

A Qualitative Approach to Researching the Evolution of an Innovation through the 20-Year Lens of an R&D Unit in Online Instruction

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ABSTRACT

Online instruction is one of those rare innovations in higher education that evolved to implementation and common practice within a relatively short period of time. This paper describes a qualitative methodology used to analyze an archive of rich primary documents generated from the twenty-year history of a university-based interdisciplinary research and development (R&D) initiative in online instruction. Archival research is a qualitative method for collecting data from existing recorded data and then making sense of it. Thematic analysis of primary resources detailing R&D work in a higher education center that spanned from 1996 through 2015 led to finding salient themes of a time prior to the establishment of academic policies and/or wide spread support in higher education governance for online instruction. The approach was selected to uncover potential lessons learned over the life cycle of an R&D unit engaged in the design, development, and research of online instruction. This work resulted in the documentation and coding of archival sources that highlighted key lessons learned on the implementation and replication of interventions resulting from research and development initiatives.

KEYWORDS: Online instruction, higher education, qualitative research, archival research, documenting innovation.

Few innovations in higher education instruction evolve to implementation and become common practice (Mintz, 2019). Online instruction is one of those rare exceptions, although it continues to evolve. This paper describes a qualitative methodology used to analyze a rich body of primary documents generated from the twenty-year history of a university-based interdisciplinary research and development (R&D) initiative in online instruction. The R&D group first collaborated on military projects in 1996 with the instructional design unit at the Command and General Staff College (CGSC) at Fort Leavenworth, a graduate school for United States Army and sister service officers, interagency representatives, and international military officers. The CGSC maintains a comprehensive instructional design program in the production of technology enhanced training programs. This relationship led to collaboration on several projects that contributed to the formal

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establishment of the eLearning Design Lab (eDL) in 2000 as an R&D unit in the Center for Research on Learning (CRL) at the University of Kansas. The eDL was co-sponsored by the Information Technology and Telecommunications Center (ITTC) in Engineering and the CRL. The mission of the eDL was to conduct research and development in the then emerging, now common, area of online instruction in K-12 and higher education.

Face-to-face instruction in higher education has been the traditional approach to facilitating learning. However, in recent years online instruction has become a preferred mode of instruction for a large number of students, as reflected in the growth of online courses and degrees prior to the Covid-19 pandemic. A study by the Sloan Consortium found that one-third of higher education institutions in 2007 accounted for three-quarters of all online enrollments, and improving student access was the main reason for providing online options (Allen & Seaman, 2007). In a 2013 study, Allen and Seaman noted that the transition to online appeared to be nearing its end as most institutions that planned to offer online instruction were already doing so. Also, in the report, 69% of chief academic leaders indicated that online learning had become a key component in their long-term strategies. In 2013, Christensen said “I think higher education is just on the edge of the crevasse. Generally, universities are doing very well financially, so they don’t feel from the data that their world is going to collapse. But I think even five years from now these enterprises are going to be in real trouble” (Nisen, 2013, para. 3). By 2020, pressed by the Covid-19 pandemic, most higher education institutions eager to remain operational were pushed to utilize some form of online instruction (Gallagher & Palmer, 2020; Camacho & Legare, 2021). Prior to the pandemic, Research and Markets forecasted the online instruction market to be worth \$350 Billion by 2025 (Koksal, 2020). This forecast will probably be adjusted upwards because of Covid-19, as institutions who hadn’t planned on going online at this time, or at all, were pushed to do so. It is becoming apparent that higher education in the future will reflect a refinement of what was emerging in online instruction in higher education during the pandemic.

With the sudden need to pivot to online in Spring 2020, higher education institutions had to invest heavily in personnel and resources to keep students academically on track, especially if they were not already supporting online learning. According to McKenzie (2020, para. 5), “the average institution moved more than 500 courses to remote instruction between February and April 2020” and institutions with more online experience described smoother transitions. Nordmann et al. (2020) noted that not all online instruction is effective, especially if it was designed and conducted as a temporary pivot or taking an emergency remote teaching approach. Effective online instruction is intended to be a carefully designed form of instruction that applies pedagogical knowledge to the design of learning, interaction, and engagement boosted via the advantage of advancements in technology, and not the direct transmission of lectures online (Tan, Chan, Mohd Said, 2021). Adherence to the Centers for Disease Control and Prevention (CDC) and State health guidelines during the pandemic resulted in large numbers of instructors in higher education as well as K-12 education teaching online without prior experience or sufficient professional development (Walsh et al., 2021). This places instructors at serious disadvantage in meeting the needs of their students despite being good teachers in traditional instructional environments. To make instruction and learning more effective, universities are situated in the urgent position of providing instructors access to the latest strategies and resources in online instruction to ensure that they employ emerging features of online instruction. Many leaders in higher education are intending to convert remote courses to fully online ones that support more student engagement, as well as “providing more faculty development and training in online learning, investing in tools and technologies, and setting minimum expectations for faculty-student interaction” (McKenzie, 2020, para. 14).

We foresee institutions new to online learning repeating the cycle of innovation and adoption; needing prior research or existing best practices to inform their policy-making as well as

strategic planning. The significance of the qualitative approach described in this paper is that it suggests a way of recording how an organization and its people document decisions and lessons learned during a time of disruption. This documentation then serves as primary resources for analysis, which can better inform future decisions. The more units and organizations that document and share their processes, the more examples and practices become available to the field for consideration. Hindsight is 20/20, particularly in the years that have pushed people and organizations to make many difficult decisions in response to conditions surrounding the Covid-19 pandemic. Given the contributions of virtual resources to instruction in higher education during the pandemic it is reasonable to assume that greater adoption of online instruction will not be short lived. Rather, it will become a new normal with an increased emphasis given to implementing effective online instruction in various forms. The documenting of lessons learned as well as a methodology in which an innovation was adapted and implemented can inform others in the field on how to approach similar situations within their own contexts.

The e-Learning Design Lab

Including the years before it was formally established as a university unit, the e-Learning Design Lab (eDL) was self-supporting via approximately 30 grants and contracts for 20 successful years. The first large grant came from the Office of Special Education Programs in the Department of Education in December of 1997 in support of what became the Online Academy. This was prior to the formal establishment of the eLearning Design Lab in 2000. The Online Academy was designed to bridge the gap between research and practice and was subjected to a rigorous juror process for content validation (Meyen, Aust, Bui, Ramp, & Smith, 2002; Meyen, 2003). The Online Academy focused on identifying research-based interventions that would influence the performance of students with disabilities in the areas of positive behavioral supports, reading, and technology in education. The 75 lessons in 22 modules were integrated into a teacher education curriculum for use in general education settings. After field testing, the Online Academy resources resulting from the grant were made available for use nationally in the spring of 1999. To adopt the Online Academy resources, the dean of an institution of higher education (IHE) was required to delegate a faculty member to coordinate the use of the online courses and to ensure the availability of technology support for the instructors offering the online courses. A total of 162 IHEs signed agreements to meet the adoption requirements. The success of this project gave visibility to the work of the researchers and also enhanced the competitiveness of the researchers in competing for subsequent external funding.

