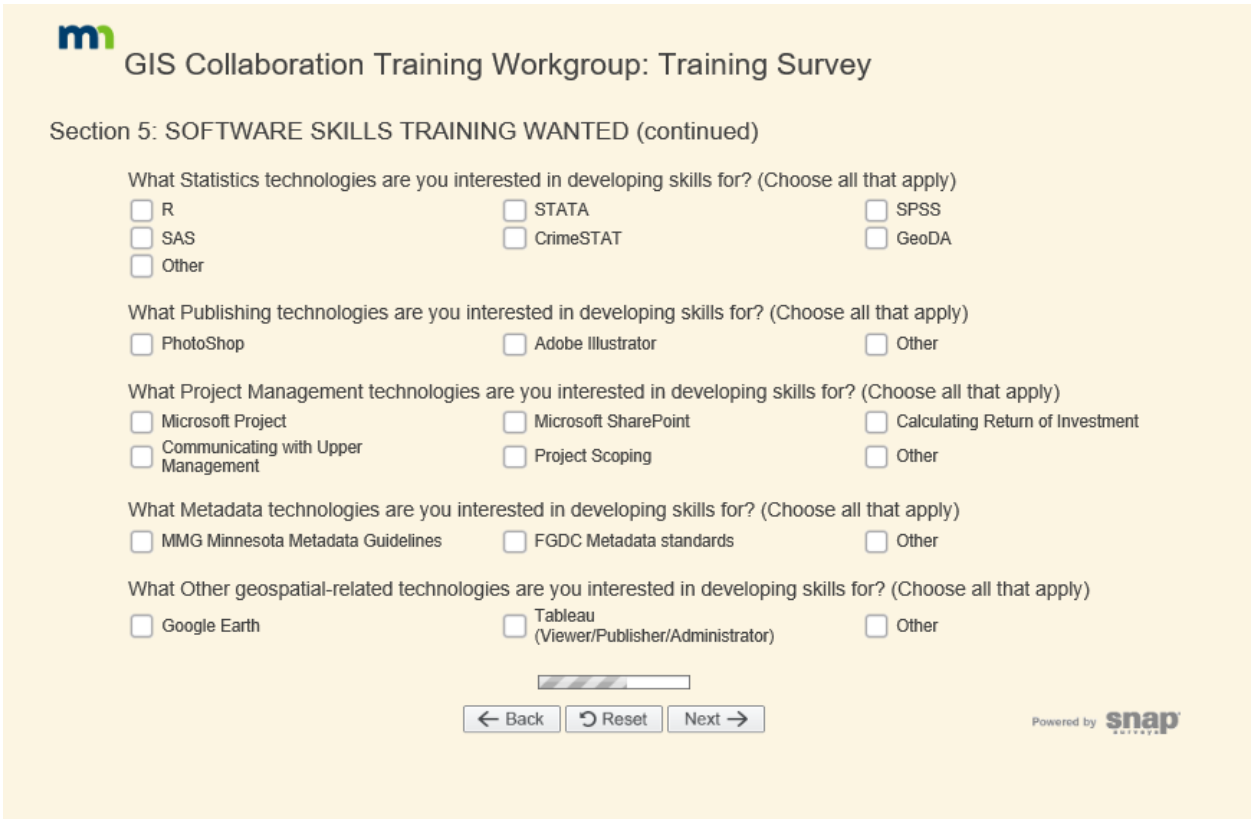

GIS Collaboration Training Workgroup: Training Survey

Section 5: SOFTWARE SKILLS TRAINING WANTED (continued)

What Statistics technologies are you interested in developing skills for? (Choose all that apply)

- ☐ R
- ☐ STATA
- ☐ SPSS
- ☐ SAS
- ☐ CrimeSTAT
- ☐ GeoDA
- ☐ Other

What Publishing technologies are you interested in developing skills for? (Choose all that apply)

- ☐ PhotoShop
- ☐ Adobe Illustrator
- ☐ Other

What Project Management technologies are you interested in developing skills for? (Choose all that apply)

- ☐ Microsoft Project
- ☐ Microsoft SharePoint
- ☐ Calculating Return of Investment
- ☐ Communicating with Upper Management
- ☐ Project Scoping
- ☐ Other

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- ☐ MMG Minnesota Metadata Guidelines
- ☐ FGDC Metadata standards
- ☐ Other

What Other geospatial-related technologies are you interested in developing skills for? (Choose all that apply)

