Lessons Learned in 2020 about Online Postsecondary Peer Assisted Learning (PAL) Groups from Previous Research Publications and Recent Survey of PAL Program Administrators

David R. Arendale, Editor

May 2020

Lessons Learned in 2020 about Postsecondary Online Peer Assisted Learning (PAL) Groups from Previous Research Publications and Recent Survey of PAL Program Administrators

David R. Arendale Editor

Printed in the United States of America.

Department of Curriculum & Instruction, College of Education and Human Development
University of Minnesota-Twin Cities
Minneapolis, MN 55455
Email: arendale@umn.edu
https://arendale.org

Recommended APA citation:
Arendale, D. R. (Ed.). (2020). *Lessons Learned in 2020 about Postsecondary Online Peer Assisted Learning (PAL) Groups from Previous Research Publications and Recent Survey of PAL Program Administrators*. Minneapolis, MN: University of Minnesota, College of Education and Human Development, Curriculum & Instruction Department.
https://z.umn.edu/lessonslearnedonlinepal

Lessons Learned in 2020 about Postsecondary Online Peer Assisted Learning (PAL) Groups from Previous Research Publications and Recent Survey of PAL Program Administrators

Purpose of this report. This publication identifies lessons learned from moving traditional face-to-face peer study groups to online operation. Two sources were consulted. First, previous publications concerning online peer study groups were studied to identify approaches, equipment and software used, and reports of effectiveness. Second, during May 2020 administrators involved with managing peer assisted learning (PAL) programs were invited to complete an online survey concerning their experiences with operating online in response to the Covid-19 pandemic.

There is no intention in comparing apples and oranges. I consulted both previous online PAL publications and experiences of the abrupt movement of peer learning online. Given enough time, resources, training, preparation and the rest, the results would have been even better for today's online PAL programs. Also, given additional planning time and resources for the term beginning in September 2020, their answers might be quite different than those shared in the May online survey. There are valuable lessons from the current reality and reports of the past.

Just to be clear, this report does not advocate that all the items within it need to be implemented to have a quality online program. Just because a listed item is only referenced by one publication or survey respondent, that does not make it less valuable than items listed by numerous publications and survey respondents. It is the wise discernment by individual PAL program directors of which items are relevant and fit the cultural and institutional context and availability of time and resources for their program. Think of this report as an education practice buffet with a wide range of choices.

Sources of information for this report. The following lessons are based on three primary sources. **First**, a dozen published research studies that also provided detailed information about operation of online Peer-Led Team Learning (also known as cPLTL or Cyber PLTL), Supplemental Instruction/PAL/PASS (also known as iPASS, OPAL, OPASS, and OSI) were reviewed. These two international program models were the only ones contained in my annotated bibliography of peer cooperative learning (Arendale, 2020) concerning online operation that provided detailed information concerning their operation, https://z.umn.edu/palprovidedonline Many or most of these programs had the luxury of time for developing an online program in a thoughtful manner. The other 26 publications in the bibliography were focused on reporting an evaluation study and did not provide detailed online implementation information.

Second, a May 2020 open-response survey of six items was completed by 45 directors of peer assisted learning programs in the U.S. and other countries. Invitations to complete this brief survey were posted to three listservs: LRNASST, SInet, and one focused on peer learning in Australasia. **Third**, forty peer learning program administrators editing a guidebook for course-based learning assistance (another name

for PAL) who were also invited to complete the online survey. Since the survey was anonymous, it is impossible to know the institutional type and their locations. It is a reasonable guess that over half the respondents were from the U.S. and the remaining from other regions in the world: Australasia, Europe, and North America. It is a reasonable assumption that many or most of the respondents to the online survey based their responses on experiences with moving online with little to no time or additional resources due to the Covid-19 pandemic which locked down college campuses world-wide and precluded face-to-face study groups. The instructions on the survey invited respondents to share brief statements, a single sentence, or longer. **Finally**, a few items were added from emails posted to several national listservs.

The raw survey responses were distributed without data analysis to the three above named listservs with a web link to download and an email sent to the 40 PAL colleagues editing the CLA guidebook, https://z.umn.edu/pallessonslearnedrawsurveydata

Limitations and future research. Since the survey was anonymous, it is unknown what types of peer assisted learning (PAL) programs they managed and whether the program has been historically offered online or if it was forced online with a few days' notice in response to the Covid-19 pandemic beginning in March 2020. Due to time constraints, the wider professional literature concerning online study groups and online tutoring was not included in this review. Hopefully, others will conduct detailed meta-analysis studies of the professional literature. I never claimed that was a rigorous research study, but rather a snapshot of what just happened. It is a frequency count of actions taken and statements by the program directors. No recommendations are made. Finally, it is messy. It is what it is. I am thankful for the time and effort by the survey contributors. All the information used for this report is publicly available and can be downloaded. Links are provided in the "For More Information" page that follows this one. Different people could come to different conclusions with their own analysis. No doubt, there will be a flurry of publications that will emerge from this calamity on how programs were taken online and the lessons the programs directors learned. That is needed.

Understanding the response frequency response reported. Numbers within parenthesis that precede individual items represent the frequency it was reported one or more times in the 12 publications (P) and the 45 survey respondents (S). Multiple mentions of the same item in a single publication or a single survey response were only counted once for purposes of this document. Example: (P1:S3), item mentioned one or more times in one publication and in three separate survey respondents. The maximum frequency would be (P12:S45). Not surprisingly, no item scored that high.

A personal note. I admire the creativity, tenacity, and energy of the PAL directors to have done so much with little to no time or additional resources to make the change. The same admiration extends to the cyber online study group leaders. When students most needed these PAL programs, the PAL directors and student leaders responded. The same admiration for the wider community within developmental education and learning assistance: instructors, tutors, and learning centers that moved online.

David Arendale, arendale@umn.edu, https://arendale.org

For More Information

1. Arendale, D. (2020). Annotated bibliography on postsecondary peer cooperative learning programs (1550+ citations), https://www.arendale.org/peer-learning-bib

2. Annotated bibliography of 38 online PAL program publications drawn from the above larger bibliography, https://z.umn.edu/palprovidedonline A dozen of the publications are available to download and contain detailed information about how the programs operated online. These were the dozen publications consulted for information contained in this report on lessons learned.

3. Arendale, D. (2020). Resource page for peer assisted learning programs with training manuals, student-created guidebooks, research studies, and more, https://www.arendale.org/peer-learning-resources

4. Raw survey data from the May 2020 by the 45 PAL program directors concerning how they abruptly took their programs online in response to the Covid-19 crisis, https://z.umn.edu/pallessonslearnedrawsurveydata These are the survey responses consulted for information contained in this report on lessons learned.

5. Association of Colleges for Tutoring & Learning Assistance (2019). *Principles, standards, and effective practices for quality online tutoring*. ACTLA http://actla.info/online-tutoring-standards

6. Russell Stannard, award-winning classroom educator who has trained thousands how to use technology and is considered the "go-to" expert on Zoom software Main website: https://www.teachertrainingvideos.com/ Zoom video collection: https://it.umn.edu/technology/zoom

7. YouTube training for online tutoring and small groups, select playlist for "*online tutor training*" and "*tutor training*": http://z.umn.edu/lacyoutube URL for the playlist https://www.youtube.com/channel/UCF_7MV_5oazCOu8VyWOchGg?view_as=subscriber

8. Boettchder, J. V., & Conrad, R-M. (2016). *The online teaching survival guide: Simple and practical pedagogical tips.* (2nd ed.). Jossey-Bass.

9. Dvorak, J., & Roessger, K. (2012). The impact of web conferencing training on peer tutors' attitudes towards distance education. *The Quarterly Review of Distance Education, 13*(1), 31-37. The best for clear information how to train tutors and small group leaders to operate in an online environment. Publication available through interlibrary loan.

Training Needed:

Important Note about the Frequency Numbers: Numbers within parenthesis that precede individual items represent the frequency it was reported one or more times in the 12 publications (P) and the 45 survey respondents (S). Multiple mentions of the same item in a single publication or a single survey response were only counted once for purposes of this document. Example: (P1:S3), item mentioned one or more times in one publication and in three separate survey respondents. The maximum frequency would be (P12:S45). Not surprisingly, no item scored that high.