Another major development project was an online instructional program in math and science for students from grades three through ten. The program, Blending Assessment with Instruction Program (BAIP), was aligned with educational standards and appropriate assessments. BAIP was beta tested in 187 school districts with 88,700 students (Meyen, Greer, & Poggio, 2008). The program focused on teachers, students and parents. BAIP Math resources included 276 self-contained lessons structured around five frameworks (i.e., contextual, teaching, lesson, application, and extension), 417 independent online tutorials that provided immediate feedback to students, and a data reporting system that provided teachers with immediate feedback on student performance to facilitate instructional decision making (Meyen & Greer, 2010a). The project was funded by the Center on Educational Testing (CET) at the University of Kansas and was developed as an application of the CET work to an online program focusing on students with disabilities.

Subsequent projects by the eDL took varied forms, but all were related in some manner to online instruction or eLearning environments. The target audiences included practicing professionals in several professions, preservice courses, students in K-12, parents, and members of the military. External funding agencies such as the National Science Foundation (NSF), Institute of Education Sciences (IES), Fund for the Improvement of Postsecondary Education (FIPSE), Department of Defense, etc. were major funding sources. Other funding sources included state educational agencies, universities, associations, and sub-contracts with other research centers.

The interdisciplinary group of researchers that founded the eDL were from the fields of Engineering, Computer Science, Instructional Design, and Education. The R&D unit continuously operated during the early days of eLearning as an instructional delivery organization in higher education beginning in 1996. Some of the researchers in the original group remained with the lab throughout its history. Meyen, who served as the co-director of the eDL, was a member of the original interdisciplinary research team that pursued the research leading to the establishment of the eDL and was affiliated with the eDL throughout its history. Meyen became professor emeritus in 2015. Gan completed her PhD while working in the eDL and was project staff in the lab from 2007 through early 2014. Both authors have continued to collaborate following the official ending of the eLearning Design Lab in 2015, this paper being one of the research projects.

The Qualitative Research Approach

Historical Beginnings

The work of the eDL coincided with the evolution of the Internet as an approach to instruction that has been described as disruptive higher education (Nisen, 2013). With the emergence of the Internet, the mode of communication in 1996 had largely moved online to facilitate communication among researchers and the staff of research projects. While the office of the eDL was located on the main campus, participating researchers were officed in their academic departments across two adjoining campuses. E-mail was the dominant technology used for communication and collaboration among researchers – such as, capturing discourse among collaborators, sharing finalized minutes of meetings, summaries of planning sessions, drafts of internal reviews of ongoing work, discussing proposal development for external funding, reporting of research, and collaborative development of manuscripts. Aided by the ease of tracking communications through shared e-mails, a staff member at the eDL retained hard copies of the communications as well as descriptions of the tasks and products associated with research. These documents became more significant each year as they recorded the thought processes, decisions, and impact of decisions behind all projects in the eDL. As the eDL approached its official closure in 2015, Meyen faced the question of what to do with all this documentation accumulated over 20 years. They could be shredded but all the stories of innovative projects, challenges, and solutions would be lost.

After the eDL officially closed, the authors discussed compiling a historical record of the evolution of the lab. Meyen reached out to Scott Hinton, previous Chair of Electrical Engineering and Computer Science Department, and co-director of the eDL during the formative years, about the historical record. The motivation was not based on any particular accomplishments of the lab. Rather, it related to the perceived need to chronicle the work of an interdisciplinary group in doing research and development specific to online instruction. Hinton was very responsive to the idea and e-mailed a zipped folder of digital files from his time with the eDL to Meyen. The files included management meeting minutes, project description, proposal, early logos, templated letters for board of advisors, graduate research assistant job description, and a space audit report. This was

the first set of data that we collected in 2015 for the project. Other documentation occupied filing cabinets in various locations of the office area. These were sought out later and moved into a central location. The previous eDL systems administrator was approached about digital back-ups of files and he produced an external hard disk of data. This turned out to be back-ups of Meyen's computers over the two decades and much of the Word documents mirrored the physical copies in cabinets. These documents would serve as primary resources for building the historical record of the eDL.

In early discussions of this historical record, we talked about major events that occurred, including precursors to the official formation of the lab, the diversity of talents in researchers and graduate students, underlying principles, and the way they influenced the direction of projects over the years. Meyen shared insider narratives from lived experience and interactions with other project owners that upon hindsight, influenced the way the lab made decisions in its work. One such story was about working with the staff from CGSC on communications in the context of feedback, specifically, how to debrief students regarding online activities relative to how the activities worked for them. CGSC staff shared their patrol model, one employed by the military since its early history. A small group of soldiers is assigned to a patrol and given detailed instructions about a mission. One soldier with training in a leadership role would be assigned as the patrol leader. The patrol goes out to complete the mission and if the mission is unsuccessful, the leader and members would share what they had done and what had occurred in a debrief. A base staff member will then provide the leader with updated information based on what was shared in the debrief and the original instructions modified to be responsive to what occurred. The patrol may attempt the mission additional times until the mission is successful or conditions changed. The debriefing was a strategy to capture lessons learned. The eDL staff saw parallels in how feedback was provided to instructors that the lab supported. A staff member would engage with an instructor when technical issues presented obstacles in completing the teaching mission. Activities were further described in more detail, and students' responses to the activities were more closely observed. While discussing this story for the historical record, we noted that leaders in online environments need to know how to facilitate group work, quick and personalized feedback will help learners troubleshoot problem areas, and multiple attempts are needed for adequate and correct practice.

Gan, who joined the eDL in later years listened to Meyen's insider narratives from an outsider perspective. Gan, whilst a member of the eDL, was not part of the leadership team, and therefore did not have the same perspective and level of involvement in the lab as Meyen. It is important to note that while Meyen was directly involved in the R&D activities of the lab, there were projects and organization initiatives carried out by researchers and institutional research administrators that were discipline specific. Meyen had access to these researchers and administrators as the primary sources of information and associated archives on the projects but was not directly involved in all the research projects.

Biases and Pre-understandings

Both authors had direct, personal experience, and observations of eDL-specific organizational phenomena. In particular, Meyen also had preparation and experience in instructional design that preceded the emergence of online instruction and the inherent centrality of instructional design to effective online instruction. Both authors have viewed and continue to consider well-designed, and implement, online instruction as a necessary medium to provide effective and accessible education. Experience with projects undertaken by the eDL supported via external funding agencies and contracts with organizations seeking the design and development of customized online programs provided the authors with multiple opportunities to design, develop, assess, and adjust online instructional curricula. It was this background of the authors that resulted

in their engagement in instructional design and development, and which lead to their respective commitment to online instruction and ultimately their respective roles in the eLearning Design Lab.

