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Devising from a Distance: a Study of the Difference in Process, Composition, and Audience Response between In-Person and Digitally-Mediated Choreographic Collaborations

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DEVISING FROM A DISTANCE

*A STUDY OF THE DIFFERENCES IN PROCESS, COMPOSITION, AND AUDIENCE RESPONSE
BETWEEN IN-PERSON AND DIGITALLY-MEDIATED CHOREOGRAPHIC COLLABORATIONS*

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Honors Thesis in Theater and Dance*

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Introduction

In the spring of 2014 as a freshman at Colby College, Amanda Hamp, Visiting Faculty Fellow, asked me to learn the structure of a piece created and performed by her collective AGA Collaborative called *and how to be in two places at once*. I was standing in during the technical rehearsals¹ for the dancers who were still traveling to campus. In teaching the structure, Amanda described the piece as their reflections on intimacy and presence in the digital age, and their process begun with a geographically distributed, online rehearsal practice investigating being together while apart. At this point in my college career, I was new to the concept of using alternative choreographic methods, and the piece grabbed my attention, making me wonder what about the choreography—the formal black and white attire, the repetitive gestures, the disorienting live stream projections, the precise unison moment—was directly produced from the remote portion of their process.

The next summer at the American Dance Festival (ADF) I took a workshop with Susan Honor and Gina T'ai who together form the dance collective Distance Dances. They use a process of filming phrase work, uploading it to a blog site, and merging it with other uploads to create a shared movement vocabulary for their performances. In their workshop, they taught their methodology, and we practiced a mock remote collaboration in duets or trios on Duke University's Campus. After only a few hours in a studio together, my collaborators and I assembled and performed a dance filled with raw energy, spontaneity, and humorous repetition. I left the festival excited to stay connected to the dancers I had met who attended other colleges, knowing that collaborating with them from afar was a possibility.

¹ A technical rehearsal is the time when the dancers and choreographers fit their dance to the performance space and work through music and light cues, along with other technical details.

Back at Colby, I began making collaborative dance-theater duets with my classmate Emery Lawrence, and during my junior fall while studying off-campus in New York City with him still in Maine, we began choreographing a duet to be performed at the American College Dance Association (ACDA) regional conference early that spring. We used a process of sharing and merging content influenced by the ADF workshop, but we expanded the possibilities of what could be uploaded to include written improvisational scores, drawings, lists of our interests, website URL addresses, YouTube videos, free writes, and images. The remote phase culminated in a database of shared content and two sets of detailed instructions, one written by me and the other by Emery, referencing specific time marks in the videos and describing the piece we wanted to perform once in-person. For two months following the remote process, we collaborated in-person to assemble the piece using the existing instructional scores and content database. We set a goal to only use material generated remotely when building the piece in-person, enabling us to understand how the remotely generated content would shape the final performance.

Successfully, all of the phrase material in the performance came from the remote generation phase. Even the presence of 500 feet of yellow string in the piece, seemingly the most memorable aspect to the audience members, was derivative of the remote process. Yet, ultimately, the in-person phase seemed necessary to assemble this material into a piece we felt was complex and developed enough to be presented at ACDA for adjudicated feedback. This made me wonder if it is always necessary to work extensively in-person to assemble and edit a dance created remotely. Given that our process included both remote and in-person rehearsals, untangling the process influence on the final piece consisted of no more than speculation.

It was through these experiences that this thesis project developed. My questions of if working only in an online, virtual site can feasibly replace in-person, studio-based rehearsals for choreographers working collaboratively and if moving an in-person choreographic process to a virtual, digitally-mediated site alters, either positively or negatively, the process experience for the dancers and choreographer, the composition of the choreography, and the audience's response to the work in clear, discernable ways fueled this research. The presence of technology in our social lives, working environments, and creative practices is steadily increasing. Before we passively let technology digitize and make virtual the choreographic process, or before we expedite this seemingly inevitable trajectory, we need to know what the consequences and opportunities might be.

The hybrid structure of this paper includes both theoretical, humanities-style and analytical, scientific writing. The paper is broken into five main chapters: *Contextual Framework, Methods, Results, Discussion, and Conclusion*. There are five sections within *Contextual Framework*. *Section 1: Dance Devising* discusses the values of individual creativity, collective creation, and connection with ideal collaborators regardless of geographic location in devising practices. *Section 2: The Digital Age* examines the cultural values that are a direct byproduct of increasing technological presence in our lives: increased emphasis on independent production, crowdsourcing resources, and virtual work that bridges geographic divides. *Section 3: A Shared Value System* argues that the values presented in dance devising and those cultivated in the digital age align. This section analyzes the intersection of dance devising and digital technology for each of the three shared values and presents both case studies and an interview with Gina T'ai and Susan Honor. This section ends with the introduction of my controlled, empirical study of remote

choreographic collaboration. *Section 4: Process, Product, and Audience Response* explores these three areas in which I gathered data. The *Contextual Framework* chapter ends with *Section 5: Summary*, which draws together the arguments and case studies segueing into my study.

The next chapters, *Methods*, *Results*, *Discussion*, and *Conclusion* employ a more scientific mode of writing. In *Methods*, I explain the casting, controlled rehearsal process, and format for consistency throughout technical and dress rehearsals. Lastly, I discuss the performances and evaluative measures. Subsections here dive deeper into the dancer and choreographer process surveys and interviews, compositional analysis process, and audience response survey administration. The *Methods* chapter concludes with a discussion of data analysis. The *Results* chapter presents the data gathered during this study. Each table is accompanied by an example of how to read the data. A further analysis of the results is offered in the next chapter, *Discussion*, which presents my interpretation of the data. The *Conclusion* summarizes and distills the extensive content in this paper pointing towards the future of implementing digitally-mediation into choreographic processes and presenting additional research questions stemming from this study.

Contextual Framework

Section 1: Dance Devising

Ensemble performance is inherently collaborative. However, the 1960s ushered in a new emphasis on collectivity simultaneously highlighting independence and collaboration in the creative process. At this time, American, British, and Australian artists began to use *devising* and *collaborative creation* to describe process-centered methods of performance making. When used in a non-performance setting, Heddon and Milling suggest “devising” refers to “the craft of making within existing circumstances, planning, plotting, contriving and tangentially inventing. By contrast, the phrase ‘collaborative creation’ more clearly emphasizes the origination or bringing into existence” (3). When referring to performance practices, devising and collaborative creation come from different lineages. The term devising was first used to describe a collaborative process-based method of playwriting to produce a theatrical script with no single author. Collaborative creation, on the other hand, stems from choreographic practices.

Taking a closer look at choreography reveals that, even when using a hierarchical process in which a choreographer teaches a dancer pre-determined movement, an element of collaboration still exists as it is impossible for a choreographer’s movement to remain unchanged when taught to and embodied by another person. All choreography is collaborative to this extent. The intrinsic collaborative nature in choreography makes repurposing the term devising from its theatrical origins appealing to choreographers as it places an emphasis on the process of creating over the aspect of collaboration. In dance devising, the movement content is generated through the coming together of multiple collaborators, encouraging ideas generated before rehearsal and notions of what the end

product will be to dissolve. It is this spontaneity and relinquishment through collaboration that draws choreographers to dance devising practices.

From its beginning, many devising processes have employed improvisation, which promotes a fusion of individual creativity and collective creation. Beyond its function as a tool for generating content, according to Hedding and Milling, improvisation also indicated “a political moment of resistance to bureaucratization and established institutions” because it handed choreographic agency to the dancers in the devising process (8). While improvising, all dancers continuously maintain a solo practice to develop movement material within the body, contributing to a broad, highly varied database of content shared by all participants. Jo Butterworth claims the methods of devising, including use of improvisation, “tend to challenge each individual’s knowledge and skills of dance making with an awareness of and sensitivity to the group ensemble” (190). As each individual creates their own logic regarding how their solo practice functions within the larger structure, they begin to make choices directing their individual research while also attending to the choreography of the whole;² these choices effectively serve to edit the piece as it develops. This collective redirecting promotes the development of compositional elements valued by the group as a whole, dismantling of choreographer-dancer hierarchy seen in non-devised processes.

This democratic practice exists in opposition to instructive, hierarchical approaches to choreography. In her Didactic-Democratic spectrum model, Jo Butterworth proposes a

² The practice of focusing on solo improvisation while attending to the structure of the whole is used both in devising processes and also as a form of improvised performance. Artists and improvisation ensembles choose to use a variety of names to describe this practice including Compositional Improvisation, Choreographic Improvisation, and Performance Improvisation.

five-part scale of relationships between the choreographer and dancers: (1) choreographer as expert, (2) choreographer as author, (3) choreographer as pilot, (4) choreographer as facilitator, and (5) choreographer as collaborator. Butterworth classifies categories 3, 4, and 5 as dance devising processes because the terms “pilot,” “facilitator,” and “collaborator” refer to the presence of a shared creative process to which the choreographer is contributing and leading. In opposition, “expert” and “author” refer more to the choreographer’s individual skill or title rather than their function within the group. While Butterworth sees value in all processes along the spectrum, she believes a devised process can “often provide a watershed of understanding, a relinquishing of self-consciousness, and recognition of the power of dance as a shared experience and an instrument of social change.” (192). The ability to relinquish attachment to intended outcomes and share responsibility with others serves dance devisers both in the creative process and in life.

Because devising entrusts dancers with the responsibility of proposing content and choreographic organizations of material, constructive choreographer-dancer relationships become increasingly important. Dance festivals scattered internationally act as central meeting places for members of the dance community to share research, attend performances, and form collaborative working relationships with other artists. In Jack Anderson’s analysis of the American Dance Festival published in 1987, he places an emphasis on attending festivals as a dancer to see a wide range of work and be seen by professionals. “Studying at the festival can be a way of getting one’s self known by prominent teachers and choreographers. Students still unsure about the dance style in which they wish to specialize can see several dance companies perform at the festival, and

some students have been able to audition for the directors of those companies” (238). In the time since this book’s publication, the purpose of attending festivals has shifted. Being seen by professionals remains one incentive, but forming collaborative working relationships with peers is now equally or more important, and many festivals now have programs specifically designed to encourage this. In addition to reparatory projects, the Bates Dance Festival offers students the opportunity to show work created during the festival in the Young Choreographer’s Showing, initiating collaborations between festival participants. The ATLAS program at ImPulsTanz in Vienna is deliberately structured to encourage collaboration in that it provides a group of approximately ten young artists with a shared working environment, limited amount of time, and frequent group discussions as they create original work, promoting the exchange of ideas in the process. And, more so now with the development of and increased access to social media, it is possible to continue developing these working relationships built at festivals with colleagues who live far away from one another. Digital technology allows festivals to be a meeting point as well as launching pad for lasting geographically-distributed choreographic collaborations. However, while meeting and beginning collaborations at festivals is common, continuing collaboration long-distance is not.

Egalitarian human connection underscores the impulse to make devised choreography, which values individual creativity within a collaborative environment. The desire to form fruitful working relationships in devising practices pulls dancers from afar to festivals, yet when these meetings end, choreographers typically resort to collaborating with those nearby. The trajectory of choreographic practices trending towards a non-hierarchical, all-inclusive system has reached a plateau. Many dance collectives, including

AGA Collaborative, work in Butterworth's fifth process on her spectrum and do not identify a particular choreographer in their work. However, completely reformatting the choreographic process through increasing the incorporation of digital technology in dance devising could continue democratizing trajectory, providing dancers with even more individual agency, allowing for more expansive collaborations, and facilitating collaborations with dancers and choreographers across a geographic divide.

Section 2: The Digital Age

Mobile technology, the Internet, and social media define the culture of the 21st century. Data from the Pew Research Center shows that while only 62% of U.S. adults owned cellphones in 2002, this number has now increased to more than 95%. U.S. adult smartphone ownership has increased drastically as well from 35% in 2011 to 77% in 2016. Now, over 89% of college graduates own a smartphone. However, as age increases, smartphone usage decreases, with only 74% of those between 50 and 64 years old using these technologies in 2016. The ownership of laptop or desktop computers has remained relatively constant since 2008 with 78% of U.S. adults owning these devices, but the ownership of tablet computers by U.S. adults has quickly increased from 3% in 2010 to 51% in 2016 showing the importance of portability in our most current technology.

The percentage of U.S. adults who use the Internet has increased as well from, in 2000, approximately half to now nine in ten of those surveyed using the Internet. People in all demographics analyzed—age, race, gender, income, level of education, and geographic community (urban, suburban, or rural)—reported increased Internet access over the past

16 years. Yet, a clear disparity still exists in Internet access with respect to level of education. While this access gap has significantly narrowed since 2000, data from 2016 shows that 98% of college graduates use the Internet while only 68% of those with less than a high school degree have access. Between 2000 and 2016, the percentage of U.S. adults using the Internet increased in all geographic communities: 42% to 81% in rural locations, 56% to 90% in suburban locations, and 53% to 89% in urban locations. Now over 73% of U.S. adults have high-speed broadband service at home, and 12% of those who don't use broadband use smartphones instead leading to 85% of U.S. adults benefiting from home Internet connection.

Increased smartphone ownership and Internet access has yielded a quick and dramatic increase in social media usage. Since 2005, the percentage of U.S. adults who use at least one social media site has increased from 5% to over 69%. Currently, the use of social media increases with level of education and decreases with age. 59% of U.S. adults with a high school degree or less use social media and only 34% of those 65 or older use these sites. The highly educated and young U.S. adults who use social media the most visit these sites often. Roughly three-fourths of Facebook and one-half of Instagram users check these sites daily. Social media aids in connections between those in different geographic locations because living in a suburban, urban, or rural area has minimal effects on use of these platforms. This increased access to mobile technology, the Internet, and social media has provided nearly all U.S. college graduates with these tools, connecting a widespread network of scholars and creators in various geographic locations.

This relatively recent influx of digital culture has fostered independent, collaborative, and geographically distributed working environments. We no longer use

digital devices only for their original intended purpose, but rather, we are digital curators, picking and choosing from what each device can offer and creatively piecing together new ways of working. Computer fluency and online presence are obligations for *digital natives*, Marc Prensky's term for those born after 1980 when digital technologies such as Usenet became available. According to Palfrey and Gasser, before birth most children now have an online footprint—or digital dossier—that is too extensive to be removed, forcing this generation to accept an online identity before they can make one for themselves. At this point in time, reversing the trajectory of digital advancement or eliminating the digital aspects of our lives is an impossible task. Therefore, it is beneficial to be proactive and attentive to how the digital technologies in our personal lives are changing our culture.

Embracing these new technologies is leading to widespread *digital transformation*, Dr. Didier Bonnet's term for the modifications individuals and businesses are making to reshape working methodologies to include digital technology. According to David Weinberger, moving to a virtual work place alters the concepts of space, time, perfection, and togetherness. Although a virtual space, the terms used to describe movement and location on the Internet are metaphors referencing physical geographies, allowing users to conceptualize the Internet as a three-dimensional, real-world space. *Surfing* and *visiting* indicate journeys to different *sites*, or places, in the geography of the web. However, web space and physical space are fundamentally different. In the physical world, to travel from one place to another takes a particular amount of time dependent on choice of vehicle, speed of travel, and distance. On the web, the hyperlink is a vehicle for instantaneous travel not limited by physical realities; places on the web aren't separated by physical space but rather by connected through related content and logic. On the web, one can be virtually

present in two places at once, or one can bounce between two logically opposite places rapidly, a disembodied experience impossible to achieve in physical spaces. The web is a virtual space, but our perception of it as a physical environment allows for more intuitive online engagement.

Among these differences between real-world and web spaces, the most significant, Weinberger believes, “has to do with the relationship of space to the things in it. Real world space is a preexisting container in which the things of the world exist. Web space is created by the things in it” (52). Weinberger uses the analogy that real-world space is like a fixed-size box that can be filled where web-space is more similar to an infinitely large balloon that can expand or contract to exactly accommodate the content within.

Because we understand the Internet and digital technologies are human-created devices, we accept the imperfections and limitations embedded in these tools. By accepting these challenges, Weinberger claims working online can be a relief from the perfectionism typically required in our real-world lives, allowing for creativity and interactions that are considered messy, playful, unconventional, and innovative. Group discussions and meetings online demonstrate this imperfect yet vibrant communication. These group interactions are not defined by meeting in physical space at predetermined time intervals as they are in physical spaces. Discussions online are continually active rather than intermittent, allowing for ongoing threaded conversations challenging to achieve in the non-virtual world. This change in frequency of communication leads to a lower quality of participation in online discussions. In the real world, to be a member of a group requires active, embodied participation; people must physically come together. Online, however, people can watch what is happening without actively contributing to the discussion.

Additionally, online group threaded conversations make it easy for users to visit a discussion and gather information once without adding additional perspectives or making their virtual presence known. Without embodied attendance, group participation online requires less accountability, obligation, and commitment than in physical spaces.

Our virtual lives have developed and become more prominent over the past decade. However, our physical, real world lives have changed as well through the addition of and added emphasis on cultural values specifically derived from digital culture—independent creativity, collective contribution and collaboration, and digitally-mediated connections across geographic divides. In the digital age, individuals are encouraged and expected to use their digital resources to create and share products with others, breaking down old hierarchies that only supported invention and publication by those with specific training. With regards to creating and sharing online, people tend to fall in two groups: those who feel anonymous and freely share content on the internet, or those who are afraid of the instant accessibility and are hesitant to participate online. Others fall on the spectrum between these two extremes. A survey conducted by the Pew Research Center in 2016 indicates that 59% of U.S. Internet users do not believe it is possible to be completely anonymous online while 37% of users believed complete anonymity is possible. 86% of U.S. users have taken measures to try to minimize their online footprint and virtual identity.

Resulting from the open source movement, which advocates for an online democracy in which every user can upload, edit, and access all information, the web now contains an overload of incomplete or inaccurate content fragments. The Internet has been further cluttered through the increase in access to what Ben Shneiderman calls *Creativity*

Support Tools. These digital tools facilitate creative thinking and production while prioritizing individuals and amateurs over teams of experts. Specialized applications such as *Final Cut Pro*, *Procreate*, *Sibelius*, and *Photoshop* as well as more general, accessible tools such as *Microsoft Word* and *Notability* all are digital creativity support tools. Even smartphones, laptops, and tablets, along with the Internet as a whole could all fall into this category of digital technology.

In the development of these tools, the documentary *PressPausePlay* explains that the generic hardware or software always exists first and then innovators repurpose these tools, expanding the programming or design to develop their individual ideas. For example, smartphones were created as open-ended tools brimming with possibilities. Through widespread ownership of these devices equipped with cameras and Internet connections, apps such as *Instagram* and *Pixlr* were created, artistically inspiring users and making untrained individuals self-proclaimed photographers. The use of smartphones as photography studios has caused manufacturers to upgrade the cameras and screens of these devices, creating a cyclical system of technological development initiated by the independent consumer rather than the manufacturer.

The idea that every individual should now be a creator is not always seen in a positive light. In *The Cult of the Amateur*, Andrew Keen believes that widespread access to digital creativity support tools leads to mediocrity because it minimizes the hard work and training necessary for many creation processes. Pushing back against the democratic values of digital culture, he writes, “talent, as ever, is a limited resource, the needle in today’s digital haystack. You won’t find the talented, trained individual shipwrecked in his pajamas behind a computer, churning out inane blog posts or anonymous movie reviews.

Nurturing talent requires work, capital, expertise, investment. It requires the complex infrastructure of traditional media—the scouts, the agents, the editors, the publicists, the technicians, the marketers” (30). As more armatures use digital creativity support tools to publish their homemade material, Keen believes we may end up with a surplus of mediocre work that causes the exceptional products made by trained professionals to be few and far between. The normalcy of amateur publication can make people over confident in their ability to participate in the digital world, causing websites such as *Wikipedia* to be unreliable.

Other scholars believe that harnessing individual creativity can come with huge benefits. In the collection of essays in *Open Design Now*, Joris Laarman states, “I am not in favor of amateurism, but the way I envision the system working, the good will eventually be filtered from the bad” (123). Gabrielle Kennedy believes that widespread creative and production access takes “power away from the multinations and production hubs like China and hands it back to craftspeople-those individuals rendered irrelevant by industrialization” (123). Matt Ratto sees open design as an exciting future for artists; “Open design, particularly in regards to digital hardware and software heralds new possibilities for artists, scholars and interested citizens to engage more fully in a simultaneously conceptual and material critique of technologies and information systems in society” (204).

Collective creation is another prioritized value in the digital age and considered by some scholars to be the research method of the future. Also referred to as crowdsourcing, citizen science, or collective intelligence, this concept uses large-scale collaboration on a single project to produce an outcome quality similar to if an expert had done the work. In the book *Understanding Digital Culture*, Vincent Miller states, “a new form of knowledge

production and problem solving in which individuals collectively pool together their interests and expertise towards the solving of common problems, the creation of common resources or the piling together of information for mutual benefit” is evolving as a result of the interactions and networking possible in the digital age (85). One noteworthy crowdsourced endeavor took place at CERN, the nuclear research center near Geneva, Switzerland. Called the ATLAS Experiment, this project involved the collective knowledge of 3000 physicists and 1000 students from 38 countries and 174 universities and labs. The magnitude of information gathered in a single project would not have been a possibility without digital transformation in this field.

Unlike ATLAS, most crowdsourced projects involve people with no previous training or education on the research subject. The Zooniverse project is a website-based platform for this type of research. Their first project, which is still in operation, is called Galaxy Zoo and uses images to inventory galaxy based on morphology. People are lead through a brief tutorial and then are presented with images to classify. Many galaxy images present clear morphologies and are relatively straightforward to classify after completing the tutorial. By showing these images to enough people, the average answer, if within a specific confidence interval, is no different than what a professional astronomer would select. The more ambiguous images produce a wide variety of citizen scientist results, flagging the image as one requiring an astronomer’s analysis. Crowdsourced research helps the experts in a field use their time productively, allowing a larger quantity of research to be undertaken. Since then, other projects have been proposed on Zooniverse in other areas of research. Projects now exist to improve understanding of cell biology, to transcribe handwritten documents

by Shakespeare, and to analyze forest snow interception patterns. Using this research platform is now inclusive; anyone can submit a project for approval.

Digital technology breaks down the boundaries imposed by geographic divides. Geographically distributed research has been happening frequently in science, medicine, and the arts. As demonstrated by the ATLAS Experiment, choosing to limit research resources or exclude people from collaborations due to geographic proximity is no longer accepted. Using digital technology to facilitate long distance communication provides resource access, such as education, to those less privileged due to their geographic location. Yoany Beldarrain's research on distance education demonstrates that videoconferencing, live presentation tools, blogs, email, and Google Classroom, along with other tools to facilitate community and connection, have potential in providing education access to those otherwise unable to participate in physically-present courses. Even for students whom access to education is not a problem, online learning may still have benefits; distance education necessitates continual evolvement and individual responsibility. "New models of teaching can accommodate the needs of the 21st-century learner by including activities that allow students to contribute to the learning process at any time, from anywhere" (Beldarrain 145). Abrami *et al.*'s research presents some challenges when encouraging students to participate in online education. Students tend to value the learning outcomes less, deem the benefits of increased effort to be insignificant, find taking responsible for their own learning to be risky, and believe online learning decreases the likelihood of their academic success. While challenges exist in online learning, this study emphasized the importance of student-student and student-instructor interactions to optimize the success of a virtual learning experience.

Our culture values work that is created and distributed by non-expert individuals, collaborations with input from large numbers of people, and online communication that bridges geographic divides. These values have infiltrated our culture as a direct response to the increased access to digital technology. Dance devising practices, discussed in *Section 1*, share similar values with the culture of the digital age. Because dance devising has evolved and gained popularity out of a push for egalitarian collaboration in our societal values, and these cultural shifts has been, in part, a product of digitization, increased use of devising in choreographic practices could be seen as an indirect outcome of the digital age.

Section 3: A Shared Value System

At first glance, collaborative dance devising, an embodied form of communication, thinking, and organization, and the digital age, which allows people to disembodify themselves in virtual spaces, do not seem compatible. While dance processes and products have included technological experiments with motion capture, projections, and computer programs for movement generation for many years, choreographers still value interactions with live bodies in a shared physical space. Many people, including Andrew Keen, are afraid of the degradation of rigor and disappearance of physical human connection that continued permeation of digital technology will bring, and are therefore hesitant to let the regularity of virtual, long distance communication surpass that of face-to-face communication in physical spaces. This reluctance seems especially prominent in dance. Douglas Rosenberg acknowledges that, “digital manipulation of corporeal presence, of liveness, leads to a particular kind of distancing that tends to *re-render* the humanness *of* live performance

into various forms of data, either in a live or postperformance paradigm” (103). It is this alteration of liveness—of corporeal presence and embodied communication—that produces the hesitancy surrounding digital transformation seen in many dancers and choreographers.

However, aside from disembodiment and loss of liveness, the values underscoring dance devising and the digital age are surprisingly similar. Both digital and devising cultures rely on contributions from individuals to produce a strong collaborative product. They promote the value of individual creative agency for amateurs and experts alike. And, they both encourage collaborations with ideal colleagues, even if they do not live in close proximity to each other. In the sharing of these values, both dance devising and digital culture generate non-hierarchical communities that foster complex and productive collaborations.

Rather than viewing digital technology as the antithesis of human nature, Vincent Miller argues that technology is in fact a tool and “tool making and tool using can be seen as an integral part of what humans do” (223). Weinberger believes that the web can allow humans to function and interact in the most liberal way—the way that provides freedom from the physical construct of space and time. “The web is like the world we live in... and is unlike the world as we think about it when seized by a fit of realism. Our default realism is a widely, even insanely, inaccurate description of human life. The virtual world of the Web exposes more clearly the truth of our everyday lives. This is why the web—this disruptive technology, this oddball world—feels so familiar and so welcome” (171). While strange to view virtual spaces as more natural than those in the physical world, this perspective does

make sense—our embodied thinking and experiences are limited by the physics of the real world. Virtual spaces can allow for a human experience uninhibited by physical constraints.

Using digital technology as a tool for dance devising could allow for innovative thinking outside of physical limitations, presenting exciting collaborations across geographic divides. While still valuing the democratic individually within collective creation intrinsic to this form, digitizing the choreographic process requires a reimagining of how dance can be made, something familiar and necessary in devising practices. Many scholars and artists are investigating the theoretical and practical outcomes of merging dance and digital culture, and the *dance-tech project* is one center of this research. According to its website, this “project explores the potential of the new Internet technologies for knowledge production and distribution on body based artistic practices and it’s intersections with other disciplines such as new media, architecture, philosophy anthropology and more” (Barrios Solano).

