

**Collaborative Conversations During the Time of COVID-19:
Building a 'Meta'-Learning Community**

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Abstract

Problem: COVID-19 created new research, clinical, educational and personal challenges, while simultaneously separating work teams who were under work-from-home restrictions. Addressing these challenges requires new forms of collaborative groups.

Approach: To support department community and the rapid sharing of new research, educational, clinical, operational, and personal efforts, a Core Team from the Department of Learning Health Sciences at the University of Michigan developed a meeting series called the COVID Conversations. This Experience Report shares the organizational structure of the COVID Conversations, proposes a comparison to traditional Learning Communities, and reports the results of a questionnaire that gathered details about department members' COVID-related activities.

Outcomes: We identify and describe salient similarities and differences between the COVID Conversations and the characteristics of Learning Communities. We also developed and piloted a taxonomy for characterizing LHS research projects that may be further developed for use in Learning Community planning, in conjunction with other maturity grids and ontologies. We propose the term "Meta-Learning Community" to describe the structure and function of the COVID Conversations.

Next Steps: Remote work, telemedicine, and virtual learning may be here to stay. The COVID Conversations constitute a distinct and innovative form of collaborative work in which separate teams addressing distinct goals, yet sharing a common passion to tackle the issues brought by the pandemic, are able to share experiences and learn from one other. The challenges of COVID-19 have made evident the need for multiple forms of organizing teamwork, and our study contributes the notion of a 'Meta'-Learning Community as a new form of collaborative work.

Keywords: Learning Community; Collaboration; Learning Networks; Learning Health System; Taxonomy

PROBLEM

The sudden shift in everyday life brought by COVID-19 created practical problems for workplace engagement across the globe. As many workers who could carry out their jobs from home were required to do so, workplace environments that had relied on face-to-face collaboration faced a new set of problems: how to keep everyone in contact, bolster morale through a supportive community, and keep the work going? COVID-19 also created a series of important research and infrastructural problems: how can we study COVID-19's effects on individuals and communities, how can we intervene in COVID-19's spread, and how can we uphold clinical and educational missions despite dramatic changes in everyday operations?

Academic medicine research environments encountered all of these challenges at once, creating the need to reconfigure social and professional relationships at the same time as colleagues were scattered to their home offices. However, challenges can often be reframed as opportunities to innovate. In this experience report, we describe an initiative called "COVID Conversations," a meeting series held in the Department of Learning Health Sciences at the University of Michigan. This series was designed to highlight and share the COVID-related research, educational, clinical, operational, and personal activities in which department members were engaged.

The COVID Conversations was a new initiative, not simply the online replication of an existing in-person activity. As such, it provides a powerful example for planning community engagement and collaboration in a remote work environment because, as we explain below, it draws on established conceptual foundations within learning health sciences. The ultimate goal of the COVID Conversations series was to configure a new form of Learning Community to foster connection and collaboration among department members as we faced new professional and personal challenges brought by COVID-19.

Beck et al. (2021) have recently described using a Learning Network approach to address the pandemic by rapidly building public health infrastructure for regional COVID-19 response. Our approach to building a Learning Community draws from the same conceptual foundations as their approach but has a different goal, namely to support an existing community as it rapidly shifted its research, clinical and educational activities, daily operations, and personal lives. In contrast to Learning Communities that instantiate Learning Health Systems through focused pursuit of a shared problem of interest, we describe a new type of Learning Community where a common overarching focus is shared, but teams are working on different projects with different goals. This 'Meta'-Learning Community aims to provide support and share information to improve the outcomes of specific activities without consolidating them under a single, narrowly scoped, shared problem of interest. This new type of Learning Community may be

needed in addition to traditional Learning Communities, given the complexity and urgency of the COVID-19 pandemic. Lessons learned from building and maintaining the COVID Conversations series may be especially valuable in a post-COVID context, where remote work, virtual education, and telemedicine may be enduring features of academic medical work.

In what follows, we share our experience of rapidly planning and executing the COVID Conversations, our conceptual comparison of the COVID Conversations to the structural and programmatic features of Learning Communities, and the findings of a small study investigating the COVID-related activities of COVID Conversations series participants. Based on these two studies, we argue for the emergence and further study of a 'Meta'-Learning Community.

APPROACH

In late March 2020, Charles Friedman, Chair of the Department of Learning Health Sciences (DLHS), sent an urgent email message to department members with this request: *“Please send right away a short description of any COVID-19 activity in which you are currently engaged, are planning on becoming engaged, or have been engaged.”* As responses to this request arrived, it became evident that many department members had already engaged in either professional activities in response to the COVID-19 pandemic or in personal activities focused on addressing pandemic-related issues (e.g. donating blood, sewing masks). Within 24 hours, 18 individuals responded with information about their current and planned COVID-19 response activities, and a gathering of the department’s core faculty, staff and graduate students was convened to share information with each other about these activities.