The actual survey question for this topic of "training needed" was: What training was needed by participants and facilitators to maximize the online peer groups? I included relevant information from the previous publications on taking PAL programs online.

While I did not include information from the wider professional literature, there is one publication that is concerned with online tutor training that warrants its inclusion. Dvorak and Roessger (2012) described a training program for online tutors. It was four clock hours in length. Twenty-five percent of the workshop was spent by the trainer demonstrating and the remaining 75 percent spent by tutors practicing. The four topics of the training workshop were: introducing the web conferencing program, utilizing web conferencing tools, integrating interactive whiteboard technology with the web conference program, and fostering student interactivity in a synchronous online tutoring session. No further details provided in the article of more specific information. Most of the article was an evaluation study of the training program.

Institutional Assistance and Support

- (P4:S1) If available, include a campus leaning technologist and a course designer with creation of the online PAL program.

- (P1:S1) Identify campus technical support systems for chat, phone, or email support for use of the online meeting software.

Sources of Training Information for Leaders and Participants

- (P1) Collect student created tip sheets and guides for using the meeting software, computer hardware, and course management system and incorporate into handouts distributed by the PAL leaders.

Process of Initial Training of PAL Leaders

Independent study by leaders due to lack of time for training:

- (S3) No formal training offered for the leaders regarding the online meeting software. Instead, leaders used "drop in" technology center or experimented on their own.

- (S1) PAL leaders read articles about online peer study group programs.

- (P1:S1) Leaders go through all video tutorials for use of the meeting software and the online platform. These could be from the company, located on YouTube, or created by the PAL program.

Initial training for leaders:

- (P7:S15) Two to six clock hours of mock PAL session role-play practice with the online meeting software, course learning management system, and computer hardware (laptop/desktop, microphone with headset, webcam, and second document camera if needed based on the PAL model such as PLTL). This includes demonstration by PAL administrator and subsequent practice by PAL leaders. This could be held on campus with personal laptops of the PAL leaders or from their homes.

- (P1:S2) Record mock online sessions either composed of other online PAL leaders or actual students enrolled in the course to develop short vignettes to identify best practices to be played during training workshops and placed online for individual review by the study leaders. If using recording of students in the course, obtain written permission using release form.

- (S1) Due to need of training many staff immediately, conduct common training for group tutors, PLTL leaders, and recitation leaders.

- Initial training topics for PAL leaders:

    - (P1:S1) Similar topics to face-to-face PAL training workshops

    - (S2) Technology and technology troubleshooting

        - (S1) Only had time for technology training. No time for other topics before going online with the program.

    - (P1) Adaptation of traditional PAL activities for the online environment

    - (S1) Marketing and promoting online study group

    - (S1) Building confidence of tutors, staff, and facilitators of success was obtainable through online course and tutoring.

    - (P1) Provide examples and procedures to include audio, images, video, and other online resources through the shared screen function of the online meeting software

    - (P2) Unique PAL session activities for the online environment

        - (S2) Online strategies for collaboration and active learning
        - (S1) Strategies for engaging students
        - (S1) How to adapt redirecting questions within an online environment.
        - (S1) How to check for understanding within an online environment.
    - (P3:S1) Online group dynamics and challenges with group management
    - (P1:S17) Use of the online meeting software and other software
        - (P4:S5) Detailed handout for facilitators regarding use of the online meeting software and the course learning management system. Include Frequently-Asked-Questions for problem solving technical issues. Detailed handout provide step-by-step instructions with screen capture images of the software settings and the features.
        - (S1) How to set up their online sessions and choose settings. (I had to go in and change because some leaders did not follow instructions).
        - (S1) Training in using Zoom, but with a pedagogical understanding. That is, leaders needed to be trained in the basics of the technology, but also trained in/supported through "translating" the kinds of activities they would run in a face to face session into something equivalent on the online delivery platform. I brought in the Learning Designers from each faculty to run these training sessions for the leaders, which worked very well.
        - (P1:S3) Use of the course learning system management online software.
        - (S1) How to start the online session.
        - (S1) How to use chat function within the online meeting software.
        - (S4) Use of online breakout rooms
            - (S1) How to use Google docs forms within the breakout rooms.
            - (S1) How to use private messaging to give a student a word or term to use for Pictionary or Taboo so other students could guess what it was, etc.
        - (P1:S3) How to use polls and quizzes
        - (S4) Attendance recordkeeping

        - (S3) How to share files among leaders and participants
        - (S1) How to share screen
        - (S3) How to use the whiteboard
        - (S1) How to use different colored pens by different students when collaborating on the same whiteboard.
        - (S1) Steps taken by PAL leader with the meeting software before beginning the online session
    - Use of the computer, accessories
        - (P1) Use of the microphone headset, computer, webcam, and other equipment
    - (S1) Privacy and confidentiality
    - (S1) Accessibility training
    - (P1:S1) Assertiveness training for managing the online environment
    - (P2) Online netiquette
    - (S1) Offered extra training in dealing with students in distress

Process of subsequent PAL leader training during the academic term:

- (S1) Leaders developed their style with online meetings through a process of trial and error. Due to the different context for each course (content, instructor, etc.), leaders needed their space to adapt to the requirements.
- (S1) Training provided during weekly team meetings informally.
- (P1) During the academic term, observe an online PAL sessions by two other leaders and then debrief with them choices made.
- (P1) During the academic term, observe recording of their own online PAL session and respond to writing prompts by the PAL director for personal reflection and identification of behaviors to keep, change, or add.
- (P1) Integrate time to discuss technology issues during subsequent PAL leader meetings throughout the academic term.

- (S2) During weekly online staff meeting, place PAL leaders into breakout rooms to discuss what was happening in their sessions and then return back to the larger group to share.

    - (S1) During subsequent periodic team meetings, leaders were provided the video recordings and PowerPoints used in (original?) training and were split into virtual breakout rooms so each leader could take turns presenting, screen sharing, etc.

Training for Participants:

- (P2:S1) One-page quick start handout for participants regarding use of the online meeting software with a short Frequently-Asked-Questions sections to troubleshoot issues that may occur regarding the online meeting software or the course learning systems management component.

- (S1) When new participant jointed the online group, the leader created a breakout room and spent a couple of minutes showing them how to use the meeting software.

- (S1) Online session etiquette

- (S1) How to get the most out of an online study group

- (S1) Web links to tips and open education resources with help using the software.

- (P1) Obtain or create short video tutorials for operation of the online meeting software.

- (P4) Spend considerable time practicing with the online meeting software, course learning management system, and computer hardware at the first PAL session of the academic term.

- (P1:S1) Spend a couple of minutes practicing with features at each PAL session following instructors by the PAL leader.

- (S1) No training provided.

Needed Computer Equipment and Connection to the Internet:

This was NOT one of the survey questions. I drew these responses from the previous 12 publications about online PAL programs and from responses throughout the survey questions.

Computer Device Used by Leaders and Participants:

- (P4) Computer laptop or desktop rather than smartphone or tablet device. **Note:** There was mixed reactions to this lesson. While the major online meeting software often operate on smartphones and tablets, there are limitations for advanced functions and meeting software controls. Part of the answer depended upon the complexity of the meeting software, type of collaboration with participants, and the speed of the Internet connection.

Computer Accessories (or in the computer):

- (P7) Webcam to share participant images even if they were small. Some meeting software provided "gallery view" with thumbnail sized images of participants and a large screen of a participant or leader while speaking.

- (P8) Inexpensive second document camera to capture images of mathematical formulas, problem-solving, diagrams, and other visual images. This seemed to be important with procedures of PLTL programs.

- (P1) Audio microphones for the participants and the leaders.

- (P7) PLTL programs advocated for inexpensive combination microphone headsets due to reducing feedback noise, background noise, and voice echoes produced by sound from speaker sound pickup by the microphone. These headsets replaced the use of external computer speakers. Inexpensive ear bud headsets with an integrated microphone could also be used.

Internet Connection:

- (P1) To reduce Internet bandwidth load on the leader and participant computers, close unneeded web browser webpage tabs, computer software programs

- (P4) Computer must be connected to a high-speed Internet line. There was mixed reactions to this lesson. Some respondents expressed that the device needed to be directly connected to the Internet line through an Ethernet cable. Others stated that a high-speed WI-FI connection was sufficient. No one identified how fast was a "fast Internet connection" via WI-FI or Ethernet direct connection.