Meta-academy, a research project supported by *dance-tech*, explores the intersections and interactions between contemporary dance and Internet practices. This project, conceived by Marlon Barrios Solano and run in collaboration with Rachel Boggia, explores the possibilities of networked environments to serve as spaces for collaboratively generating knowledge on interdisciplinary contemporary performance practices and choreography. *Meta-academy* explores trans-media and meta-media approaches to e-learning between artists, researchers, festivals, and universities “to expand current research on documentation models and transmission of contemporary choreographic practices” (Barrios Solano). Through the *Connecting Contexts* program, *Meta-academy* conducted a group interview with dancers from Bates Dance Festival and ImPulsTanz in

2014. This video, which is available online, discusses different pedagogical approaches and connections between these practices and performance. *Meta-academy's* use of digitally-mediated communication to bridge distances between dance festivals proves the benefits of including technology in dance practices.

The next portion of this section will explore the merging of dance devising and digital technology in more detail, focusing on the values of individual creativity, collective creation, and bridging distances. These subsections include current and historical research projects, case studies, and an interview with choreographers Susan Honor and Gina T'ai. This section concludes with an introduction to the study I conducted to further explore the benefits and detriments of working in a digitally-mediated choreographic process.

Value 1: Digital Creativity Support Tools for the Individual Dancer / Choreographer

Individual creative agency is paramount for both the choreographer and dancers engaging in devising practices. The digital age has cultivated a value of individual creativity through access to digital creativity support tools, which if used in devising practices, could increase independence in the process. Currently, choreographers use a variety of digital creativity support tools; *Google Drive* and email serve to organize and share process videos, *iMovie* allows for experimentation in assembling movement segments outside of rehearsals, *GarageBand* allows custom sound scores to be created, and smartphones make playing music and filming during rehearsals simple. However, creativity support tools designed specifically to assist in the choreographic process are sparse and infrequently used—but many do exist.

An early digital creativity support tool for choreography is Merce Cunningham's computer program *LifeForms*, and later iterations *DanceForms* and *LifeForms 3D*, which use animated figures to generate movement ideas. Lisa Naugle observed that, while the animations are sometimes shown in real time with the live performance or are used in rehearsals to teach the dancers predetermined material, Cunningham created these programs to use outside of the in-person rehearsal. This technology that generates movement using animated dancers away from the rehearsal process seems counterproductive to the collaborative, process-centric nature of devising choreography.

Motion capture technology, a different creativity tool for dance, digitizes the live body in a fundamentally different way than *LifeForms* or *DanceForms*. Lisa Naugle describes this difference in an interview conducted by Ann Dils: "First, let's agree to separate *LifeForms* software and motion-capture techniques. True, both are part of computer animation, but basically motion capture works directly with the living/moving/dancing body while *LifeForms* simulates movement. There is no "capture" of the movement directly from the dancer in *LifeForms*" (163). Motion capture facilitates the translating of live bodies into digital spaces for online performances, yet its high cost and unavailability make this technology unsuitable in supporting the devising process of live, non-telematic³ performance.

LifeForms and motion capture technology require that the user have prior experience both with sophisticated technology and choreography. Perhaps reassuring to Andrew Keen, these programs do not propose that people with no choreographic or dance

³ Non-telematic performance is live performance in which all performers are physically present in the same performance space. No dancers are mediated via video conferencing to allow for geographic distribution.

experience can suddenly become skilled choreographers without training or practice from the use of the digital tool. Rather, these tools assist the choreographer in generating and translating the movement to gain a new perspective on the work.

Other digital creativity support tools such as *Labanwriter*, *Alias Sketchbook*, and multimodal video annotators assist in the documentation and composition rather than movement generation of choreography. *Labanwriter*, developed by the Ohio State Department of Dance, utilizes the symbols from the Labanotation language⁴ to store choreography in a digital, written format. *Alias Sketchbook*, created by Reed Stevens at the University of Washington, allows for rehearsal images to be assembled on a virtual canvas with annotations connecting these concepts. For choreographers who use process videos in devising choreography, multimodal video annotators—tablet applications that allow for typed, drawn, or voice recorded annotation on videos—can be useful in marking compelling moments from videos and documenting choreographic impulses that arise while watching the video.

The *Creation-Tool* is a multimodal video annotator designed by Cabral *et al.*, which uses a keyboard, pen, voice control, and remote to add annotations to videos. Equipped with motion tracking, the digital pen markings follow the dancer's movement in the video. The programs *Video Traces*, *WaC*, *NoteLook*, *Ambulant Player*, and an app created in 2016 to work with the iPad Pro and Apple Pencil called *Touchcast* are all pen-based video annotators that have been used for contemporary choreography. *Alias Sketchbook*, *Creation-Tool*, and all multimodal video annotation programs seem to have potential in

⁴ See *Section 4: Process, Product, and Audience Response* for more information on Labanotation.

supporting the dance devising process, more so than the less collaborative software *LifeForms* and inaccessible motion capture technologies.

Value 2: Digitally-Supported Collective Creation in Choreography

The crowdsourcing research movement discussed in *Section 2: The Digital Age* shows potential in magnifying the collective creation already valued in devising choreography. Many choreographers have researched the digital crowdsourcing of dance, in which choreographic input is generated from a large number of collaborators. Similarly to the contributions by non-experts in the Galaxy Zoo project, digitally crowdsourcing choreography brings untrained perspectives into the work.

In *Invisible Connections*, Sita Popat discusses Amanda Steggell's *M@ggie's Love Bytes*. First performed in 1995, this dance was viewed simultaneously by an in-person and a remote audience of Internet-based viewers. During the piece, the Internet viewers could submit sound and image files, which were played or projected during the live performance as they were received. Additionally, Internet viewers could craft performance instructions for the dancers, and this information was projected into the performance space. The dancers incorporated this input as the performance unfolded, placing the remote viewers as co-owners of the work. In *M@ggie's Love Bytes*, crowdsourced directions come from the remote audience members, not from the experienced dancers. These valid contributions rely on the innate artistic preferences possessed even by untrained artists. Navigating around the logistical constraint of live performance that limits the number of performers in a work, crowdsourcing choreography broadens the voices in the choreography and demystifies the creative process through collaborating with distributed non-performers.

Stephan Koplowitz's 1997 project *Bytes of Bryant Park* used the language surrounding Internet sites to inspire a site-specific performance in New York City's Bryant Park. Visitors to Koplowitz's website, *Webbed Feats*, were encouraged to look at photos of the park and provide many forms of content: poetry responses, a sixty-second soapbox text on life in New York City, text from a play based on *Faust*, a sentence on parks in general, and instructions for a group of four dancers to follow. The website also presented a selection of 15 photos of a dancer in different poses and asked online contributors to string together five of these images into a movement phrase, which the website animated allowing the creator to see their work. Additionally, music files, videos, and images could be contributed on the website. Koplowitz choreographed the dance by assembling the uploaded content and performing it live in the different locations chosen in the park. Videos of the final performance were available to online contributors who couldn't attend the performance allowing them to see the culmination of their work.

Richard Lord used choreographic crowdsourcing in his project, *Progressive 2*, which launched in 1996 on his personal website. Here he uploaded videos of movement phrases, each nine seconds long. The viewers could interact with the videos using commands *stop all*, *start all*, *synchronize*, and *randomize*. This project created a web-based performance assembled and edited by online participants and, unlike *Bytes of Bryant Park*, was not used to generate a live, in-person product.

Value 3: Bridging Distances Digitally in Collaborative Choreography

Digital culture encourages e-learning and long distance collaboration. A more digitized devising process has the potential to foster long distance choreographic

collaborations, promoting the longevity of working relationships initiated at dance festivals. A variety of scholars and choreographers including Dr. Pauline Brooks, a Reader in Dance Performance and Pedagogy at Liverpool John Moores University, focus their research on digitally-mediated choreographic collaborations. In the *Phillypool Project*, initiated by Brooks, students from Temple University in Philadelphia collaborated with students in Liverpool, England to create a telematic dance performance, a live performance that use technology to distribute performers between two or more geographic locations. Both performance spaces had two projections next to each other, one displaying live-streaming footage of the dancers performing in the same physical space and the other showing the dancers in the remote site in real time. The projections slightly overlapped creating the illusion of one virtual space that all dancers inhabited.

This collaboratively choreographed screendance was viewed in contrast to the live performance occurring in front of the screen, which differed at the two performance locations. The dancers attended to their embodied performance but also to the composition on the screen, altering their distance from the camera and location on the stage to create a desired composition involving all dancers. Brooks explains that students were “frustrated by the technology not being able to support them in devising and rehearsing in the same way as they would if sharing the same live space” (58). However, in post-project evaluations, students overwhelmingly insisted the project should continue because “it is a developing media, and to be at the beginning of cross-country exploration... is like being an early pioneer” (58).

In other models, choreographers use motion capture technology to set up real-time three-dimensional virtual studios called Tele-immersive Dance Environments (TED),

connecting geographically distributed collaborators in a shared virtual space. Recent developments in motion capture technology have made TED more user-friendly through enhanced graphics, faster image processors, and wireless remotes. In these spaces, cameras detect the motion of sensors attached to a suit that the dancers are wearing. The digitized motion produced at all sites is combined into a single virtual environment. These synchronous, shared space rehearsals allow for experimentation with spatial organizations and dancer proximity to one another. While TED seems to have potential in remote dance devising, the limitations of motion capture discussed earlier in this section still apply. The necessary technology is not widely available, difficult to operate, and expensive.

Other emergent technologies have potential to connect geographically distributed dancers in more accessible ways. Professor Helen Bailey at the University of Bedfordshire has studied the *Access Grid* environment for its potential in geographically distributed choreography. The *Access Grid* software connects multiple sites via audio and video streams and supports file sharing, presentations, the use of interactive virtual environments, and high-quality videoconferences. The *Access Grid* has potential for both distributing virtual performances to remote audience and for connecting distributed collaborators in making non-telematic performance.

Some artists, including Brooks, have designed remote choreographic processes using only email, blogs, and other widely accessible digital tools. The Post Natyam Collective, a “transnational, web-based coalition of women dance artists who critically and creatively engage in South Asian Dance,” utilize long distance collaboration to compensate for scarce nearby resources; few contemporary South Asian choreographers in Germany and the United States also engage critically with postcolonial and feminist-of-color issues

(Lee 1). Initially, this collective only shared documents online and held occasional Skype rehearsals when all members were available. However, all participants desired more rigorous and frequent work so they began sending choreographic assignments to each other via email, allowing for asynchronous yet continuous participation. They noticed a shift in focus from product to process in this mode of working, and they adopted an open source policy allowing each collaborator to recycle, alter, and repurpose the other's proposals.

Gina T'ai, Assistant Professor of Dance at Beloit College, and Susan Honor use a similar merging and repurposing method of working remotely in their multi-media performance collective, Distance Dances. I interviewed both artists via email, asking what caused them initially to pursue remote collaboration, if they find an in-person rehearsal necessary before performance, what perceived benefits and detriments to the process or performance they believe a remote collaboration provokes, and what they predict as the future of digitally-mediated choreographic collaboration. After working together during their MFA programs at Hollins University/The American Dance Festival both decided to move to smaller Midwestern cities to avoid the hectic lifestyle they both previously experienced in New York City. They wanted to continue focusing on their artistic practices while also having time for family and a more manageable cost of living; they wanted a balanced lifestyle. However, once apart, they missed their collaborations and artistic friendship. This desire to create and perform together again, shared interests in multi-media, and fascination with alternative choreographic processes lead them to create Distance Dances.

Together, they established a process in which both dancers create and film a movement phrase and upload it to a Tumblr or Wordpress blog. Then, each dancer watches the other upload and mixes it with the phrase they created to make a new upload called *Merge 1*. The *Merge 1* videos are combined by each dancer again using the same process and uploaded as *Merge 2*. This merging continues for the duration of the process, with each participant learning all videos uploaded. Honor and T'ai teach this choreographic method every summer in a workshop at the American Dance Festival.

To assemble the uploaded phrases into a piece of choreography, Honor and T'ai each randomly select and order the phrases. They rehearse their sequences individually to prepare for performing both outcomes simultaneously. When asked if an in-person rehearsal is necessary before performing, T'ai felt that it is for their particularly process, which is fundamentally about creating an opportunity for both artists to reconnect through live performance. Honor agrees that having an in-person rehearsal prior to performing is enjoyable and helps fulfill their mission, but she acknowledges that as skilled dancers and improvisers, they would be able to perform without this rehearsal. They do find an in-person rehearsal helpful in polishing the dance and exposing exciting aleatoric alignments of material for them to look for in performance. Honor and T'ai have different movement physicalities and they find witnessing the other dancer's movement in-person—sensing their body heat, breath, and feeling the physical space reverberate with their movement—allows for a visceral, embodied understanding of the content that is deeper than their perception through videos.

In their independent interview responses, both Honor and T'ai said something gets “lost in translation” when digitally sharing content, but these modifications can lead to

rewarding surprises. According to T'ai, "sometimes the things that get reinterpreted because of video are more interesting than what are initially created." Filming in unusual environments where other people or pets can walk into the frame of the camera can create unusual outcomes as well, and T'ai believes "all those little things find their way into the final work in some way." And, through blending and merging this content received via video, each person is asked to physicalize unfamiliar movement pathways creating a challenging, and sometimes uncomfortable, database of phrase work.

In this process, Honor and T'ai challenge themselves and each other to work quickly, preventing them from overthinking how the phrases are mixing together. True to dance devising, the merging process itself creates the structure, logic, and themes in the choreography, which emerge as material is mixed and generated. Honor said, "I think the remote process, at least the way we have done it, creates a specific pathway for generating material. I don't find it prevents any choreographic ideas from occurring; I think it gives you a pathway or guidelines to create material." This specific pathway, according to T'ai, sometimes restricts the amount of floor space dancers can utilize because the material has to stay within the frame of the camera. This being said, there are many benefits to working remotely, including the freedom of working around other time commitments and the availability of bring other movement perspectives into a piece, which T'ai has started doing by remotely including Honor in her in-person projects with other collaborators.

In 2014, T'ai and Honor worked together to create a dance piece with students from Beloit College and Grinnell College collaborating with each other remotely. Duets with one student from each school were formed and the dancers shared and merged phrases of movement on a WordPress blog using the Distance Dances method. This process resulted

in a live, non-telematic performance in Chicago after only one and a half days of working at the theater in-person. One dancer revealed that the remote process generated uncertainty in the performance requiring immediate trust between all dancers. The dancers also described feeling like strangers even after sharing videos for weeks. Some students were inexperienced performers, and T'ai felt that having more time to assemble the choreography would have helped them to feel more confident. Honor and T'ai's positive working relationship allowed them to use their in-person assembly time efficiently; they did not worry about upsetting each other if ideas were removed or changed. In the end, T'ai felt the piece was a huge success, and showed the dancers the feasibility of working with collaborators outside of a collegiate or geographic region as an alternative to in-person, localized processes.

Both Honor and T'ai see remote choreographic collaborations gaining popularity in the future. T'ai believes "there is a need and a desire for people to explore remote collaboration" because it can bring communities together across the globe. "We don't have to be so insular," Honor states, "we can share our work and bridge our artistic lives in places that we couldn't a decade ago." When T'ai and Honor started working this way, they used DV8 cameras and had to edit the footage before posting to the blog. Now, smartphone video technology makes this process more accessible. Social media sites, blogs, and Google Drive make sharing videos with collaborators simpler. T'ai and Honor believe that the continued development of digital technology will shape the ways in which people chose to choreograph collaboratively, potentially generating more live-stream performances. Honor and T'ai are very open with their process and encourage their workshop participants at the American Dance Festival to alter the methodology to work best for them. Honor and T'ai

have continued reshaping the process to add additional choreographic possibilities. They have found methods for working with trios, quartets, and quartets with two in-person duets to allow for lifting and weight-sharing.

A Controlled Study of Digitally-Mediated Choreographic Collaboration

The range of projects discussed thus far show the vast possibilities of merging dance devising practices with digital technology to support individual artists, magnify collective contributions, and bridge distances. However, before we passively let technology digitize and make virtual the choreographic process, or before we expedite this seemingly inevitable trajectory, we need to know what the consequences and opportunities might be. Up until now, dance as a form has existed within the physical constraints of our four-dimensional world of time and space. It is characterized by spontaneity, ephemerality, and temporality. So, moving a process built from this structure to a virtual site with, according to Mark Weinberger, no size, direction, or time, inherently creates challenges. Yoni Prior poses, “when the project of performance-making is translocated into this [virtual] environment, the insistence of the technological demands is both bracing and frustrating” (170). While invigorating and challenging, digitizing the devising process could lead to significant impacts, both positive and negative, in the process experiences for the choreographers and dancers, composition of the work produced by this altered process, and audience response to the pieces.

It is currently difficult in these case studies to determine what outcomes stemmed from the inclusion of digital technology or from the other variables including choreographer aesthetic, dancer experience, digital resources available, length of project,

age and experience of dancers, or physical space of the final performance. For these reasons, I conducted a controlled empirical study of digitally-mediated remote collaborative processes in which multiple choreographers created in-person and remote duets with measurements of the process, products, and audience responses analyzed statistically. I included multiple choreographers in this study to determine what changes arose in remote groups among all choreographers, controlling for the varying choreographic aesthetics and personalities. I only allowed digital-mediation to be used in the process, which required all duets created—both remotely and in-person—to result in a live, non-telematic performance.

This project neither sought to advocate that the choreographic process should remain analog nor to suggest that dancers should abandon in-person studio rehearsals in the future. Rather, I hoped to better understand the impact of digitizing the choreographic process so that we can be informed about how and if the overall experience of creating, performing, and viewing dance will change in a more digitized future.

Section 4: Process, Product, and Audience Response

In this study, I used dancer and choreographer surveys to monitor the process experience over time, the computer program *ATLAS.ti* to analyze the composition of the choreography, and audience response surveys to understand the impact of a remote choreographic process on the ways in which the work was viewed. The following subsections will contextualize these three areas of measurement in more detail.

The Dancer and Choreographer Experience

Judith and Gary Olson's *Working Together Apart* reviews recent long distance collaborations in fields outside of the arts. Their writing both presents a framework established by these two scholars classifying successful distributed collaborations and outlines potential impacts of distributed collaboration on those involved. To measure these impacts, they have designed the *Collaborative Success Wizard*, an online survey program to determine the overall success of a long-distance collaborative effort. From looking at the results of these surveys, Olson proposes that a successful remote collaboration has participants who respect the project leaders, clear goals that all participants agree on, and structured communication plans in place with video call meeting sessions.

The lack of trust between collaborators is noted as a common challenge faced by those working remotely. Additionally, language barriers and technological malfunctions presented problems. Difficulties in setting up video calls, sharing files, and creating group calendars slowed down and added frustration to the process. Some of the earliest accounts in Olson's book took place when video technology was underdeveloped: files were difficult to send, and playback froze and lagged. However, some non-technology dependent issues could have been avoided through frequently checking and promptly responding to emails acknowledging that work was received. By employing these characteristics of a successful remote collaboration, a digitally-mediated devising process can be set-up that is conducive to a positive experience for dancers and choreographers.

The time commitment of the project also is important when looking at digitizing the process of making dance. The short, two-month process time for this study could pose problems for remote pieces. In *Invisible Connections*, Sita Popat discusses devising feedback

loops, the time it takes for the choreographer to provide a directive, the dancers to interpret the instruction and share their response, and for the choreographer to respond to the proposal with additional information. When using an asynchronous digitally-mediated process, the period of one cycle is typically longer than working synchronously in the same physical space. This means that more time may be required to create the same amount or quality of choreography in the two environments. Given that the remote process is unfamiliar, and dance creation is intrinsically vulnerable, I believe setting up clear goals, virtual meeting times, and facilitating a trusting environment is vital for the choreographer and dancers' success.

The Composition

The composition, one component that makes up the choreography, is the way in which building blocks such as physical contact, unison, use of space, music, and interactions with objects are pieced together in each moment of a piece. The composition, unlike the choreography as a whole, is objective—a concrete reality not tied to audience and performer subjective experience or opinion. In devised performance making, the choreographic ideas, and their composition, are a direct byproduct of the process. Looking closely and objectively at the composition of a work can provide information about how the nature of the process promotes or hinders different choreographic possibilities from arising.

However, there seems to be no one proper way to break down a dance into its components for analysis because the experience of watching a dance is more than the sum of these compositional qualities. Rather, these images and sounds are layered together and

mixed in the mind of each viewer, creating an idea of the dance that is greater than the sum of its parts. Therefore, an analysis of isolated compositional elements without subjective synthesis by the audience member could be an inaccurate representation of the choreography as a whole. However, while data showing the prevalence of unison, contact, music, or use of the center of the stage may not accurately describe how these elements are perceived by viewers when layered together, this information can represent a dance in a new visual or numerical form and provide a way to compare one dance to another given that each dance is subjected to the same deconstruction process.

Valerie Preston-Dunlop's *Looking at Dances* discusses different compositional elements used in choreography, along with broader choreographic tools, and how these concepts ultimately inform the audience members' reading of the piece. Given the process-centric nature of devising dance, I wondered if the presence or absence of these elements could be related to the in-person or remote nature of the process. Some elements she mentioned that seemed likely to change when rehearsing remotely include the amount of physical contact or weight-sharing, proximity of performers, spatial positioning, spoken text, synchronicity in movement, dynamic range of movement, and use of music, and these concepts informed my compositional analysis approach discussed further in *Methods*.

Labanotation, a method of analysis through deconstruction and classification, breaks movement down into body, effort, shape, and space. Each of these categories can be subdivided further: body is split into movement initiation, connection between body parts, movement sequences, and neuromuscular patterns. Effort is split into space (direct or indirect), weight (strong or light), time (sudden or sustained), and flow (bound or free). Shape splits into the categories of shape forms, modes of shape changes, shape qualities

(sinking, spreading, retracing, advancing, enclosing, and risings), and shape flow support. Lastly, space is analyzed through the subcategories of kinesphere, spatial intention, and geometry.

Due to the complexity yet benefits of studying movement using these specific subdivisions, several attempts have been made to create computer recognition programs for Laban qualities. Unlike *LabanWriter*, which asks the user to do the work of assigning symbols to movements, *ActionPlot*, a “prototype for visualizing contemporary dance through a movement analysis tool” (Carlson *et al.* 1), collects data about the composition of a work and then automatically generates a visual representation to allow the user to better understand the structure of the performance, subtle choreographic patterns, and similarities and differences between dances. This program, inspired by *LayerBraid* system for visualizing compositional systems in music, was built from viewers watching dance and journaling about prominent performance elements. Its goal in creation was to determine “how choreographic analysis could be made from experiential data and if it could be useful to the performance community” (Carlson *et al.* 3). In a trial run of this tool, the dance experts felt that the tool would be useful for analyzing choreography while the non-experts were unsure.

Choreographer William Forsythe values breaking choreography into its compositional elements to study and analyze the work. He claims, “choreography is always about translating” and in the Synchronous Objects Project, Forsythe’s *One Flat Thing Reproduced* is translated into graphics and plots using a variety of methods. He describes the purpose of this project as to create a non-body object containing choreographic knowledge, which can be studied independently of the work itself. Similarly to a play

having a script that can be repeatedly scrutinized, Forsythe wanted to publish a visual representation of a dance to leave a trace that can be analyzed apart from the performance. His website, Motion Bank, functions as a library of choreographic content including scores, interviews, somatic research findings, and videos.

In discussing the Synchronous Objects Project, Forsythe says that he was interested in how significant, and seemingly accurate, the data can be. From working with the dancers and knowing their personality, he had a sense of which dancers were responsible for more cues than others in the work, and who had the highest level of responsibility. The computer analysis, which did not take personality traits or process behavior into account, displayed a model of responsibility that was how Forsythe would have predicted, showing the potential of compositional analysis to unveil information about the process and the dancers as people.

Forsythe's definition of choreography is expansive. He defines choreography as an organizational practice in which objects are set into motion. He, among most choreographers, frequently uses dancers as these "objects" to set in motion and organize in space, but he acknowledges that his definition is broader than only including dance. He believes that removing the dancers from his choreography through Synchronous Objects Project can provide vital information about the work itself. Some of the analytical tests in this project looked at repeated movements motifs through the piece, the density of dancers, the complex web of cues that connect the dancers to each other, the visualization of movement in three-dimensional alignment forms, and statistical analyses of how important each dancers is to the whole work. Through the translation of choreographic works into

digital forms, he argues that one can better understand the composition of the work through viewing it as a new product.

Matthew Reason's book *Documentation, Disappearance and Representation of Live Performance* discusses the issues associated with using video documented replications of dance as alternatives to the live version without understanding what is lost through the digitization. Performance is by nature spontaneous, transient, ephemeral, and disappearing. By saving a dance through photography or videography, the dance is stripped of these important, defining qualities. Therefore, while studying the video version of a dance is frequently done, the live experience of the work is missing from the documentation and cannot be analyzed. In the Synchronous Object Project, Forsythe understands and embraces the fact that this translation distorts the work, stripping it of its live understanding.

Preston-Dunlop's discussion, *Labnotation*, *ActonPlot*, and the Synchronous Objects Project all show potential for compositional analysis of choreography, but Carlson *et al.* remind us that, "while there are many notation methods and at least one movement analysis system, there are no designated methods for higher level structural analysis of contemporary dance" (1). In my study, the compositional analysis looks at the simplistic qualities that make up each dance, not the complex effects that come from layering these in the choreography—this higher level of analysis must be left to the audience.

The Audience Response

The audience response to performance can give insight to the subjective experience that the layers of composition generate. Audience response can also give information

regarding variation in interpretation among the viewers. Contemporary choreographers who created collaboratively through devising processes do not usually ask audience members to pinpoint the choreographer's exact intentions or desired meanings in the piece because, according to scholar Lynne Connor, "meaning does not exist in the arts event/object itself, or in the intentions of the artist, but rather in the perceiver's historically and culturally constructed horizons of understanding" (1). For contemporary choreographer Tere O'Connor, "meaning is arrived at in collaboration with the audience and its endlessly diverse referential world. It is, therefore, fluid and forever open-ended" (O'Connor). Choreographers understand that individual viewers synthesize the choreography with their own life experiences, and while comparing these individual analyses give a sense of the collection of experiences a piece triggers, these responses do not describe the choreography itself. This being said, gathering audience response to performance is commonly used as a tool for expanding the knowledge surrounding performance practices.

Renee Glass, Kate Stevens, and Stephen Malloch have developed a survey called the *Audience Response Tool* (ART), which measures cognitive, emotional, and affective responses to contemporary dance. It consists of both open-ended and closed questions and provided qualitative and quantitative data. Glass, Stevens, and Malloch developed and refined this survey for dance works *Red Rain* by Anna Smith and *Fine Line Terrain* by Sue Healey. The questions that used rating scales were quick to complete, but did not indicate the aspects of the choreography that caused the specific response—only that the response occurred. Open-ended questions gave the audience members more freedom to discuss

their experience in relationship to specific choreographic moments, but this was time consuming for the viewers and resulted in less concrete statistical analysis.