As a department initiative with the dual aim of supporting community and sharing information in the early days of the pandemic, the COVID Conversations quickly evolved into a regular meeting series. A small core planning team was formed, and consisted of a project manager (L.F.), a faculty member (A.H.V.), a PhD student (V.C.R.), and an applications analyst (L.M.). The team was supported by two administrative assistants, who contributed to scheduling and record-keeping.

Some members of the Core Team had experience researching, designing, and participating in Learning Networks and Learning Communities, which are two forms of collaborative Learning Health Systems. Below we combine characteristics associated with both groups to compare and contrast the COVID Conversations series with these existing organizational forms.

One foundational tenet common to these groups is that they form around shared problems of interest, addressing challenging problems by constructing a community or network around the problem to pursue solutions or improvements together (Menear, et. al., 2019). These types of collaborative Learning Health Systems have an actor-oriented architecture that “consists of actors (people and institutions) with the values and capabilities to self-organize; a commons

where they create and share resources; and structures, protocols, and processes that make it easy to form highly functional teams” (Seid, et. al., 2020, pg. 2). In this spirit, the COVID Conversations Core Team focused our efforts on **people, process and technology**: bringing a range of stakeholders to the table, valuing all contributions, designing and leading the series, and building a commons to gather and share information.

People

The Core Team drew on a Learning Communities framework to design the COVID Conversations. While traditional Learning Communities may have additional layers within their organizational structure, such as a Steering Committee or Advisory Committee (Myers, et. al., 2018), at a minimum, there is generally a core planning team, the community members at large, and then smaller working groups composed of community members who work on specific interventions related to a shared problem of interest. The organizational structure of the COVID Conversations included: 1) a core planning team; 2) general participants in the COVID Conversation series, and 3) those participants who were carrying out and sharing updates on various COVID-19 activities.

Three groups of department members were invited to attend the COVID Conversations: core faculty, department staff, and students in the Health Infrastructures and Learning Systems graduate programs. Some additional joint faculty with a special interest in COVID and Learning Health Systems work were also specially invited to attend, for a total of 118 potential participants. In alignment with Beck et al.’s (2021) account of building a COVID-19 response Learning Network, it was important that we developed a holistic view of the pandemic by uniting different stakeholders and sharing information about their respective experiences.

Process

From March until December 2020 the COVID Conversations were convened at varying intervals—from twice weekly to every other month—for a total of 19 meetings. While attendance rates were higher for the COVID Conversations in the earlier months of the pandemic, the meetings were well attended over time, with an average attendance of 38 department members (range: 25-49) or, on average, 32% of invited department members attending.

The Core Team coordinated and led the COVID Conversations. The Core Team’s work included practical activities related to executing the Conversations, including scheduling, agenda planning, recruiting presenters, leading the meeting, facilitating discussion, and capturing notes and action items. In addition, the Core Team also established tools and methods for storing and sharing the work of the department members.

Beck et al. (2021) describe harnessing the expertise and intrinsic motivation of community members to help during COVID-19 responses. But who helps and whose expertise is tapped depends on what leaders welcome as relevant contributions. In order to make sure that we were harnessing the widest possible interest in addressing COVID-19, the Core Team intentionally welcomed a wide range of activities, including personal activities. In keeping with this intent, the agendas for the COVID Conversations meetings were developed intentionally to provide variety across topics and to ensure representation of the broad range of COVID-related work and personal contributions undertaken by COVID Conversations participants. The COVID Conversations meeting agendas typically consisted of one or two main speakers, followed by an open discussion. Speakers shared specific project updates and other participants were encouraged to share news during the open floor discussion. In addition to project updates, there were recurring presentations provided by the DLHS Wellness Committee lead. These “Wellness Corner” presentations encouraged candid discussion about various aspects of health and well-being during the unsettled time of COVID-19.

Technology

The Core Team built the commons using a platform called Canvas, which is a learning management system. Canvas supports traditional course functions such as online lessons, gradebooks, and quizzes, and includes a communications toolset. Because Canvas is purpose-built for education, customization, including native HTML coding and creating external process links (e.g. Google Sheets), was required to adapt Canvas from a tool that enhances teaching and learning into a platform to support the COVID Conversations commons. The commons allowed group members to view and contribute to a page that listed member accomplishments (e.g. publications, webinars), an Announcements page, a file repository with agendas and meeting recordings, and a discussion board. In addition, to capture the wide array of ongoing COVID-related activities, a Google Sheet was built into the Canvas site. In this Activity Tracker, each contributor was able to enter freeform descriptions of their ongoing activities.