- (P2) Benefits listed for high-speed Internet connections for the leader and all participants included: avoid lag of audio, chat, and video; avoid distortion and

sometimes blocking of audio and video; less dropped online meeting connections that require signing in again and missing part of the session; and easier to use more complicated features of online meeting software. Advocates for this recommendation indicate the need for high-speed connection dramatically increases with larger-sized groups beginning as small as ten.

- (S1) Students sometimes experienced spotty Internet connections from home so could not rely on equitable participation.

Online Session Organization:

The original survey question for this topic was: How were online sessions organized differently than traditional face-to-face sessions? I also incorporated relevant information from the previous publications on taking study groups online.

- (S6) Not much difference between face-to-face and online sessions.

Preparation for the Online Sessions:

- (P1) Handouts placed on online platform well in advance of online meeting

- (S1) Distribution of PAL online session activities different than face-to-face including making connections with the participants.

- (S1) SI Leaders posted welcome, login and group guidelines in the main room and then posted a variety of different types of problems in various breakout rooms. Much like having different types of problems on different whiteboards for students to work on in face-to-face sessions. They still did an intro, a campus resource of the day and a study tip of the day as part of their intro before moving into pairs and small group.

- (S2) Collect attendance at the online PAL session.

    - (S1) To collect attendance data of the online sessions, students wrote down their student numbers/ids in a list.

    - (S1) To record data, instead of our Peoplesoft data system (institution's CRM), we used WCOnline for students to make online appointments. Tutors working remotely did not have access to Peoplesoft on their personal devices. Then, we had to retroactively load the data into the Peoplesoft system. When we had walk-in tutoring, those sessions were recorded differently from 1 to 1 appointment-based session.

    - (S1) Sign-ins automatically recorded by Canvas and Zoom software

- (S1) Beginning was time to get attendees' audio and video working. Good idea for first session after going online was to only have it as "how to use BCU" session and not so much content. Things like a practice test was given out a day or two before-hand, whereas for f2f sessions, attendees got it and worked on it during the session.

Approaches and Tools Used to Organize Online Sessions:

- (P3:S2) Facilitator uses prepared PowerPoint slides to organize the preliminary agenda, prompt students for the next learning activity, discussion questions, activities, and other resources.

- (S1) More successful PAL leaders did not use the previous face-to-face session schedule and instead improvised a new approach to organize:
    - (S1) When new students participated for the first time, the leader created a breakout room and worked for several minutes one-on-one with them to use online meeting software.
- (S2) Move to discussion based sessions.
- (S1) Breaking into small groups not always possible.
- (S1) Two PAL leaders with online format rather than one for face-to-face.
- (S1) In addition to content review, but also check in with students regarding wellness, strategies for finishing the academic term in alternate formats, and social connection.
- (S2) Online PAL session became more like an online tutorial session with question and answer.

Session Participation:

- (S2) Participation was the same as before with the face-to-face version of the PAL program.
- (S1) Used breakout rooms in zoom. A student worker "manage the desk" and assign clients into appropriate breakout rooms when they entered the drop-in tutor meeting.
- (S1) We kept the sessions at the same time and created online training rooms for students to access, we linked these to the Canvas LSM course pages and our center website, for easy access.
- (S3) Group tutoring was changed from drop-in
    - (S1) Appointment only with a limited number of participants to manage traffic flow.
    - (S1) Identified specific course, then had open sessions at designated times for those courses.
- (S1) Decided to do all drop-in tutoring online rather than small groups. Moving to online study groups in summer.

Session Scheduling:

- (S1) Instead of regularly scheduled, large group sessions, SI leaders focused primarily on ad hoc one-on-ones or small group sessions as requested by students. Some leaders prepared narrated worksheets or PowerPoints and distributed these materials in lieu of sessions altogether.

- (S1) Tutors were allowed to offer some off schedule appointments to meet student needs.

- (S1) Added some additional weekly sessions in addition to what was done previously with the face-to-face program.

- (S1) Online PAL sessions occurred at the same times as the previous face-to-face study groups.

Session Length:

- (S3) Kept same amount of time as face-to-face sessions.

- (S6) Online study group session time periods were shortened

    - (S1) Shortened due to perception that use of online meetings felt longer and more draining.

    - (S1) More of a drop-in and out atmosphere as opposed to committing for an entire session's duration.

    - (S1) Our regular 1.5 hour sessions twice a week were not preferred by students. Some changed to 1 hour meetings and others did 2 hours just once a week. We didn't have "office hours" previous to this, but everyone transitioned to 1 hour a week of drop in virtual office hour.

- (S1) PAL sessions were longer than face-to-face sessions.

    - (S1) Extended to one hour due to software limitations.

Course Learning Management System (LMS) and Other Resources: Communication, Data Storage, and More

This was NOT a survey question: If mention was made of software in the previous 12 publications or survey on taking PAL program online, it was added to the following list with its frequency, a web link, and a short description from the website. While PAL programs have little influence over the enterprise or institution-wide LMS software, some of the following software are modestly priced or are free.

- Add the online PAL program to the LMS page for the course that it supports and designate the online PAL leader as a nongrading teaching assistant (*thanks to Melissa Villalobos at Nova Southeastern Univ. (FL) for posting to SInet listserv*).
    - This would give them access to assignments, announcements, and supplemental materials.
    - Allow them to post announcements as needed about upcoming online study group sessions.
    - Allow them to post them Zoom session with links to the course calendar
    - Faculty member and PAL leader collaborate on session plans
    - Use leader PLA leaders in Zoom breakout rooms used by the course instructor so that the instructor and enrolled students can get to know them and see them as a resource
    - Instructor designates the PAL leader as a co-host for first day Zoom session so they can give their first-day speech and make announcements, as needed, about upcoming sessions at the end of the first class session. A prepared short PAL program video could be shared by the PAL leader.

- (P1) Ability to provide online access to leaders and participants to Power Point shows, handouts, worksheets, and previous online session recordings.

- (P1) Access to the course learning management system (LMS)

Frequency of usage of the following online meeting software, LMS, and other online software packages by survey respondents somewhere in responses:

- (S1) **Accudemia**, https://www.engineerica.com/accudemia/features/ It offers powerful features for managing academic centers and educational institutions. It lets you easily schedule appointments, keep track of visits, manage staff and students, and get feedback from visitors on their experience at your center.

- (P5) **Adobe Connect**, https://www.adobe.com/products/adobeconnect.html Design experiences with custom pods, images and layouts to personalize and brand the virtual room.

- (S2) **BigBlueButton**, https://bigbluebutton.org It provides real-time sharing of audio, video, slides, chat, and screen. Students are engaged through sharing of emoji icons, polling, and breakout rooms.

- (S3) **Blackboard Collaborate**, https://www.blackboard.com/teaching-learning/collaboration-web-conferencing/blackboard-collaborate It goes beyond traditional web conferencing to meet the extensive and varied collaboration needs of today's learners. From online course delivery, meetings and professional development to teaching and learning tools such as an interactive whiteboard, multi-point video, and application and desktop sharing, our new web conferencing and collaborative technology will help your organization support the requirements and concerns of your key stakeholders.

- (S5) **Blackboard Collaborate Ultra** https://help.blackboard.com/Learn/Instructor/Interact/Blackboard_Collaborate/Collaborate_Ultra Fully redesigned web conferencing application built for learning that enables everyone, every time, everywhere collaboration and conferencing. You have both a dedicated course room and the ability to schedule as many new sessions as you want.

- (S1) **ConferZoom**, https://ConferZoom The TechConnect Zoom (ConferZoom) integration with Canvas LSM facilitates efficient scheduling and connecting to web conferences using Zoom, virtual office hours management, attendance reporting, and session recordings.

- (S1) **Draw It to Know It: Medical Sciences**, https://drawittoknowit.com An effective means for students of all medical specialties, MD, DO, Allied Health, Dentistry, Nursing, and more. Drawing structures, pathways, and processes harnesses the kinesthetic power of active learning.

- (S2) **GoBoard**, https://goboard.com It is a first-of-its-kind, free online tool that combines video conferencing with an interactive canvas, designed to help students collaborate one-on-one, on virtually any topic. Simply create a GoBoard, share the link, and begin sharing knowledge, face-to-face. There is never anything to download!