- ☐ Google Earth
- ☐ Tableau (Viewer/Publisher/Administrator)
- ☐ Other

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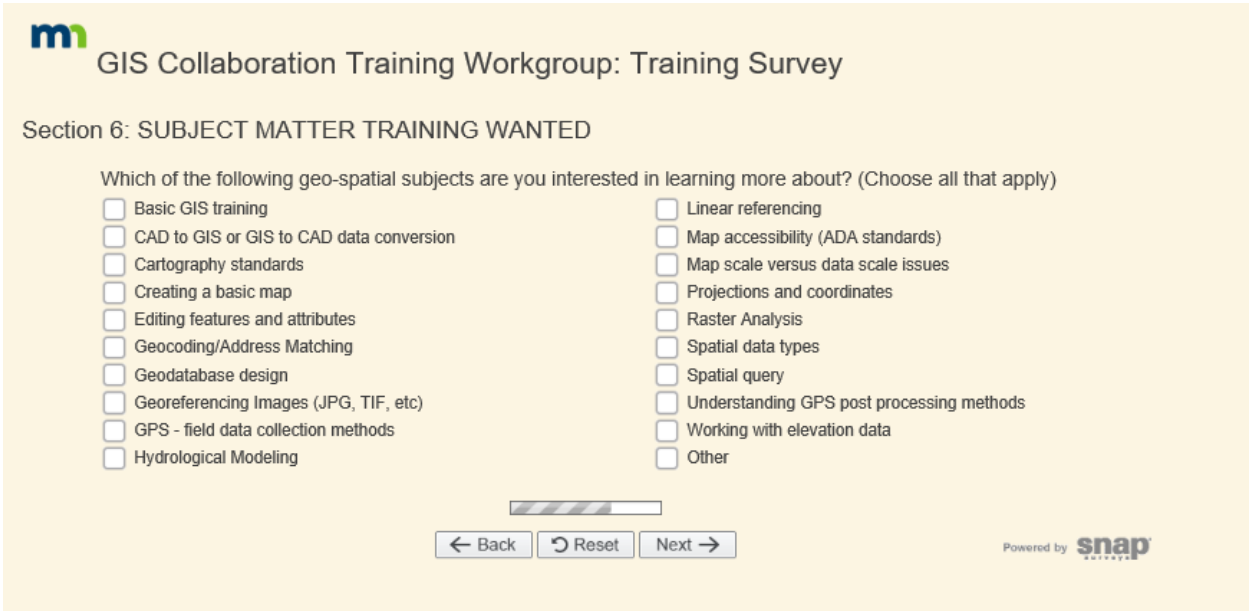

GIS Collaboration Training Workgroup: Training Survey

Section 6: SUBJECT MATTER TRAINING WANTED

Which of the following geo-spatial subjects are you interested in learning more about? (Choose all that apply)

- ☐ Basic GIS training
- ☐ CAD to GIS or GIS to CAD data conversion
- ☐ Cartography standards
- ☐ Creating a basic map
- ☐ Editing features and attributes
- ☐ Geocoding/Address Matching
- ☐ Geodatabase design
- ☐ Georeferencing Images (JPG, TIF, etc)
- ☐ GPS - field data collection methods
- ☐ Hydrological Modeling
- ☐ Linear referencing
- ☐ Map accessibility (ADA standards)
- ☐ Map scale versus data scale issues
- ☐ Projections and coordinates
- ☐ Raster Analysis
- ☐ Spatial data types
- ☐ Spatial query
- ☐ Understanding GPS post processing methods
- ☐ Working with elevation data
- ☐ Other