With the COVID Conversations underway as a regular meeting series, the Core Team identified additional aspects of these Conversations that we wanted to explore. First, we gathered information about the COVID Conversations themselves, including how the characteristics of the COVID Conversations initiative compared to other collaborative groups like Learning Communities. We also wanted to examine the nature of the COVID-related activity that DLHS members were addressing. This was intended to build a deeper understanding of the interdependent components between our mode of organizing the community and the specific projects underway: community connection and knowledge sharing (Beck et al. 2021). We pursued both of these objectives and the resulting mini-studies are presented below.

OUTCOMES

To understand the import of the COVID Conversations, the Core Team conducted two small studies. First, we constructed a comparison of the COVID Conversations organizational

structure, operations, and activities against criteria for a Learning Community, as derived from related literature. Second, we administered a questionnaire to COVID Conversations participants, asking them to report on their ongoing COVID-related projects and activities.

Study 1: Characterizing the COVID Conversations

The Core Team modeled the COVID Conversations on the organizational structure and characteristics of Learning Networks and Learning Communities in order to promote sharing around COVID-19-related activities. However, there were salient differences between this meeting series and the Learning Communities that are formed in clinical and community settings. For example, since DLHS came together rapidly as a community to participate in these COVID Conversations during an emergent situation, there was no time for proactive planning activities in the way a traditional Learning Community or Learning Network might be developed and initiated (Forrest, et. al., 2014). There was no formal stakeholder identification nor specific health problem of interest designated in advance. Nevertheless, aspects of the COVID Conversations were explicitly modeled on attributes of Learning Communities. Given other attempts to understand the characteristics of these groups (e.g., Vinson, 2020), we wanted to see if we could meaningfully characterize the COVID Conversations as a variant of a Learning Community.

We retrospectively evaluated the COVID Conversations against criteria that have been developed and published by experts on Learning Networks and Learning Communities. While these groups go by different names, they are organizationally similar and draw from similar conceptual foundations. For clarity, we will use the term Learning Communities (LC), but wish to recognize the commonalities between these two ways of achieving the vision of the LHS. Similar to the definitions provided earlier in this paper, Man, et. al. (2018) describe a LC as providing “a structure for people and organizations to align around a shared purpose and work cooperatively to achieve defined common goals” (p. 227).

Applying general descriptions of LCs, the COVID Conversations appeared, on the surface, to share characteristics with a typical LC. For example, there was a framework in place around which people could come together. The organizational structure of the COVID Conversations was similar to that of other LCs, including having a Core Team and community participants. Also similar to LCs, the COVID Conversations were composed of multiple stakeholders (e.g. faculty, staff, students) engaged in projects and activities focused on a common problem..

Upon closer scrutiny, however, we realized that some of the characteristics of the COVID Conversations diverged from those of a typical LC. Primarily, COVID Conversations attendees, although focused on COVID-19 problems in general, were not all working on the same, specific problem of interest. Rather, there was an overarching theme to the work of the members, who were addressing a variety of problems related to COVID-19 with research teams that were often

external to, or only partially overlapping with, the COVID Conversations community. This is evidenced by our Study 2 data, which show that when asked about their project goals, participants reported a range of different goals. Thus, while attendees regularly shared updates and received feedback from the group, much of their COVID-related work was occurring with other non-department colleagues or in their personal lives. Curious about other potential differences and similarities between the COVID Conversations and LCs, we compared attributes of the COVID Conversations against criteria of Learning Communities (Batalden, et. al., 2016, Fjeldstad, et al., 2012, Friedman, et. al., 2017, Seid, et. al., 2020, Smoyer, et. al., 2016) as described in Table 1.

[TABLE 1 ABOUT HERE]

Based on this comparison of attributes of the COVID Conversations to those of traditional LCs, we identified three significant differences. The first, mentioned in the previous section, is that the COVID Conversations were not focused on a shared problem of interest. Rather, the projects led by participants had a variety of different goals related to tackling the COVID-19 pandemic. The remaining two differences were that the COVID Conversations did not facilitate the sharing of results and learning from each other around a common problem, nor did members employ strategies or interventions to address a shared problem that was co-produced by the entire community. Neither is surprising given that both of these characteristics are connected to a typical LC, which is formed to identify, scope, and collaboratively address a shared problem of interest.

After analyzing the different facets of the COVID Conversations as compared to LCs, in addition to identifying some key differences, we realized that the COVID Conversations incorporated an element that is not often explicitly mentioned in the literature describing LCs: social support (although see Fagotto, 2019). Not only did the COVID Conversations provide an opportunity for people to come together to talk about their COVID-related work, but they also provided a chance for participants to support each other in the early months of the pandemic. Regular “Wellness Corner” presentations made community care and social support explicit aspects of the COVID Conversations initiative.