- (Popular, but no mention in the survey) **Google Classroom**, https://classroom.google.com/u/0/h Google worked with educators across the country to create Classroom: a streamlined, easy-to-use tool that helps teachers manage coursework. With Classroom, educators can create classes, distribute assignments, grade and send feedback, and see everything in one place.

- (S3) **Google Docs**, https://docs.google.com It is Google's browser-based word processor. You can create, edit, and share documents online and access them from any computer with an internet connection. Easy to share documents across platforms and work on them together in real time from a browser window.

- (S1) **Google Forms**, https://www.google.com.forms It is a tool that allows collecting information from users via a personalized survey or quiz. The information is then collected and automatically connected to a spreadsheet. The spreadsheet is populated with the survey and quiz responses.

- (S2) **Google Hangout**, https://hangouts.google.com Google Hangouts is a communication software developed by Google. Originally a feature of Google+, Hangouts became a stand-alone product in 2013, when Google also began integrating features from Google+ Messenger and Google Talk into Hangouts.

- (S1) **Google Spreadsheets**, https://www.google.com.sheets Create a new spreadsheet and edit it with others at the same time — from your computer, phone or tablet.

- (S2) **Google Meet**, https://meet.google.com Using your browser, share your video, desktop, and presentations with teammates and customers.

- (S2) **Google Slides**, https://docs.google.com.presentation Create and present decks, project presentations, training modules, and more. With Google Slides, you can build presentations right in your web browser—no special software is required. Even better, multiple people can work on slides at the same time, you can see people's changes as they make them, and every change is automatically saved.

- (S1) **Jamboard**, https://gsuite.google.com/jamboard It is a whiteboard-like 4K touch display you can use for meetings and presentation purposes. Turn it on, draw on it, and flip through slides on it, whatever. Google has added G Suite support to Jamboard, so users will be able to directly access and edit Docs, Sheets, Slides, and photos stored in Drive.

- (S1) **JeopardyLabs**, https://jeopardylabs.com It allows you to create a customized jeopardy template without PowerPoint. The games you make can be played online from anywhere in the world. Building your own jeopardy template easy. Just use the simple editor to get your game up and running.

- (S2) **Kahoot!**, https://kahoot.com A game-based learning platform, used as educational technology in schools and other educational institutions. Its learning games, "Kahoots", are user-generated multiple-choice quizzes that can be accessed via a web browser or the Kahoot app.

- (S1) **Microsoft OneNote**, https://www.onenote.com A digital notebook that automatically saves and syncs your notes as you work. Type information in your notebook or insert it from other apps and web pages. Take handwritten notes or draw your ideas. Use highlighting and tags for easy follow-up.

- (S1) **Microsoft Teams**, https://www.microsoft.com Works really well when collaboration is needed by people that are separated by any distance. You can hold team chat sessions - including video - and break the participants easily into smaller groups. It is easy to share documents and files. It integrates seamlessly with other Office 365 products.

- (S1) **Polleverywhere**, https://www.polleverywhere.com Choose from a variety of activity types that let you visualize responses in real time, like open-ended Q&As, multiple choice, and word clouds. Each activity type encourages audience participation and helps you collect a different kind of feedback.

- (S1) **TutorTrac**, https://www.go-redrock.com/products/tutortrac/ Management solution developed for the specific needs of learning, writing, tutoring, academic skills and other centers that support students in higher education. As a web-based application, TutorTrac provides on-demand access to essential tools, such as appointment scheduling, logging visits, and activity reports. Record contacts with students in any physical location or online environment. Find and schedule appointments with tutors based on specific subjects. Track the activity of specific populations of students. Enter attendance for required sessions or workshops. Link activity to course enrollments and faculty.

- (S1) **WCOnline Scheduler**, https://mywconline.com Students browse available times, find tutors by specialty or course, and make individual, group, face-to-face, and online appointments. Staff review, manage and enter appointments, students' histories, and post-session reports. Text-only, accessible, and mobile interfaces are always included.

- (S1) **Webex**, https://www.webex.com It is an integrated audio, video, and content sharing system with highly secure web meetings from the Cisco Webex cloud.

- (S1) **Whiteboard third-party apps**, https://www.displays2go.com/Guide/Best-Online-Applications-Interactive-Whiteboards-52 The web page provides overview of Microsoft Whiteboard, OpenBoard, SmoothDraw, Microsoft PowerPoint, AWW App, Sketchboard, BitPaper, Conceptboard, Explain Everything, Mural, Concepts, Autodesk SketchBook, StaffPad, Ink to Code, and more.

- (S20) **Zoom**, https://zoom.us Bring HD video and audio to your meetings with support for up to 1000 video participants and 49 videos on screen. Multiple participants can share their screens simultaneously and co-annotate for a more interactive meeting. Record your meetings locally or to the cloud, with searchable transcripts. Support scheduling or starting meetings from Outlook, Gmail, or iCal. Chat with groups, searchable history, integrated file sharing, and 10 year archive. Easily escalate into 1:1 or group calls.

Engagement and Interaction Activities Different from Face-to-Face PAL Sessions:

Actual survey question: What online engagement and interaction activities were different than traditional face-to-face sessions? Also included is information from the previous 12 publications on taking PAL programs online.

Note: Due to my poorly written survey questions, I think some of the interaction activities are also reflected in responses to the section on desired features of online meeting software. For example, the Whiteboard was one of the most desired features, yet responses in this section does not has the same high frequency. My regrets for confusing question composition.

Synchronous Interactions:

- (S2) Synchronously is the best because peer groups can see each other in real time and interact in breakout groups or chat and then in a discussion group later after the session.

- (S1) Difficult for PAL leaders to do any group work or other interactive activities.

Activities Before Academic Content Review Begins: (Cross reference with items in the separate training section of this document)

- (S1) Online sessions required that students have access to reliable internet and/or the necessary tools in order to connect with a peer leader. Then the peer leaders have to assist students with the various features within the online platform such as upload a document, screen share, using the whiteboard (using the mouse or a stylus pen), the sound/microphone, etc. All of that was not part of the face-to-face session. Once the student gets acclimated to the online platform, then content assistance can happen.

- (P1) For PAL online programs with voluntary and non-graded participation, allowing students to sign-in with a pseudonym and a muted webcam permits anonymity for participants. This may provide a safer place to take academic risks and avoid perceived social embarrassment if they present incorrect information or faulty problem solving.

- (S1) Tutors used e-mail much more extensively to keep in touch with students. A mass e-mail was sent weekly to all student clients to remind them of services available and encourage them to keep moving forward. It couldn't compare with the Tutoring Center environment of welcome and periodic treats, but it was all we could do.

- (P1) Spend several minutes at beginning of sessions on ice-breakers and getting to know other participants. This is even more important for online sessions.

- (P1) If possible, meet face-to-face the first week to develop relationships and connect names with students and then meet online for the rest of the academic term.

- (S1) Discuss funny things with the participants.

Community building:

- (P1) More emphasis needed on community-building and fun experiences and not just working on course assignments, worksheets, and problem-solving.

- (S1) While my classes maintained a sense of community when we moved online, we had built that community over a couple of months of in-person work first. I am concerned about how I would build community if I must do it online from the beginning.

Activities to Monitor Participant Comprehension and Their State of Mind:

- (S1) Use of meeting software status updates (confused/happy/thumbs up/etc.) are important to so leaders can read the "room"

- (P1) Use quizzes and polls/surveys for immediate feedback from participants.

Activities to Engage Students and Create Interactive Activities: (Cross reference with items in the separate training section of this document.)

- (P2:S6) Session activities mirror those of typical peer sessions (Examples: greeting, revise draft agenda of facilitator, present learning activities, redirect questions back to the participants, wrap up the session with lessons learned, and schedule of next face-to-face and online session.)

    - (S1) Vocabulary, quizzes, polls, and others.

- (P1) Keep videos brief and used for illustration purposes. While videos may play well on the leader's computer connected to high-speed Internet, participants may be connecting through slower speeds through WI-FI, smartphones, and tablets.

- (S1) Our leaders had to really enforce CLTs and making students answer questions to get participation. Most students wanted to simply turn their camera off and just wait for answers.