Kim Vincs writes about audience response surveys and important concepts to ask the viewers to maximize results. She suggests inquiring about the complexity of choreographic structures and layers of content, dynamic shifts in expectation, and moments of being drawn-in or compelled by the work. Her advice is helpful to presenting organizations that use surveys to gage how supplemental material influences the viewers' experience. The study *Assessing the Intrinsic Impacts of a Live Performance* uses surveys to research how preparation for viewing a work, such as lectures and written program information, contextualize and change the viewing experience. In this study, researchers gave each viewer a survey before the performance to assess their initial mental and emotional state and then a second survey was completed by each viewer after the performance and returned via mail.

The manual *Capturing the audience experience: A handbook for the theater* advises theater organizations on how to most effectively survey their audience members. Written in an accessible tone, it includes survey templates, guidelines on the most effective ways to administer surveys, and information about how to analyze the data gathered. These surveys use five subcategories, which combine to form the overall evaluation: (1) engagement and concentration, (2) learning and challenge, (3) energy and tension, (4) shared experience and atmosphere, and (5) personal resonance and emotional connection. Many of the templates in this handbook, along with flow charts depicting emotional and interpretational responses created by Renee Glass and compositional qualities proposed by Valerie Preston-Dunlop, served as inspiration for the surveys used in my study.

Post-performance behavior is paramount in the way a piece is viewed. The impact of a dance piece occurs not only during the performance but also in the conversations following the work and as the viewers reflect on the viewing experience over time. Audience members' collective engagement with a piece to uncover new understandings is highly-regarded by Radbourne *et al.* who believe "the co-presence of others in the venue and, sometimes, the ability to discuss the performance afterwards can be significant factors in heightening the audience experience" (9). Connor agrees that discussion can significantly enhance the understanding a performance, and she advocates for post-performance Arts Talks to facilitate a deeper experience for the viewers. She argues that increasing digital technology could help facilitate these conversations.

Measuring the viewers' response to the work immediately after the piece ends yields a close approximation of their experience during the performance and gages individual analysis to the work before discourse modifies individual interpretation. However, imitate surveying does not encompass the broader impact of the piece after engaging in dialogue. Some studies have been done with hand held portable devices, which allow viewers to respond to a work as it is happening. Emery Schubert, Kim Vincs, and Catherine Stevens, among others, research continual response to performance using *portable Audience Response Facility* (pARF) devices. On these devices, viewers continuously record their level of engagement as they watch by moving a stylus horizontally across a scale from zero to ten with zero being completely unengaged and ten being complete engaged. Motion capture and video analysis of the pieces along with questions asked to the viewers post-performance allowed connections to be made between level of engagement and the choreographic moments themselves.

I find continual response problematic because if the viewer is truly engaged in the work, they might forget to change their response until they are less engaged again, causing the responses to not align with the video or motion capture. For these reasons, I decided to use rating-scale questions influenced by these theories and case studies on surveys administered to audience members directly following each piece. I understood that I was measuring an approximation to their experience during the work and not their impact after discourse with other viewers. Immediate surveying allowed me to determine the variation in response among viewers before opinions of the work combined and developed.

Section 5: Summary

The values of individual creativity, collaboration, and geographically distributed participation shared by devising practices and the digital age suggest that, although removing the embodied liveness of dance, devising practices and the digital age are compatible. The case studies and theoretical scholarship presented in this chapter indicate that many scholars and choreographers have recognized the possible benefits of digitization to the choreographic process or performance. To contribute to the research on the intersection of dance and technology, I conducted a controlled, empirical investigation to understand the benefits and consequences of digitally-mediated choreographic collaboration. This comparative study analyzed and compared the process experience, composition, and post performance audience response between in-person and remote choreographic processes.

Methods

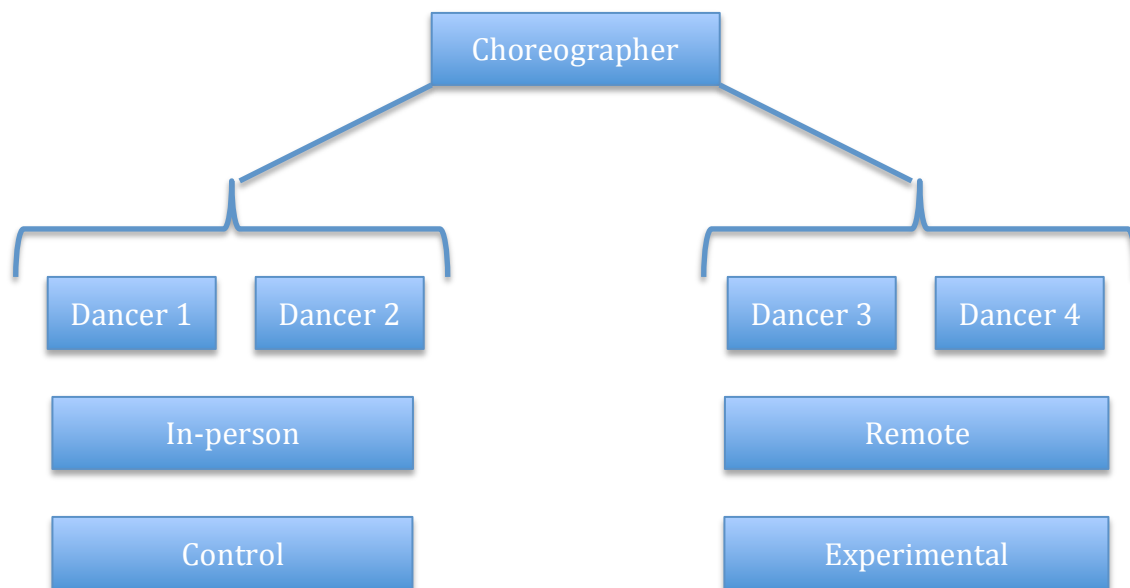
Section 1: Casting

In this study,⁵ a choreographer created two duets within a single period of time: one with all three participants (the choreographer and both dancers) physically present in the same rehearsal space for every part of the creative process and one with all three participants never in the same shared physical space until the final technical rehearsal, dress rehearsal, and performance. This experimental design required four dancers: two for the in-person and two for the remote duet (see Figure 1). I made all casting decisions to insure the choreographer was working with two duet groups that were similar to each other and would thrive in the process environment characterized by the choreographer's aesthetic.⁶ For example, if two of the four dancers had formal and extensive dance training and the other two were inexperienced, I placed one beginner with one experienced dancer rather than allowing the similar participants to work together. I considered other factors as well including willingness to take risks, movement quality, height, age, and gender. With the same choreographer leading both duets processes with similar dancers in each, the in-person group functioned as the control to which the remote group could be compared.

⁵ This study began in the beginning of September, 2016. The dancers and choreographers were all students at Colby College. Four choreographers and 16 dancers participated. All choreographers were Theater and Dance Majors / Minors. The dancers all had varying amounts of performance and physical movement experience because finding 16 students with similar dance backgrounds and work ethics—further controlling the study—was not possible.

⁶ *Section 1: Dance Devising* of the *Contextual Framework* chapter discusses the importance of dancers and choreographers choosing each other in devising processes. Choreographers being assigned dancers to work with was necessary for this project yet less ideal.

Figure 1: a schematic representation of the experimental design



I was not interested in studying one dance in isolation, but rather I looked at the differences in the process experience, composition, and audience response between the two pieces. The nature of using a collaborative devising process to create original work means even if no controllable variations existed between the two duet processes—same choreographer, same dancers, both pieces created using in-person rehearsals, same rehearsal studio—two distinct dances would be created with numerous unique qualities in the choreography. These intrinsic and desired variations in original work necessitated multiple trials. Given the number of dancers and choreographers available for this study, I was able to look at the differences between four choreographers' duets. Differences between in-person and remote duets that were present for all trials were likely to be related to the digital-mediation of the process.

Section 2: Controlled Rehearsal Process

To control for the in-person versus remote process variable, actions were taken to make each duet as similar to the others as possible, and having this project situated at Colby College made this especially achievable. The small Theater and Dance department ensured that all of the dancers and choreographers had similar mentorship and pedagogical influences in dance situated in academia. Also, with only one dance studio and one directing studio housed in the same building, choreographers who wanted to use studio spaces for either in-person rehearsals or for their remote dancers had limited options, further controlling for variations in physical rehearsal environment.

All eight duets were in-process during the same two-month period of time. Preventing the dances from influencing each other during the process was vital. The dancers and choreographers were not told who was cast in each piece, and the dancers did not know that any other dances were being created besides their own. In the remote duets, no discussion of the process was allowed between the participants in-person to simulate a geographically distributed process while situated on a small college campus. Additionally, the choreographers were asked not to speak with each other about their processes, especially when problem solving the challenges of working remotely. The lack of communication between choreographers was important to allow each choreographer to discover a digitally-mediated methodology independently of the others.

To begin the process, I sent a personalized email to each duet group informing the choreographer and dancers that they would be working together.⁷ All choreographers and dancers signed an Institutional Review Board approved contract / consent form. These

⁷ These emails were sent on October 2nd, 2016.

forms were different for remote and in-person dancers and included general rules to follow (see Appendix). From this point forward, the choreographers were in contact with their duet groups separately about scheduling space and rehearsal time. The specifics of how each piece was to be made, what spaces could be used, how often rehearsals should happen, and how collaborative the process would be were left to the choreographer's discretion. If a choreographer had a question, or a dancer asked the choreographer something they did not know, I was emailed and my response was sent to every participant (all blind carbon copied) so that everyone continued receiving the same information about the project. In my emails, I would not indicate that someone asked a question because if the question did not apply to one dance's process, the two dancers could guess that other dances were being created. Rather, I would phrase the emails to imply that I was the one who thought of the clarifying point. Dancers or choreographers who requested rehearsal space, in either group, were given the time they needed in the space they requested. Studio space was an option for all dancers, but not all chose to use this resource. No additional process rules or requirements, besides working entirely in-person or remotely, were to be given the dancers or choreographers.

With one week of rehearsals left, I informed the choreographers that their pieces should be four to six minutes long. They were not told about this length at the beginning of the process to encourage them to generate a surplus of content to condense through editing, rather than make just enough material to fill the time. After almost two months, all rehearsals, both in-person and remote, ended in preparation for technical rehearsals and

performance.⁸ Having a clear start and stop day allowed each choreographer to have the same number of days when working remotely and in-person, further equalizing the processes.

Section 3: Technical and Dress Rehearsals

Each piece was given a private 30-minute technical rehearsal in which the choreographer and two dancers could solidify their piece in the performance space. This rehearsal was the first time in which the remote dancers and choreographer worked together in a shared physical space. The dancers and choreographers were not told where the performance space would be until each dance's technical rehearsal time to prevent the in-person dancers from knowingly and purposefully rehearsing in this space, giving them an advantage to the remote dances. This also simulated Honor and T'ai's work in which the dancers, each present in their own physical space during the process, perform in a new location unfamiliar to either dancer.

During the week of technical and dress rehearsals, additional rehearsals outside of the scheduled times were forbidden for each duet. This prevented remote dancers from working with each other and their choreographer in-person more than during their 30-minute rehearsal time, disabling them from modifying their dance after learning about the performance space or making changes to the remote choreography after experiencing it in-person. It was important for the remote pieces to show what the process produced, not what they were capable of altering quickly in-person.

⁸ Due to Colby College's Thanksgiving break, there were no rehearsals between November 20th, 2016 and technical rehearsals beginning November 28th, 2016.

Section 4: Performance

The performance, titled *RICOCHET*, had two versions, *Show A* and *Show B*. The eight dances were split up between these shows, each of which happened twice with the order of dances being reversed each time. The dancers were viewed in relation to the previous pieces, so this reordering allowed each dance to be preceded by a different piece in both shows, helping to remove this influence from the results. Splitting the pieces between two performances also helped to keep each show short, preventing audience respondents from answering questions arbitrarily and apathetically after seeing many pieces in one sitting.

The shows were organized as follows:

TABLE 1: organization of the dances in *RICOCHET*

Choreographer	Process	Piece code ⁹	Show	Order in first show	Order in second show
1	In-person	10	A	1	4
2	In-person	20	B	4	1
3	In-person	30	A	3	2
4	In-person	40	B	2	3
1	Remote	11	B	3	2
2	Remote	21	A	2	3
3	Remote	31	B	1	4
4	Remote	41	A	4	1

Directly before the first performance of *Show A* and of *Show B*, there was a company meeting followed by a dress rehearsal in which the transitions between pieces were established and the dancers met those performing in their same show for the first time. Dancers were asked in the meeting not to share any information about their process with the other dancers while waiting backstage. The dancers in *Show A* were never given

⁹ The piece code represents both the choreographer and process. The number in the tens place (1, 2, 3, or 4) corresponds to the choreographer number. The number in the ones place is “0” for in-person dances and “1” for remote dances.

information about *Show B*, and the same held true for *Show B*. The dancers were not allowed to watch the other duets to prevent unintended alterations in their performance from being influenced by the other works. However, the choreographers were asked to be in the studio during all performances to assist with prop changes, music cues, and to act as ushers in seating and handing out surveys. Because the choreographers were not allowed to rehearse with their dancers prior to and following each technical rehearsal time, the influence of the other duets on each choreographer could not result in changes to their choreography.

Figure 2: an image of Choreographer 1's in-person piece from the first performance of *Show A*



Section 5: Evaluation

Throughout the study, I implemented multiple evaluative measures. These measures targeted the dancer and choreographer experience in the creative process over time, the composition of the dances, the audience response to each work, and the dancer

and choreographer's reflections on the process after the performances. None of the dancers or choreographers knew details of the audience survey questions, choreographic elements that would be studied, or details about process surveys other than the questions on the survey each participant individually took. This prevented choreographers from catering to these questions in their decision-making.

Dancer and Choreographer Process Surveys

Throughout the process, the choreographers and dancers each individually completed a survey at seven points in the process to track differences in the choreographic process when working remotely versus in-person. The first six completions occurred before in-person technical rehearsals began, and the seventh was taken after the final dress rehearsal. The survey was the same for all choreographers and asked the same set of questions first about their in-person duet and then about their remote duet. It also asked about the influence that one process had on the other that week. The dancer survey was the same for all dancers, regardless if they were working in-person or remotely. The dancer and choreographer surveys were created on Google Forms and were able to be repeated multiple times without the ability to edit their previous submissions. Typically the survey link was emailed to the participants before 7:30 a.m. and was to be completed before midnight that night to insure that everyone completed it within the same calendar day. See the Appendix for copies of the surveys.

Dancer and Choreographer Reflection Interviews

After all performances were finished, I told the dancers about the scope of the research, including the fact that some dances were made in-person and other were made remotely. The dancers also learned that their choreographer had simultaneously made a second dance—this surprised many dancers. Knowing this information and being free to ask questions and speak freely, I interviewed the performers in each piece with their duet partner, but not with their choreographer present to encourage openness and honesty. In these conversations, I learned about their process, experience working with their choreographer, and reflections of the performance. I asked them about frustrations, surprises, successes, and what they would change if they were to repeat their method of working again. I also conducted a group interview with the four choreographers to discuss both of their duets and their experiences working remotely in contrast to the more usual way of creating dance in an in-person setting.

Compositional Evaluation

Prior to the performances, I mounted a GoPro camera on the wall directly opposite the performance space to capture the entirety of each duet straight-on. I used the GoPro's linear mode to remove wide-angle distortion. The camera was attached to a mount such that it could be removed and reinstalled between shows, keeping the exact angle and orientation for synchronicity in evaluation. Before the performance, I used theatrical spike tape to mark an evenly spaced three-by-three grid on the dance floor. Using the camera in its mount, I filmed the grid for a few seconds and took a still image from this video. I edited the image to make the tapelines brighter and overlaid each video with the grid image

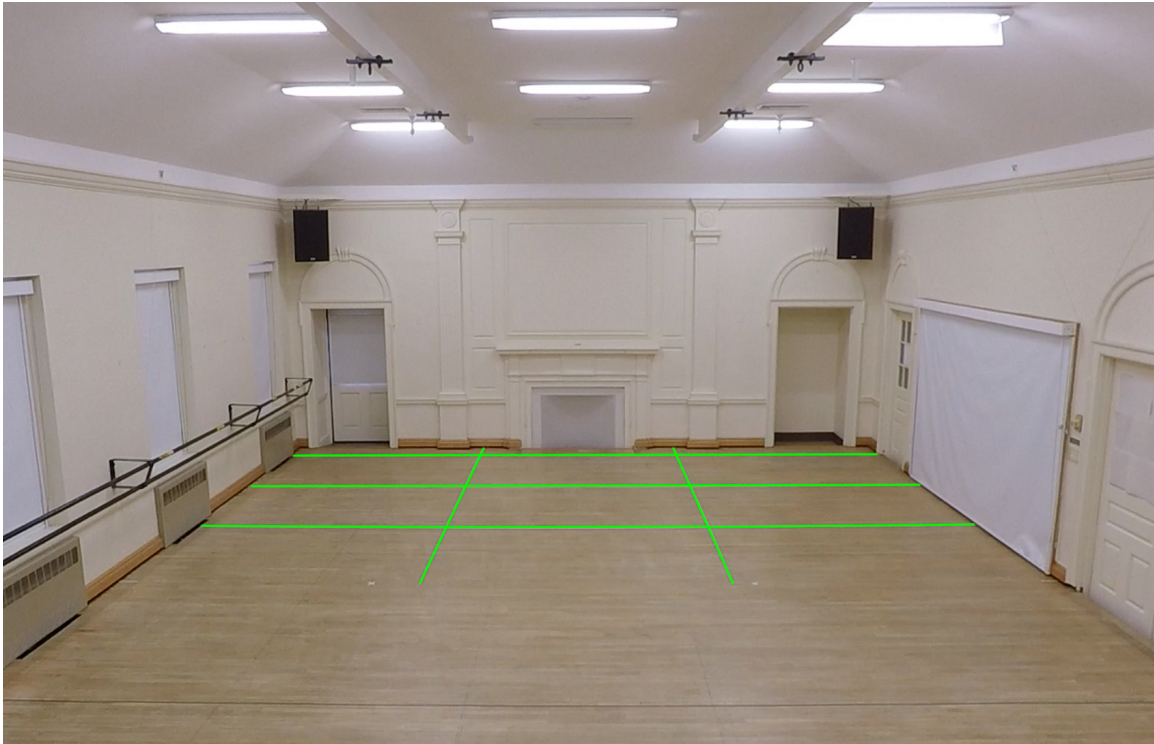
superimposing the floor sections on each duet. This allowed for the frequency that each area of space was used in each duet to be calculated. See Figure 2 for an image of the taped grid and Figure 3 for the enhanced version. This grid was removed before the performances so that the geometric tape pattern wouldn't cause the dancers to alter their use of space. These videos were imported as documents into the computer program *ATLAS.ti*¹⁰ for analysis.

Figure 3: an image of the tape grid used for compositional analysis



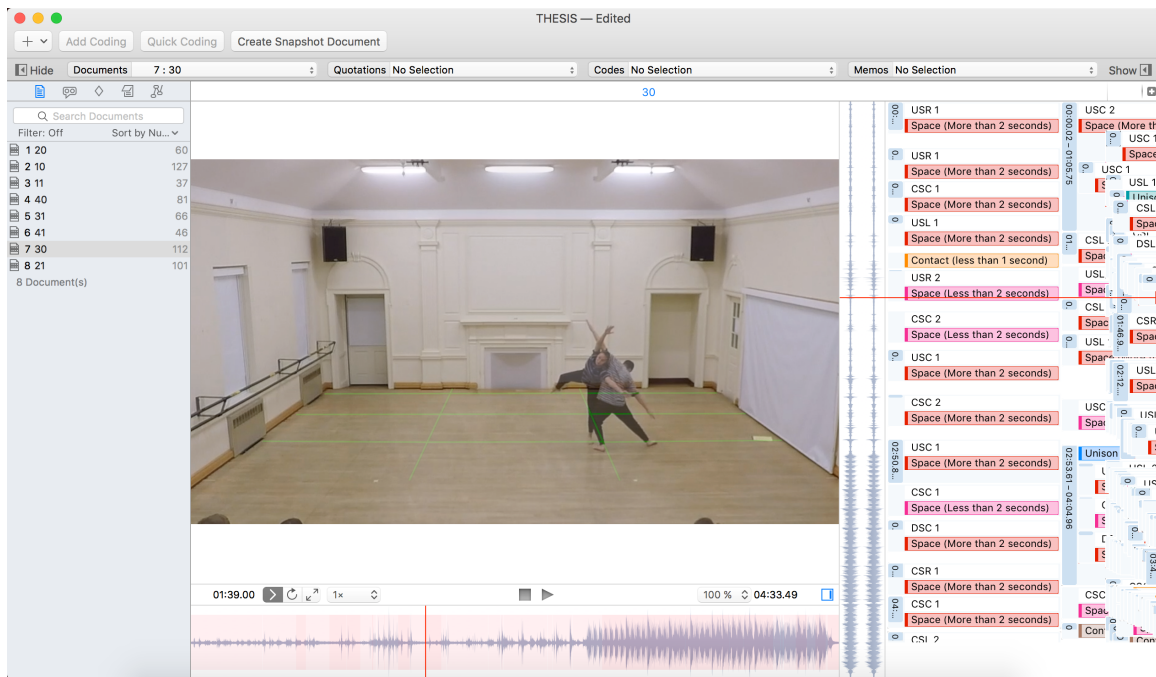
¹⁰ *ATLAS.ti* is a qualitative analysis program used for large bodies of textual, graphical, audio, or video data. It allows, in this case, videos to be slowly viewed and tagged for qualities at specific moments. In this program, the tags are called “quotations” and the categories of these quotations are called “codes.”

Figure 4: an image of the grid after digital editing



The eight video documents were coded for the following compositional qualities: (1) contact less than one second, (2) contact between one and six seconds, (3) contact for more than six seconds, (4) moments spent in each of the nine coordinates of space for less than two seconds for each dancer, (5) moments spent in these coordinates for more than two seconds for each dancer, (6) unison less than 10 seconds, (7) unison between 10 seconds and 20 seconds, (8) unison between 20 seconds and one minute, and (9) unison for more than one minute. The videos were manually viewed at approximately $\frac{1}{4}$ their normal playing speed so that each quotation could start and end at with these compositional occurrences as accurately as possible. In total, 630 quotations were created to analyze these dances. Figure 5 shows a screenshot of the quotation and coding process.

Figure 5: a screenshot of *ATLAS.ti* showing the document in the middle and coded quotations on the right



ATLAS.ti visually represented this data as graphic webs called networks, showing the connection between document (each video), quotation (selection of a video with specific quality), and code (description of the quotation). This provided an easy way to determine the total number of quotations in each dance falling in the categories listed above, creating a compositional footprint for each duet. Figures 6, 7, and 8 show screenshot examples of the networks created for space, unison and contact. See the Appendix for all finalized networks.