Although many COVID-related activities took place outside of the Department of Learning Health Sciences, the pandemic also occasioned new collaborations within DLHS. One such effort was the work involved in producing a DLHS-sponsored webinar in early June, 2020 called “Learning Health Systems in the Time of COVID-19” (Learning Health Systems Collaboratory, 2020). This webinar, collaboratively developed and delivered by several department faculty and staff, introduced individuals to the overall concept of LHSs with special emphasis on addressing problems created by the COVID-19 pandemic. Another group of collaborators partnered to study the university’s efforts to produce face shields in-house during the personal protective equipment supply chain collapse (Vinson, Fishstrom & Rooney, 2021). These new collaborations represent

the extension of existing collegial relationships in the new context of COVID-19.

In analyzing and identifying key differences between the COVID Conversations and LCs, we recognized a new type of Learning Community. While sharing many of the same attributes of traditional LCs, this new type of community consists of individuals working together to coordinate *similar work* around a *broad problem* and, at the same time, provides social support for its members. Based on this analysis, we refer to the COVID Conversations as a ‘Meta’-Learning Community.

Study 2: What activities were department members engaged in?

The goal of our second study was to gather additional details about department members’ projects and activities. Information about these activities was gathered using a questionnaire. The questionnaire and study protocol were reviewed by the University of Michigan Medical School Institutional Review Board (IRBMED) and determined to be exempt from ongoing review.

We developed a process to understand the nature and scope of the different projects and activities being carried out by department members. The first step was to promote use of the Activity Tracker to document COVID-related activities department members had planned or were working on. Using the Activity Tracker, 28 individuals reported 78 activities. The information collected included the project name, a brief description, and names of team members. Because one person reported the project, both in the activity tracker and in the questionnaire described below, our number of individual respondents remains low despite a relatively high number of activities reported. Next, we designed a taxonomy to categorize research, educational, clinical and operational activities to understand if and how they related to common Learning Health System attributes and activities.. The taxonomy was developed iteratively: a first version was developed based on categories derived from our inductive assessment of the initial project descriptions and components of the LHS infrastructural services model proposed by Friedman et al. (2017). A compiled set of categories was chosen and presented during a COVID Conversations meeting for review and comment. Based on the feedback received, we adjusted and developed a second version with additional categories. The final taxonomy is presented in Table 2.

[TABLE 2 ABOUT HERE]

After developing the taxonomy, we decided to test it using a questionnaire (Table 3) and, as a byproduct, gather additional information about COVID Conversations participants’ activities. On June 10, 2020, the questionnaire was sent via email to 28 department members who had logged activities in the commons. A subsequent announcement was sent to all COVID Conversations attendees to invite additional members to participate. The questionnaire was active until July 7, 2020. We received responses from 13 individuals, who reported details on 28 projects. Of these,

10 respondents reported details on 24 projects that were characterized as research, educational, clinical, and operational. For the purposes of this study, we excluded the 3 respondents who reported 4 personal activities, as these could not be mapped onto the taxonomy we developed. The reports on 24 projects represent 30% of the potential 78 activities logged in the Activity Tracker.

[TABLE 3 ABOUT HERE]

Finally, questionnaire responses were analyzed and shared at two COVID Conversations meetings to promote a collective understanding of department members' activities. The highlights of this analysis are outlined in the findings section below. Table 4 presents an overview of the key findings related to the work of the department around COVID-19.

[TABLE 4 ABOUT HERE]

We identified five key findings from the analysis of questionnaire responses:

Urgency was important. As of July 2020, 37.5% of the COVID project work reported by questionnaire respondents was completed between early April and the end of July. Another 50% of projects were in process and another 12.5% were planned. Due to the unique challenges posed by the COVID-19 pandemic, projects were required to produce results that could be implemented quickly. This finding may have implications for Learning Communities in terms of *how* and *when* they form and operate. In the context of COVID-19, problems of interest required urgent actions and quick solutions. Thus, when addressing urgent problems, the formation of a Learning Community may need to take place *reactively* instead of *proactively*.

Funding considerations were less crucial. Given the importance of addressing the effects of the COVID-19 pandemic, speed appeared to rise above the need for funding in the execution of COVID-related projects. The upshot was that many activities, particularly near the beginning of the pandemic, were carried out in the absence of dedicated funding, drawing on funded department time and faculty discretionary funds rather than formal grant mechanisms. During COVID Conversations, discussions were focused on projects' progress, and participants were able to connect around common problems they were facing and resources or contacts that could be shared.