This story about CGSC and many others led the authors to consider the importance of lessons learned and how they were influenced by the people involved, technology available, policies, processes, and contexts. In March 2016, the authors had a chat with a leading member of CAST who remarked that the project is not something that many organizations could do to discover trends and patterns to learn from; mainly because they may not keep documentation the way the eDL had. Our guest reflected on the experiences of CAST and shared that a key lesson from memory was that people made a difference. Without the support of certain key supporters to assist in overcoming blockers, CAST would have had a different journey.

Over several discussions after the visit, the authors developed the thought that switching from a historical record to a project about lessons learned might stimulate other research units, with a similar mission, to also explore how they functioned relative to pursuing innovative interventions. The authors expected to encounter two forms of lessons learned. One was a rediscovery of lessons learned documented in project notes. For example, it became a practice for some eDL researchers to develop white papers after completing a project, noting lessons learned in development notes (Meyen & Greer, 2010b, 2010c). These lessons informed the way future projects were scoped, planned, and implemented. The second form of lessons learned is the focus of this project and involved the authors looking back at documented events, projects, interactions, the role of key people, as well as Meyen's recollection of those experiences, and analyzing the data from a more distant future.

These thoughts and experiences formed pre-understandings of the research, which can be utilized as a significant asset in building knowledge. In the words of Alvesson and Sandberg (2021, p. 408), "pre-understanding can be brought forward in three main ways in the research process: as a source of inspiration to think differently about things relative to theory and data; to broaden the empirical base – that is, as an addition to formal data; and to evaluate the relevance and novelty of the knowledge being developed." While we had the pre-understanding that there would be lessons to be learned from the experiences of the eDL, we wanted our pre-understandings to inspire new ways to think about the data on hand. We did not have specific lessons that we were looking for but agreed that lessons should be identified by repetition across multiple events or by the significance of events or certain people on the lab.

Selecting the Qualitative Approach

Like Mintz (2019), we wanted to focus on the lessons learned from the eDL in its research and development mission. We felt that capturing such information might inform the future. What could faculty, policy makers, and other research units or organizations do when faced with more innovative changes in higher education instruction, like what occurred in the emergence of online instruction? The question was how to tease out key lessons learned from the eDL experience with online instruction and to share that with others. The primary sources originally identified for a historical record was contributed by participating researchers over twenty years of work. They were comprehensive in a variety of formats and readily available to us. Documentation of final project proposals and reports maintained by the ITTC and the CRL as well as the research administrative offices within the university were available but later found to already be included in the lab archives. A rough visual estimate of all the drawers, cabinets, and shelves of binders suggested thousands of documents. With documentation on lab planning and operations, personnel, and all eDL projects being readily available for study, we explored the idea of moving from a historical record to a qualitative analysis.

While there was agreement on the qualitative approach, we were unsure of how to carry out the tasks. Meyen was familiar with an institute on campus that maintained a nationally recognized archival collection that also served as a center for international researchers. They sought consultation from Audrey Coleman, then Senior Archivist, now Director of the Dole Institute of Politics for advice on how to approach the project. She listened carefully to the aspirations, the dilemma faced with project implementation, then provided an introduction to archival analysis and offered suggestions on reference resources. This would be a sorting and organizing project of a large scale for two people, but yet a more manageable project than collecting 20-years of primary data. As Holt et al. (2012) point out, archival data may provide more information than attempting to gather primary data, may contain important areas yet to be considered, has basic organization that saves time and resources, and provide opportunities for pattern or relationship identification that wouldn't have otherwise been looked for. Archival data also provides the opportunity of looking at the effects of the lab's work over time. Coleman encouraged us to develop a systematic approach for capturing and organizing the large corpus of documents available, along with a strategy for pursuing the qualitative analysis within an archive. An archive is defined here as a collection of historical documents or records providing information about an institution or group of people pursuing a common objective. We immediately saw the merit of her recommendations.

Resources for long-term use of a cloud- or group-based qualitative software as well as scanning of documents for digital storage were not available. A strategy that was discussed with Coleman revolved around using applications that were already accessible, provides long-term access, and could function as a database. We devised a plan to describe each document as thoroughly as possible in an Excel spreadsheet. This coding process included key dates, names of people involved, header(s) on the document, location in the filing cabinets, and a thorough summary of the document, key codes, and document type.

Thematic Analysis

Thematic analysis is the method we selected for identifying and analyzing patterns of meaning in a dataset. "Thematic analysis assumes that the recorded messages themselves are the data, and codes are developed by the investigator during close examination of the texts as salient themes emerge inductively from the text" (Neuendorf, 2018, p. 212). It requires putting forth research questions or hypotheses to guide a human-initiated process of representing content with abbreviated symbols or codes to extract directly observable variables as well as unobservable constructs.

Often, a set of *a priori* codes are generated before examining the current data, which we did not have. While we were looking at initial documents for the purposes of developing a historical record, we noticed that documents didn't always have dates, were usually about projects, and involved more than one organization. We were also aware of a large number of documents that needed moving into the office space so a location and/or document code was needed. These became categories to help keep track of documents. Specific codes were derived from some of these categories, specifically, project names, principal investigators, the type of document. The list of codes grew as more documents were reviewed and coded. Some codes were combined or edited as the initial coding of raw data from documents progressed. Iterative selection of different categories displayed different sets of information for analysis. The analysis in this project concluded when a saturated set of themes based on the research questions were identified and no additional themes were found even with additional data added

Guiding Research Questions and Coding

We started by asking ourselves what we wanted to accomplish and decided that lessons learned would be central to our analysis. We would investigate not just the significance of the work done but the situations, circumstances, and conditions that were faced, the personnel involved, the suggestions and decisions made, and how obstacles were overcome. We were aware that the study would likely produce emergent questions meriting careful exploration that were not initially anticipated.

We had three initial guiding research questions focused on the work, people, and external organizations.

- What were the lessons learned by the initial group of interdisciplinary members?
- How did individual research interests influence the research direction of the eDL?
- What factors influenced the evolution of the eDL?

Based on these research questions, we started going through a few documents to generate an initial list of codes to identify the different people, projects, and organizations. We expected to modify the list of codes as we went over more documents.