- (S1) Pivot to more problem-solving strategy sharing/collaborative worksheet scenarios.

- (S1) Tutors reached out to students more frequently via LMS mail, and by attending instructor led check ins. Our center did many more system-wide out reaches. We also schedule group time for students that we knew had their regular study buddies and their regular tutor. We reached out to faculty more than we would have done, asking them to mention, "Your tutors are here" on a regular basis.

- (S1) We encouraged students to turn on their camera and ask student to have their camera on for more participation. Encouraged check ins every 10 mins, we didn't get to use breakout session but we will in the fall. Encouraged them to use share screen so students could the content.

- (S1) Less wait time (traditional SI method) and pair share--students were so overwhelmed with the entire move online they didn't have patience (didn't blame them) for basically SI's filling in where science faculty had done a poor job of putting classes online.

- (S1) Getting students to interact was difficult, had to have things written out for students, manipulating the muting system, and calling people very directly rather than openly.

<u>Used online meeting software features to encourage engagement:</u>

- (S1) PAL leader using software controls to control microphones, webcams, misc.

- (S3) Breakout rooms

    - (S2) The process of pairing students up to solve problems together was done by putting them into breakout rooms in Zoom. After pairs had finished solving problems and comparing methods, they would exit their breakout rooms and demonstrate the solution in the main Zoom session.

- (S1) Chatroom

    - (S1) Use chatroom to answer questions.

- (S1) File uploading/downloading

- (S2) Nonverbal responses (yes/no, raise hand [if agree, know answer, or have question], poll, etc.)

- (S1) Screen sharing

- (S1) Shared computer screens

    - (S1) Share screen allowed for many possibilities including bingo board, Kahoot, showing parts of body for A&P, etc.

- (S1) Webcam
    - (S1) Students' faces were up on the screen, so their focus was actually better than in a classroom. There must be a "share screenshot" feature in software used during the sessions. (One student was looking away; we caught him, and he shared a deer eating in his front lawn. We all enjoyed that!)

- (S3) Whiteboard (annotate screen with pens, text, etc.)
    - (S1) We didn't have a platform for two-way whiteboard use, which altered engagement activities.
    - (S1) Some tutors were very creative and used tablets for whiteboard or physical white board.
    - (S1) Use Whiteboard for brainstorming

<u>Used third-party software to increase engagement:</u>
(Cross reference with LMS and other software for frequency counts of their use).

- (S1) Leaders looked for some new tools that PAL administrator wasn't aware of. It was all so quick we had them finding their own solutions.
- (S2) Google Docs/Sheets/Slides for in-time collaboration
    - (S2) Rather than providing small groups with a worksheet to complete problems as a team, the SI Leader would often share separate Google Drive documents with each small group so they could work on completing questions/problems together. The SI Leader could then monitor each document to see the groups' progress, where they needed help, and correct/incorrect answers.
- (S1) Jeopardy Labs
- (S4) Kahoot!
- (S1) Anatomy typically is in a lab; we used Draw-It-To-Know-It software to help facilitate that
- (S1) PollEverywhere

Participants work in large and small breakout groups:

- (P1) Facilitators have the students work as a large group and other times in small groups in breakout rooms. Facilitator moves among small group rooms to interact with students, monitor activity, and bring them back to the large group room.

- (P1) Have students occasionally or frequently work in small groups to increase chance for active participation. Research suggests that only six to eight people speak in a group, regardless of its size. The PLTL program is intentionally structured to operate with groups of six to eight. Most online meeting software permits creating breakout rooms of equal sizes designated by the facilitators.

- (S1) Small group work of think-pair-share were easily achieved using the breakout rooms.

- (S1) There was less "board" work. I did encourage my leaders to use techniques that allowed students to give activities that students could give answers and leaders could type them in or add them to a document, but students were not able to do that. We also did not break students out into small groups to work together, although our sessions were typically small. Those things could probably be done with more advances training on the platforms that we use, but there was not time to train both the leaders and the students to do those things.

Engagement More Difficult:

- (S1) SI leaders reported a decrease in student engagement during sessions.

Difficult to make the quick transition of pedagogy from face-to-face to online only:

- (S1) One activity that required a different approach was understanding the effects on students of the methods used for course information delivery: virtual lecture, required independent learning, problem solving without group-think opportunity.

Inadequate computer equipment or software:

- (S1) Getting the students to engage was harder online than it was in person, and we had a lot of issues with students having equipment that was not optimal for solving math problems in an online session (writing with a mouse instead of a stylus, for example). For that reason, the PLTL leaders fell back on showing students how to do problems more than we would ordinarily want them to.

- (S1) Not being able to easily write on each other's paper. We used the zoom white board and wrote on it with a mouse or touch pad. It was slow and clunky.

- (S1) Very difficult to use Zoom for problem-solving sessions. We used screen share/annotation features. We would have liked to have had access to web cams for all of our tutors to be able to show work easily but this was not financially feasible.

- (S1) Whiteboard work became a challenge

Challenges with interactive learning activities:

- (S1) Even though they were face to face via one of the platforms virtually, took longer to use whiteboards or explain content.

- (S1) I think the biggest struggle was fighting the urge just to fall back on reteaching the material because it would have been so much easier. Having the ACTLA guidelines for online tutoring gave us something "official" to point to demonstrate that yes, online sessions are still expected to be interactive with students taking an active role in their own learning.

Difficulty with group management:

- (S1) Many leaders found resistance to participation and that sessions turned into more like Q&A sessions or individual tutoring (because of low attendance)

- (S1) Our student staff reported that it was much more challenging to encourage engagement and interaction in an online environment.

- (S1) Unfortunately there was less redirection of questions. Some of that was because of the very small number of attendees, some of that was because of the difficultly with doing that online

- (S1) The online interaction requires that students be more vocal with their needs while traditional face-to-face sessions enable tutors can tell from the body language/facial gestures. The online environment is beyond our control while the in-person session we are able to control the environment (such as minimize the distraction, creating an environment that is conducive to learning).

- (P1) More difficult to manage students in online environment than face-to-face.

    - (P1) Difficult to moderate large groups of participants if the facilitator is trying to control who speaks, shares documents, and other activities.

    - (S1) A lot less individual work then turn to a partner situations because the tolerance for silence online was very low and students' proneness to distraction was high

- (P1) Complicated learning environment for the leader to manage due to dealing simultaneously with sending and reading chat messages, welcoming late arrivals to the session, uploading or downloading documents, and moderating the discussion.

Participants mute their microphone and webcam:

- (S1) Some students would leave their microphone muted in the large group but talk during breakout groups.
- (S1) SI Leaders felt like they were more easily "pulled" into talking and often struggled with the 80/20 rule because students wouldn't use their camera and usually had their mic muted--even when asked to turn it on. The common answer from students was "my mic doesn't work."
- (S1) Some students preferred to use the online meeting chat room rather than speaking into their microphones.
- (S1) Students often muted their microphones and webcam so it was difficult to get them to collaborate with one another.
- (S1) Students are generally less catty online, silence makes it more challenging
- (S1) Most students do not want to turn on their cameras or mics, so PAL leaders are often 'leading blind' with no visual cues
- (S1) Not being able to see everyone's face and broader body language, Many students could not (or would not) show their faces. Gauging understanding or comfort-level was impossible.
- (S1) Based on half a semester's experience, it's just not as good. More talking from the leader, less engagement from the students. Students still not turning on cameras either due to shyness, reticence, laziness or bandwidth. Makes it so much harder. But it'll have to do for the time being.

Session attendance issues:

- (P1) More difficult to recruit new students to join online PAL sessions since they cannot simply accompany a current participant but instead must sign-in and begin collaboration by themselves on their own computer.
- (S1) We had a really hard time even getting students to come to us for online tutoring; I still don't know if the information didn't get to them, or if they just were too

overwhelmed/busy/disinterested to come to us. That was the most frustrating part; once we did get students in we had good success with helping them, and things went fairly well most of the time, but just getting them to come in was the hard part.

Interpersonal relationship formation difficulties:

- (P1) Unlike face-to-face PAL sessions, relationships formation through virtual PAL sessions may not persist outside of the online sessions whether or not students are attending classes face-to-face on campus.