Engagement and collaboration occurred locally. In terms of project scale, one dimension of the taxonomy, 39.1% of the COVID-related projects reported were focused on local activities, 23.9% on regional, 21.7% on national, and 15.2% of projects were focused at a global scale. Additionally, 58.3% of projects involved one organization and 12.5% involved two organizations, with the remaining projects involving three to more than six organizations (8.3%

of respondents noted that this question was not applicable to their efforts). This suggests that projects were focused on relatively local solutions, perhaps because of the organization-specific initiatives that department members were asked to help study and contribute to during the pandemic response.

Projects and activities were focused on the Knowledge to Performance (Practice) (K2P) area of the Learning Cycle. When asked what learning cycle infrastructural services (Friedman et al. 2017) the COVID-related activity contributed to, responses varied around the cycle, including answers about activity not explicitly represented on the learning cycle (e.g. Education) (see Figure 1). However, in total, 40% of the projects were identified as being focused on the Knowledge to Practice (K2P) portion of the cycle. This indicates an emphasis on the implementation of knowledge and performance improvements, including addressing urgent needs faced by patients and clinicians during the pandemic, as opposed to basic science research, which would align with the Data to Knowledge (D2K) part of the cycle. Nonetheless, features of the installed infrastructure for the reported projects could have also been limiting factors that led researchers to focus their efforts on specific parts of the learning cycle. That is, if researchers found that the infrastructural capabilities for P2D and D2K were less developed than those available for K2P activities, researchers may have decided to focus their efforts on the latter to respond most rapidly to the pandemic.

[FIGURE 1 ABOUT HERE]

Projects had diverse goals. The three most cited goals were Reducing Disparities in Health / Education (14%), Dissemination (12%), and Education / Training (12%), as shown in Table 4. The first category is not surprising, given the broader socio-cultural context, especially protests for racial justice during the summer of 2020 and the consequent need for further research aimed at reducing health disparities. Dissemination, Education, and Training are also intuitive goals of COVID-related activities. Other significant responses included Diagnostics/Testing (9%), Treatment (Outpatient) (9%), Understanding Social Determinants of Health (9%), Treatment (Inpatient) (7%), and Prevention/Risk Assessment (7%). These diverse goals highlight the fact that participants were not working on the same specific problem of interest. Rather, they were addressing a variety of problems related to the complex phenomenon of the COVID-19 pandemic.

There are limitations to the findings presented here. While we did hear from 10 respondents who represented 24 of the 78 of the activities reported by department members (30%), this is overall a modest sample. The descriptive analyses presented here should be interpreted as trends, and not as perfectly representative of department members' activities. However, as discussed above, this analysis did reveal some interesting patterns, particularly the greater number of projects focused on addressing the knowledge to practice (K2P) stage of the learning cycle.

While based on a small sample, we believe this taxonomy develops a framework that may be used to characterize other Learning Communities as instantiations of the LHS model. This could serve several purposes related to understanding the activities and maturity of a LC, and could be used in conjunction with other frameworks, such as the maturity grid proposed by Lannon et al. (2021). Specifically, the taxonomy could aid in self-assessment of the current state of a LC based on the taxonomy categories, including understanding the goals of the LC, the scale on which it is intended to operate, its funding and governance structure, and organizations involved. Second, it could assist LCs in planning for improvements, including planned action items for changes in organizational structure, including expanding the scope of the LC's goals, expanding the number of organizations in the LC, and modifying funding sources and governance structure. Third, it could be used for benchmarking with other LCs using the same standard taxonomy, which could lead to important insights or best practices for optimization of their work. Finally, the taxonomy could support new groups in the design phase, particularly in identifying organizational and governance structures based on available knowledge of what has worked elsewhere. We consider the initial development of this taxonomy itself to be an important outcome of our self-study of the COVID Conversations and our concerted conceptual development of the 'Meta'-Learning Community.

NEXT STEPS

The backdrop for the COVID Conversations was unique; in fact, these meetings were occurring in the midst of a "once-in-a-century global pandemic" (Cruickshank & Shaban, 2020). The enormous challenges brought by the COVID-19 pandemic spurred people and teams to address the multiple simultaneous challenges COVID-19 presented. In this paper we have described the development, execution and initial outcomes of the COVID Conversations meeting series in the Department of Learning Health Sciences at the University of Michigan. We have argued that the COVID Conversations initiative described here constitutes a distinct and innovative form of collaborative work, in which separate teams addressing different goals, yet sharing a common passion to tackle the issues brought by the pandemic, are able to come together, share experiences and engage in practices of community care. The complex challenges presented by COVID-19 have made evident the need for multiple forms of organizing teamwork, and we contribute the notion of a 'Meta'-Learning Community as a new form of collaborative work. We have compared our 'Meta'-LC to traditional Learning Communities based on available characteristics in the literature, and have described the framework that underpinned its design. We have also proposed an initial taxonomy aimed at specifying the characteristics of the projects embedded in our 'Meta'-LC, which was the result of a pilot study that collected and analyzed a small sample of data about the different projects' characteristics. This taxonomy may assist in future work that aims to understand how Learning Communities may come together and coordinate different initiatives. We argue that this new method of collaborative work has the potential to improve our ability to respond to urgent crisis situations by providing a framework

that enables different teams to share, collaborate with, and care for one another under extenuating circumstances.