Application for Coding

Knowing that our documents would mostly be in printed form, we considered scanning each document and then using a qualitative analysis application to code each one. However, the volume of scanning work was not feasible given the resources available so we decided on using Excel. Excel is cost effective, familiar, and supports multiple worksheets as well as basic and advanced search and filter options (Meyer & Avery, 2009). We took the features of Excel into consideration when developing the template of our database (Tamuwritingcenter, 2014). We created columns for inputting file names which integrated location information, title of document, date on document, organizations or people who initiated the document, agencies or organizations involved, key words or codes, and document type, which is a larger grouping of codes, followed by summary of document content and comments from Meyen's lived experience of the events. One Excel tab or worksheet contained the documents and assigned codes with summary, another listed the codes, and other tabs were used for note taking.

Collecting Primary Resources

The organization of the eDL as a designated research unit meant that it adhered to institutional policies governing research and development programs. This resulted in responses to required procedures and policies becoming another source of archival documentation. This added to the completeness of archival sources on the establishment of the eDL. The eDL was housed in a facility largely occupied by research programs, however eDL researchers chose to keep offices in their respective academic departments. While members maintained their own personal e-mail files, the coordination of comprehensive record keeping for the eDL was centralized. The routine inclusion of e-mail as hard copies enhanced the integrated element of the documentation process and added to the completeness of the primary resources. The staff person responsible for documenting the actions of the faculty, staff, students, and collaborators affiliated with sponsored projects and operations of the eDL was diligent in the maintenance of a comprehensive records

system in digital and hard copy formats. This role was filled by one person for most of the two decades that the eDL was operational.

After physically collecting all documents from various locations and centralizing them within the lab office space, the centralized documents filled four and a half five-tiered metal filing shelves, totaling 3,292 unique documents. Documents could be a single page print-out of an e-mail, a proposal, detailed meeting minutes, contract, evaluative data, or a binder of working documents showing the planning progression in a research project. The process of identifying relevant resources continues and newly discovered documents will be analyzed and added to the archival collection represented in the excel spread sheets (Figure 1).

The Procedures for Conducting the Qualitative Analysis

Coding Primary Resources

The first step in the coding process was the transformation of raw data, in this case, the archive of documents, into searchable data in the Excel spreadsheet. At first, everything meeting the prior coding requirement was coded and included in the database. This meant descriptive codes for content in the document were coded at a granular level. The list of codes grew as the authors went through each document together. Our pre-understandings influenced the way the text was read and new codes added to the list. As this progressed, we started seeing similarities and created a new column of codes called document type (Table 1).

In 2016, we had 247 codes at very granular levels, which we then sorted into 23 document types, or categories of codes. By 2019, that had developed into 436 codes and 31 document types. The document types are listed below in alphabetical order.

Table 1

List of document types developed, displayed in alphabetical order

| | | | | | |
|----------------------------------|---------------------------|---------------------------|--------------|-----------------------|----------|
| Audience | eDL Conferences | Grants | Online | Policies | Students |
| Commercialization | eDL Lectures | Internal relationships | Organization | Project | |
| Contracts | Authors | Issue | Others | Publications | |
| Culture (Working environment) | Exploratory Ideas | LMS | Permissions | Research | |
| Development | External relationships | Measurement | Personnel | SBIR | |
| Dole | Forms | Module | Photo | Strategic Planning | |

More granular codes fed into larger document type codes. For example, the document type “Issue” included codes such as “accessibility”, “disabilities”, “FERPA”, “SCORM”, “ADA and accommodations”.

As we became more familiar with the content of the archives, we made decisions to leave out documents that were not directly germane to the eDL or our research questions. For instance, researchers’ detailed travel itineraries to conferences and meetings nationally and internationally were left out. We observed the development of three approaches while coding.

Figure 1
Example of columns in the Excel spreadsheet

| | A | B | C | D | E | F | G | H | I |
|-----|---------------|--|--|-----------------------------|-------------------|----------------------------|--|---|--|
| 1 | Document Code | Doc Name | Doc Title | Principal Investigator/Auth | Date (mm/dd/yyyy) | Sponsor/Agency/Institution | Doc Type | Key words | Summary/Comments |
| 330 | A2_7_5 | EDL COI meeting agenda | EDL COI meeting agenda | EDL | 10/31/2001 | CRL, EDL | Project, others | BOA/CC Project, meeting minutes, informal notes | Reference on the agenda is made to the Chamber of Commerce project. The handwritten notes make reference to the Chamber of Commerce and a four-state program |
| 536 | C1_27_10 | E-learning Design Notes for meeting | E-learning Design Notes for meeting | EDL | 8/4/2000 | EDL | others, organization | meeting minutes, website design, Key personnel, work | It lists attendees and a summary. Contains notes pertaining to the EDL, Comments and input from Joe Evans (ITTC). There is a listing of decisions made, one of which is that Joe Evans and Don Deshler will have discussions on potential relationships that might be pursued. |
| 591 | C1_42_6 | Agenda for the EDL Management team meeting | Agenda for the EDL Management team meeting | EDL | 9/13/2005 | Army, EDL | Others, Project, External Relationships | Meeting minutes, IKME, FIPSE, BAIP, Alabama project, The work group, KMEP, Forth Leavenworth | Includes resolution of Year 2 IKME problem, an update of BCKS, and ITTC Strategic planning is not attached. Also includes stepping stones RFP listed as released Sept 6. Action items include FIBSE, BAIP, Alabama, Prospective Work Group, and Center for Independent Living project. Next meeting scheduled for Sept 20 2005. On the back is handwritten notes that refers to a conference call (C1_42_5) regarding the sole source contract. Robert Knopp was the designated person of the sole source proposal. Knopp will send the SOW and RFP, then a technical and cost proposal will be required. Direct questions to Knopp's office. |
| 751 | C3_17_7 | Write-up regarding the National Board of Directors and the diversity of its membership | Write-up regarding the National Board of Directors and the diversity of its membership | EDL | | EDL, Board of Governors | Others, Organization | Board of governors, Publicity | "The National Board of Directors will comprise representatives from industry, academe, e-commerce, national centers, training, and the research community. The role of the board will be to advise the directors of ITTC and the CRL on opportunities, external relationships, emerging trends, funding/revenue opportunities, unmet needs and new technologies. The board will meet annually and via teleconferencing as needed. Officers will include a chair and associate chair. Terms will be for two and three years (3 each) and staggered to insure continuity." 6 members: 1 from Academe, 2 from Industry, 1 in e-commerce, 1 in Research, and from a national center. |
| 758 | C3_20_1 | EDL Board of Directors Meeting Powerpoint scheduled for 12/12/2006 | EDL Board of Directors Meeting Powerpoint scheduled for 12/12/2006 | EDL | 12/4/2006 | EDL, Board of Directors | Others, Organization, Commercialization, Project | PowerPoint presentation, Advisory groups, COI, Key positions, Key personnel, management committee, ELC, products, ebook, BAIP, OBIU | This powerpoint is very comprehensive and represents a rather historical document in that every project conducted by the lab during this first 5 years is reviewed. The mission and value statement of the organization are also reviewed. It includes information of e-learning creations, Inc, which was licensed by KUCR in 2003. It also includes the parameter construct - i was later modified for a published article. There is an organization chart that places the COI in perspective. It should be noted that in 2006, as reflected in this organization chart, that there is both a COI and a management team. The meeting was scheduled for 12/12/2006. |
| 763 | C3_21_1 | Packet for participants in the 12/12/2006 Board of Directors' Meeting | Packet for participants in the 12/12/2006 Board of Directors' Meeting | EDL | 12/12/2006 | EDL, Board of Directors | Others, Organization, Commercialization, Project, Grants | Board of governors, Powerpoint presentation, Communication, commercialization idea, licensed products, IKME, BAIP, Proposal | The packet contains a placecard, (1) COI membership roster, (2) National board of directors roster, (3) agenda, (4) Powerpoint presentation copy, (5) priority questions on commercialization and licensing (ref: C3_20_3), (6) copy of the EDL strategic planning document 2006 (comprehensive strategic plan. Check to see if there was a strategic planning document developed prior to the 2006 one), (7) externally and internally funded project overview document for 2006 and 2007 (This is important because it is a source that includes projects like IKME) and (8) Proposals in review (Source document for when we put projects together. |