Participants dislike for large group or breakout groups:

- (S1) We tried our best to keep things consistent by utilizing Zoom's breakout rooms for group work. In some classes however, students didn't like the breakout rooms and would drop out of the session. In an in-person SI session, students could in theory walk out of the room but typically won't. Students were also less likely to respond to questions posed by the SI Leader; I think this is in part due to the feeling of anonymity that being online brings.

- (S1) Group tutoring (formerly study hall) underwent the largest change - in person students are encourage to work together in small groups and the tutor can move around and check in with different groups - online the tutors were essentially working with one small group the whole time, all conversations are heard by everyone so if the tutor is helping someone everyone is listening, there's no option for a simultaneous side conversation

Design Features Needed of Online Meeting Software:

Actual survey question: What are the essential design features of online meeting software? This question is not asking for endorsement of a particular meeting software system. I also included information from the previous 12 publications on taking PAL programs online.

Helpful Features for the PAL Leader:

- (S1) Click for help on menu bar of the online meeting software
- (S1) Click on the menu bar to conference one-on-one with a participant who needs help.

Requirements for Operation of the Online Meeting and Other Software:

- (S1) Software can operate on older computer operating systems.
- (S1) Software can operate on older computers with less RAM memory than with most new computers.
- (S1) Have software license that permits multiple online meetings at the same time in addition to having multiple breakout rooms for each meeting.
- (S2) No new software downloads required for its operation.
- (S2) Online meeting software only requires low Internet bandwidth for operation.
- (P1) Software is cross-platform compatible among Windows, iOS, and Android operating systems and their devices.

Functionality of the Meeting Software:

- (P5:S2) Synchronous communication and participation
- (S3) East of use.
- (P5:S6) Audio and video of facilitator and participants
- (P1:S2) List of session participants
- (S2) Ability to invite others to the online session outside the institution for purposes of being a guest speaker or resource person.
- (P6:S11) Chat room used for text conversation, communicate in case audio and video disrupted, share Internet links to click for information, and more.

    - (S1) Chat can be private one-to-one or with everyone in the online meeting.

- (P2:S18) Breakout rooms for smaller group discussions. Note: PLTL by design already limits groups to between six and eight so the rooms were not needed.
    - (S1) Ability to rearrange membership in the breakout rooms.

- (P9:S24) Share screen by facilitator and participants: (a) use virtual whiteboard; (b) play audio and video files; (c) display PowerPoint slide shows, spreadsheets, word processing files

- (S6) Share files

- (P2) Polls

- (P2) Quizzes

- (P1:S3) Nonverbal interaction buttons: yes/no, slow down/speed up person speaking, raise hand to gain attention of the session facilitator, and status updates (confused/happy/thumbs up/etc.) are important to so leaders can read the "room"

- (P5:S3) Ability to record sessions so that others can view on-demand due to missed online session or prepare for upcoming examinations.

- (P5:S29) Whiteboard for use by facilitator and participants. In particular, the annotation tool for the whiteboard listed as important for drawing and typing text.
    - (S1) Participants can upload documents, images, and more to the whiteboard.
    - (S1) Participants can download what appears on the whiteboard for their use later for purposes of study and exam preparation.
    - (S1) Rather than use the Zoom whiteboard, most of the leaders opened a new document in OneNote and shared their screen, and afterward they could save it and distribute the notes.
    - (S1) Ability to use tablet/stylus
    - (S1) Ability to input and display scientific and mathematical symbolism.
    - (S1) Instead of Whiteboard, use Google Slides for a similar purpose.
    - (S1) Whiteboards can be difficult to use and see when solving complex problems.

Security Procedures and Meeting Software Settings:

- (P3:S7) Facilitator has security control of microphone, video, sharing, chat, Whiteboard, and other features could be abused by outsiders, disruptive participants, or reduce Internet bandwidth problems that cause distorted audio and video due to the online meeting software being overloaded beyond capacity.

- (S2) A “waiting room” that participants are held before release by the PAL leader. For security session leaders could compare the name of each person in the waiting room to the list of students they were expecting to see so they didn't accidentally let an unauthorized person into the session).

- (S1) PAL leader ability to designate a participant as a presenter/co-host and control when and what functions they are able to control.

- (S1) Ability to eject a person from the online meeting due to disruptive behavior or someone unauthorized to access the meeting.

- (S1) For security and privacy reasons, we did not distribute recording links to students, but we did have the leaders forward their session links to a central location so we could verify that they were logged on and conducting their sessions as they should be.

Expectation levels for students and sessions:

Actual survey question: How were expectation levels for online participants and facilitators different than traditional face-to-face sessions? For example, did you expect less or the same number of topics covered? Also included was information from the previous 12 publications on taking PAL programs online.

No Expectations:

- (S1) Did not have expectations. It was too sudden to build expectations.
- (S1) Initially we just didn't know what to expect, but we were eager. We learned new techniques every day.
- (S1) Defining expectations requires emphatic assertiveness of peer tutors and staff.
- (S1) With the rather rapid and forced move to online at the end of spring semester, everyone was really in "emergency mode" and just trying to finish the semester as best we could give the circumstances.
- (S1) We had very few expectations except for ourselves to do the best we could. It was unchartered water; we couldn't expect what lurked below. What was realized was fewer topics, significantly fewer students utilizing services.

Expectation Levels Unchanged:

- (S1) In tutoring - given the limited spaces and time we expected students to attend with more questions and problems than to simply work with others and seek help when needed (more the norm for in-person study hall) / for learning consultations and workshops our expectations were largely unchanged.
- (S3) Expected the same.
- (S1) We did not change these expectations specifically. However we did start using a more general observation protocol to provide feedback to leaders on their sessions as our in-person rubric did not translate well to online. Our main points we were looking for were: 1) leader's use of questioning techniques, 2) leader's use of available technology/resources while facilitating, 3) leader's connection and rapport with the participants.
- (S1) We covered fewer topics -- but only because we lost a week of class -- not because we couldn't have covered it had we had the same number of class days.

- (S1) For me they are no different because of the Zoom and Canvas technology and the technology help that the university gives. Students gave presentations online in real time.

- (S1) Number of topics covered varies depending on the size of groups, just as it would in face to face.

- (S1) We didn't explicitly state to the leaders that it was okay to cover fewer topics in a session, but we did tell them to be patient with themselves and their students, and especially to be patient with students who didn't have the right type of equipment or who didn't feel comfortable keeping their webcams on. My impression from leader self-reports is that it took them a few weeks to get the hang of it, and after that, they were almost as productive in their online sessions as they were in their in-person sessions.

- (S1) Dependent on the SI Leader or tutors ability to adapt to changes.

Needed to be More Flexible:

- (S1) Needed to be more flexible.

Took Longer to Accomplish Learning Objectives:

- (P1) It took longer to process academic content during online sessions due to one or more of the following:
    - (P1) Time spent to solve technical problems
    - (P1) Took longer to ascertain participants understood content before moving on to the next topic.
    - (P1) Some students wait until other students share what they know before they do the same.
    - (P1) Lack of visual cues and nonverbal behavior by participants to indicate they need help and that they understand the academic content.
    - (S1) We expected the same amount of content covered, but to do this we had to extend times of sessions by 15 minutes in order to accommodate tech issues. Even if we got the facilitators trained, we had no way of forcing students to view tutorials before logging in. As participants changed over the weeks (coming and going), there was seemingly always one person who couldn't figure out the tech.

Scaled Back Educational Learning Objectives During PAL Sessions:

- (S1) Sessions were shortened, content was condensed sometimes.
- (S1) I expect less to be achieved online due to the nature of online communication. Just as less is achieved in an online meeting versus face to face.
- (S1) Topics covered were more random, often just questions about particular problems as opposed to concepts or approaches.
- (S1) It was a bit harder to engage, if students didn't have a mic or even if they did you couldn't get everyone to answer, in a room you can get someone to answer better, online they just don't have to respond.
- (S1) Less. Everything is slower and harder. Leaders who have previously got through a certain amount with the class have had to do less and set more homework instead.
- (S1) We anticipated energy levels would drop after an hour, so fewer topics covered would have been natural.
- (S1) Yes, we expected fewer topics covered. The Learning Designers emphasized to PASS Leaders that sessions would probably be a fair bit slower than face-to-face, and also that perhaps since all the students were transitioning to online learning and it was a steep learning curve for many at a generally stressful time, that making/encouraging social connection and/or just helping students learn to use/get familiar with the technology was as important a peer learning activity as their coursework in the first couple of weeks.
- (S1) I expected whatever they were willing to give. It was thrown at us too quickly to do much about it; since the Zoom sessions are only 40 minutes, they were not able to cover as much.
- (S1) Expectations were lower since we knew it would take longer to explain/discuss content.
- (S1) Slightly decreased. Emphasis on depth instead of breadth. 1-2 topics per session vs 2-4 when in-person.
- (S1) It is expected that interruptions can happen in online sessions, while the in-person sessions can be in a controlled space in the tutoring center or space designated for tutoring.