Figure 6: a screenshot of a space network for Dancer 2 in Choreographer 4's in-person duet

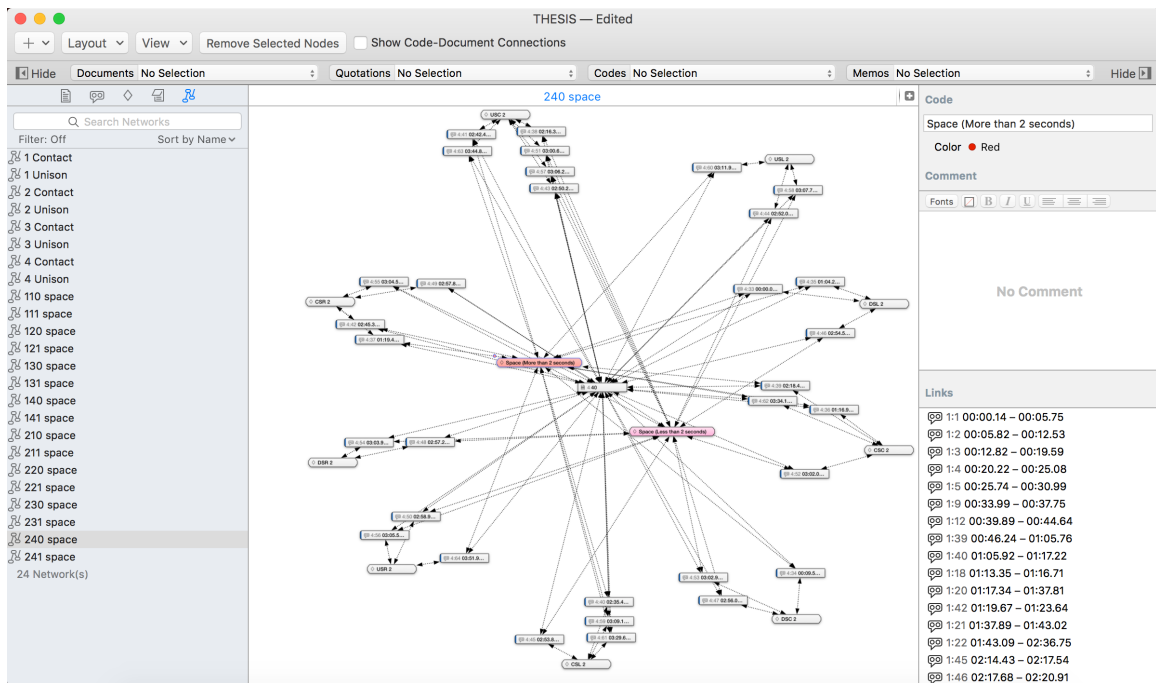


Figure 7: a screenshot of a unison network for Choreographer 1's in-person duet on the left and remote duet on the right

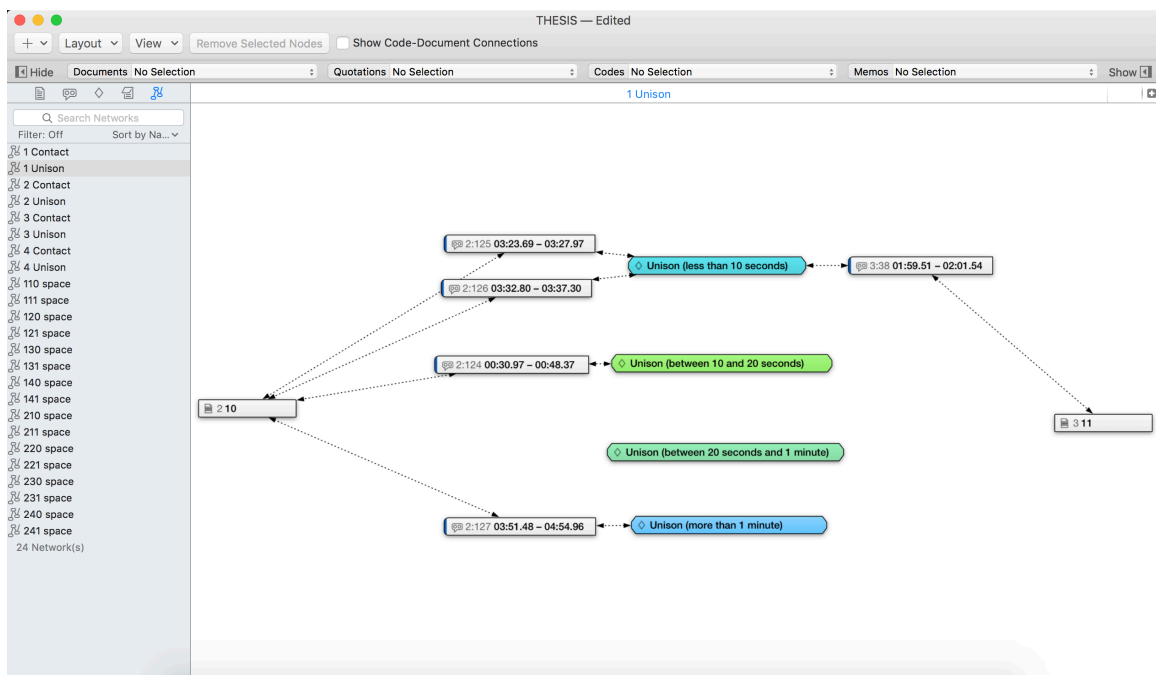
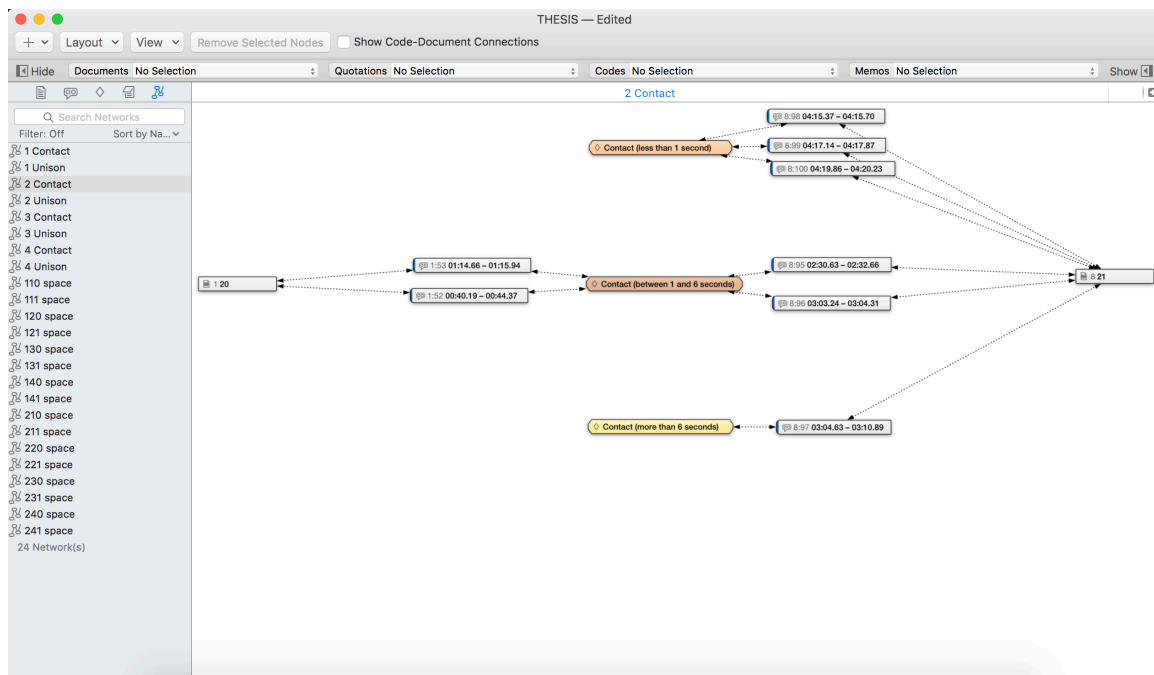


Figure 8: a screenshot of a contact network for Choreographer 2's in-person duet on the left and remote duet on the right



Additional compositional qualities were observable without the use of *ATLAS.ti*. These qualities included length of the dance, presence of objects or physical structures in the choreography, use of spoken text in the piece, and presence of pre-recorded music at the start, end, or any time in the middle of the piece. Unlike the detailed compositional analysis performed in *ATLAS.ti*, I only indicated the presence or absence of these more recognizable qualities for all duets.

Audience Response Surveys

As audience members arrived before the performance, they signed an Institutional Review Board approved consent form and were handed a pen and survey as they entered the performance space. Before each show, I explained the format of the event—viewers

would see four pieces, and following each one, they would complete survey questions. These questions asked about agreement to a series of statements focusing on subjective opinion in opposition to the objective, intrinsic qualities measured in the compositional analysis. Audience members were asked to not fill out the surveys during the piece but rather were given as much time as necessary between pieces to complete them. The title of each piece was the only information given to the viewers prior to the dance, and the titles were also printed above each set of questions to insure that the responses corresponded to the correct duet. The first page of the survey asked respondents for their age, the number of dance performances they had seen in the past year, if they consider themselves a dancer and / or choreographer, if they knew anything about how the dances were created, and all except the first show asked if they had attended previous performances of *RICOCHE*T. This allowed me to remove viewers who knew “a lot” about how the pieces were created and viewers who were seeing the same pieces a second time. See the Appendix for the audience consent form, cover sheet, and survey questions.

Section 5: Data Analysis

All of these measurement tools—process surveys, compositional analysis using *ATLAS.ti*, audience response surveys, and interviews with the dancers and choreographers—provided copious amounts of data. The data from each of these evaluations was compiled in *Excel* and exported to *Stata 13* where it was tabulated and summarized. Statistical tests, when applicable, were performed to better understand the

relationship between group—being remote or in-person—and survey response. A further discussion of data analysis methods accompanies the results in the next chapter.

Results

Section 1: Dancer Process Surveys

Each dancer survey question had three possible responses, “yes,” “no,” or “N/A.” The results were tabulated and displayed as group (in-person or remote) versus question for each of the survey completions. When a survey is taken repetitively within a short period of time, respondents can become less careful, leading to inaccurate variation in results. For this reason, and because some groups had less rehearsals one week and more the next, only Surveys 1, 6, and 7 were analyzed.¹¹ Below are two tables of the questions asked on the survey and the result distribution for all dancers in both working modes.

TABLE 2: dancer process survey questions

Question Number:	Statement: n=16	% yes Survey 1	% yes Survey 6	% yes Survey 7
Q1:	There were moments this week when a prompt or assignment given to me by my choreographer allowed me to make some of my own choices.	100%	75%	37.5%
Q2:	The majority of my rehearsal process this week seemed new/unfamiliar to me.	62.5%	18.75%	25%
Q3:	My choreographer asked me to participate in ways that made me feel uncomfortable.	12.5%	6.25%	18.75%
Q4:	My rehearsal schedule this week fit well with my other time commitments.	87.5%	81.25%	87.5%
Q5:	My choreographer asked me to participate in ways that made me feel confident.	68.75%	93.75%	75%
Q6:	My choreographer provided lots of information when describing assignments for me to complete.	43.75%	62.5%	50%
Q7:	I felt stressed making time for this project this week.	18.75%	12.5%	6.25%
Q8:	I feel like a co-author of the piece that we are making.	68.75%	100%	75%
Q9:	We produced a large amount of material this week.	37.5%	37.5%	18.75%

¹¹ As mentioned in *Methods*, Survey 1 was taken after the first week of rehearsals, Survey 6 was taken after the last week of rehearsals, and Survey 7 was taken after technical and dress rehearsals when remote dancers worked in-person for the first time.

Q10:	I felt that my ideas or concerns were well-received and responded to by my choreographer and duet partner.	68.75%	37.5%	81.25%
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TABLE 3: dancer process survey questions

Question number:	Question:	Lowest option:	Highest option:	Median Survey 1:	Median Survey 6:
Q11:	My choreographer and I are...	1: Complete strangers	6: Close on a personal level	2.5	4
Q12:	My duet partner and I are...	1: Complete strangers	6: Close on a personal level	2.5	4
Q13:	Overall, how satisfied with your experience were you this week?	1: Very unsatisfied	4: Very satisfied	3	4

For all questions, dancers were asked to respond with regard to only their rehearsals that occurred since the last survey they took, rather than the whole process up until that point. The results from the first ten questions are displayed in two ways: (1) difference in response on Survey 1 and Survey 6 showing change over time displayed for both remote and in-person dancers (see Table 4) and (2) difference in responses between remote and in-person dancers displayed for Surveys 1, 6, and 7 (see Table 5).

TABLE 4: difference in response over time

	Yes		No		NA	
	In-person	Remote	In-person	Remote	In-person	Remote
Q1:	-3	-1	2	0	1	1
Q2:	-4	-3	4	5	0	-2
Q3:	-2	1	2	2	0	-3
Q4:	-1	0	2	0	-1	0
Q5:	1	3	-1	0	0	-3
Q6:	2	1	-4	-3	2	2
Q7:	0	-1	0	1	0	0
Q8:	1	4	0	-2	-1	-2
Q9:	-3	3	2	-2	1	-1
Q10:	0	4	0	0	0	-4

For each question, the number of in-person dancers who selected “yes” for each question on Survey 1 was subtracted from the number who selected “yes” on Survey 6. The same process was done for remote dancers and for the other survey options, “no” and “NA.” The positive values show that more dancers selected “yes,” “no,” or “NA” at the end of the process than at the beginning—responses accumulated over time. Negative values show that the number of responses decreased over time. For example, the first numerical value in the Q1 row, the -3, indicates that 3 fewer in-person dancers selected yes on Survey 6 than Survey 1. Q1 stated, “There were moments this week when a prompt or assignment given to me by my choreographer allowed me to make some of my own choices.” So, 3 more in-person dancers felt that there were moments when they had agency at the beginning of the process than at the end. When looking at change over time for the remote process with regards to this question, only 1 fewer respondents selected “yes” on Survey 6 than Survey 1 showing that individual contribution was more consistent over time when working remotely than when working in-person. All of the values in Table 4 can be interpreted in this way.

As well as calculating process experience change over time and comparing these results between remote and in-person groups, the difference in number of “yes” responses between in-person and remote processes was calculated for Surveys 1, 6, and 7 to see for which surveys questions and for which point in the process the experience for both groups were similar and different. These results are displayed in Table 5.

TABLE 5: difference in response between processes

	<i>Survey 1</i>	<i>Survey 6</i>	<i>Survey 7</i>
Q1:	0	2	0
Q2:	0	1	4
Q3:	-2	1	3
Q4:	0	1	-2
Q5:	-3	-1	-2
Q6:	1	0	2
Q7:	-1	-2	-1
Q8:	-3	0	-2
Q9:	-4	2	1
Q10:	-5	-1	-1

The number of respondents who selected “yes” in the in-person group was subtracted from the number of respondents in the remote group. So, positive values indicate more remote respondents than in-person. For example, Q1 on Survey 1 yielded the same number of “yes” responses from in-person and remote dancers. By Survey 6, however, two more remote dancers than in-person selected “yes” for this question. So, in the beginning, the same percentage of in-person and remote dancers felt there were moments when they were allowed to make choices. Moving the process to a remote site didn’t change this experience. By the end, more remote dancers felt they were making choices than in-person dancers, showing, like in Table 4, more consistency in dancers agency through the process when working remotely.

The values in the next tables show the difference in remote and in-person responses for Q11 and Q12 and display these differences for Surveys 1, 6, and 7.

TABLE 6: difference in response between processes

Q11: Relationship between dancer and choreographer						
	1	2	3	4	5	6
<i>Survey 1</i>	2	0	1	-2	-1	0
<i>Survey 6</i>	1	0	1	2	-4	0
<i>Survey 7</i>	0	0	2	1	-3	0

TABLE 7: difference in response between processes

Q12: Relationship between dancer and duet partner						
	1	2	3	4	5	6
<i>Survey 1</i>	3	-1	-1	-1	0	0
<i>Survey 6</i>	2	1	-2	1	-2	0
<i>Survey 7</i>	1	2	0	1	-4	1

The bold numbers indicate the rating scale for these questions with 1 being “complete strangers” and 6 being “close on a personal level.” The values in Tables 6 and 7 were calculated by subtracting the number of in-person responses for each rating option on the scale from the number of remote responses for each option. Positive values had more responses from remote dancers than in-person dancers. For example, Table 7 shows that on Survey 1 three more remote dancers than in-person dancers selected “1” and one more in-person dancer than remote dancer selected “3”. After only one week of rehearsing, more remote dancers than in-person dancers felt that they were completely strangers with their duet partner.

Like Tables 6 and 7, the next table shows the difference in remote and in-person responses on Q13 for Surveys 1, 6, and 7. On the rating scale, the “1” represents “very unsatisfied” and the “4” represents “very satisfied.”

TABLE 8: difference in response between processes

Q13: overall satisfaction				
	1	2	3	4
<i>Survey 1</i>	0	0	1	-1
<i>Survey 6</i>	0	1	1	-2
<i>Survey 7</i>	0	1	-1	0

Positive values indicate more remote dancers than in-person dancers selected a specific level on the satisfaction scale on a survey, and the zeros show that the number of responses was the same for in-person and remote dancers. For example, on Survey 1, one more remote dancer selected “3” than in-person dancers, so it was slightly more common for remote dancers than in-person dancers to be “satisfied” after one week of rehearsals. However, on Survey 1, one more in-person dancer than remote dancer selected “4” so it was slightly more common for in-person dancers to be “very satisfied” at this point in time. See the Appendix for the percentage of dancers who selected “yes” for each question on Surveys 1, 6, and 7.

Section 2: Choreographer Process Surveys

Because the choreographers were each leading an in-person and remote process within the same two months, the first question of the choreographer survey (Q1) asked the participant to indicate how they perceived one process to be influencing the other (see Table 9). Then, they answered a series of questions for their in-person process followed by the same questions for their remote process. For these, they could select very unsatisfied, unsatisfied, satisfied, or very satisfied (see Table 10). The last question was also in both the in-person section of the survey and remote section and had a four-part rating scale (see

Table 11). The choreographer survey results were tabulated and displayed both as choreographer versus response and as group versus response. Below is a description of the questions asked on the choreographer surveys.

TABLE 9: choreographer process survey question

Q1:	Did you find that your remote and in-person processes influenced each other this week?	
Responses:	1.	Yes, my in-person process was influenced by my remote process
	2.	Yes, my remote process was influenced by my in-person process
	3.	Yes, my remote and in-person processes influenced each other equally
	4.	No, my two processes seemed completely independent of each other

TABLE 10: choreographer process survey questions

	Were you satisfied with...
Q2:	the dancer's interpretations of your choreographic prompts?
Q3:	the amount of progress you made on your piece this week?
Q4:	your ability to edit and craft your dancers' movement appropriately for your process?
Q5:	the dancers' quality of participation?

TABLE 11: choreographer process survey question

		Lower option	Upper option
Q6:	Were you surprised by what was created this week?	Not surprised at all	Very surprised

Table 12 shows the distribution of choreographer responses on Surveys 1, 6, and 7 for Q1. The data shows that over the course of the process, the two pieces become more independent of each other because after one week of rehearsals, none of the choreographers thought the two processes were completely independent of each other, but by Surveys 6 and 7, three of the four choreographers felt there was no influence between the two pieces.

TABLE 12: choreographer proces survey results for question 1

Q1:	Yes, my in-person process was influenced by my remote process	Yes, my remote process was influenced by my in-person process	Yes, my remote and in-person processes influenced each other equally	No, my two processes seemed completely independent of each other
<i>Survey 1:</i>	2	1	1	
<i>Survey 6:</i>		1		3
<i>Survey 7:</i>			1	3

Questions 2 through 5 asked about satisfaction and question 6 asked about surprised. The number of choreographer responses that were either satisfied or surprised for in-person dances was subtracted from for remote dances. Table 13 shows these differences for Surveys 1, 6, and 7.

TABLE 13: difference in response between groups

	Survey 1	Survey 6	Survey 7
Satisfied			
Q2:	0	0	0
Q3:	0	-1	0
Q4:	-1	-1	0
Q5:	1	0	0
Surprised			
Q6:	0	-1	2

The positive values indicate that more choreographer responses indicated satisfaction or surprise regarding their remote piece than their in-person piece, and the zeros show that the same number of satisfied or surprised responses were recorded concerning both remote and in-person dances. For example, on Survey 1, there was one more in-person response than remote responses indicating satisfaction with the choreographer's ability to edit and craft the dancers' movement appropriately for the

process (Q4). So, three of the four choreographers felt that when working in-person and remotely, their experience editing and crafting movement was the same; either they found both satisfying or both unsatisfying. But, one choreographer selected a different response between their two pieces, and they were satisfied in-person but unsatisfied when working remotely. All of the numerical results in Table 13 can be analyzed in the same way as Q4 of Survey 1 was just demonstrated. The Appendix includes tables showing the percentage of responses for each question on Surveys 1, 6, and 7.

Section 3: Dancer Reflection Interviews

Choreographer 1 rehearsed with her in-person group once a week, each time for two hours. During the process, the dancers were asked to generate material using a variety of prompts. They made a duet without speaking, used an exercise ball to create a movement phrase, and made movement based on personal writings about identity and memory. Choreographer 1 also taught movement to the in-person dancers, and this frustrated them because they felt that, ultimately, the choreographer preferred the movement that was taught to what the dancers created. They were also less connected to this material because they didn't understand where it came from. Towards the end of the process, Choreographer 1 became interested in site specificity and architecture. Because she didn't know where the piece would be performed, and hence the architecture of the space, she decided to use seven black rehearsal blocks in the piece to alter the space. These were introduced for the first time during the 30-minute technical rehearsal time.

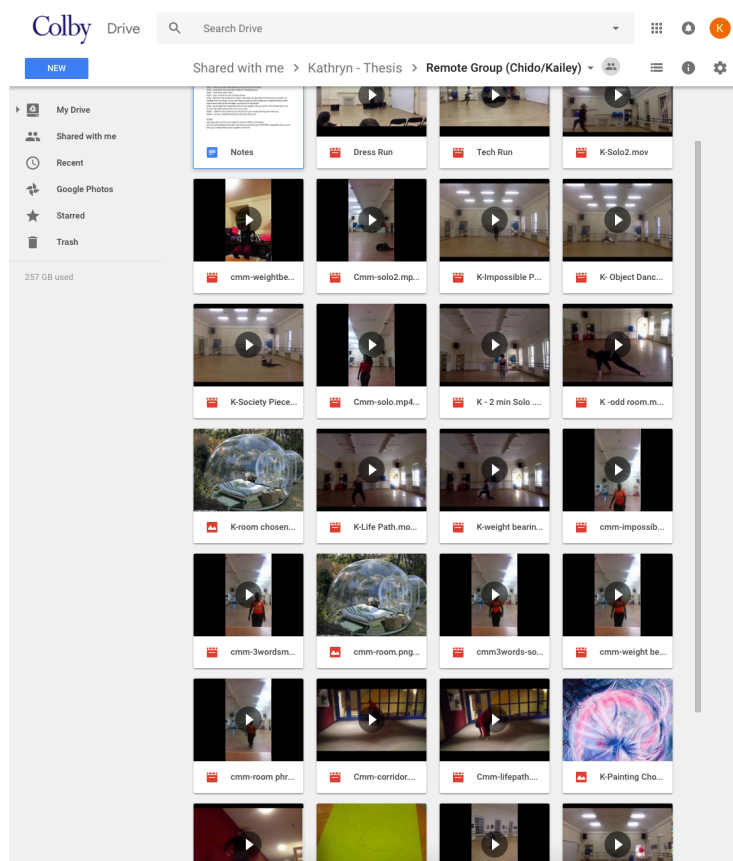
The dancers identified a quick and sudden shift in the piece with the introduction of the blocks because, until this point, they perceived the piece to be primarily about identity and memory, not creating physical structures. One dancer resented the blocks because she felt that the piece was nearly finished before the blocks arrived, and then they caused everything to change during the technical rehearsal. In the end, the first half of the piece only included movement Choreographer 1 created and, in the second half of the piece, one of the dancers built structures and spaces by sliding the blocks to different locations while the other dancer interacted with these new levels. The dancer who rearranged the blocks wished the piece included more of the material that she generated during the process and was frustrated that the majority of what she performed was re-arrange blocks, which seemed to be arbitrarily added in the end.

Both dancers wished there had been more time to make the piece. However, while one dancer wished there were more rehearsals each week, the other was satisfied with the time commitment, but would have preferred the show to be later. Both dancers mentioned a long rehearsal towards the end of the process that was more helpful than their frequent short rehearsals in assembling the fragments of movement content into a larger structure.

Similar frustrations due to lack of communication were seen in Choreographer 1's remote dance. The remote process began with Choreographer 1 calling each dancer individually to learn about each of their interests, personality, and prior dance experience. Each week, the dancers received an email outlining their assignments, which they described as being vague and open-ended. Not knowing exactly what the choreographer was looking for them to produce caused the dancers to lack confidence in their work and made it difficult for them to motivate themselves to do the assignments. Similarly to

Choreographer 1's in-person process, most of the movement generation prompts asked the dancers to incorporate personal narrative, memory, and identity. The dancers rarely received corrections, comments, or feedback on their previous assignments before being asked to change what they previously submitted or create something completely new. The dancers found it hard to know if they were on the right track, or if their work was being viewed at all. They had trouble figuring out where the piece was going, and usually didn't understand what inspired each assignment each week.

Figure 9: a screenshot of Choreographer 1's database of process videos for her remote duet



Throughout the process, both remote dancers were not asked to view material the other partner had submitted, causing their individual creations to not be altered or

influenced by their partner's work. For this reason, they each felt like they were creating a solo and they wondered if their material would mix well together at the end. Both dancers felt they were the choreographers of the work with the choreographer function more as an advisor. The choreographer and both dancers never communicated with each other outside of receiving emails with assignments, and both dancers said this caused them to feel very isolated. By the end, the dancers could not see how the piece would come together, and began to describe the process as "feeling like a chore." During the technical rehearsal, six black blocks were introduced into the piece; the dancers could not explain why these were there. Choreographer 1 assembled all of the movement material into a piece that incorporated the blocks during their 30-minutes together.

Both dancers would have preferred working on the project if they were instructed to use the other person's videos as inspiration. This reciprocal communication would have allowed them to feel like their work had purpose. Additionally they cited the lack of feedback from the choreographer as the biggest frustration point in the process. The dancers claim that a remote process requires the choreographer to place extra effort on explaining their thought process behind the choreographic prompts and to acknowledge or praise the dancers' work after submitting material.

Half way through the process, both the dancers individually felt like they had enough material to put together a solo. However, they felt it was the choreographer's responsibility to shift the process from a material generation phase into a structuring and editing phase, and they found it tiring and anxiety provoking to wait and guess when she would assemble a piece as they got closer to the performance date. Both dancers referenced the moment in choreographic processes when the material starts to feel like a

dance, but neither dancer felt this turning point when working remotely. They suggested this shift might be even more important when working remotely because it would keep the dancers more energized by helping them sense how their independent work benefits the larger piece. Additionally, the dancers would recommend placing more emphasis on bonding between dancers remotely outside of rehearsal time when working this way. One dancer was interested in trying a remote process again taking these ideas into account, but the other dancer was hesitant to repeat this process.

Choreographer 2 began her in-person process by giving each dancer 15 minutes to make a solo; through this task she discovered how each dancer moved, thought, and created. One of the dancers, a first year, was initially uncomfortable in the process, but soon started to feel more at ease. Both dancers quickly realized that they had similar movement styles, and this made them feel comfortable working with each other. Early in the process, Choreographer 2 gave the dancers the assignment to make a phrase initiating movement with a list of body parts that she distributed, ultimately creating the movement of the beginning of the piece. While the dancers worked independently to create this movement, Choreographer 2 frequently provided feedback and crafted the movement execution and intention.

At some point in the process, one of the dancers wanted the movement to be more risky and challenging, so she suggested using the black blocks to introduce different vertical levels. Because the choreographer and one of the dancers had seen a piece the previous year at Colby using the same blocks, they intentionally tried to be innovative in their choreography with these structures to not accidentally reference this other choreographer's work. At the beginning of one rehearsal, the choreographer came in with

an order of material, and from that point forward, the process shifted away from material generation and towards editing and refining. They felt that the piece didn't have a narrative or story, but it did have three distinct sections. Music was added during the last session before their technical rehearsal. Both of the dancers wished that they had been given more information throughout the process, but were confident that the piece would come together in the end.

To begin her remote process, Choreographer 2 used the same body part initiation activity she used with her in-person duet. Using this method, the dancers generated phrases, which were filmed and sent to the choreographer. From this point forward, all rehearsals were synchronous and used 3-way video calling. In the first video call, the choreographer explored choreographic structures stemming from the dancer's body part phrases. She also used these video call rehearsals to teach new movement to the dancers. During the process of deciding spatial arrangements, one of the dancers started using a chair to represent where the other dancer was located. Chairs remained in the piece even once both dancers were physically present. During the process, the choreographer focused more on the use of space, energy, and shifts in performance quality rather than developing a movement vocabulary, and for this reason, the majority of the piece consisted of improvised scores rather than set phrases.

One challenge of working using video calling was determining which direction was left, right, front, or back in each space. Another challenge was to visualize and how the dancers how the movement looked with both dancers next to each other. To solve this, Choreographer 2 would line up the video call windows side by side on her computer screen and film her screen during the runs (see Figure 10). This was helpful for the dancers

because they would not see the other person's video while also dancing. The dancers also found it challenging to start sections of the piece simultaneously while being too far away from their computers to see if the other person was ready. They solved this by having a verbal cue to indicate when they were ready to go. These verbal cues were removed in the performance.