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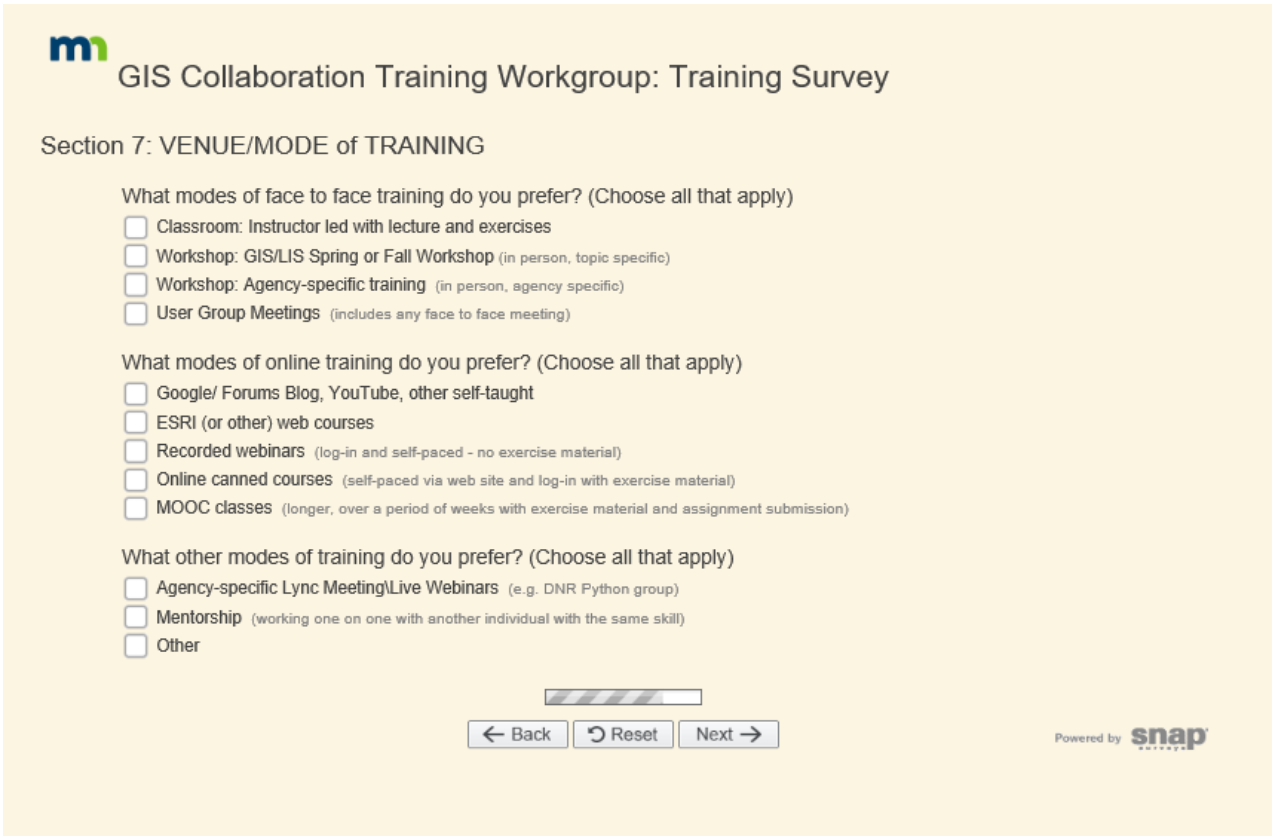

GIS Collaboration Training Workgroup: Training Survey

Section 7: VENUE/MODE of TRAINING

What modes of face to face training do you prefer? (Choose all that apply)

- [ ] Classroom: Instructor led with lecture and exercises
- [ ] Workshop: GIS/LIS Spring or Fall Workshop (in person, topic specific)
- [ ] Workshop: Agency-specific training (in person, agency specific)
- [ ] User Group Meetings (includes any face to face meeting)

What modes of online training do you prefer? (Choose all that apply)

- [ ] Google/ Forums Blog, YouTube, other self-taught
- [ ] ESRI (or other) web courses
- [ ] Recorded webinars (log-in and self-paced - no exercise material)
- [ ] Online canned courses (self-paced via web site and log-in with exercise material)
- [ ] MOOC classes (longer, over a period of weeks with exercise material and assignment submission)

What other modes of training do you prefer? (Choose all that apply)

- [ ] Agency-specific Lync Meeting\Live Webinars (e.g. DNR Python group)
- [ ] Mentorship (working one on one with another individual with the same skill)
- [ ] Other