Future research opportunities include exploring how the structure and characteristics of the 'Meta'-Learning Community might support typical work activities in a post-pandemic world. As noted by Brown and Finn (2020), "The sudden shift to remote working and online communication has redefined collaboration," and the authors suggest that educators learn from the adaptations made under pressure during the pandemic as they plan for post-pandemic education. This sensibility extends beyond education, and indeed we hope that sharing both the details of our process, as well as initial outcomes, benefits others who may be planning longer-term organizational change. How people work in the future may forever be shaped by the collaborative processes, mechanisms and structures that emerged during the COVID-19 pandemic. In addition, further iteration and development of the project taxonomy we proposed here is also an area ripe for future research, and aligns with other ongoing efforts (Lannon et al. 2021) to help participants in Learning Health Systems and other collaborative groups understand their progress and plan their activities.

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Disclosures

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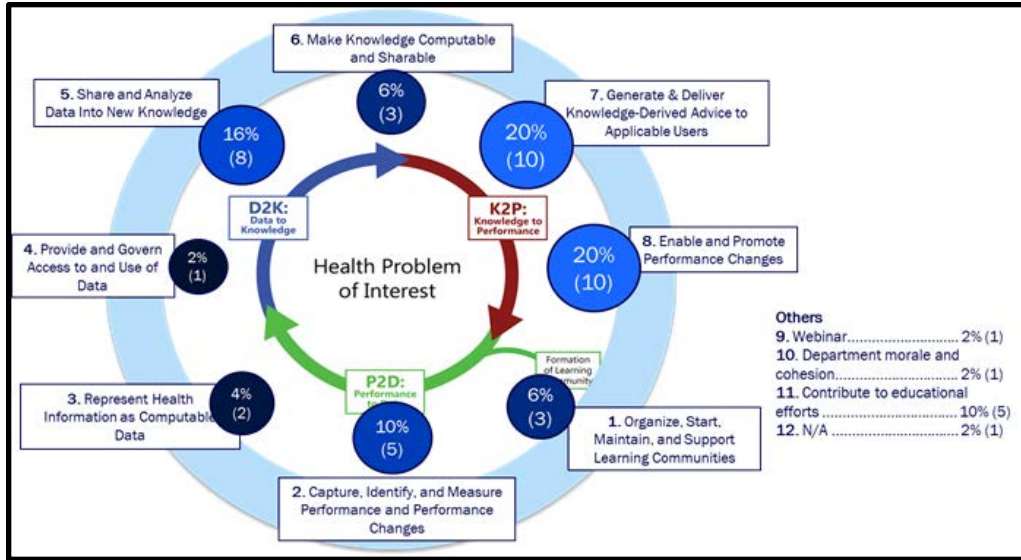


Figure 1: DLHS COVID Project Infrastructure Focus (adapted with permission from Friedman et al. 2017)

Table 1: COVID Conversations Compared to LHS Learning Community Characteristics

Learning Community Characteristic	Apply to COVID Conversations?	Demonstrated by
Pursues a shared goal or problem	Partial	The community came together at an overarching level to address the impacts of COVID, in general. However, there were varied research, educational and personal projects and initiatives related to COVID- 19 that were being worked on by individual community members. The community as a whole was not working toward interventions intended to address a specific, shared COVID problem of interest.
Driven by “passion” to achieve the goal	Yes	The passion to help mitigate, understand, and make contributions to the COVID problem was evidenced not only by the quantity and quality of the professional and personal projects and activities undertaken by department members, but also via participation in the weekly community meetings to share progress and update the commons.
Not top down; has a leader that is a facilitator	Yes	The DLHS Department Chair sparked the COVID Conversations. The faculty lead of the Core Team acted in support of the community and facilitated the weekly meetings. She also worked with other Core Team members to build infrastructure for the COVID Conversations.
Multi-Stakeholder, collaborative and practical	Yes	Department members participated in COVID-related activities and were invited to attend weekly COVID Conversations. This group included faculty, staff and students.
Shares results and learns from each other	Partial	While department members shared their COVID-related work in a variety of ways (e.g. through the commons, through presentations and updates at regular community meetings), the shared results were not about, or specific to a common problem of interest. COVID Conversations provided an opportunity for group members to share news during the open discussion.
Continuous	Pending	COVID Conversations took place regularly from March-December 2020; it is still to be determined how long the community will persist.
Accountable	Yes	While there were no achievement metrics specified for the COVID Conversations, members were informally accountable to each other in the following ways: <ul style="list-style-type: none"> • Attending meetings regularly • Sharing the spotlight by volunteering to report on project progress at weekly meetings • Updating the commons with project updates
Employs strategies that are “co-produced”; progress comes from the whole community	No	Since not everyone was working on the same COVID-related project or activity, co-produced strategies targeted for a specific problem was not applicable in this case.
Ensures no one dominates	Yes	The Core Team was motivated to create a welcoming, anti- hierarchical environment where discussions of research were not more important than discussions of teaching, personal activities, or clinical work, and where an intentionally wide variety of speakers were chosen to present their projects at meetings.