Figure 10: a screenshot of a video Choreographer 2 took of the video windows side-by-side to send to the dancers



Both dancers embraced the difficulties of the process with a sense of humor. One dancer described physically responding to the duet partner while improvising through use of auditory information to be comical. One of the dancers, who had a small amount of dance experience prior to this project, found it difficult to understand the choreographer's movement ideas because, without being physically present, she verbally described the movement using dance terminology he was unfamiliar with. In a physical space, he finds

being able to witness a three-dimensional version of the movement can compensate for the spoken descriptions, but over video calling, his singular vantage point made infused the terms with more import. Once the dancers came together during the technical rehearsal, many of the sensory challenges were resolved by being able to sense the duet partner while dancing, both where they were in the space and what movement they were doing

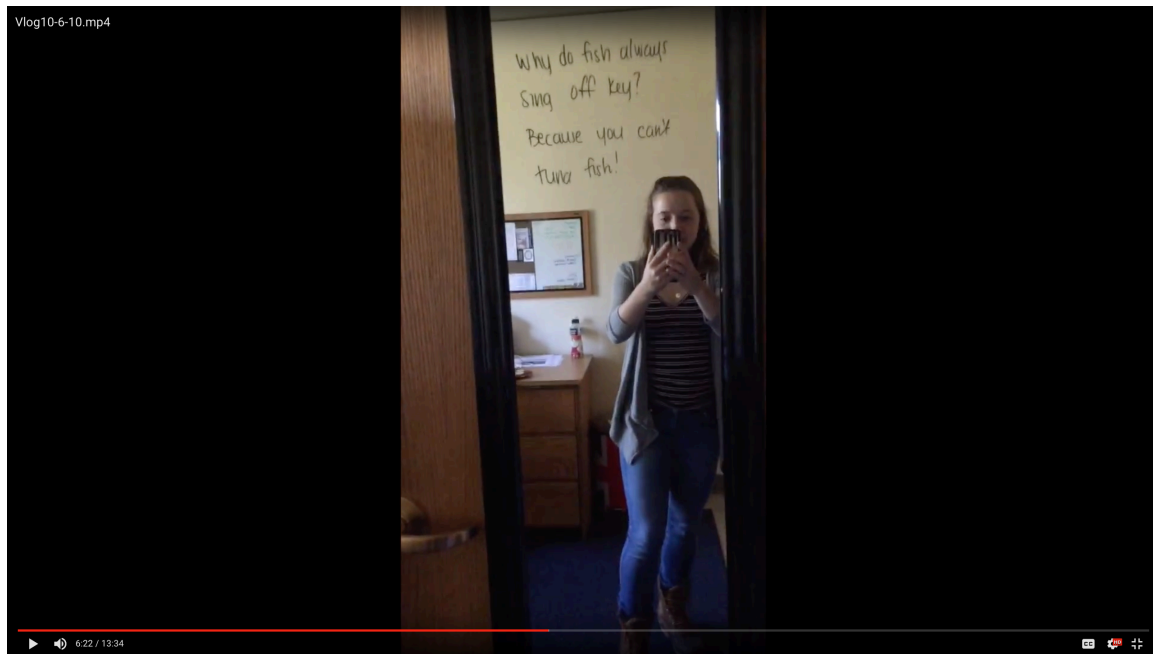
Choreographer 3 wanted her in-person piece to draw from each dancer's individuality and to result in a female-male duet depicting a platonic relationship. She started the process by having each dancer tell their life story. From this, the theme of religion came up as a commonality in all of their lives. They used verbal descriptions of smells to trigger personal memories and story telling while improvising to generate a movement vocabulary. One week, the dancers were asked to make a phrase that could be done in unison. This excited both dancers because of their extremely different movement histories; one dancer had formal ballet training and the other had no dance or athletic training. Towards the end of the process, Choreographer 3 set an order of the piece, which did not include everything they had made. From this point forward, they generated more material as necessary and rearranged the piece's order, editing the choreography.

Towards the end of the process, the dancers felt the piece was finished, but still wanted more information about the subtle intentionality of the movement vocabulary. They wanted more notes and feedback from the choreographer. One of the dancers who had never been in a devising process before initially did not understand why he was being asked to complete content generation assignments. This made him apathetic and frustrated. However, once the first version of the piece was assembled, he understood the process better and was more engaged in the rehearsals. The dancers felt that the piece was

ultimately about trying to be in someone else's body, understand someone else's life experiences, and find equality and gender neutrality.

Choreographer 3's remote dance had a similar emphasis on understanding someone else's personal experiences. The process started with each dancer being asked to make a vlog of their day and post it to a Google folder (see Figure 9). Next, both dancers were asked to film a video of them doing their favorite dance movements and add it to the Google folder. The duet partner responded by using the video of favorite movement that their duet partner created to generate a phrase of movement that would fit into the negative space surrounding the dancer in the video. This negative space phrase was also filmed and added to the Google folder. At other points in the process, Choreographer 3 selected moments from different videos that she was drawn to for the dancers to recreate and combine and distributed improvisational instructions for the dancers to use. Again, the dancers filmed and uploaded videos of all completed assignments. The dancers found time management in the process challenging. They found it difficult to decide when to work, where to work, and what music to use. Both dancers found Choreographer 3 to be encouraging and supportive, but they sometimes questioned if they were completing the tasks correctly while working alone.

Figure 11: a screenshot of the vlog that one dancer in Choreographer 3's remote dance uploaded.



A pivotal moment in the process was a video chat rehearsal using Google Hangout. This synchronous rehearsal helped the dancers understand how the work they had been doing would come together to make a dance piece. Both dancers felt that before the video call rehearsal, the process seemed slower because the feedback loop¹² between the dancers and choreographer was more stretched out than when working in person. They did not receive instant feedback from the choreographer so it took longer to accomplish the same amount of work. The dancers felt that the piece was made in equal collaboration between all three participants, but it was isolating not being in-person with the collaborators.

By the technical rehearsal, they felt very prepared because they had run the piece in Google Hangout many times already. They did not find it jarring to be in the space together because they had already felt like they were making the piece collectively, responding to

¹² See *Section 4: Process, Product, and Audience Response of Contextual Framework* for a description of the devising feedback loop as discussed by Sita Popat.

each other's video and learning each other's movement. The piece continued to stay fresh throughout technical and dress rehearsals because, while the use of space and proximity between dancers was predetermined before in-person rehearsals, being physically together created variation for the dancers to respond to in the moment. The dancers claimed that every moment in the piece was derived from the remote nature of the process, and the piece would have been drastically different if it had been made in-person. They found that the process allowed for more individuality because they only saw what the other person created after creating their own material in response to each assignment. They also noticed that their movement seemed different than they had envisioned it after watching their videos, allowing the material to be translated through video documentation before being recreated or responded to by the other participant. They found this way of working less stressful than in-person rehearsals because they could take the time they needed to present their best work. They were never asked to act quickly or think impulsively during a rehearsal. They believe that in a distributed process, it is impossible for the dancers to be put in an uncomfortable situation by the choreographer because the dancers can choose to interpret the assignments in a different way, select sections from the videos to share, or re-film entire assignments to distribute content to the choreographer and duet partner material they are comfortable showing.

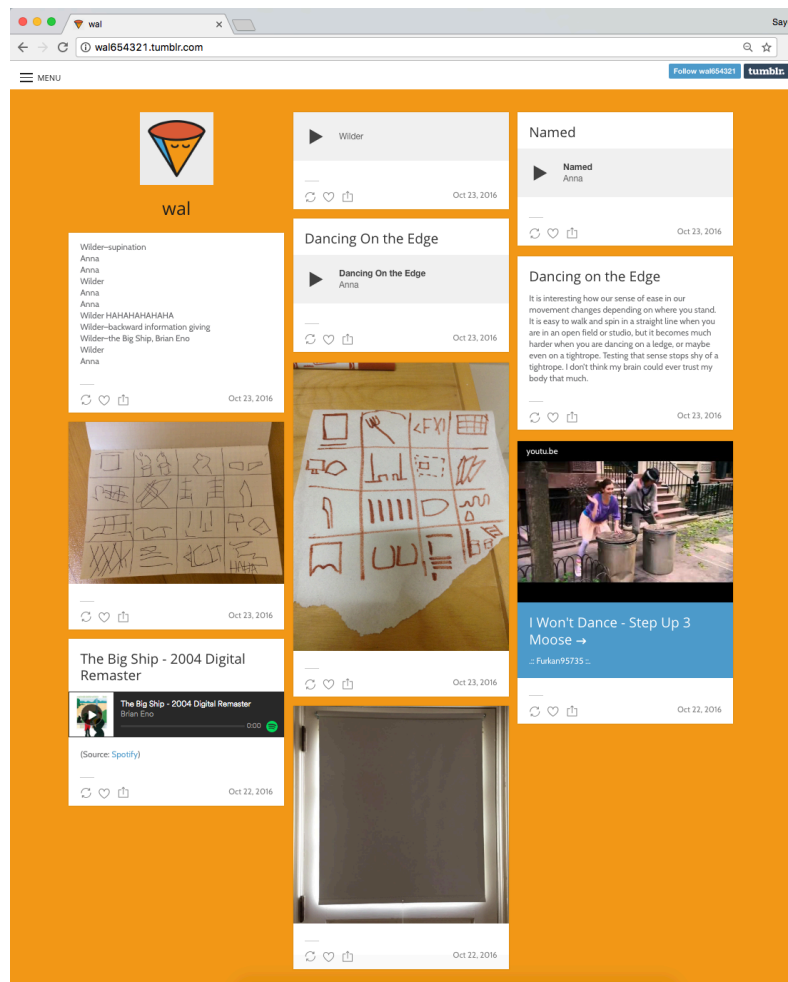
The dancers in Choreographer 4's in-person dance described her approach as being laid back. Throughout the process, the dancers were encouraged to develop close relationships with each other as people, in addition to dancers. One dancer who was very inexperienced appreciated that he was allowed to make his own choices and generate his own movement vocabulary because, before the process began, he was nervous about being

asked to perform commercialized contemporary dance movement that he was physically incapable of achieving. To begin creating the movement vocabulary of the piece, Choreographer 4 led a body part initiation exercise. At first, the inexperienced dancer was unsatisfied with the movement in the piece that he created, especially compared to the phrase created by his highly trained partner. However, after the 3rd week, he began to understand how it fit with the other movement that was going on and he began to see value in it. During the process, they assembled the material into multiple orders and edited each one to make it more concise, using this more refined version as an impetus for the next rehearsal. The themes of personal memories and identity became a through line of the work.

At some point in the process, the choreographer seemed satisfied with the order and movement. At that point, the dancers continued running the piece in rehearsals, but minimal changes were made. As they rehearsed the piece, the movement became faster and more fluid, making the whole piece shorter. By the performance, little time had been spent refining the transitions between moments, making the work feel segmented to the dancers. The dancers felt the generation phase of the process ended too early and began to lose interest in the piece by the performance. The dancers were happy with the process because they understood where the movement came from, why the choreographer was making different decisions, and how other elements such as costumes, text, and music, were selected. Everything felt like it organically developed from something else in the process, which they found satisfying. The choreographer coached movement throughout the process and frequently provided feedback and notes.

Choreographer 4's remote process used a variety of digital tools to generate material. Their group used a private Instagram account and each participant was asked to post at least one photo a day. These photos could reflect other parts of the process or simply be something the dancers were interested in sharing. The dancers felt adventurous and bold in posting and didn't hold back or feel self-conscious about their choices. From these posts, the dancers were each asked to write why they posted some of the photos. They wrote these explanations both for photos they posted and for photos posted by their duet partner. For these, wrote as if they had posted the photo creating fictitious, hypothetical text. They were also asked to generate movement influenced by the images and send these videos to the choreographer. The choreographer organized material she was interested in on a Tumblr page (see Figure 12). The dancers had weekly video call rehearsals, and in some of these, the dancers each used a different studio space. While the dancers cited these synchronous meetings as being important, they didn't think they transformed the piece or were completely necessary to the process given the other assignments being completed asynchronously as well.

Figure 12: a screenshot of Choreographer 4's Tumblr page organizing her remote duet material



Like the other remote duets, Choreographer 4 and her dancers struggled with the mirror image in video calls but not in recorded and uploaded video footage. This lack of continuity made it difficult to compose the space and understand where the dancers physically were in relationship to the physical architecture while rehearsing. When the dancers and choreographer came together during the technical rehearsal, the dancers noticed the process felt significantly faster. Small questions about facings or spacing were immediately solved, something which would have taken a significant amount of time when working remotely. This faster pace prevented the creative energy from fading as it

sometimes did in slower video calls. Additionally, the added pressure of only having 30-minutes could have caused the higher energy level.

The dancers described the remote process as slow and cumbersome. They described the challenge also seen in Choreographer 2's remote process where in order to see the duet partner dance, the other dancer had to be close to your computer preventing them from also dancing. When both dancers were working, they relied on the choreographer to describe to them how everything was functioning together. Both dancers contributed to the order of the piece, and one dancer proudly revealed that the spacing was her idea. Both dancers wished that there was partnering work or physical contact in the piece. The dancers felt that they didn't know each other very well once they came together during the technical rehearsal. Both dancers suggested that if this process were repeated, the inclusion of non-work related video calls would have been beneficial for developing relationships with one another. The dancers believe that play and socializing is an important part of the creative process that was missing from their piece. They believed that if they had known each other before the project, they might have been able to find a sense of play while working remotely.

During the technical rehearsal, the choreographer made a bold choice to change the text in the piece to reference a joke about the costumes; after arriving at their technical rehearsal and putting their costumes on, both dancers thought the colors made them look like hotdogs. Choreographer 4 found this compelling and change the text throughout the piece to include references to their costumes and hotdogs. The dancers felt that this did not organically come from the process and were frustrated by it. After working slowly and collaboratively for so long remotely, a quick and impulsive choice made by the

choreographer during their 30-minute session together felt jarring and unnatural to the dancers.

Section 4: Choreographer Reflection Interviews

During the process, Choreographer 1 felt that she was making more progress with her in-person group every week than with her remote group. However, this did not cause her to make changes to her remote process methods. When she felt her in-person piece needed more time, she added rehearsals to their schedule, but because the remote dancers worked at their own pace to accomplish as much as they could from their assignments in a two-hour block of time, she was not able to convince her dancers to work more efficiently from afar. Choreographer 1 observed the dancers in both of her pieces learning to take risks and evolve as collaborators throughout the process. Because all of her dancers were first year students with no prior experience in devising dance, Choreographer 1 said that she was less rigorous and demanding in both of her pieces than she normally would be as a choreographer.

Choreographer 2 did experience productivity and time to feel different in her two pieces because both dances rehearsed the same number of hours per week—one in-person and one mediated via video calling. Therefore, using synchronous video communication did not seem to slow down the process of making a duet for Choreographer 2. Because Choreographer 2's process began with each dancer independently uploading a movement video, one of the dancers with limited formal training was surprised to see his partner's virtuosic phrase work. This element of shock and discovery seems more common when

working remotely. In the video calls, Choreographer 2 did not perceive the dancers to be taking more or less risks than her in-person dancers.

Choreographer 3 described working remotely to be more relaxing than working in-person. Devising dance in-person requires the choreographer to be spontaneous and alert, improvisationally directing the dancers as content develops. Working remotely gives the choreographer more time to decide the next step in the process at each point. As an inexperienced choreographer, Choreographer 3 found the slower process of working remotely helped her learn what choreographic content she is drawn to and how to harness and develop these moments through tasks given to the dancers. Although the process felt slower and more deliberate, Choreographer 3 felt that her remote piece was finished long before her in-person piece. This could be because the carefully calculated choices during the remote process appear to require less editing, while following quick impulses during an in-person process generates muddled content necessitating revisions.

Choreographer 4 felt that her remote process was more continually active than her in-person process because the remote dancers were constantly uploading photos on their Instagram account while the in-person dance only rehearsed while physically together. While continuous, she felt the remote process was less productive. It was difficult when working remotely to make modifications to the process methodology and routine once established, which was not an issue if the process was running smoothly but left no room for problems to arise. Like Choreographer 3, her remote dance was ready for performance long before her in-person piece. In-person, her piece was not considered finished until she finessed and edited the choreography. An established movement vocabulary and structure

was all that she deemed necessary for the remote piece because delving deeper into the nuances of the choreography seemed unobtainable when not physically together.

When discussing the future use of remote processes, all choreographers agreed that working in either process comes with its own set of challenges and benefits. Choreographer 1 would chose not to use a remote process again unless absolutely necessary. She felt very disconnected from her dancers and didn't feel that the piece had camaraderie or group energy. She also thought that all content generated remotely could have been made in a studio, making it hard to justify the struggle of working in this way. Choreographer 3 felt the remote process was beneficial in creating music and a sound score because audio could be repurposed from videos. Or, if the choreographer wants the dancers to explore something that would make them feel uncomfortable, working remotely can help them participate in generating content they are reluctant to do or share in-person. A remote process keeps individual voices heard and makes the process less competitive. Choreographer 4 thought including an Instagram account in an in-person process to keep the dancers participating in and thinking about the process outside of rehearsals would be a beneficial addition to in-person choreography. Choreographer 4 found the remote process challenging and refreshing. She would be interested in working this way again to force herself to find alternative methods for creating choreography.

All choreographers believe the success of a remote collaboration is dependent on the dancers involved—their commitment to the project, prior experience working with each other, and familiarity with the dancer responsibilities in a devising process; however, the choreographers could not agree on exactly what dancer characteristics work best for each process. They hypothesized that dancers who work well creating their own schedule

and struggle with punctuality might work better in a remote process than an in-person process. The choreographers agreed that it would be helpful when working remotely to have previously worked in-person. The choreographers believe that if working remotely is necessary or desired, it is possible. But all choreographers definitely did not desire working this way when on a college campus where in-person choreography would be an option. This being said, all choreographers except for Choreographer 1 felt that elements of the remote process could be harnessed and used to improve in-person processes.

Section 5: Compositional Evaluation

The next section presents the compositional choreographic qualities that were achieved in each piece. The presence of objects in a duet is presented first. Objects include all tangible structures and items added into the space for scenographic or choreographic purposes.

TABLE 14: presence of objects in each duet

Objects		
Choreographer	Group	Presence
1	In-person	Yes
1	Remote	Yes
2	In-person	Yes
2	Remote	Yes
3	In-person	Yes
3	Remote	Yes
4	In-person	No
4	Remote	No

Table 14 shows that if a choreographer used objects in one of their dances, they also used them in the other, or if they chose not to use objects in one dance, they made the same

decision in the other—the results are concordant. The remote process did not inhibit or require object usage.

TABLE 15: use of music in each duet

Pre-recorded music				
		at the start of the piece	at the end of the piece	at some point in the piece
Choreographer	Group	Response	Response	Response
1	In-person	Yes	Yes	Yes
1	Remote	Yes	Yes	Yes
2	In-person	Yes	Yes	Yes
2	Remote	Yes	No	Yes
3	In-person	No	Yes	Yes
3	Remote	Yes	No	Yes
4	In-person	No	No	Yes
4	Remote	Yes	Yes	Yes

Table 15 shows when pre-recorded music was used in the pieces. Half of the in-person dances and all of the remote dances started with music. Choreographer 3's in-person dance started with one dancer speaking, and Choreographer 4's in-person dance begun with both dancers singing. However, three of the four in-person dances and only half of the remote dances ended with music. All of the dances had pre-recorded music at some point.

TABLE 16: presence of spoken text in each duet

Text		
Choreographer	Group	Response
1	In-person	No
1	Remote	No
2	In-person	No
2	Remote	No
3	In-person	Yes
3	Remote	Yes
4	In-person	Yes
4	Remote	Yes

Table 16 presents the use of live, spoken text in the pieces and shows that half of the choreographers used spoken text in both of their pieces, and the other half used text in neither—the results are concordant. Like the use of objects, spoken text appears to be choreographer dependent.

TABLE 17: length of each duet

Length				
Choreographer	Group	Length	Change in length	More or less than 4 minutes
1	In-person	4:55	-2:20	More
1	Remote	2:35		Less
2	In-person	3:50	0:35	Less
2	Remote	4:25		More
3	In-person	4:33	0:55	More
3	Remote	5:28		More
4	In-person	3:59	-0:52	Less
4	Remote	3:07		Less

The length of the piece was determined and compared to the average piece length of four minutes.¹³ Table 17 shows that half of the choreographers produced a longer piece when working remotely, and the other half produced the opposite. Additionally, a piece

¹³ The choreographers were asked to make their dances between four and six minutes long.

being above or below the average length does not seem to be related to working in-person or remotely.

TABLE 18: number of moments of contact in each duet

Contact				
Choreographer	Group	Less than 1 second	Between 1 and 6 seconds	More than 6 seconds
1	In-person	0	0	0
1	Remote	0	0	0
2	In-person	0	2	0
2	Remote	3	2	1
3	In-person	4	4	1
3	Remote	0	3	0
4	In-person	0	9	1
4	Remote	0	0	0

The values in Table 18 represent the number of moments in which the dancers were in physical contact for the length of time specified. For example, there were four moments in which the dancers in Choreographer 3's in-person dance were in physical contact for less than 1 second and four moments of contact between 1 and 6 seconds long. Choreographer 1 did not use any contact in either of her two dances. Choreographer 2 had the same number of moments of contact between 1 and 6 seconds in both of her duets but more moments less than 1 second and more than 6 seconds when working remotely. Choreographers 3 and 4 produced more moments of contact at all lengths of time when choreographing in-person.

TABLE 19: number of moments of unison in each duet

Unison					
Choreographer	Group	Less than 10 seconds	Between 10 and 20 seconds	Between 20 seconds and 1 minute	More than 1 minute
1	In-person	2	1	0	1
1	Remote	1	0	0	0
2	In-person	2	3	2	0
2	Remote	0	0	1	0
3	In-person	2	1	0	1
3	Remote	5	0	1	0
4	In-person	4	1	2	0
4	Remote	1	1	1	0

Table 19 reports the unison data. Each value represents the number of moments in a dance in which unison occurred for the indicated lengths of time. Only half of the choreographers used unison for longer than 1 minute, and both of these sections were only present in in-person dances. Unison moments of other lengths do not seem clearly associated with either choreographer or group. Moments of unison up to 1 minute long are clearly able to be achieved when working either remotely or in-person.

The next four tables present data representing the use of floor space in the dances. For each video, when a dancer's foot, or perceived center of mass when applicable, moved into one of the nine sections of floor indicated by the green gridlines, a quotation was started, and when they left this area, the quotation was ended. These quotations were coded for both which section of floor they were in¹⁴ and if they were there for less than or

¹⁴ I named the sections of floor based on the performance convention in which the areas towards the back wall of the stage are called "upstage" and the areas closer to the audience are called "downstage." "Stage left" and "stage right" correspond to a performer's left and right if they are on stage facing the audience. Thus, from left to right and downstage to upstage, the areas are named "downstage left," "downstage center," "downstage right,"

more than two seconds. This length was chosen because being in a space for two seconds or less typically indicated a transitional moment through a region of space to land somewhere else rather than a choice to enter a region to perform movement specifically in that location.

I refer to each of these quotations a “moment” because the quotations all have different lengths—a moment coded as longer than two seconds could be anywhere from 3 seconds in length to multiple minutes. Each value in Table 20 shows a percent of total moments either more or less than two seconds that occurred in different regions of space. For example, the top left cell in the first table, 38.10%, indicates that out of all of the moments in which Dancer 1 was in a region of space for less than two seconds, 38.10% of these moments were in a corner of the performance space: upstage left, upstage right, downstage left, downstage right. The cell below 38.10% that says “NA” indicates that Dancer 1 had no moments that were coded as less than two seconds in their dance. However, cells that say 0% indicate that the dancer did have moments that were less than or more than two seconds in their duet but none in the specific region being analyzed. When comparing a single choreographers in-person and remote pieces, the larger percentage is highlighted in green.

“center stage left,” “center stage center,” “center stage right,” “upstage left,” “upstage center,” and “upstage right.”

TABLE 20: percentage of moments that were in the corners of the space

Percentage of moments in the corners					
Choreographer	Group	Dancer 1 less than 2 seconds	Dancer 2 less than 2 seconds	Dancer 1 more than 2 seconds	Dancer 2 more than 2 seconds
1	In-person	38.10%	25.93%	33.33%	21.43%
1	Remote	NA	0%	36.36%	27.78%
2	In-person	25%	28.57%	33.33%	11.76%
2	Remote	35.71%	16.67%	23.68%	33.33%
3	In-person	20%	36.36%	32.26%	22.73%
3	Remote	0%	18.18%	43.75%	54.17%
4	In-person	29.41%	41.18%	13.33%	26.67%
4	Remote	9.09%	0%	7.14%	15.38%

TABLE 21: percentage of moments that were in the center of the space

Percentage of moments in the center					
Choreographer	Group	Dancer 1 less than 2 seconds	Dancer 2 less than 2 seconds	Dancer 1 more than 2 seconds	Dancer 2 more than 2 seconds
1	In-person	14.29%	22.22%	12.12%	23.81%
1	Remote	NA	28.57%	27.27%	33.33%
2	In-person	16.67%	28.57%	26.67%	29.41%
2	Remote	14.29%	5.88%	26.32%	33.33%
3	In-person	26.67%	12.12%	22.58%	18.18%
3	Remote	0%	22.22%	25%	8.33%
4	In-person	11.76%	5.88%	40%	20%
4	Remote	54.55%	20%	28.57%	38.46%

TABLE 22: percentage of moments that were on stage left

Percentage of moments on stage left					
Choreographer	Group	Dancer 1 less than 2 seconds	Dancer 2 less than 2 seconds	Dancer 1 more than 2 seconds	Dancer 2 more than 2 seconds
1	In-person	28.57%	14.81%	36.36%	33.33%
1	Remote	NA	28.57%	54.55%	44.44%
2	In-person	16.67%	57.14%	13.33%	35.29%
2	Remote	57.14%	5.56%	42.11%	16.67%
3	In-person	33.33%	42.42%	38.71%	27.27%
3	Remote	0%	18.18%	50%	25%
4	In-person	23.53%	23.53%	26.67%	40%
4	Remote	0%	80%	7.14%	30.77%

TABLE 23: percentage of moments that were on stage right

Percentage of moments on stage right					
Choreographer	Group	Dancer 1 less than 2 seconds	Dancer 2 less than 2 seconds	Dancer 1 more than 2 seconds	Dancer 2 more than 2 seconds
1	In-person	42.86%	25.93%	24.24%	21.43%
1	Remote	NA	28.57%	18.18%	0%
2	In-person	41.67%	0%	40%	5.88%
2	Remote	7.14%	33.33%	15.79%	33.33%
3	In-person	33.33%	18.18%	16.13%	18.18%
3	Remote	0%	0%	25%	41.67%
4	In-person	23.53%	35.29%	13.33%	20%
4	Remote	27.27%	0%	64.29%	0%

From looking at the tables, it seems that working remotely does not prevent regions of space from being used or prioritize some regions over others.

Section 6: Audience Response Surveys

The data from the audience response surveys was summarized and tabulated. See the Appendix for a summary of each question for in-person and remote dances. A Fisher's

Exact test was performed on each question and showed that eight of the 18 questions had significant associations between process (in-person versus remote) and audience response (strongly disagree, disagree, agree, or strongly agree). However, the Fisher Exact test results did not account for the influence of the choreographer on the audience responses or for some viewers having indicated that they knew information about how the dances were created. A logistic regression model was employed to determine odds ratios and p-values¹⁵, assessing the relationship between the process and audience response variables while also controlling for the impact on audience response from the choreographer variable. Before performing this analysis, respondents who indicated that they knew “a lot” of information about how the dances were created were removed. A focus group of 10 survey questions was analyzed in this manner. Table 24 presents survey questions, percentage of the total respondents who agreed with each statement, Fisher Exact test p-values when looking at remote versus in-person responses to each question, and the questions that were selected for further analysis indicated by the asterisks. Table 25 displays the logistic regression results for those selected questions, with significant associations highlighted.