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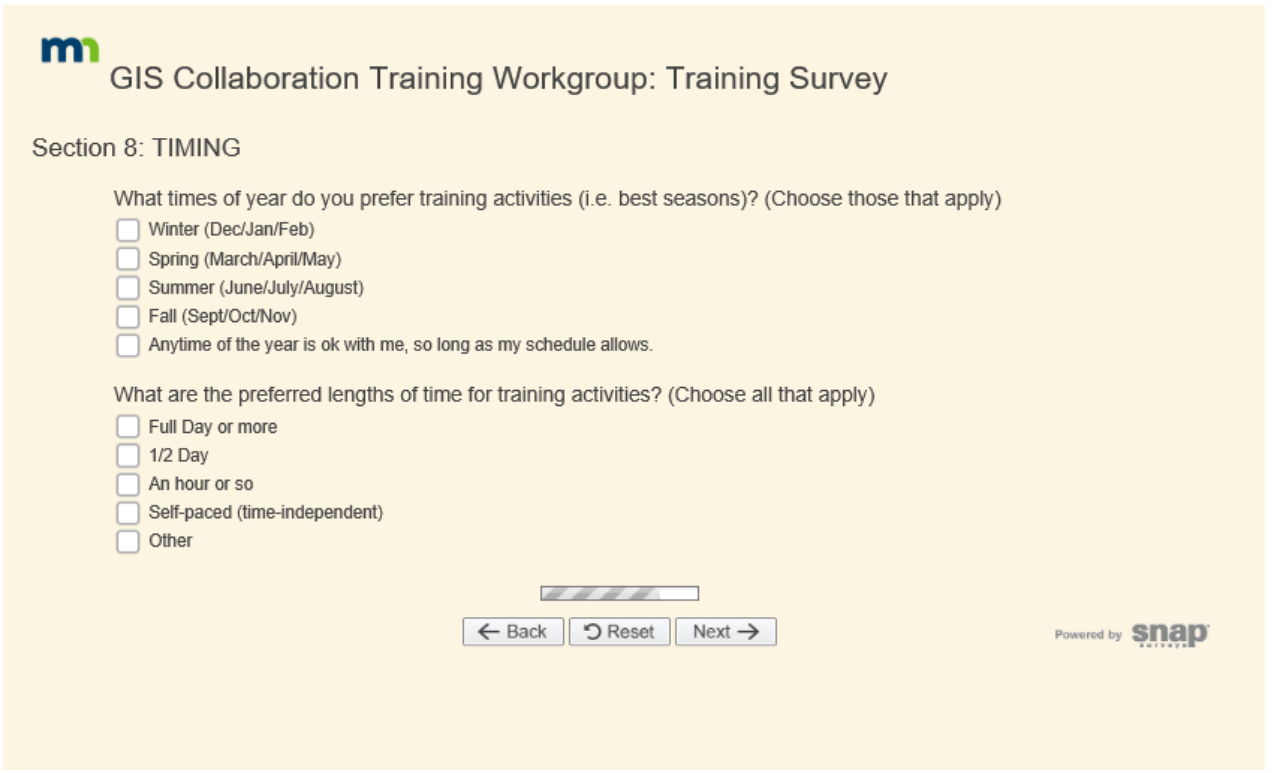

GIS Collaboration Training Workgroup: Training Survey

Section 8: TIMING

What times of year do you prefer training activities (i.e. best seasons)? (Choose those that apply)

- [ ] Winter (Dec/Jan/Feb)
- [ ] Spring (March/April/May)
- [ ] Summer (June/July/August)
- [ ] Fall (Sept/Oct/Nov)
- [ ] Anytime of the year is ok with me, so long as my schedule allows.

What are the preferred lengths of time for training activities? (Choose all that apply)

- [ ] Full Day or more
- [ ] 1/2 Day
- [ ] An hour or so
- [ ] Self-paced (time-independent)
- [ ] Other