Table 4: Summary of DLHS COVID Projects' Characteristics

Project Characteristics	Results* <i>% (number of projects)</i>
Project Status	
Completed	37.5% (9)
Current	50% (12)
Planned	12.5% (3)
Project Funding Source	
Unfunded**	41.7% (10)
Extramural	25.0% (6)
Internal/Department	20.8% (5)
Internal/Department, Extramural	4.2% (1)
Professional Development Funds, Self-Funded, Unfunded	4.2% (1)
No data	4.2% (1)
Project Scale***	
Local	39.1% (18)
Regional	23.9% (11)
National	21.7% (10)
Global	15.2% (7)
Number of Organizations per Project	
One	58.3% (14)
Two	12.5% (3)
Three	4.2% (1)
Four	4.2% (1)
Five	0%
Six	4.2% (1)
Multiple	8.3% (2)
N/A	8.3% (2)
Goals***	
Clinical Research	5.2% (3)
Clinician Communication / Coordination	5.2% (3)
Department morale and cohesion	1.7% (1)
Diagnostics / Testing	8.6% (5)
Dissemination	12.1% (7)
Education / Training	12.1% (7)
Evaluation	1.7% (1)
LHS webinar series	1.7% (1)
Organizational	1.7% (1)
Perception of telehealth by healthcare providers and patients	1.7% (1)
Prevention / Risk Assessment	6.9% (4)
Reducing Disparities in Health / Education	13.8% (8)
Treatment: Inpatient	6.9% (4)
Treatment: Outpatient	8.6% (5)
Understanding how learning communities work	1.7% (1)
Understanding organizational coordination in crisis response	1.7% (1)
Understanding Social Determinants of Health	8.6% (5)

**Source: Department questionnaire*

***Projects marked as unfunded should be considered to be funded by department resources*

**** Accounting for some respondents indicating their projects spanning multiple scales and goals*

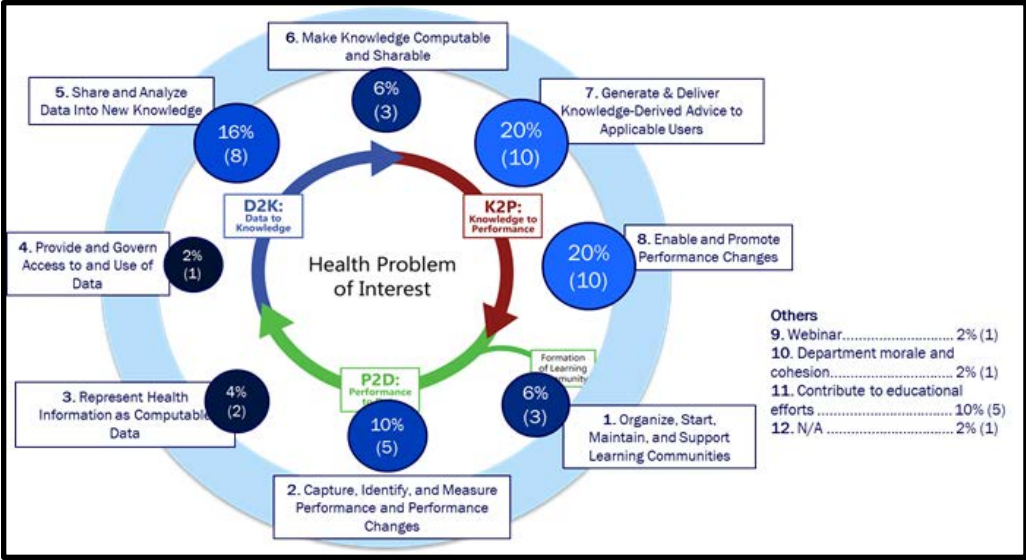


Figure 1: DLHS COVID Project Infrastructure Focus (adapted with permission from Friedman et al. 2017)