Approach #1. Some key words are used as regular text in several columns. The documents that have the same text in the document name, title, or summary columns, consistently show up in searches regardless of the column that a filter is applied to.

Approach #2. Documents that do not have key words in the text, which is more than likely, will need a different approach. If the keyword is a category generated from the main ideas in the summary, then searches would be most effective in the Keyword column. As such, it is important to use the same keyword with just one column filter at a time in initial searches. Clear filters from the column and search in the next column. Each filtering of a search term will show sub-sets of the data that may not be the same as the set before. The summary is reviewed to consider adding key words to it. Alternatively, a new column can be created to mark selected entries for later review and analysis. If a summary is not descriptive enough, then the original document is pulled from shelves to revise the summary.

Approach #3. It is possible to use multi-column filters as long as the broadest filter is used first, followed by a keyword filter of a narrower nature. The column of marked items can be filtered to show all selected documents regardless of search approach. The researcher is now faced with determining which documents are most closely aligned with their interest. Review of these summaries may lead to emerging pattern(s) between and among identified primary documents relevant to the key words. The review may lead to further searches that will add or take away documents from the selection.

One limitation of this method is that word searches have to be repeatedly conducted in different columns and sequences to ensure that nothing is missed, especially if a keyword is used in a regular sentence in the summary but not added to the key words column. When needed, hard copies are pulled out to be reviewed and used to expand document summaries. When an omission is discovered, it is added to the key words column. This process is iterative. The resulting list presents an organized chronology of events, actors, and details that tell a story with a theme.

While coding, we noted several practices that raised the demands on coding. E-mails were the clearest to code as they listed sender, recipients, date, time, and subject. Documents however, were often not dated, especially if they were early drafts of an e-mail, plan, or manuscript. We were able to code those documents without specific dates as related documents referencing the particular archival document were discovered and coded. We kept note of key words unique to the document or utilized the comment column to remind ourselves to return to specific documents when needed. When different versions of a document with dates are discovered in the archives and sound familiar, we search the spreadsheet for duplication. The documents are combined and share a location code if similar or identical. If they are not similar but are discussing the same event or project, we may add the year and/or month from the dated copy to the undated copy, then add a note to reference the dated copy in its description. Another observation was the lack of signatures or identification of authors on some documents. We approached this with various strategies. As insiders of the lab, we recognized the writing style of some authors and could put names on those. For others that we were not sure of, we looked up the group of people working on those projects. Oftentimes, the primary researcher or co-researchers were the authors. It also helped to find e-mails or meeting agendas that references the document title so we could triangulate that information for confirmation. Meyen's lived experience throughout the eDL history lent richness to the details that went into document summaries. Many conversations during the coding process were like interviews with Gan asking questions and Meyen recalling people, details, and contexts that were not otherwise available in the documents.

The primary sources spanned the twenty-year history of the R&D work and coding all the documents was a time-consuming process. Since both researchers were working on the project one morning a week, it took almost two years to complete the coding. To ensure fidelity of coding, we worked side-by-side to examine each document and then collaboratively discussed and determined the specific information to be coded on each document. Entering the coding in the database occurred simultaneously. A graduate assistant who was present through most of the project assisted with the coding of some documents towards the end of the coding stage. Meyen was available on-site to answer queries. The keyword list as well as previous examples were made available to the graduate assistant for reference.

Discovering Themes in the Database

The process of coding and updating codes involved frequent filtering of the data to ensure we were consistent in how we coded. The functions within Excel facilitated searches to retrieve different combinations of data. Filters could be set to show data that was of a certain year, included a person or group, a certain project title, or specific search words. When data are filtered, a smaller number of document rows are displayed on screen and this affords a unique view of documents that have similar codes. Since we put multiple codes in the key words column, we filtered the data multiple times with different key words to see how it would impact the display list. Searches in Excel had to be systematic and somewhat iterative due to how content is entered and the nature of using search filters.

Having both been involved in the lab and coding process, we had memories of events that appeared significant to the operation of the eDL, and hindsight to identify interesting ideas when documents showed up during the coding process that provided information on significant events or showed a repeating pattern across projects and events. Our pre-understanding as well as set of research questions served as the foundation for coding, searching, and then selecting documents that create fuller stories and timelines. The repeated filtering of codes over time started showing groups of codes that indicated repetition of a theme across events, projects, or were significant to the eDL experience. Across many lessons learned derived from analyzing the data, we wanted to share two that might be useful to others in situations similar to what the eDL experienced as the lab worked to implement a disruptive technology into education, online instruction. Two examples of lessons learned will be shared.

Sample lesson learned 1: Lack of policies. Going into the project, the authors knew that public institutions of higher education are governed by agencies or boards that establish policies and standards designed to ensure quality of educational offerings e.g., student admission, degree requirements and policies related to faculty. While coding the documents, the authors worked on a project with the codes for Kansas University Continuing Education “KUCE” and “credit” which eventually produced a list of relevant documents, of which a small excerpt is shown in Figure 2. The summaries and comments column provide information about the original documents, which are filed away in locations noted in column A. A series of five sets of courses was planned, with eDL staff as the main content developers. The module titles are listed, and a discussion list of topics related to marketing and dissemination provide information about the courses. The development of the documents showed that online courses were relatively new at that time and not recognized as a feasible program by the university. The university had not amended or added policies for completion of online courses to count towards continuing education credits.