- (S1) Less, since it was an abrupt transition, students needed the extra time to trouble shoot if there were technology problems.

- (S1) Expected to cover more but actually covered less - lower numbers and less use of microphone and text chat instead meant activities and feedback takes much longer.

- (S1) I had told SI leaders to plan fewer activities because they would take more time (as per suggestion from UMKC trainers). SILs reported that it seems attendees miss and want the social aspect and don't all need content instruction as much as when classes were f2f. SILs reported that attendees are very nice and understanding when technology fails or things take a while online.

- (S1) They were often able to do less topics, also less group work and interaction among students.

- (S1) Less topics because of the length of time it can take to deal with technical issues.

- (S3) Fewer topics.

New Students to Online Learning Had Different Expectations:

- (S1) Prior to our switch to online, we served 3,993 unique students. After returning to Spring Break and switching to online sessions, we saw 1,970 students return to sessions and 744 brand new students. The expectations of the influx of new students were different - they did not feel connected to other classmates in the session as they had not built relationships and they did not understand the expectation of group collaboration and working through the material with your classmates to learn it. Many of our newcomers came for a "practice worksheet" with answers. They were viewing SI sessions as a quick fix to get clarity from that day's lecture, rather than a collaborative learning process.

- (S1) Encouraging students to engage with online peer support has proven difficult.

Attendance/Participation Rates during Online PAL Sessions:

- (P1:S8) Participation in voluntary PAL sessions lower than previous face-to-face sessions. Some students did not like the online experience. Some students preferred to seek out individual tutors available online.

    - (S1) We saw substantially lower participation from students once we moved to a virtual environment (we also moved to option PDF grading for the semester).

- (S1) SI Leaders expected the same participation, but didn't get it. In our pilot, during F2019, we had close to the same attendance in Virtual SI as we did in person--and a great majority of students in the exit survey (85% or better) rated Virtual SI as being as effective or more effective than face to face SI. But during covid sessions online, we saw a huge drop in attendance as compared to our usual Virtual SI sessions. Students struggled to engage overall--both in class and in SI sessions.

- (S1) Expected less participation/attendance but same types of activities and material covered, times and schedule didn't change so no reason not to cover the same amount of material.

- (S1) We have had a lowering of participation across the board, in line with the drop-off in other academic support services at our university, but we have also had higher participation in some specific courses (maths and some engineering courses) than ever before, which is something to think about.

- (S1) Students largely disengaged from supplemental academic support resources. The peer-to-peer learning experience largely faltered due to lack of motivation, not for lack of effort on the part of the leader or adequate technology.

- (S1) My area is SCI, mainly Micro, A and P I and II, intro to Physics and CHEM. Our usage fell off almost totally. Even tutors who had steady participation across fall 19, into spring 20 (A and P I and II) semester had zero participants once we went to all online. I have seen this fall off mentioned on the listserv. It seems like SI groups fared better for keeping up participation, than other groups.

- (S1) Having used Virtual SI during both a regular semester and during the Covid-19 outbreak, I can say that the engagement we saw during the Covid-19 outbreak as NOT AT ALL representative of what we saw in a normal Virtual SI session. Attendance was much, much lower during covid when the students' stress level and anxiety level were reportedly greatly increased while their motivation, energy level and ability to concentrate/focus were reportedly greatly reduced.

- (S1) When we switched from face to face to online supplemental instruction, there was a noticeable decline in attendance in the sciences however attendance in accounting SI remained the same.

- (S1) Some students in our program have responded really well in big numbers (e.g. Medicine and some Health Sciences), other areas have dropped off (e.g. statistics and physics). In general, I think at our uni, students like coming to PASS because it's a very different experience to lectures, however, when EVERYTHING is online, they get 'Zoom Fatigue' and don't necessarily want to log on AGAIN to look at a screen again.

- (S1) I'm at a community college, and SI attendance is low anyway, anywhere from 0-18 participants each session. After going online, some SILs never had any students come all six weeks. Some had none one session and then four the next. It was very frustrating and discouraging for them. They were able to post announcements in their class sections on Blackboard, but still for some classes, students didn't come, even for SILs whom I would consider to be charismatic and outgoing. Low student attendance was definitely the most disappointing. But also, for some, it's very low even on campus, even after I myself went into classes to promote SI.

- (S1) Participation in SI spiked first week online, then significantly decreased after lax grading policy was implemented.

Students More Distracted during PAL Sessions:

- (P1) Recognize the higher likelihood of participant distraction due to one or more of the following:
    - (P1) ability to be unobserved and alone with temptation to check email, social media, music/television
    - (P1) eating
    - (P1) daydreaming
    - (P1) distraction by roommates, friends, and family members
    - (P1) leaving the room and returning with webcam muted
- (P1:S1) Due to difficulty conducting online sessions, scale back the number of learning objectives and the amount of academic content.

Expected Technology Challenges:

- (P1:S1) Recognize technical issues with computers, meeting software, WI-FI, and use of technology will be uncomfortable and create barriers for some or many students and the facilitators regardless of training. Some of this was resolved after the initial adjustment period.

- (P1) Loss of session time due to software glitches, computer hardware, dropped WI-FI connection, and the learning curve of the new online systems

- (P1) Loss of session time due to frequent tutorials on use of the meeting software and computer access issues.

- (P1) Difficult to share documents and co-create them on Whiteboards due to complexity of the annotation tools and procedures required for collaborative activities.

- (P1) Major error to assume students are a homogeneous group that are technology savvy and need little support and prior training.

- (S1) Because we didn't have a way of setting expectations regarding technology for SI Leaders, we expected less because some folks had to make do with what they had. Not everyone had cameras, microphones, or even reliable internet. We suspended formal observations and asked leaders to prioritize peer connections in whatever way they were able.

Miscellaneous Additional Comments by Survey Responders

The actual survey question was: Any other general comments about the online peer learning experience? No information was added from the previous publications on taking PAL online.

Note: A number of survey responses in this section such as those commenting on attendance, engagement, and others were instead moved to other sections of this report which had more responses on the same topic such as the previous one on Expectation Levels and the subsection on PAL session attendance. A nice surprise for this section were many responses prompted by this general question of their assessments of online PAL.

Evaluation and Reactions by PAL Administrators, Leaders, and Participants:
(Some of these responses could be placed in the following section on future plans.)

- (S1) We had students compliment us on the transition to online program.

- (S1) The resilience and dedication of my facilitators was amazing!

- (S1) Our student staff seemed to handle the transition well and offered feedback that the approach we took worked….

- (S1) To be honest, I think people make it out online to be harder than it is. Instead of approaching it as a "how do we / can we convert" it should be more along the lines of what are the EXTRA benefits of meeting up online? There are so many tools that can be added that you don't have available or as easily accessible - and it can be a much more engaging and inclusive experience for students. Socrative "space races" for example, online crosswords, interactive whiteboards (much like face-to-face without the embarrassment of what if I'm wrong), sharing of links, etc. It's much less intimidating too.

- (S1) Though from a program perspective it was a very rough transition, students and campus partners have been quite effusive about their appreciation of the efforts SI Leaders made to stay connected and supportive.

- (S1) Our five weeks online was a huge pilot that was successful. It was stressful for students and faculty, yet we succeeded and learned so many new things. As an administrator, I did a lot of coaching and I believe this was extremely important. I also resolved issues immediately. Internet issues, participation, motivation, and the stress of the pandemic were always present.

- (S1) Peer learning is impacted by motivation of the learner/students. Peer learning is anticipated by the faculty. However, during this transition, peers and faculty are still learning to work together.