¹⁵ A p-value is the probability of obtaining a result that is at least as extreme as the actually observed data when the null hypothesis is true.

TABLE 24: audience response survey questions

Question number	Statement	n=631	% agree	p-value
Q1*	I saw movement in this piece that I would expect to see in a dance piece.		88.75%	0.001
Q2*	The dancers were communicating with each other (aurally, visually, physically) during the work.		89.7%	0.000
Q3	I was aware of the other audience members during the piece.		36.29%	0.000
Q4*	I viewed the dancers primarily as people.		88.12%	0.428
Q5*	I had questions while watching the dance.		77.94%	0.157
Q6	Sounds, music, or speaking played an important role in this work.		78.09%	0.000
Q7*	Aspects of the performance caused me to make connections to my own life.		36.7%	0.984
Q8	The piece had a narrative.		64.92%	0.027
Q9*	I felt drawn-in to the piece.		75.47%	0.016
Q10	I can remember at least one abrupt shift or unexpected change in the work.		68.62%	0.061
Q11*	The dancers were committed in their performance.		96.52%	0.467
Q12	Time passed quickly during the piece.		83.36%	0.961
Q13*	This piece included elements I would not expect to see in a dance piece.		71.59%	0.000
Q14	I viewed the dancers primarily as shapes and lines.		21.97%	0.828
Q15	I think I will still remember this piece in a month.		61.94%	0.781
Q16*	The dancers seemed appropriately prepared to perform the work.		95.57%	0.846
Q17*	I was interested in the dancer's spatial arrangements during the work.		72.34%	0.187
Q18	The choreography of this piece was layered.		74.67%	0.010

*** questions selected for logistic regression analysis**

TABLE 25: logistic regression results

Question	Odds Ratio	p-value	Viewers of remote dances were more likely to:
Q1	2.4	0.003	disagree
Q2	4.58	0.000	disagree
Q4	1.5	0.131	disagree
Q5	1.35	0.157	agree
Q7	1.01	0.973	disagree
Q9	1.75	0.006	disagree
Q11	1.38	0.478	disagree
Q13	1.42	0.081	agree
Q16	1.54	0.318	agree
Q17	1.33	0.139	disagree

From the results of the logistic regression, three of the nine questions had a significant association¹⁶ between process group and response. Viewers of remote dancers are 2.4 times more likely to disagree that they saw movement in the piece they would expect to see in a dance piece, 4.58 times more likely to disagree that the dancers were communicating with each other during the work, and 1.75 times more likely to disagree that they felt drawn-in to the piece.

¹⁶ A significant association means that the relationship between the process variable (in-person or remote) and selection of response for a specific question is likely not caused by random chance.

Discussion

This project aimed to determine if there are observational and statistically significant differences in the process, composition, and audience response between in-person and remote choreographic collaborations. While each dance produced a unique compilation of process experiences, compositional elements, and audience responses, I found very few overarching impacts of the remote process seen for all choreographers. As discussed in *Methods*, variation in results between dances is a normal and desired outcome of devising original choreography, and this necessitated trials with multiple choreographers. Thus, the sparse results that were seen for all choreographers suggest, within the limitations of this study, using a digitally-mediated process was a viable alternative to in-person choreographic collaborations. Additionally, these results showed that the choreographer variable seemed to have more impact than the process variable on the results. This elevates and endorses the choreographic skill necessary in any choreographic process, including those that dismantle the choreographer-dancer hierarchy to promote egalitarian collaboration between all participants.

The dancer process survey results show subtle differences between remote and in-person processes for many of the questions. The two questions with the greatest difference between processes were question 9, “We produced a large amount of material this week” and question 10, “I felt that my ideas or concerns were well-received and responded to by my choreographer and duet partner.” For question 9, three fewer in-person dancers selected “yes” on Survey 6 than on Survey 1 meaning, as the process progressed, fewer groups continued generating large quantities of material. However, remote groups had an opposite experience; three more remote dancers selected “yes” on Survey 6 than on Survey 1, suggesting that the number of remote groups generating material increased throughout

the process. This increase in remote material generation over time could be a result of the remote groups first needing to establish a new working method for generating material before proceeding, while the in-person groups already had practice working, to varying extents, in-person and could begin generating material using established choreographic methods right away. Alternatively, the amount of material generated each week by the remote duets could have been constant throughout the process with, instead, the dancer's definition of "a large amount of material" changing over time. In the beginning, the dancers evaluated their remote process using the value system imbedded in studio-based dance. The remote process necessitated a reforming of these values and definitions, causing change in response over time to potentially indicate a broadening of the dancers' notions of choreographic processes.

For question 10, all eight in-person dancers selected "yes" on Survey 1 and Survey 6—all in-person dancers experienced their duet partner and choreographer responding to their concerns and ideas at both the beginning and end of the process. However, a large increase in "yes" responses over time for remote dancers indicates a difference between in-person and remote collaborations in the way choreographer and duet partner can respond to questions, ideas, and concerns. Similarly to the discussion of question 9, this increase in remote "yes" responses over time could suggest one of two outcomes: (1) throughout the remote process the choreographer experimented with ways of supporting the dancers and responding to their concerns from afar, becoming more successful at this with time, or (2) the support from the choreographer and duet partner was constant throughout the process and the dancer's values changed as their understanding of the process shifted. I believe the latter option occurred here because on the first survey, five of the remote dancers selected

“N/A,” indicating that they felt this question didn’t relate to their process, not that they disagreed with the statement.

The dancer surveys do not indicate clear alterations to the dancers’ relationship with each other either at the beginning or end of the process when working remotely. However, the dancer survey responses did indicate that remote dancers felt less personally close to their choreographer at both the beginning and end of the process than in-person dancers felt. A dancer’s relationship with their duet partner forms through the common endeavor of collaborating in a challenging, insecure process and ultimately working towards a shared performance experience—common challenges and a shared goal were seen in both remote and in-person processes. A close relationship between a dancer and a choreographer forms not through these shared experiences but rather through the dancer taking vulnerable risks supported by the choreographer’s attention and encouragement. Remote dancers indicated feeling less vulnerable when distanced from their choreographer and also less supported through encouragement and attention, limiting the development of choreographer-dancer relationships. Even though relationships between dancers and their choreographer, support and responsiveness to each other, and generation of movement content were reformatted when working remotely, there were no major differences in the overall level of satisfaction recorded on Survey 1 and Survey 6 when comparing both process.

The choreographer process surveys showed that, while choreographing two pieces simultaneously, remote dances were able to develop into autonomous pieces independent of their in-person counterpart. On Survey 1, all four choreographers felt that one of their dances influenced the other or the two processes influenced each other equally. By Survey

6, three of the four choreographers felt the two processes were completely independent of each other. The choreographer surveys had limited potential for analysis due to the small sample size of this group. For a Fisher Exact test to yield a statistically significant association between choreographer response and process with only four in-person and four remote dances, all choreographers had to respond with “satisfied” for in-person dances and “unsatisfied” for remote dances, or vice versa. A “4” or “-4” in Table 13 would indicate a significant association between process and response, but no value greater than two was seen. In fact, most values recorded in Table 13 were “-1,” “0,” or “1.” Therefore, the differences in choreographer process experience were minimal between in-person and remote collaborations.

The dancer process surveys show that by the end of the process, all in-person and remote dancers felt like co-authors of the work, implying that all processes lead to collaboratively created dances. The interviews suggest more variation in the collaborative processes when working remotely than in-person. Dancers and choreographers described similar in-person creative process methods: rehearsals once or twice per week primarily in the two dance studio spaces with the choreographer using personal experience, memory, identity, and sensory stimuli as source material for content generation. Remote processes used similar source material assignments but communicated, shared, viewed, and assembled this content in a variety of innovative ways.

Due, in part, to the short process time, working in-person allowed choreographers to default quickly to their familiar, habitual ways of choreographing while the remote collaborations necessitated a fundamental reimagining of the choreographic process, asking the dancers and choreographer to reexamine and deeply question their assumptions

about how dance can be made. As discussed in the first section of *Contextual Framework*, dance devising places much of the creative potential on the process itself, allowing the piece to emerge from the unusual circumstances, intricate interactions, and unfamiliar movement generation tasks in the collaborative experience. The innovative methods of choreography produced in remote collaboration make the digitally-mediated process appealing to dance devisors.

For the most part, concerns and dissatisfactions from remote dancers were not unique to this process but rather shared by the in-person participants as well suggesting that process concerns are more closely connected to choreographer identity than working remotely. Dancers in all processes shared a similar desire for feedback and encouragement from the choreographer. In all duets, dancers mentioned the turning point in the process when the fragments of movement material started feeling like a synthesized piece as being an important event in re-energizing the rehearsals, and the remote dancers felt that this was especially essential in keeping them engaged. In both processes, dancers enjoyed understanding where their assignments or the choreographer's ideas were coming from, especially towards the end of the process. Clear and frequent communication between the dancers and choreographers was essential in creating a constructive working environment, regardless of remote or in-person collaboration. This information shows that although working remotely necessitates a fundamental reimagining of the choreographic process, the skills a choreographer uses when choreographing in-person to facilitate a productive and vibrant working environment are still necessary when working remotely.

All 16 dancers in this study were asked to individually generate material during the choreographic process. In doing this, each dancer put forth movement they were interested

in and proud of, but also what they thought the choreographer was looking for, even though the choreographer has no desired outcome in mind and, notably, did not express an ideal result to the dancers. What the choreographer was drawn to in these proposals had the potential of being included in the final piece, and this incentive resulted in the dancers desire to impress and seek validation from the choreographer. If the choreographer praised the dancers choices and engagement in the process, the dancers were more likely to stay invested, allowing the choreographer to, in turn, ask more from the dancers without resistance.

In both processes, embracing the intrinsic desire for affirmation in each dancer and praising them to incite continued engagement was beneficial because devising relies on the dancers to contribute in the creation of movement as well as the performance of this content. Dancers in both processes mentioned moments when they did not receive affirmation or feedback and subsequently lost interest in contributing to the process. This seemed like a more common problem for remote groups than those working in-person, because, unless working synchronously, the feedback takes longer to reach the dancers when working remotely. Additionally, the choreographer's embodied attentiveness to the dancers' generation of material during in-person rehearsals is a non-verbal form of encouragement and support difficult to achieve through digitally-mediated presence.

Working in-person requires more physical commitment from the dancers in that they must come to a shared physical space rather than work from their current location. In three of the four in-person processes, dancers experienced irritating moments when their duet partner did not show up to rehearsals, preventing them from working. If a dancer has poor attendance in a process not subjected to analysis using a controlled scientific method,

the choreographer could work with one dancer on his or her own. However, because these in-person processes were being compared to the remote ones, it was imperative that all three participants be in the same physical space for the in-person duets to rehearse. The physical presence of all three participants made the use of solo material and disconnection between dancers in the control group duets a choice rather than a side effect of individual rehearsals. These dancers, both the ones who were punctual and those who struggled with attendance, may have benefitted from the use of a remote process on weeks when scheduling and attending rehearsals were difficult.

Remote dancers agreed that while using a digitally-mediated process was proven possible to allow for geographically distributed choreographic collaboration, they found the process to be a slower, more tedious version of an in-person process and, for the most part, would only chose to use it in the future if absolutely necessary. Being on a college campus where in-person collaborations were possible, it was hard for the dancers to justify and enthusiastically embrace working remotely. However, if the dancers were truly geographically distributed and adamant about working together, the dancers may have approached the project with more optimism.

Moments in the remote process that seemed the most successful were when the choreographer didn't try to replicate an in-person process remotely, but rather established an alternative way of creating choreography embracing this constraint. When devising dance in-person, revealing new choreographic methods through the process is valued. So, a remote process' ability to unveiling an innovative approach to choreography aligns with these principal devising values. Devising performance requires the choreographer to relinquish their visions of desired outcomes, allowing room for surprising transformation

in the work. Releasing expectations seemed especially essential when working in an unfamiliar remote process. For this reason, remote choreographers need to be extremely open and perceptive to accidents and unusual moments caused by the unpolished process, and they must be able to harness these moments, if they choose, and blend them into the piece.

Lastly, remote dancers mentioned a desire for closer personal relationships. If a remote process is used, it could be helpful to work with people who have first met in person or to incorporate a non-rehearsal socializing element in the process such as additional phone calls or group texts. Choreographing in-person has an innate social aspect from spending time with others in a shared physical space while working either independently or collaboratively. Remote choreography, however, extracted the working component from the socializing, and for most remote duets, little effort was made to add social interactions back into the process. And, with digital natives constantly socializing with peers via text messages and a variety of other platforms including Snapchat, Facebook, and Instagram, adding social interaction into a remote choreographic process would be seamless.

The analysis of the compositional elements used in the choreography showed there to be no consistent differences when comparing all four in-person dances to all four remote dances. As anticipated, there were compositional differences when comparing one piece to another, but these changes were more frequently associated with the individual choreographer's aesthetics than with the process group. Use of music at any point in the piece, text, objects or physical structures, contact, and unison could all be achieved remotely if desired by the creators of the work. I predicted physical contact to be the

element with the highest chance of absence in a remotely created dance. However, three-fourths of the control group in-person dances used contact in varying frequencies and lengths of time while still one-half of the remote dances were able to achieve this. With only four dances being made remotely, half of them achieving contact when working remotely shows that physical connection is not necessarily a product of in-person rehearsals. Through performance improvisation or decisions made during the process and realized during in-person technical rehearsals, both weight-sharing and movement initiation using touch are achievable.

The results from the audience post-performance surveys show the major significance of choreographer and minor significance of process being in-person or remote. When not controlling for choreographer, nearly half of the results had significant associations between group and response when using the Fisher Exact test. However, after controlling for choreographer using the logistic regression to look at a focus group of ten questions, only three of the questions had significant associations. Therefore, the choreographer seemed to play an important role in how the piece was viewed. However, some process implications were seen. The significant association with the largest odds ratio, and therefore the least likely to be caused by random distribution, was the statement regarding the dancers' communication with each other during the piece. Viewers of remote dances were 4.58 times more likely to disagree that the dancers were communicating with each other during the piece visually, aurally, or physically, meaning remote dances resembled two independent solos occurring simultaneously. Therefore, if one plans on working remotely and desires the work to exhibit communication similar to that produced

from an in-person process, an increased emphasis should be placed on communication between dancers in the choreography.

Viewers of in-person dances were 2.4 times more likely to agree that they saw movement in the piece they would expect to see in a dance piece. However, there was no significant association between group and the inclusion of elements a viewer would not expect to see in a dance piece, question 13. These results show that if a choreographer intends to include unanticipated movement, either process can achieve this. But, if the choreographer wants the viewer to see movement they recognize and expected to see in dance, it is better for them to use an in-person process. Each viewer's expectations of what movement belongs in contemporary dance are a direct result of their previous exposure and viewing experience. 70% of the audience members had seen less than five dance performances over the last year, 85% of viewers did not consider themselves choreographers, and 70% did not consider themselves dancers. Therefore, the movement the viewers would expect to see in a dance piece is likely commercialized or codified forms such as competition contemporary, jazz, tap, or ballet. A remote element in a choreographic process could be beneficial in avoiding the recognizable and therefore prioritizing the unexpected.

There was a significant association between group and response for question 9, "I felt drawn-in to the piece." Viewers of in-person dances were 1.75 times more likely to agree with this statement than viewers of remote pieces. Being less drawn-in is not likely to be caused by the composition of the work including use of space, contact, unison, or music because these qualities are closely related to choreographer, which is controlled for in the logistic regression. However, being less drawn-in to the piece could be related to the

viewers seeing less communication between performers in remote dances. Seeing people interacting and communicating with each other in performance is compelling to audience members, and maybe the decrease in perceived dancer communication in remote dances led to people also being less drawn-in to those pieces.

Not only significant associations between group and response indicated a benefit or detriment to using a remote process. The following statements did not have significant associations between group and response in the logistic regression, and I believe this may indicate a positive future for remote collaboration. These statements were: “I viewed the dancers primarily as people,” “I had questions while watching the dance,” “aspects of the performance caused me to make connections to my own life,” “the dancers were committed in their performance,” “the dancers seemed appropriately prepared to perform the work,” “and I was interested in the dancer’s spatial arrangements during the work.” Through seeing invested people interacting in unusual and fascinating spatial organizations in performance, dance allows viewers to reflect on their own life experience and question their assumptions. If the remote process did not allow for reflection and inquiry, the potential of a remote process would be limited.

Some aspects of this being a controlled study could have produced negative consequences. The purpose of having the remote dancers not talk to each other in-person about the project was to simulate a geographically distributed process. However, the two dancers in Choreographer 1’s remote group thought this meant they were not allowed to communicate with each other at all or view each other’s video uploads. If this were not a controlled study, they probably would have contacted each other or watched the videos if they felt that would have helped. The fear of ruining the controlled experiment caused

some dancers and choreographers to be more hesitant than they normally would be. For some dancers and choreographers, the controlled study framework heightened the pressure of success, but for others, a dance situated within a larger research context seemed to render the individual pieces more insignificant.

Choreographer 1 was especially irritated with the constraints of the controlled study. As discussed earlier, rehearsals during the week of technical rehearsals outside of the 30-minute rehearsal time were forbidden to prevent remote dances from dramatically changing once in-person. However, Choreographer 1 and her remote dancer's drive to perform a clean, well-rehearsed piece surpassed attention to experimental accuracy, and I saw them reviewing material and discussing choreography outside of technical rehearsals during that week. I asked them to stop immediately, and this brought to my attention the differences in definition of 'rehearsals' as some choreographers claimed that they weren't actually rehearsing in these moments.

This preliminary study shows undergraduate students using remote collaboration to make short duets in a two-month process leads to a variety of minor consequences and potentials, none of which should be overlooked. The remote choreographic process tends to unfold more slowly, producing less movement people would expect to see in a dance piece and less perceivable communication between dancers during the performance. Remote dancers may have underdeveloped relationships with their choreographer and a greater potential to be unmotivated in the process, necessitating choreographer to be more diligent in providing feedback and encouragement, along with insight into their thought process. And, a remote process may lead to viewers being less drawn-in to the piece. This being said, a remote process asks the dancers and choreographers to fundamentally

reevaluate and reimagine the choreographic process while remaining open to unexpected outcomes—a central value in devising practices. This leaves the question of how a remote process should be used in the future.

I believe future use of a remote choreographic process could manifest in four ways: (1) as a supplement for remaining engaged continually in the process outside of in-person rehearsals, (2) as a tool for generating a less familiar movement vocabulary, (3) as a way of making a duet with geographically distributed collaborators, especially if these collaborators have worked together in-person previously, and (4) as a way of crowdsourcing material to bring more voices into the work. I believe there are benefits to being able to collaborate with dancers in other geographic regions, and this study has shown empirically that using a digitally-mediated choreographic process is a feasible, and even beneficial, alternative to working in-person.

Conclusion

The *Contextual Framework* chapter of this paper argued that dance devising, while an embodied and transient form of communication by nature, shares a value system with that of the digital age. These shared values, which promote individual creativity, collective creation or crowdsourcing, and expanding resources to include working with those across geographic divides, justify the potential of moving the choreographic process to a digitally-mediated site to facilitate geographically distributed collaboration. Many scholars and choreographers including Sita Popat, Kate Stevens, Stephan Koplowitz, and Pauline Brooks, among others, have researched the intersections of choreography and digital technology, presenting numerous manifestations of this synthesis. The study conducted in this honors thesis project aimed to contextualize these case studies and theoretical discussions through the addition of empirical evidence.

The controlled, scientific nature of this study presented a remote method of choreography as a viable alternative to studio-based in-person processes for undergraduate students creating short duets. Using both observational evidence and statistical analysis, I showed that using a remote choreographic process prompts a variety of minor impacts, both positive and negative, on the creation process, composition, and audience response to the work. The methods of generating material and the choreographer's ability to support and respond to the dancers were transformed, the development of personal relationships between dancers and choreographers in the process was slightly hindered, and the viewers perceived the movement vocabulary to be less expected, detected less communication between the dancers during the performance, and were less compelled by the work. However, the numerous other questions that yielded no

overarching differences between remote and in-person processes are promising indications of future remote choreographic collaborations.

As referenced in earlier chapters, this study looked at a specific demographic of dancers and choreographers—undergraduate students at Colby College. Many of the dancers in both remote and in-person duets had limited experience in choreographic processes, let alone ones using collaborative, devising methods. This explains the confusion some dancers experienced when asked to collaborate in generating material in the process, an inherent aspect of collaborative dance devising. While all choreographers were using a remote choreographic process for the first time, there was variation in their experience choreographing in-person, with one choreographing for the first time during this study. Working with only students at Colby College helped to control the study, allowing for more clarity in the results. However, these results are specific to informally-presented duets created using a two month process by student choreographers in an academic setting.

Through the process of writing the *Contextual Framework* chapter, analyzing the process surveys, and conducting dancer and choreographer interviews, the concept of reinventing the process of creation—in addition to individual creativity, collective creation, and bridging geographic divides—revealed itself as a pronounced shared value of dance devising and digital culture. By nature, a devising practice challenges dancers and choreographers to reconsider how dance is made. According to Peter Harrop and Evelyn Jamieson, “The term ‘devising practices’ has come to mean a shared creative process; a rejection of inherited theatrical taxonomies, job descriptions and role descriptors” (Britton 168). Discarding the inherited roles and classifications of the past necessitates a fundamental reimagining of the creative process.

Digital transformation, to use Dr. Didier Bonnet's term, has led to a reshaping of the ways people interact and work together to include digital technology. As digital curators, people pick and chose from the variety of creativity support tools available to accomplish the task at hand, not remaining attached to the technology's original purpose or intended use. As non-experts become inventors redesigning and reshaping technology, manufacturers incorporate these alterations creating a consumer-driven cycle of advancement. Reinvention is, now more than ever, a fundamental component of our culture as transformed through the influx of digital technology.

As seen in the *Results* and *Discussion* chapters of this paper, digital transformation to dance devising practices has resulted in a redefining of the choreographic process, an expected outcome given this shared value of reinvention in devising and digital culture. Choreographing through a digitally-mediated process required the choreographers to reevaluate their assumptions and design novel methods of creating dance. This ability to reexamine the conventions of performance making is central in devising choreography, and for educators, a digitally-mediated process, even when not working across a geographic divide, has promising pedagogical potentials for assisting students in relinquishing their preconceived notions of choreography.

Yoany Beldarrain's research on distance education suggests that online learning can have benefits even for those with the option of attending in-person courses. As mentioned in the *Contextual Framework*, "New models of teaching can accommodate the needs of the 21st-century learner by including activities that allow students to contribute to the learning process at any time, from anywhere" (Beldarrain 145). Even with students in a close geographic proximity, studying choreography through digitally-mediated

collaboration would slow down the choice making process for the choreographer and partially removed the intimidating improvisational aspect of shaping the rehearsal as content is arising, a practice honed by advanced choreographers. Especially in the pedagogy of students on the cusp of independently choreographing their own work, a remote experience would encourage the sharpening their choreographic skills of communication and facilitation of a creative working environment while also requiring abandonment of assumptions about choreographic practices.

The data also suggests the immense importance of choreographer identity, personality, and values in these three areas of measurement, something not frequently emphasized in these other studies of alternative processes in devising dance. Devising and collaborative creation shift the choreographer from “expert” to “facilitator” or “collaborator,” to use Jo Butterworth’s terms, and this creates a democracy in which the hierarchies between choreographer and dancers are dismantled. However, even when looking at the choreographer as one of the collaborators in the devising process, the choreographer’s identity, skills, and personality traits altered outcomes in the dancer’s process experience, the composition of the choreography produced, and the audience’s response to the work more so than the remote or in-person nature of the process. Using a redesigned, unfamiliar process can promote some outcomes over others, but the choreographer’s personal identity ultimately is more impactful.

Some limitations in the statistical analysis of the process surveys in this study came from the small sample size of dancers and choreographers, leading to only four remote and four in-person duets being created. Future studies could entail repeating this methodology with more participants to better understand the impact of remote collaboration on the

process experience. However, the data suggests that even with such a small sample size, each choreographer's in-person and remote processes yielded many similar results—the variation in responses in this study was more closely related to the choreographer's identity than the process variable. This study reinforces the difficult job of the choreographer and the complex skills necessary to work in a devising process, including those digitally-mediated.

The fundamental transformations to the creative process promoted through digital-mediation hardly impacted the duet products performed as indicated by the compositional analysis and audience response results. This study leaves me questioning the purpose of reinventing the process of creating dance if it doesn't immediately generate discernable changes in the performance. The practice of reinvention is embedded in both the digital age and dance devising and is further heightened when dance devising and the digital age intersect. But apart from encouraging complex thought and creativity on behalf of the dancers and choreographers, what benefits to the choreographic product does this innovation yield? In the 60 years since the term *devising* was established, the employment of reinvented processes has yielded a slow transformation to the composition and audience response to contemporary dance. Taking the concept of reformatting the choreographic process one step further by digitally-mediating the process will, with time, reveal cutting-edge compositional aesthetics and novel audience engagements with the work. By attending to the exiting potentials and being aware of the negative impacts, the future of devising is sure to be digital.

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Appendix

Choreographer Contract / Consent Form

- I will follow the two process rules listed below:
 1. All non-remote rehearsals (and supplementary rehearsal assignments) must occur with choreographer, dancer 1, and dancer 2 all together in a shared physical space (being a studio or elsewhere).
 2. All remote rehearsals must occur with choreographer, dancer 1, and dancer 2 in separate physical spaces. Absolutely no discussion of the process can occur between the choreographer, dancer 1, and dancer 2 in-person during the process. Any other means of communication are allowed.
- I will prepare as necessary outside of rehearsals for both of my duets to be efficient and productive during rehearsals.
- I will have both of my duets ready to show by the performance date at the beginning of December.
- I will not discuss this research with anyone besides Kathryn Butler or Annie Kloppenberg during the fall semester.
- I will not let my dancers find out that I am choreographing a second duet using a different method. If I am working with a dancer who knows that two processes are being used, I will make sure that the dancer does not discuss this during rehearsals with the other participants.
- If I have any questions, I will speak with Kathryn by phone ((540) 529-5311), email (kibutler@colby.edu), or in person.
- I will fill out a weekly survey and email it to Kathryn by every Sunday at midnight.
- I will record the times that I work (including rehearsals, preparations, evaluations, and planning) in my Google Sheet following each working session.
- I will allow Kathryn access to as much of the remote process as possible by including her in communication and databases/online communities that are created during the process.
- I understand and acknowledge the potential physical risks that come with creating dance in both traditional and non-traditional movement spaces.
- I understand that my survey responses will be analyzed and presented in Kathryn's thesis paper.
- I understand that my name will not be used in writing or presentation of this research without permission from each choreographer.
- I understand that my final piece will be filmed. The video will be stored on Kathryn's computer and not digitally broadcasted or shown. This video will be used solely for compositional analysis.
- All data collected for this study and consent forms will be kept confidential.