Figure 2

One of many code groups, this set shows “KUCE” and “Credit” codes with the “Internal relationships” document type.

| | A | C | D | E | F | G | H | I |
|------|---------------|--|-----------------------------|-------------------|----------------------------|--|--|---|
| 1 | Document Code | Doc Title | Principal Investigator/Auth | Date (mm/dd/yyyy) | Sponsor/Agency/Institution | Doc Type | Key words | Summary/Comments |
| 1636 | C2_4_6 | Email from Jim [redacted] to Ed [redacted], copied to Ann [redacted], regarding follow up question | Jim [redacted] | 7/27/2010 | EDL, KUCC, KUCE | Internal relationships, Module, Project, Policies | KUCE, Credit offering, Non-credit offering, Online courses, EOA, Intellectual property | This is a response from Jim [redacted] to a question by Ed Meyen regarding the use of the name, "Educator's Online Academy", for the KUCE non credit program. Jim's response is that no action is required on the part of the university unless the EDL considers using a university trademark. He said "TM" could be used after the name, which will provide limited protection. |
| 1637 | C2_4_7 | Draft: certificate model. Educator's online academy. Professional studies in current research, best practices and policies | EDL | 8/2/2010 | EDL, KUCC, KUCE | Internal relationships, Module, Project, Development | KUCE, Credit offering, Modules, Online courses, EOA, Certification | Certificate model (upon completion of all lessons in a single professional series). The document lists 4 requirements for successful completion, description of the certificate award, the procedures, and the outcome. Some notes are attached with URLs to AGE and LADIS. |
| 1638 | C2_4_8 | Agenda. Educators Online Academy meeting | EDL | 8/6/2010 | EDL, KUCC, KUCE | Internal relationships, Module, Project, Development, Others | KUCE, Credit offering, Modules, Online courses, EOA, Certification, Website design | Agenda includes 3 items - status report, certificate update, and branding for the interface design |
| 1639 | C2_4_9 | Email from Ed [redacted] to Jim [redacted], copied to Diana [redacted] Martin [redacted], regarding CEU design questions | Ed [redacted] | 9/9/2010 | EDL, KUCE | Internal relationships, Module, Project, Others | KUCE, Credit offering, Modules, Online courses, EOA, Website design | Ed asked Jim [redacted] (Director of Professional programs and communications at KUCE) if a conference call could be arranged on Monday or Tuesday with someone from his design and technical staff to talk through some questions regarding splash screens, navigation to free lessons or specific professional series, access back to main page, and content on the main professional series page. |
| 1641 | C2_4_11 | Powerpoint presentation on marketing strategies: professional studies in current research, best practices, and policies. Presented by EDL, modified from Jayhawk consulting group report | EDL | 8/17/2010 | EDL, KUCE | Internal relationships, Module, Project, Others | KUCE, Credit offering, Modules, Online courses, EOA, PowerPoint presentation | Powerpoint presentation on marketing strategies: professional studies in current research, best practices, and policies. Presented by EDL, modified from Jayhawk consulting group report (student group in Business that completes marketing projects for different groups as part of school assignments). The powerpoint covers objectives, research overview, marketing insights, market (schools, education services), SWOT overview, strengths, weaknesses, opportunities, and threats, competitors, the 4Ps of marketing, product, website comparison, price, place, promotion, improving structure, goals, actionable steps, future go-to-market plan, and current license structure. A copy is attached. |
| 1643 | C2_4_13 | Email from Ed [redacted] to Dan [redacted] Tom [redacted], Martin [redacted], regarding certificate model. KUCC_Certificate Model 8_2_10.doc attached | Ed [redacted] | 9/21/2010 | EDL, KUCE | Internal relationships, Module, Project, Development | KUCE, Credit offering, Modules, Online courses, EOA, Certification, Assessment | In this email, Ed raises a question about assessments in the professional series certificate program. He makes the point that we can select sample assessment items at the instructional unit level and combine them at the professional series level for the certificate assessment relative to successful completion. He details out suggestions under two headings - (1) at the unit level there are two at least four options for the recognition of unit completion. (2) implications of unit level assessments for professional series certificate award. |
| 1644 | C2_4_14 | Email from Ed [redacted] to Jim [redacted], copied to Jim [redacted] and Ann [redacted], regarding EDL non credit CE program | Ed [redacted] | 11/8/2010 | EDL, KUCE | Internal relationships, Module, Project, | KUCE, Credit offering, Non-credit offering, Modules, Online courses, EOA, | This email from Ed describes the progress of creating the EOA and suggests that a meeting be held to update everyone and to explore some questions that might arise. He attaches a list of questions and provides a response to each one. Reference B2_47_4 for questions |

As we now know, many universities offer distance learning courses and degrees. According to the National Center for Educational Statistics, “more than 6.9 million students were enrolled in any distance education courses at degree-granting postsecondary institutions” in Fall 2018 (NCES, 2019). The university had limited experience relative to online instruction when the lab was established and the early work leading to establishment of the lab.

At the time there was a lack of policies for online instruction to inform and guide R&D efforts.

Online instruction represented a new mode of instruction and the primary focus of the lab was the development of educational programs in an online instructional environment. While projects were successfully deployed to development specifications, not all were able to fulfill commercialization potential. One project with the codes “Tech Transfer” and document type, “Commercialization” and “External Relationships” detailed the history of a project being successfully developed. It also details how a potential partner had prepared a detailed business plan to collaborate with the eDL on commercializing a product. The deal fell through in 2001 due to a misalignment in understanding at the negotiation table. The university representative did not have adequate experience with regards to the new idea of online instruction and wanted the parties at the table to indemnify their organization from potential harm to students in an online learning environment. The indemnification procedure originated from a different field and was ultimately what caused the potential partner to leave the negotiation table. The eDL missed an excellent opportunity because the idea of online instruction was so new and not well understood, that even legal policies had not caught up with it.

These events were significant in that they limited the reach of the eDL’s work and was a blocker to additional streams of revenue that could support further R&D work in online instruction. The lesson learned here is that a lack of policies to set parameters around online instruction resulted in (1) innovators having to proceed into uncharted paths that are more challenging than needed; and (2) innovators’ experiences should be sought out and considered by policy makers to modify existing or create new academic policies.

Sample lesson learned 2: Timely strategic planning initiatives. Several planning documents were identified while reviewing coded documents. The main document type code used in the search was “strategic planning,” which was then filtered by dates. Looking at these documents, researchers on the eDL’s management team worked with the Council of Investigators and Co-directors, and were instrumental in carrying out strategic planning in 1999, 2001, 2003, 2006, and 2014. Based on document dates, strategic planning was developed out of contextual needs at the time, and not based on pre-set meeting dates. The eDL carefully monitored changes occurring in the implementation of online innovation, the results of its own research and development; and was open to evidence and conditions that indicated changes in the allocation of resources, operations and effort were necessary. As the group gained experience conducting R&D on online instruction and successfully operating an e-learning design laboratory, a small number of consistencies were observed across all strategic planning initiatives.