Table 2: Taxonomy of Project Characteristics

Note: Table should be read by column only, not by row

Nature	LHS Cycle	Scale	Status	Infrastructural Services	Governance Structure	Funding Type	Organizations Involved	Goal	Intended Outcome	Keywords
Research (basic or applied)	D2K	Local	Planned	Organize, Start, Maintain, and Support Learning Communities	Individual Activity	Internal/ Departmental	DLHS	Prevention/ Risk Assessment	Improve Diagnostic Accuracy	Information technology resources; Telehealth; Product design; Bed capacity; Procurement/supply chain; Blood bank; Staffing; Predictive analytics; Public policy; Organizational rules, regulations and policy; Quality and safety/Implementation; Community service; Ethics; Education; Curriculum design
Outreach/Dissemination (webinars, podcasts, etc.)	K2P	Regional	Current	Capture, Identify, and Measure Performance and Performance Changes	Department Venture (DLHS)	Internal/U-M	THSL	Diagnostics/Testing	Infection Prevention	
Design and Development (manufacturing, product/tool design, programming)	P2D	National	Completed	Represent Health Information as Computable Data	Multi-Department Venture (DLHS + Internal Med)	Extramural	Michigan Medicine	Reducing Disparities in Health/Education	Restore/maintain operations in educational settings	
Curriculum/ Education	Learning Communities	Global	Terminated/ Not Completed	Provide and Govern Access to and Use of Data Share and Analyze Data Into New Knowledge	Michigan Medicine Venture	Special COVID-19 Funding Opportunity	MUSIC CQI	Treatment-inpatient	Facilitate safe staffing models	
Personal or community activity (advocacy work, making masks, donating blood, etc.)	Other	Other		Share and Analyze Data Into New Knowledge	University of Michigan Venture	Professional development funds/self-funded	MDHHS	Treatment-outpatient	Sharing knowledge with community	Other
Other				Make Knowledge Computable and Sharable	Multi-Organization Joint Venture or Partnership	Unfunded	Other	Clinician communication/ coordination	Other	
				Generate & Deliver Knowledge-Derived Advice to Applicable Users	Other	Other		Understanding Social Determinants of Health		
				Enable and Promote Performance Changes				Dissemination		
				Contribute to Educational Efforts				Clinical research		
				Other				Education/training/ Other		

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Table 3: Questionnaire

Introduction Questions

1. Which of these best describes the nature of the project/activity you are logging? (forced choice: Research, Outreach/Dissemination, Design and Development, Curriculum/Education, Personal Activity)
 2. Is this activity currently represented in the Activity Tracker (google sheet) on the DLHS COVID-19 Canvas site? (forced choice: Yes, No, Not Sure, Other)
 3. What is your name? (free response)
 4. What is the name of the activity or project you are logging with this form? (free response)
-

Taxonomy Questions (for respondents reporting Research, Outreach/Dissemination, Design and Development, or Curriculum/Education activities)

See Table YY for answer options; each question corresponds to a column of the taxonomy. For clarity, questions are marked here as forced choice, select all that apply, or free response

5. Where in the LHS lifecycle is this project/activity? (forced choice)
 6. How would you describe the scale of your project/activity? (select all that apply)
 7. What is the status of your project/activity? (forced choice)
 8. What infrastructural services will your project/activity contribute to? (select all that apply)
 9. What is the governance structure of your project/activity? (forced choice)
 10. What organizations are involved in your project/activity? (Please add any/all using the Other option; select all that apply)
 11. What is the project/activity's goal? (select all that apply)
 12. If applicable, please state the intended outcome of your project. For example: improving diagnosis accuracy, infection prevention, restoring/maintaining operations in educational settings, facilitating safe staffing models, sharing knowledge with a community, etc. (free response)
 13. What types of deliverables will your project/activity produce? (free response)
 14. Please indicate the source of funding for your project/activity. (select all that apply)
 15. Please select any keywords that describe your project. Please add additional keywords using the "other" option. (select all that apply)
-

Personal Activity Questions (for respondents reporting personal or community activities)

16. What is your name? (free response)
 17. Please tell us about your personal or community activity (free response)
-

COVID Conversations Participation Questions

18. Please help us understand your participation in the DLHS COVID Conversations (forced choice: I have attended every meeting; I have attended regularly, but not every meeting; I have attended meetings occasionally; I have not attended a COVID Conversation; Other)
 19. How would you describe the value of the COVID Conversations to you? (free response)
 20. Our goal is to make the COVID Conversations helpful for our DLHS community. Please share any feedback or questions you have for us as we continue to plan these meetings. (free response)
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