Choreographer's Name (printed) _____

Choreographer's signature _____

Date _____

Dancer Contract / Consent Form (c)

- I will wear clothing that does not hinder my movement, or I will follow the requests of my choreographer if specific clothing is requested.
- If asked to rehearse at a specific time, I will be present and ready to work at this time called.
- I will be engaged mentally and physically in the rehearsal process
- I will be available to rehearse during my tech time, and I will be available at the time called before the performance. The performance date and tech times will be decided based on dancer availability.
- I will not discuss this research with anyone besides Kathryn Butler, my duet partner, my choreographer, or Annie Kloppenberg during the fall semester.
- If I know anything about the research questions in this thesis project, I will not share any information with other dancers, choreographers, or Colby community members.
- If I have any questions, I will speak with my choreographer using the contact information they provide.
- I will fill out a weekly survey and email it to Kathryn by every Sunday at midnight.
- I will record rehearsal times in my Google Sheet following each rehearsal.
- I understand and acknowledge the potential physical risks that come with creating and performing dance.
- I understand that my survey responses will be analyzed and presented in Kathryn's thesis paper.
- I understand that my name will not be used in writing or presentation of this research without permission from each dancer.
- I will notify and work with my choreographer in advance if I have a scheduling conflict or have to miss rehearsal for any reason.
- I understand that my final performance will be filmed. The video will be stored on Kathryn's computer and not digitally broadcasted or shown. This video will be used solely for compositional analysis.
- All data collected for this study and consent forms will be kept confidential.

Dancer's Name (printed) _____

Dancer's signature _____

Date _____

Dancer Contract / Consent Form (e)

- I will wear clothing that does not hinder my movement, or I will follow the requests of my choreographer if specific clothing is requested.
- If asked to rehearse at a specific time, I will be present and ready to work at this time called.
- I will complete all assignments by the due dates assigned by my choreographer.
- I will be engaged mentally and physically in the rehearsal process
- I will be available to rehearse during my tech time, and I will be available at the time called before the performance. The performance date and tech times will be decided based on dancer availability.
- I will not discuss this research with anyone besides Kathryn Butler, my duet partner, my choreographer, or Annie Kloppenberg during the fall semester. I will not mention or discuss the project to anyone in person during the fall semester.
- If I know anything about the research questions in this thesis project, I will not share any information with other dancers, choreographers, or Colby community members.
- If I have any questions, I will speak with my choreographer using the contact information they provide.
- I will fill out a weekly survey and email it to Kathryn by every Sunday at midnight.
- I will record all time that I spend working on this project in my Google Sheet by the end of each day.
- I understand and acknowledge the potential physical risks that come with creating dance in both traditional and non-traditional movement spaces and I understand the potential privacy risks involved with sharing information online.
- I understand that my survey responses will be analyzed and presented in Kathryn's thesis paper.
- I understand that my name will not be used in writing or presentation of this research without permission from each dancer.
- I will notify and work with my choreographer in advance if I have a scheduling conflict or have to miss rehearsal for any reason.
- I understand that my final performance will be filmed. The video will be stored on Kathryn's computer and not digitally broadcasted or shown. This video will be used solely for compositional analysis.
- All data collected for this study and consent forms will be kept confidential.

Dancer's Name (printed) _____

Dancer's signature _____

Date _____

Choreographer	Choreographer Code	Title	Process	Piece Code	Dancer 1	Dancer 2
Julia Borges	1	<i>Structures of Sequence</i>	In-person	10	Maggie Barrett	Bethany Okezie
Emma Kuehn	2	<i>Shadow</i>	In-person	20	Joelle Young	Holly Lauren Garcia
Gabriella Foster	3	<i>They Aren't particularly Funny</i>	In-person	30	Leah Bilodeau	Jay Huskins
Lucy Soucek	4	<i>Trejectory</i>	In-person	40	Margherita Carlotti	Jack Flynn
Julia Borges	1	<i>Pathways</i>	Remote	11	Chido Mpofo	Kailey Kirkwood
Emma Kuehn	2	<i>Sunny and Theo Try to do Handstands</i>	Remote	21	Sunny Dangui	Theo Satloff
Gabriella Foster	3	<i>lost in MEmes</i>	Remote	31	Sam Barry	Sarah Vaughan
Lucy Soucek	4	<i>Your Left or My Left</i>	Remote	41	Wilder Davies	Anna Libby

Choreographer Survey

This is a short survey to gather data on your experience choreographing this week. Please answer the following questions to the best of your ability! Thank you!

* Required

1. First name *

2. Last name *

3. Today's date *

Example: December 15, 2012

4. Did you find that your remote and in-person processes influenced each other this week? *

Mark only one oval.

- ☐ Yes, my in-person process was influenced by my remote process
- ☐ Yes, my remote process was influenced by my in-person process
- ☐ Yes, my remote and in-person processes influenced each other equally
- ☐ No, my two processes seemed completely independent of each other

In-person process

5. Were you satisfied with... *

Mark only one oval per row.

	Very unsatisfied	Unsatisfied	Satisfied	Very satisfied
the dancers' interpretations of your choreographic prompts?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the amount of progress you made on your piece this week?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
your ability to edit and craft your dancers' movement appropriately for your process?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the dancers' quality of participation?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. **Were you surprised by what was created this week? ***

Mark only one oval.

	1	2	3	4	
Not surprised at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very surprised

7. **What physical spaces did you use for rehearsals and meetings with the in-person dancers this week? (please list) ***

Remote process

8. **Were you satisfied with... ***

Mark only one oval per row.

	Very unsatisfied	Unsatisfied	Satisfied	Very satisfied
the dancers' interpretations of your choreographic prompts?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the amount of progress you made on your piece this week?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
your ability to edit and craft your dancers' movement appropriately for your process?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the dancers' quality of participation?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. **Were you surprised by what was created this week? ***

Mark only one oval.

	1	2	3	4	
Not surprised at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very surprised

10. **What digital tools (software and hardware) did you ask the remote dancers to use this week (in creating and communicating)? (please list) ***

Dancer Survey

This is a short survey to gather data on your experience rehearsing this week. Please answer the following questions to the best of your ability! Thank you!

* Required

1. **First name ***

2. **Last name ***

3. **Today's date ***

Example: December 15, 2012

4. **Class year ***

Mark only one oval.

- ☐ 2020
- ☐ 2019
- ☐ 2018
- ☐ 2017
- ☐ Other

5. **Please check the box ***

Mark only one oval per row.

	yes	no	N/A
There were moments this week when a prompt or assignment given to me by my choreographer allowed me to make some of my own choices.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The majority of my rehearsal process this week seemed new/unfamiliar to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My choreographer asked me to participate in ways that made me feel uncomfortable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My rehearsal schedule this week fit well with my other time commitments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My choreographer asked me to participate in ways that made me feel confident.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My choreographer provided lots of information when describing assignments for me to complete.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt stressed making time for this project this week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like a co-author of the piece that we are making.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We produced a large amount of material this week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt that my ideas or concerns were well-received and responded to by my choreographer and duet partner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. **My choreographer and I are... ***

Mark only one oval.

	1	2	3	4	5	6	
Complete strangers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Close on a personal level

7. **My duet partner and I are... ***

Mark only one oval.

	1	2	3	4	5	6	
Complete strangers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Close on a personal level

8. **Overall, how satisfied with your experience were you this week? ***

Mark only one oval.

	1	2	3	4	
Very unsatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very satisfied

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 Google Forms

Choreographer Process Survey Results

In-Person: n=4

Remote: n=4

Question 1:				
	Yes, my in-person process was influenced by my remote process	Yes, my remote process was influenced by my in-person process	Yes, my remote and in-person processes influenced each other equally	No, my two processes seemed completely independent of each other
<i>Survey 1:</i>	50%	25%	25%	
<i>Survey 6:</i>		25%		75%
<i>Survey 7:</i>			25%	75%

Question 2:								
	In-Person				Remote			
	1	2	3	4	1	2	3	4
<i>Survey 1:</i>			75%	25%			75%	25%
<i>Survey 6:</i>			75%	25%			100%	
<i>Survey 7:</i>			75%	25%			75%	25%

Question 3:								
	In-Person				Remote			
	1	2	3	4	1	2	3	4
<i>Survey 1:</i>			100%				100%	
<i>Survey 6:</i>			50%	50%		25%	50%	25%
<i>Survey 7:</i>			75%	25%			50%	50%

Question 4:								
	In-Person				Remote			
	1	2	3	4	1	2	3	4
<i>Survey 1:</i>			100%			25%	75%	
<i>Survey 6:</i>			75%	25%		25%	50%	25%
<i>Survey 7:</i>		25%	75%			25%	75%	

Question 5:								
	In-Person				Remote			
	1	2	3	4	1	2	3	4
<i>Survey 1:</i>		25%	50%	25%			50%	50%
<i>Survey 6:</i>			50%	50%			75%	25%
<i>Survey 7:</i>			50%	50%			50%	50%

Question 6:								
	In-Person				Remote			
	1	2	3	4	1	2	3	4
<i>Survey 1:</i>	25%	25%	50%		25%	25%	50%	
<i>Survey 6:</i>	25%	25%	50%		25%	50%		25%
<i>Survey 7:</i>	25%	50%	25%		25%		75%	

Dancer Process Survey Results

In-Person: n=8

Remote: n=8

Question 1:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	100%			100%		
<i>Survey 6:</i>	62.5%	25%	12.5%	87.5%		12.5%
<i>Survey 7:</i>	37.5%	37.5%	25%	37.5%	25%	12.5%

Question 2:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	62.5%	37.5%		62.5%	12.5%	25%
<i>Survey 6:</i>	12.5%	87.5%		25%	75%	
<i>Survey 7:</i>		100%		50%	50%	

Question 3:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	25%	75%			62.5%	37.5%
<i>Survey 6:</i>		100%		12.5%	87.5%	
<i>Survey 7:</i>		87.5%	12.5%	37.5%	62.5%	

Question 4:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	87.5%		12.5%	87.5%		12.5%
<i>Survey 6:</i>	75%	25%		87.5%		12.5%
<i>Survey 7:</i>	100%			75%	12.5%	12.5%

Question 5:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	87.5%	12.5%		50%		50%
<i>Survey 6:</i>	100%			87.5%		12.5%
<i>Survey 7:</i>	87.5%		12.5%	62.5%	25%	12.5%

Question 6:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	37.5%	62.5%		50%	50%	
<i>Survey 6:</i>	62.5%	12.5%	25%	62.5%	12.5%	25%
<i>Survey 7:</i>	37.5%	12.5%	50%	62.5%	12.5%	25%

Question 7:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	25%	75%		12.5%	87.5%	
<i>Survey 6:</i>	25%	75%			100%	
<i>Survey 7:</i>		100%		12.5%	75%	12.5%

Question 8:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	87.5%		12.5%	50%	25%	25%
<i>Survey 6:</i>	100%			100%		
<i>Survey 7:</i>	87.5%		12.5%	62.5%	37.5%	

Question 9:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	62.5%	37.5%		12.5%	62.5%	25%
<i>Survey 6:</i>	25%	62.5%	12.5%	50%	37.5%	12.5%
<i>Survey 7:</i>	12.5%	62.5%	25%	25%	37.5%	37.5%

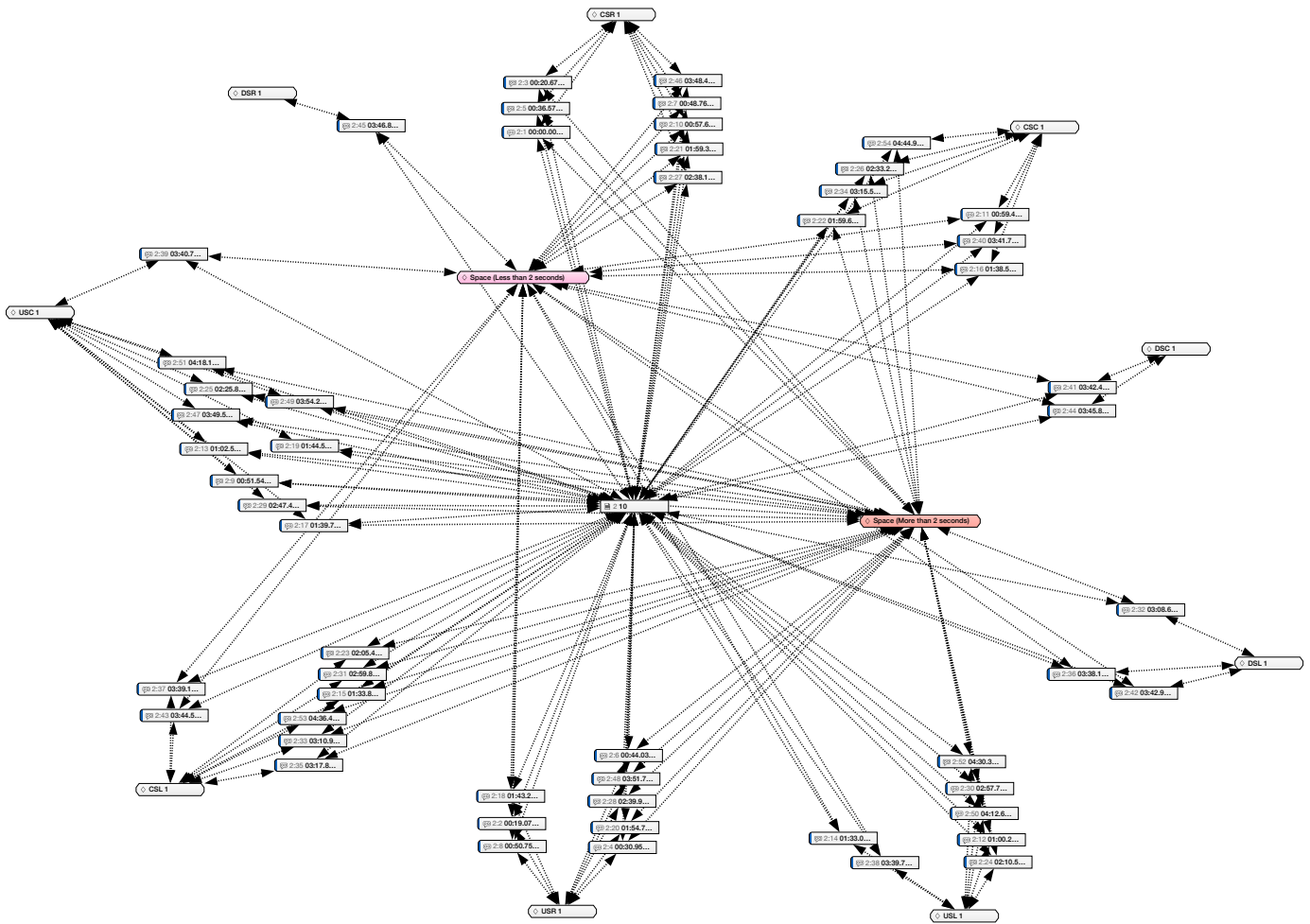
Question 10:						
	In-Person			Remote		
	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Survey 1:</i>	100%			37.5%		62.5%
<i>Survey 6:</i>	100%			87.5%		12.5%
<i>Survey 7:</i>	89.5%		12.5%	75%		25%

Question 11:												
	In-Person						Remote					
	1	2	3	4	5	6	1	2	3	4	5	6
<i>Survey 1:</i>	12.5%	25%	12.5%	25%	25%		37.5%	25%	25%		12.5%	
<i>Survey 6:</i>			12.5%	25%	62.5%		12.5%		25%	50%	12.5%	
<i>Survey 7:</i>		12.5%		25%	62.5%			12.5%	25%	37.5%	25%	

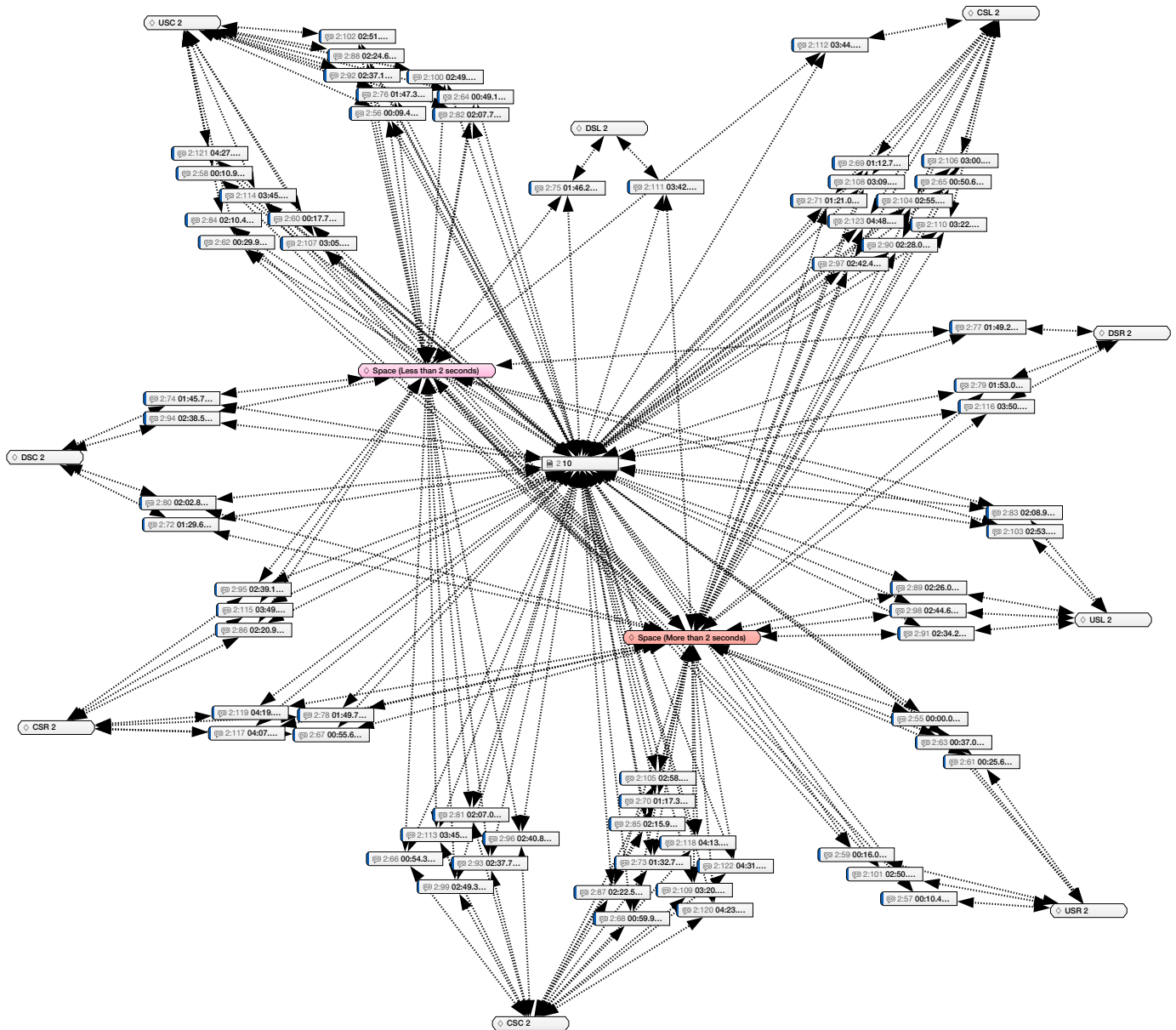
Question 12:												
	In-Person						Remote					
	1	2	3	4	5	6	1	2	3	4	5	6
<i>Survey 1:</i>	25%	12.5%	25%	37.5%			62.5%		12.5%	25%		
<i>Survey 6:</i>			37.5%	25%	37.5%		25%	12.5%	12.5%	37.5%	12.5%	
<i>Survey 7:</i>			25%	12.5%	62.5%		12.5%	12.5%	25%	25%	12.5%	12.5%

Question 13:								
	In-Person				Remote			
	1	2	3	4	1	2	3	4
<i>Survey 1:</i>		12.5%	62.5%	25%		12.5%	75%	12.5%
<i>Survey 6:</i>			25%	75%		12.5%	37.5%	50%
<i>Survey 7:</i>			50%	50%		12.5%	37.5%	50%

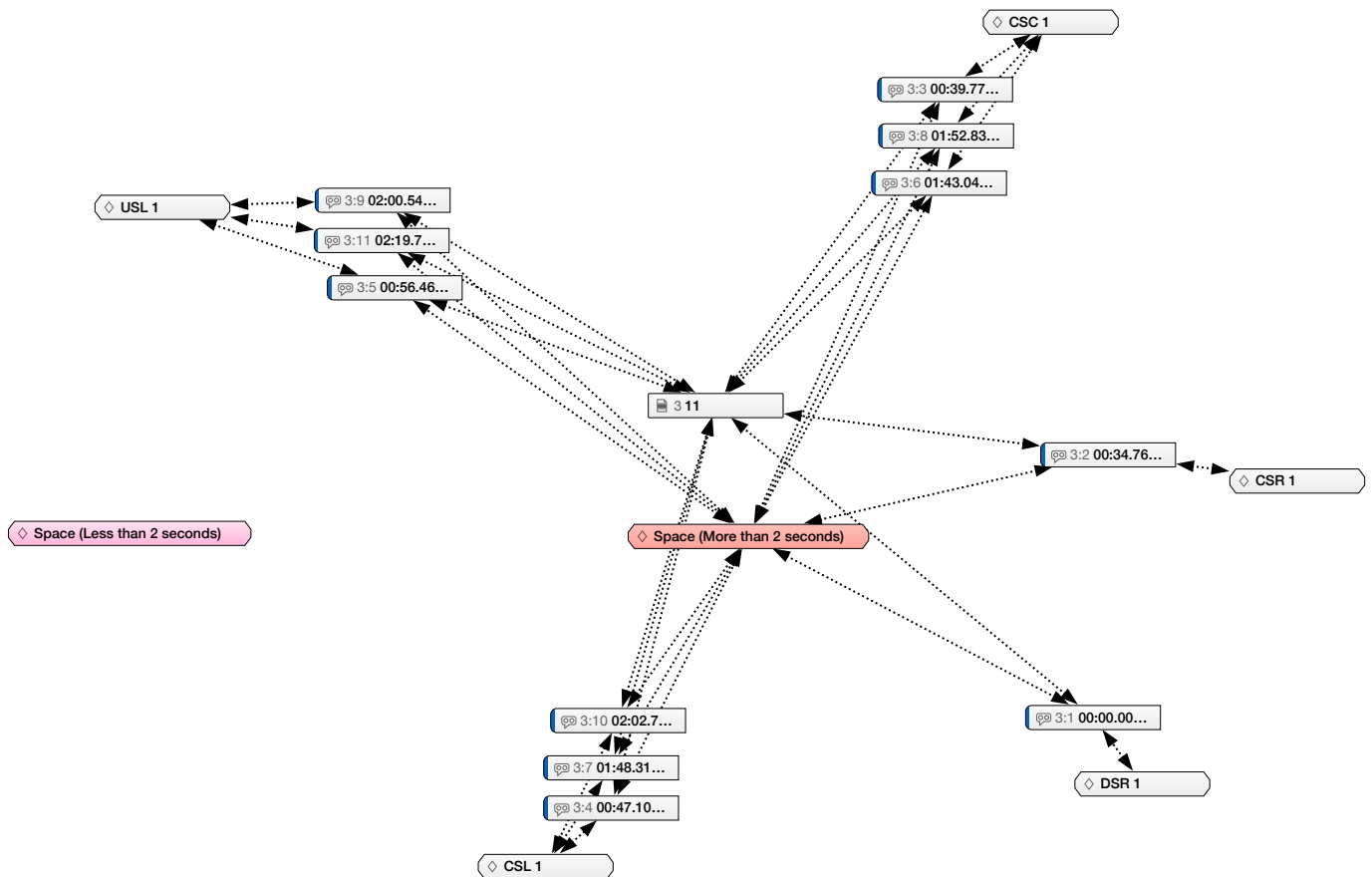
Space Network
Dancer 1
Choreographer 1's in-person dance



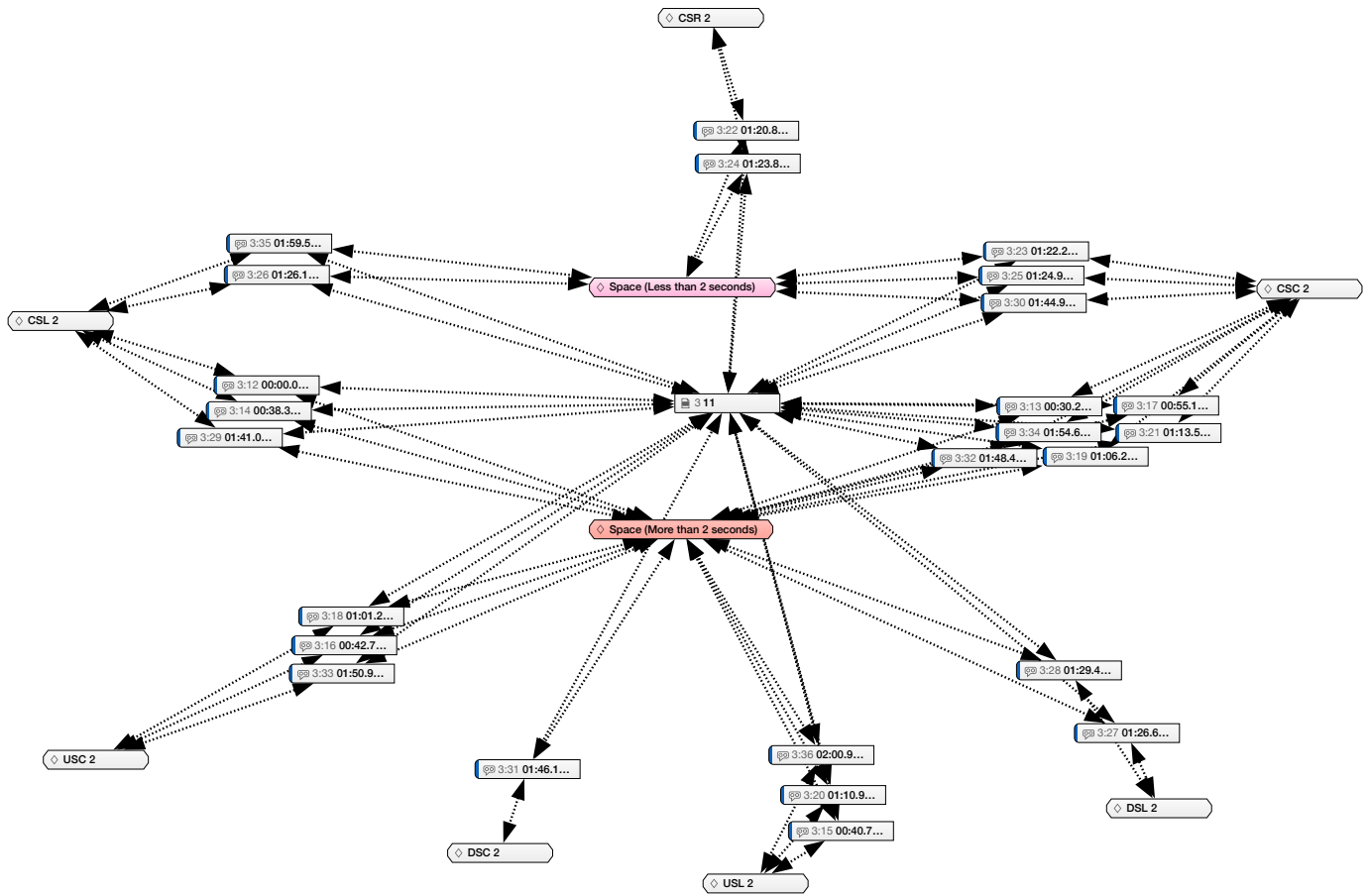
Space Network
Dancer 2
Choreographer 1's in-person dance