Each initiative included:

- i.** the development of a comprehensive paper on the respective strategic plan detailing observations of changes in conditions and the special initiatives suggested or planned
- ii.** maximum participation of management team members
- iii.** retreats and/or full day planning events
- iv.** maintenance of records on all planning related documents and communications.

The takeaway, or lesson learned, here is that strategic planning needs to be a continuous and iterative process, building on previous lessons learned to keep the group on track and aligned with objectives. Each subsequent initiative benefitted from the experience of previous projects and lessons learned and discussed at previous strategic meetings. Table 2 lists brief extracts from the various strategic planning initiatives. The initiatives mirrored the life cycle of a research unit, highlighting different focal efforts at the various stages of formation, growth, maintenance, and then closure.

Table 2*Brief summary of strategic planning initiatives from collated documents*

| Year | Main operation | Observed conditions | Special Initiatives |
|------|--|---|---|
| 1999 | Preliminary planning for establishing the eDL as an R&D unit | <p>No institutional guidelines for gaining recognition as a research unit. There were requirements.</p> <p>The Vice Chancellor for Research was an experienced research administrator recognized with a reputation for encouraging innovation in the research enterprise of the university.</p> <p>Researchers were familiar with research centers on campus.</p> <p>Members knowledgeable of policies governing the network of research centers and the role of central administration in stimulating research through established centers and institutes.</p> <p>At that time instruction was not viewed an intellectual property</p> <p>Assuming that there was a higher probability that the eDL would more likely be encouraged to affiliate with an established research center than as an established unit.</p> <p>More researchers from Engineering than Education were engaged in research within the eDL.</p> | <p>Deliberate strategy employed to ensure administration understood the mission and reasoning behind the eDL.</p> <p>Focus on online instruction and faculty support so the eDL will be viewed as a resource and not as unit competing for academic resources or a source of undue influence in the academic mission of the university.</p> <p>Invested in working with the research administration office staff on campus, e.g., technology transfer, intellectual property issues, commercialization, and activities related to copyright and patents.</p> <p>Relationships established with state agencies and groups as well as entities at other IHEs that were currently engaged in online instruction.</p> <p>Focus on two sponsors of the eDL i.e., the ITTC and the CRL. Both had relevant support resources and similar records of success in research within the university. The CRL was more directly focused on instruction, and the ITTC on technology.</p> <p>Primary perception of the future and the assumption that higher education and K-12 schools would likely move in the direction of online instruction.</p> |
| 2001 | Affiliation with the Center for Research on Learning (CRL) | <p>Director of the CRL was one of the founders of the eDL.</p> <p>Processing of grant proposals and fiscal management of associated resources on research proposals by eDL researchers were already being processed by the CRL.</p> <p>The CRL was centered around collaboration within the CRL, the University, nationally, and internationally.</p> | <p>Director of the CRL prepared a paper on the implications of the eDL becoming part of the CRL. Central to that paper was collaboration and the value of accommodating the eDL.</p> <p>The organizational decisions made in the process of making the transition to the CRL were reviewed to insure an effective and non-interruptive transition.</p> <p>Additional researchers within the CRL became involved with the eDL.</p> |

| | | | |
|------|--|---|---|
| 2003 | Refinement of the eDL operational model within CRL | <p>Was self-supporting.</p> <p>Increased number of participating researchers.</p> <p>Operational process of the lab had not changed substantively from then other than the organizational structure being refined.</p> <p>Continued to be sponsored by the ITTC and the CRL.</p> <p>Transition to the CRL went smoothly.</p> <p>Emerged from a focus on collaboration with Fort Leavenworth to a focus on educational applications of online instruction.</p> | <p>Additional space acquired for project staff in the Dole Human Development Center.</p> <p>Differentiated the responsibilities of the Co-Directors. One focused on research and the other on operations and management. Added personnel with coordination responsibilities.</p> <p>Restructuring of the operations of the lab to increase time for proposal development.</p> <p>Future priorities focused on assessment, creating development processes that can go to scale, increasing major collaborative relationships, and the pursuance of technology transfer opportunities.</p> <p>Meetings were examined to increase time for addressing the research process, including proposal development.</p> |
| 2006 | Major Planning effort that builds on the legacy of the eDL | <p>Build on the leadership of the ITTC and CRL.</p> <p>Productivity had increased to 17 grants being awarded, creating fifty products and employing over 400 students through GRAs and student hourly appointments since establishment of the eDL in 2000.</p> <p>Addressed the future of the eDL from several perspectives that reflect an analysis of the history of the lab and the evolution of online instruction nationally in higher education and k-12 education.</p> | <p>The development of a comprehensive legacy document detailing the activities and achievements of the of the eDL since its inception including data on outcomes.</p> <p>Creation of a construct designed to govern the future of the eDL.</p> <p>Adoption of a set of unifying principles to guide the management team in defining the work of the eDL i.e., generalization, intellectual merit, broader impact, and scalability.</p> <p>The creation of a series of documents on the outcomes of the strategic planning process including an executive summary detailing the outcomes.</p> <p>The development of criteria for adding researchers to the eDL group.</p> <p>The design of an eDL Strategic Planning Process for the future.</p> <p>A detailed review of the organization structure of the eDL, including the mission and value statement.</p> |
| 2014 | Bring closure to the eDL and create an option for collaborative research | <p>Change in underlying mission. Researchers and staff wanted to explore options that might result in opportunities for others in the future.</p> <p>All founding members were approaching or going into retirement or accepting other opportunities in 2015.</p> | <p>Conceptualized the Interdisciplinary Research Collaborative (IRC) Model. A description of the model was made public within the university. An open forum was hosted to capture the interest of faculty in creating a Research Collaborative study. The response in terms of attendance was far less than anticipated, and pursued individually without success. Subsequently, some collaborative projects, like this qualitative study, were implemented but the proposed IRC model, largely due to the discontinuation of the research group, never came to fruition as an operational system.</p> |

Overarching Themes of Innovation in Online Instruction

Lessons learned were central to the outcome of this project and were first derived from the analysis of the archival documents.

Looking at the lessons learned, of which only two are shared here, two themes stood out to us. Early adopters had to work creatively within boundaries to initiate or push an innovation forward in online instruction. However, all it takes is one decision-maker who does not support the innovation to reject requests or retain policies that hinder progress. The attitudes and beliefs held by key decision makers regarding online learning made the difference as to whether an innovation is adopted, is successfully implemented, and takes root as new practice, or is blocked from making progress, such as being commercialized for greater reach and revenue.