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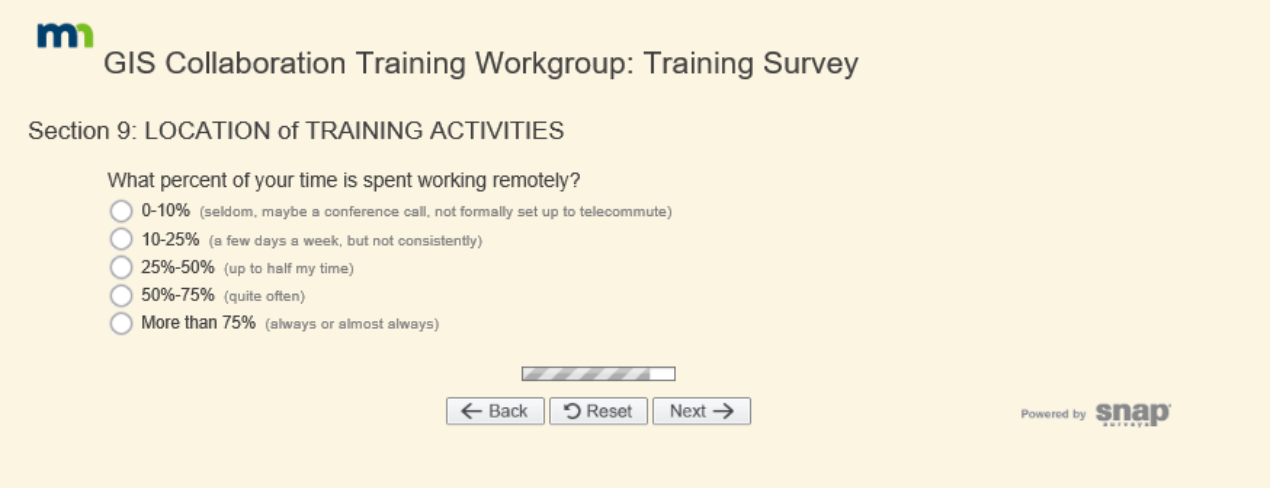
GIS Collaboration Training Workgroup: Training Survey
Section 9: LOCATION of TRAINING ACTIVITIES
What percent of your time is spent working remotely?
0-10% (seldom, maybe a conference call, not formally set up to telecommute)
10-25% (a few days a week, but not consistently)
25%-50% (up to half my time)
50%-75% (quite often)
More than 75% (always or almost always)
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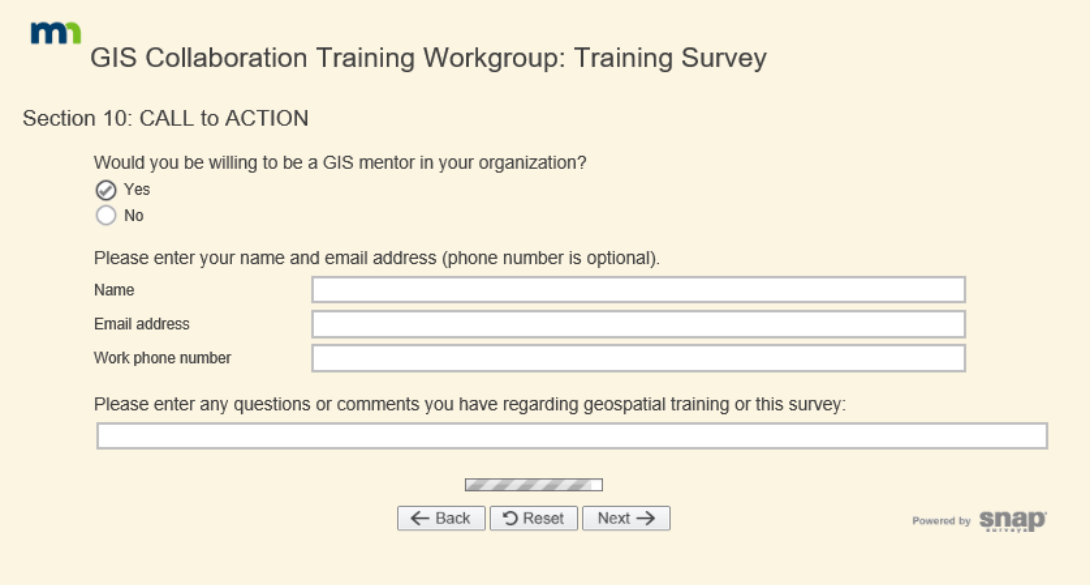
GIS Collaboration Training Workgroup: Training Survey
Section 10: CALL to ACTION
Would you be willing to be a GIS mentor in your organization?
Yes
No
Please enter your name and email address (phone number is optional).
Name
Email address
Work phone number
Please enter any questions or comments you have regarding geospatial training or this survey:
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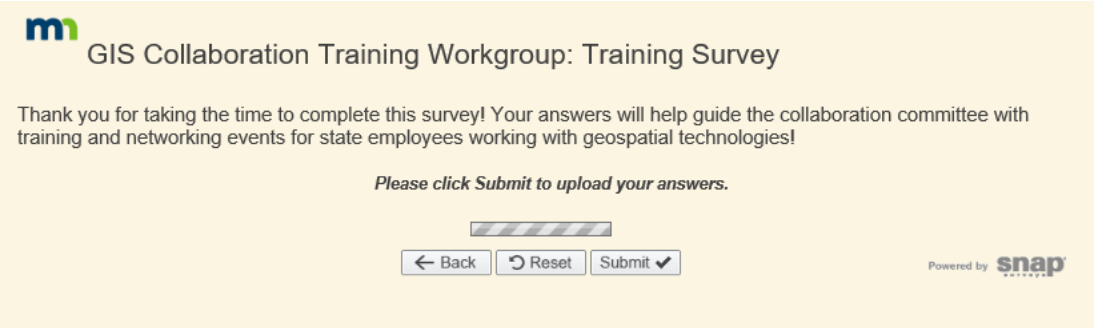
GIS Collaboration Training Workgroup: Training Survey
Thank you for taking the time to complete this survey! Your answers will help guide the collaboration committee with training and networking events for state employees working with geospatial technologies!
Please click Submit to upload your answers.
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