- (S1) Too much screen time for students.

- (S1) I think an online option for external students is a good idea but not everything.

- (S1) Our assessment data is positive, with one student saying we switched to online better than their instructors had. Several said it was as good an experience as could be expected under the circumstances. We note that releasing PAL from physical meeting space opens up temporal meeting space so we can hold sessions in the morning or afternoons when classrooms are not available. Moving into the post-covid phase of life, we have high hopes that online peer learning will permit students to feel like they are having the same kind of experience as meeting face-to-face without the barriers of physical distancing, face coverings that block nonverbal communication, and concern about safety for facilitator or participant should some people refuse to practice safety measures.

- (S1) It has been very interesting to me to have a couple of years now of 'thinking about' how we could offer PASS online, as a single coordinator of 80+ PASS courses and then to have had basically a week and a half to shift the program to online delivery. Despite the intensity of the stress across that period, there have been many great things to come out of it. We are known thinking that we will run parallel face to face and online sessions when we eventually return to campus.

- (S1) The other thing i find interesting is that when I polled the PASS Leaders two weeks earlier, almost none of them thought they would want to run PASS online, and now they tend to have a similar feeling to mine - that we can and should offer this alongside face to face delivery going forward.

- (S1) Learning curve but I think we got it down now! :)

- (S1) We did a survey of our SI attendees and 62% preferred in-person sessions; 37% preferred online sessions, mostly for convenience.

- (S1) We made the decision as a program not to record SI sessions for a plethora of reasons, but we had many requests from students to do so in the future. Unfortunately, this is not something we will do, but I figured it was worth noting here.

- (S1) Our learning center's professional and student staff were generally pleased with how well we made this transition given the circumstances.

- (S1) Several students expressed that they were overwhelmed with having to learn online platforms. Reinforced were my long-held thoughts that as an institution, we overestimate our students' abilities with technology. Yes, they are great with phones and apps that provide them with what they need. But, their ability to navigate unfamiliar software with laptops or desktops is much more limited. Analogy: they can drive a car if everything is working properly, but if the car won't start, they have no clue about what to do.

- (S1) Students were very willing to adapt.

Future Plans Involving Online PAL or Hybrid Online and Face-to-Face:

- (S1) We plan to continue offering some level of PAL support online in addition to our in-person services once university classes return to normal. We have heard from a few students that they did not utilize PAL until we made the switch to online services due to schedule/work/family restrictions.

- (S1) I would like to have at least 4 face-to-face and the rest could be Zoom. It would give me flexibility.

Publications/Training Materials for Online Study Sessions

Free online training tutorials for online teaching and study groups:

Russell Stannard, award-winning classroom educator who has trained thousands how to use technology and is considered the "go-to" expert on Zoom software
Main website: https://www.teachertrainingvideos.com/
Zoom video collection: https://it.umn.edu/technology/zoom

YouTube training for online tutoring and small groups, select playlist for "*online tutor training*" and "*tutor training*": http://z.umn.edu/lacyoutube URL for the playlist is https://www.youtube.com/channel/UCF_7MV_5oazCOu8VyWOchGg?view_as=subscriber

National Standards for Online Tutoring:

Association of Colleges for Tutoring & Learning Assistance (2019). *Principles, standards, and effective practices for quality online tutoring*. ACTLA http://actla.info/online-tutoring-standards

Publications related to online peer study groups:

Annotated bibliography of 38 publications reporting research studies and techniques for online study groups, https://z.umn.edu/palprovidedonline Some publications are focused on the research study and provide few clues how they actually work. The following citations are publications that provide more information how their programs operate online.

The following publications from the annotated bibliography described above provide detailed information how the programs operate online and are also available for download online.

Alberte, J. L., Cruz, A., Rodriguez, N., & Pitzer, T. (2012). PLTL in pajamas: Lessons learned. *Conference Proceedings of the Peer-led Team Learning International Society Inaugural Conference*, Brooklyn, NY. http://pltlis.org/wp-content/uploads/2012%20Proceedings/Alberte-2012.docx

Beaumont, T. J., Mannion, A., P, & Shen, B. O. (2012). From the campus to the cloud: The online Peer Assisted Learning Scheme. *Journal of Peer Learning, 5*(1), 1-15. https://files.eric.ed.gov/fulltext/EJ1154814.pdf Excellent citations to other related literature regarding online learning.

Beckmann, E. A., & Kilby, P. (2008). On-line, off-campus but in the flow: Learning from peers in developmental studies. *Australasian Journal of Peer Learning, 1*, 61-69. http://ro.uow.edu.au/ajpl/vol1/iss1/8

Dawson, P. J. (2010). *Examining how an online mentoring model may support new Supplemental Instruction leaders.* (Ph.D. dissertation), University of Wollongong, Wollongong, Australia. http://ro.uow.edu.au/theses/3208/

Feder, E., Khan, I., Mazur, G., Vernon, T., Janke, T., Newbrough, Varma-Nelson, P. (2016). Accessing collaborative online learning with mobile technology in Cyber Peer-Led Team Learning. http://er.educause.edu/articles/2016/4/accessing-collaborative-online-learning-with-mobile-technology-in-cyber-peer-led-team-learning

Finney, K., Musil, O., Tram, A.-L., & Trescott, S. (2018). *Standard Operating Protocol: Virtual Supplemental Instruction*. San Diego State University. San Diego, CA. this

document provides detailed instructions for how they record, edit, and offer VSI. https://docs.google.com/document/d/1wqqrdSdsLTvRCStwutoLMWyCH2Xz8vznjU1OLm11Sx8/edit?ts=5c7fff6b#

Huijser, H., Kimmins, L., & Evans, P. (2008). Peer assisted learning in fleximode: Developing an online learning community. *Australasian Journal of Peer Learning, 1*, 51-60. http://ro.uow.edu.au/ajpl/vol1/iss1/7

Janke, T., & Varma-Nelson, P. (2014). Cyber Peer-Led Team Learning (PLTL). In J. Viteli & M. Leikomaa (Eds.), Proceedings of EdMedia 2014--World Conference on Educational Media and Technology (pp. 29-34). Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/147479/

Kartsonaki, E., Bailey, C., & Lawrie, G. A. (2015). *iPass: Online collaborative peer-assisted study support.* Conference Proceedings of Australian Conference on Science and Mathematics Education (formerly UniServe Science Conference). https://openjournals.library.sydney.edu.au/index.php/IISME/article/view/8855/9076

Mauser, K., Sours, J., Banks, J., Newbrough, J., Janke, T., Shuck, L., & Varma-Nelson, P. (2011). Cyber Peer-Led Team Learning (cPLTL): Development and implementation. *EducauseReview*. http://er.educause.edu/articles/2011/12/cyber-peerled-team-learning-cpltl-development-and-implementation

Smith, J., Wilson, S. B., Banks, J., Zhu, L., & Varma-Nelson, P. (2014). Replicating Peer-Led Team Learning in cyberspace: Research, opportunities, and challenges. *Journal of Research in Science Teaching, 51*(6), 714-740. doi: 10.1002/tea.21163. http://onlinelibrary.wiley.com/doi/10.1002/tea.21163/full Highly recommended for the detailed research design and recommendations regarding online implementation.

Spaniol-Mathews, P., Letourneau, L. F., & Rice, E. (2016). The impact of online Supplemental Instruction on academic performance and persistence in undergraduate STEM courses. *Supplemental Instruction Journal, 2*(1), 19-32. http://info.umkc.edu/si/wp-content/uploads/2016/09/siJ-Volume-Two-Issue-One.pdf

Varma-Nelson, P., Newbrough, R., Banks, J., Janke, T., Shuck, L., Zhu, L., and Smith, J. (n.a.). Cyber Peer-Led Team Learning: Taking the classroom experience online. *Online Learning Consortium*. https://secure.onlinelearningconsortium.org/effective_practices/cyber-peer-led-team-learning-taking-classroom-experience-online

Watts, H., Makis, M., & Billingham, O. (2015). Online Peer Assisted Learning: Reporting on practice. *Journal of Peer Learning, 8*(1), 85-104. http://ro.uow.edu.au/ajpl/vol8/iss1/8/ Includes extensive charts comparing different evaluation studies of wide range of online academic support programs.