In 2019, Meyen interviewed two other researchers who were previously affiliated with the eDL, to discuss these two themes. The discussion was recorded and summary notes were taken for discussion with Gan. Both researchers interviewed have backgrounds in special education and assistive technologies. They agreed with the themes of early adopters and gatekeepers as applied in the context of innovations in online instruction. Both interviewees described early adopters as being highly motivated, having a strong personal commitment to the potential of online instruction, a willingness to take risks, and an understanding that they would need to make a major investment in instructional development in an environment, that at the time, was resistive to change in instruction. They also shared examples of gatekeeping behavior that prevented the adoption of innovation through enforced academic policies. In particular, they felt that the challenges [faculty] experienced were largely due to the lack of institutional academic policies applicable to online instruction or the failure of administrative staff to make accommodations when needed. This interview further revealed the conditions of R&D work in early online instruction and how the lack of institutional policies or unsupportive attitudes can hamper the research and implementation of innovations in higher education instruction.

What this means for future innovative initiatives is that individuals, units, or organizations interested in making innovations a reality need to have early adopters willing to commit to the research, development, and implementation of those innovations. At the same time, early adopters should be set up for success by addressing obstacles put up by current and potential gatekeepers.

Conclusion

This paper described a qualitative methodology used to analyze a rich body of primary documents i.e., an archive organized from the twenty-year history of a university-based interdisciplinary research and development initiative in online instruction. It serves as a model to review lessons learned from an organization that carried out research and development on interventions with a primary focus on implementation and/or replication. This approach can be adopted by other R&D units, departments, or institutions to review how they responded to innovations, disruptions, and unfamiliar situations. Sharing lessons learned will contribute towards the literature in best practices for approaching or dealing with rapid or unexpected change.

Limitations of the Approach

Several factors support this approach to distill lessons learned – documentation, manpower and resources to collect, code, and review the documentation. In a conversation with the director of a major instructional technology center, he indicated that his organization did not maintain documentation that would allow a qualitative approach of this nature to be conducted. It may be

that they have documents but they live in e-mails, file servers, and cloud storage. Identifying and then collecting the primary resources is an important step as it sets the scope and breadth of the qualitative project as we are describing. This project was conducted by two researchers with brief assistance from a graduate assistant and extensive stored documentation on the part of participating researchers and research assistants who carried out the original R&D projects. A project much more complex than the eDL's would require more manpower and communication within that group to result in consistent coding. Norming sessions are definitely recommended when multiple coders working separately are involved. This project utilized Excel because of the no-cost factor and its accessibility to the project. Excel has its limitations in human error such as typographical mistakes, accidental overwriting of a cell, or utilizing search filters ineffectively. Regular version back-ups are highly recommended.

Two lessons learned were shared in this article. Since it focused on a single unit, and replication of this study by different units may take a long time, or have different foci, it makes apple-to-apple comparisons challenging. The eDL embodied the full range of operations of a university-based R&D unit among a small number of R&D units leading the charge in implementing the emerging innovation called online learning and teaching. The situations faced by the eDL may not be applicable in its entirety to other units but will raise awareness of themes derived from those contexts, e.g., in a time before policies and administrative leadership are formalized to support this innovation in higher education. The themes derived from these and other lessons learned are widely applicable to innovations in online instruction as well as other fields. There may be other lessons learned or themes to be discovered in this database if a different set of research questions or pre-understandings were at work.

Implications for the Future

Make such qualitative reviews standard operating procedure. The qualitative study we conducted addressed the analysis of primary documents at the conclusion of the work of the eDL. The end of a body of work is often the reason for creating an archive. As was true in our situation, this can be a very time-consuming process. With qualitative analysis being conducted after the fact, there is a dependency on someone either aligned with the original work or with an interest in the nature of the work to devote the time and energy to do the qualitative analysis processes. It is also difficult to predict what R&D initiatives will result in systemic change such as brought about by online instruction or other circumstance where the lessons learned from analyzing archives are associated with an earlier initiative. An alternative, in some situations is to initiate the analysis process as a standard operating procedure in real-time. This would not be realistic for projects or units that are established under conditions where they are known to be of short duration. Technology makes it feasible to analyze documents as they are created. The creation of documents and e-mail, which are becoming a primary source of documentation of the future, can become a routine task in much the same realm as recording addresses. This will enable the documentation of instructional innovations as they evolve.

Distilling Lessons Learned During the Covid-19 Pandemic. With the impact of the pandemic being projected to continue and become central to the lives of families, students, educators, policy makers at all levels of education will be faced with the task of responding to the everchanging conditions in the needs of students, teachers, and families. The emergence of the pandemic has resulted in a wide array of technology applications in higher education and K12 schools, as they customize their responses to needs based on the insights of professional educators, policy makers and the responsiveness of parents and students. A common approach has been the emergence of varied forms of the hybrid model for the integration of face-to-face instruction with

technology driven home-based instruction. An outcome is an evolving knowledge base of what works and under what conditions do some approaches work.

Adopting a qualitative approach to distill lessons learned during the pandemic could further inform many, not just the field of effective instructional strategies of online and hybrid instruction that generalize across the needs of learners and instructional settings. While the history of the pandemic has been relatively brief, its impact on instruction and learner outcomes is projected to continue for the foreseeable future. The response to the pandemic may well have transformed the landscape of higher education worldwide, e.g., demographics of student enrollments. The communications, discourse on the merits of trying the different approaches being taken, combined with the programmatic documentation, could result in a rich database on lessons learned. The resulting database could have a significant influence on education and preparedness for disruptions if and when similar disruptions occur.

Explore other methods of collecting data. Examining the development of a project need not be limited to reviewing extant documents. Project members actively working on the project can provide insights into what went well, obstacles faced, solutions developed, and lessons learned in the process of solving issues in interviews. There is the added benefit of being able to ask clarifying questions during the interviews.

Longitudinal cross-institutional research. This paper on the application of qualitative research methodology to identifying lessons learned over a twenty-year period by an interdisciplinary group of researchers engaged in the evolution of online instruction has generated multiple stories and lessons learned based on themes not shared in this article. We foresee many lessons that can be distilled from institutions who were prepared for, or were shaken by the, Covid-19 pandemic. It is likely that the similar situations are experienced by other units or organizations but at different phases. A compilation of these lessons learned across institutions and time frames can build a clear timeline of how an innovation like online instruction is adopted, grown, maintained, and or lost. It can also document the conditions of pivoting to online instruction, the possible solutions, reactions, and investments needed.

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Note on Contributors

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Edward Meyen, PhD. is Professor Emeritus at the University of Kansas and is an Affiliated Researcher with the Center for Research on Learning. His career in higher education included serving on the faculty of three universities and in a variety of administrative roles. His experience in online instruction began in 1996. He served as co-director of the eLearning Design Lab (eDL) throughout its history, and first met Sharon in 2003, during an informal campus visit, when she was searching for a graduate program in instructional technology.

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