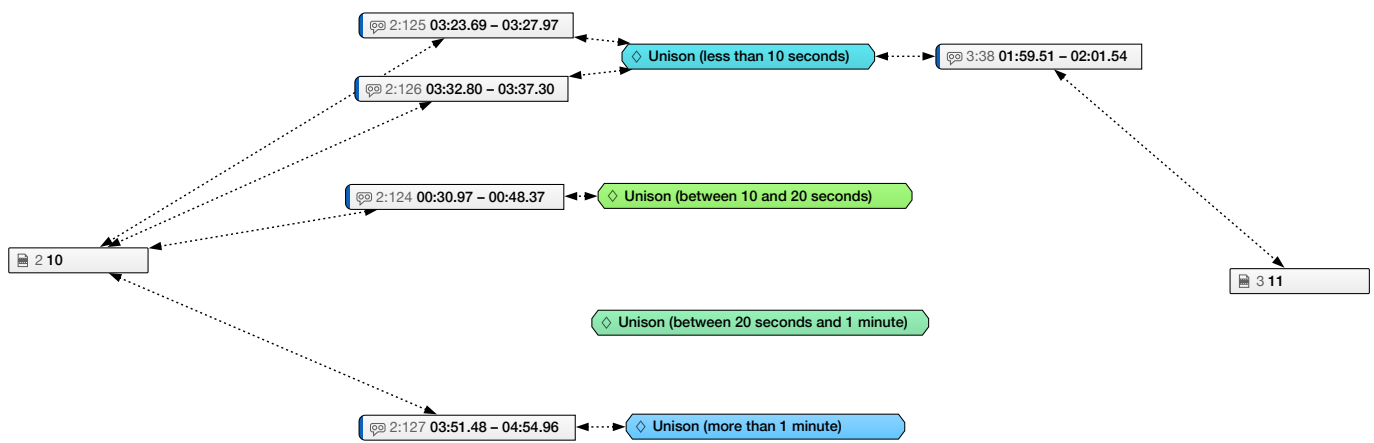
Space Network
Dancer 1
Choreographer 1's remote dance



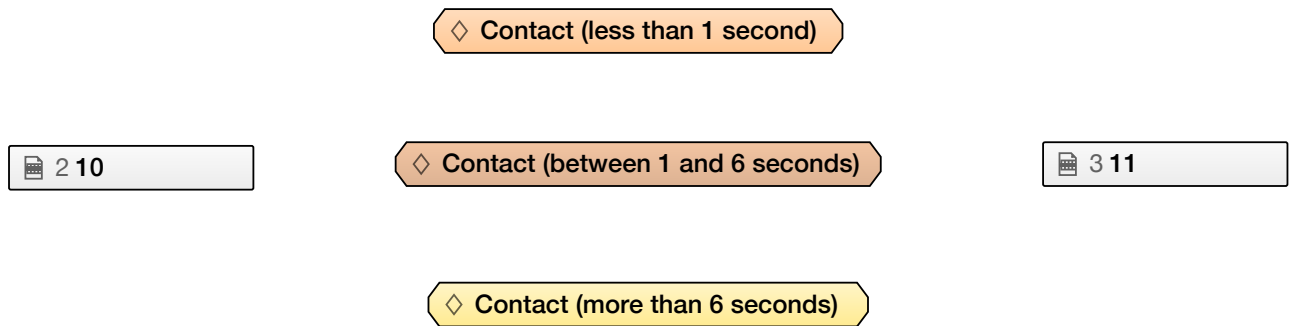
Space Network
Dancer 2
Choreographer 1's remote dance



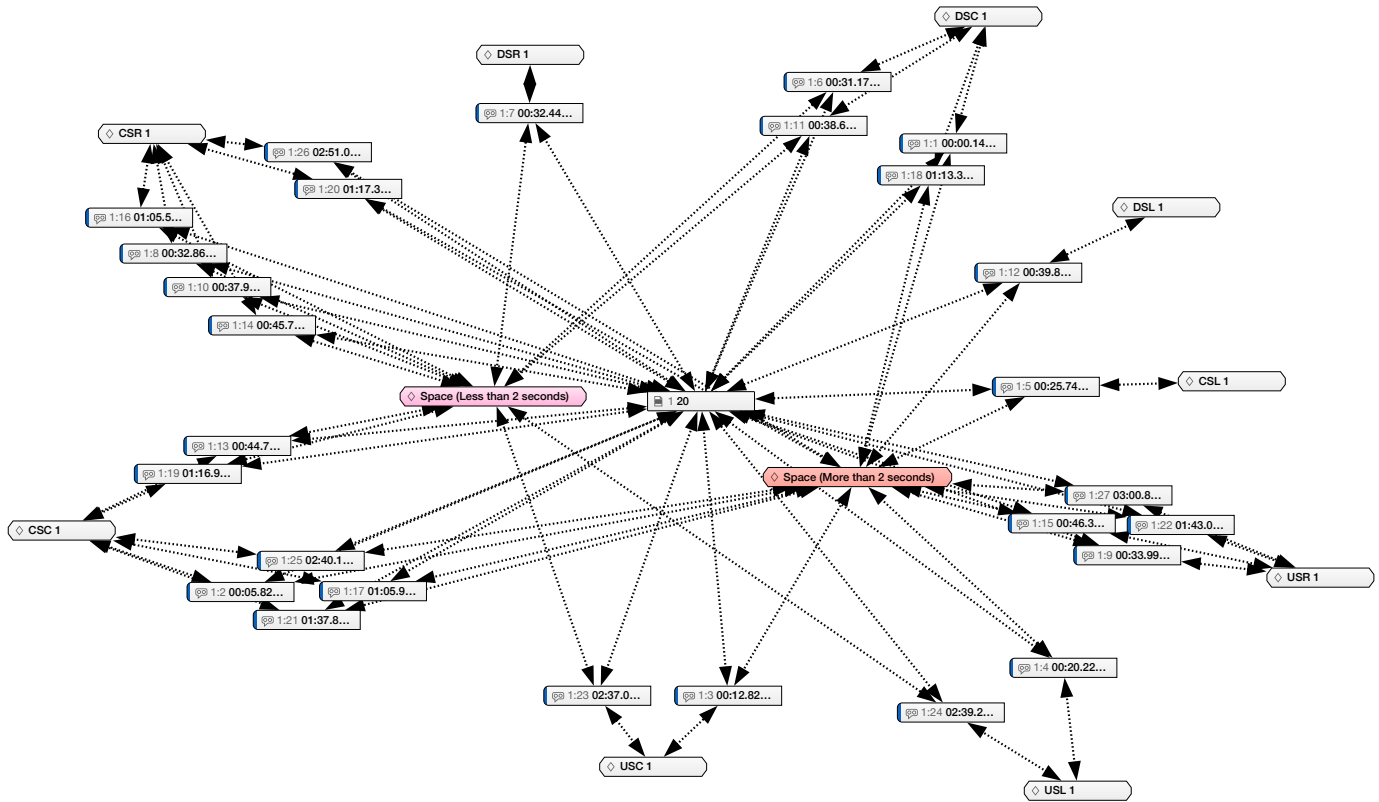
Unison Network Choreographer 1



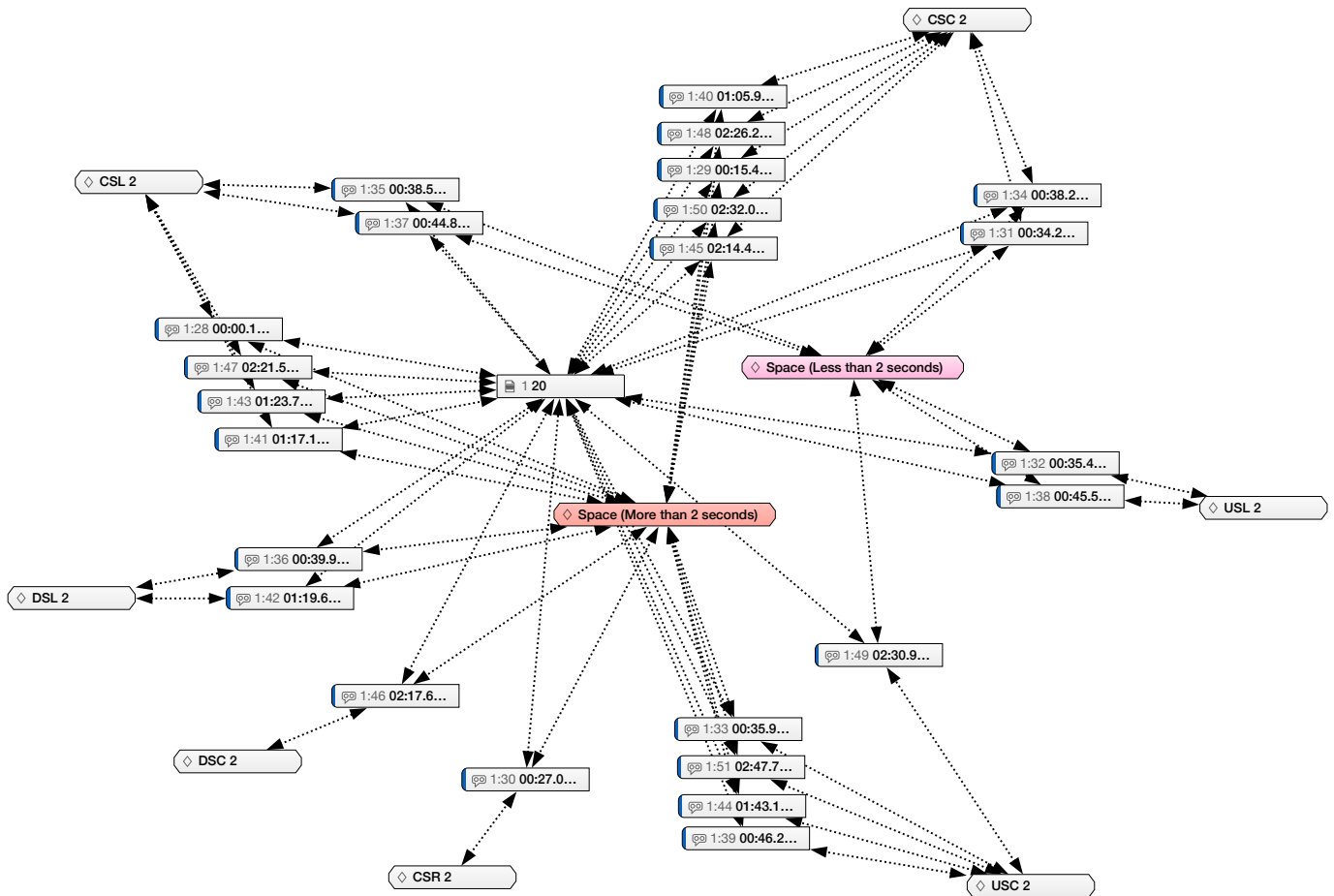
**Contact Network
Choreographer 1**



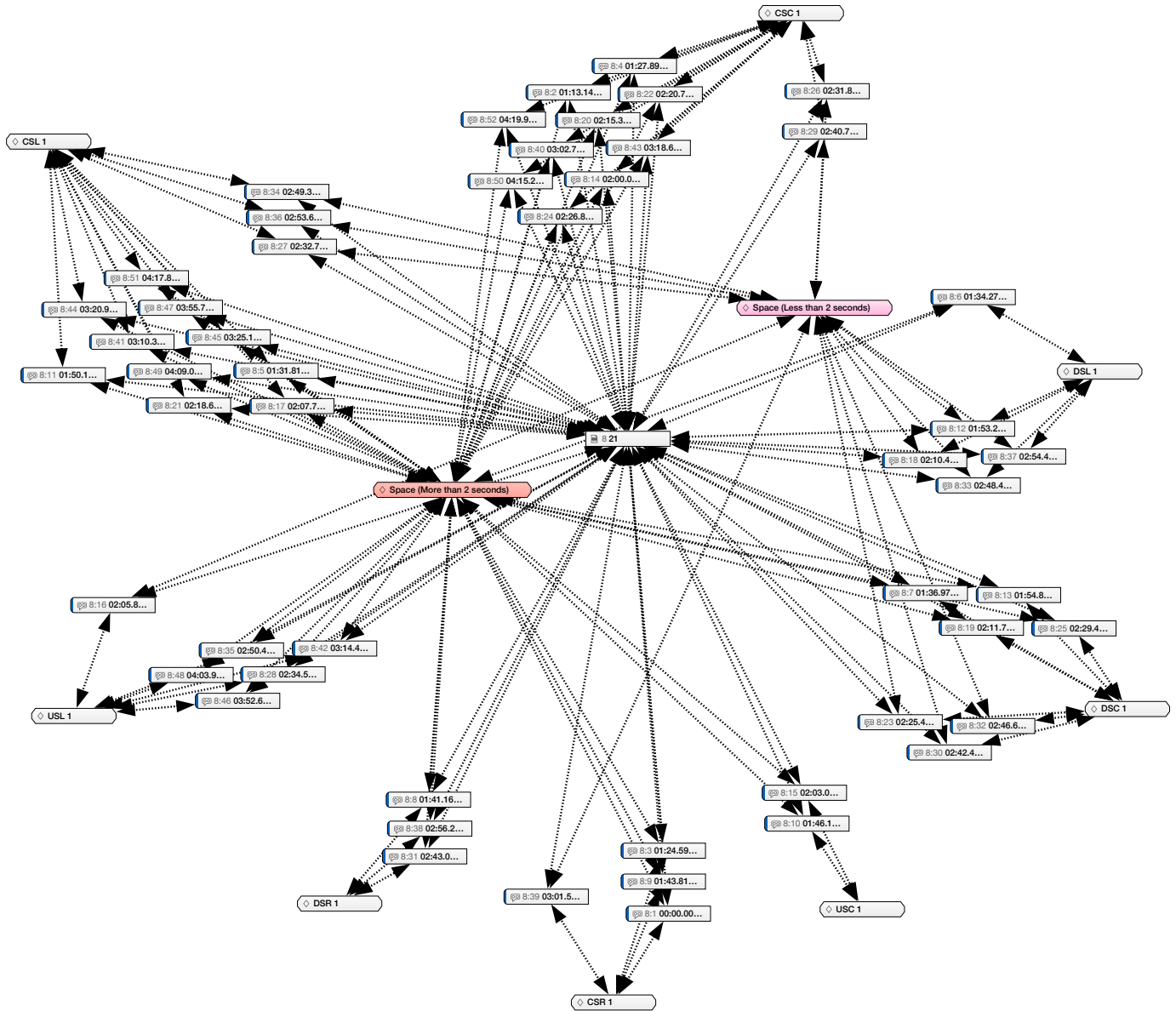
Space Network
Dancer 1
Choreographer 2's in-person dance



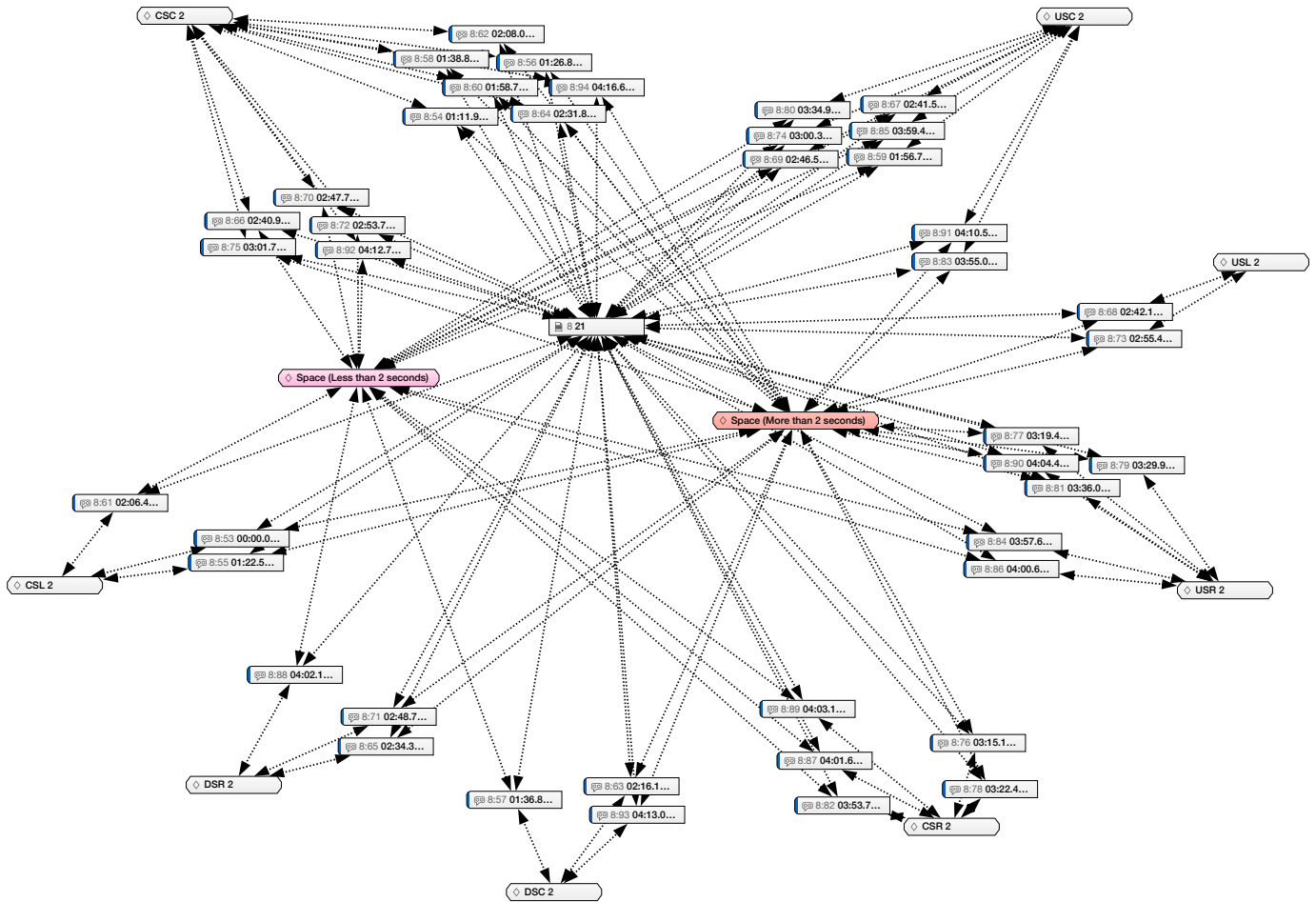
Space Network
Dancer 2
Choreographer 2's in-person dance



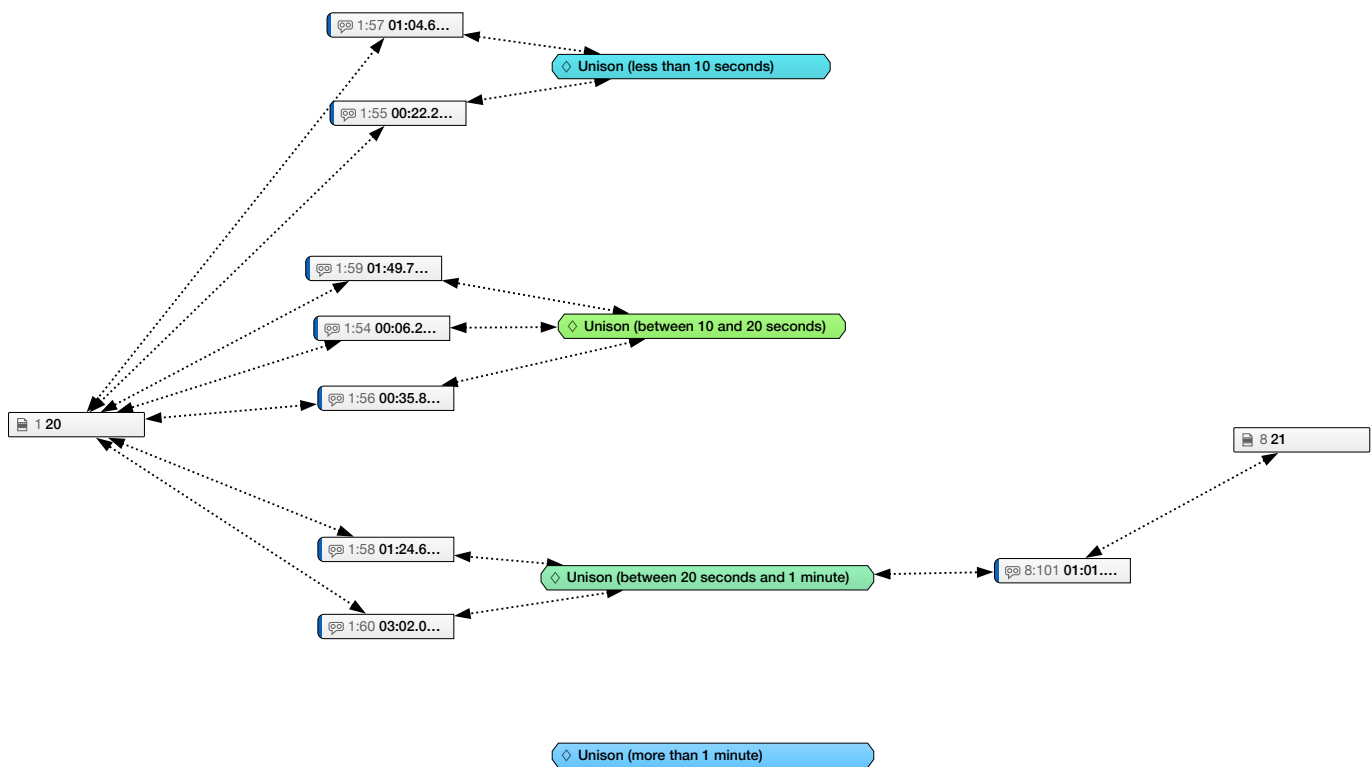
Space Network
Dancer 1
Choreographer 2's remote dance



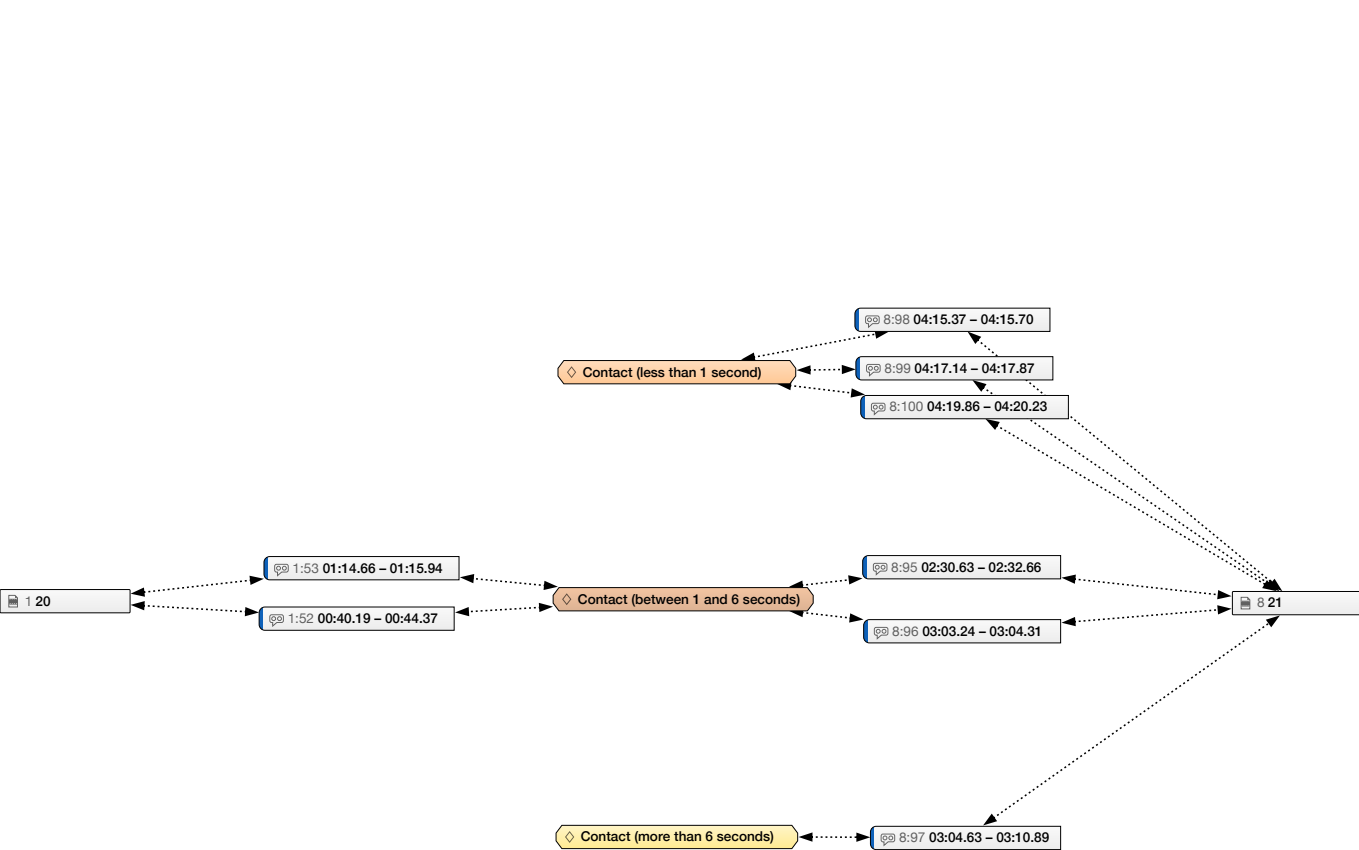
Space Network
Dancer 2
Choreographer 2's remote dance



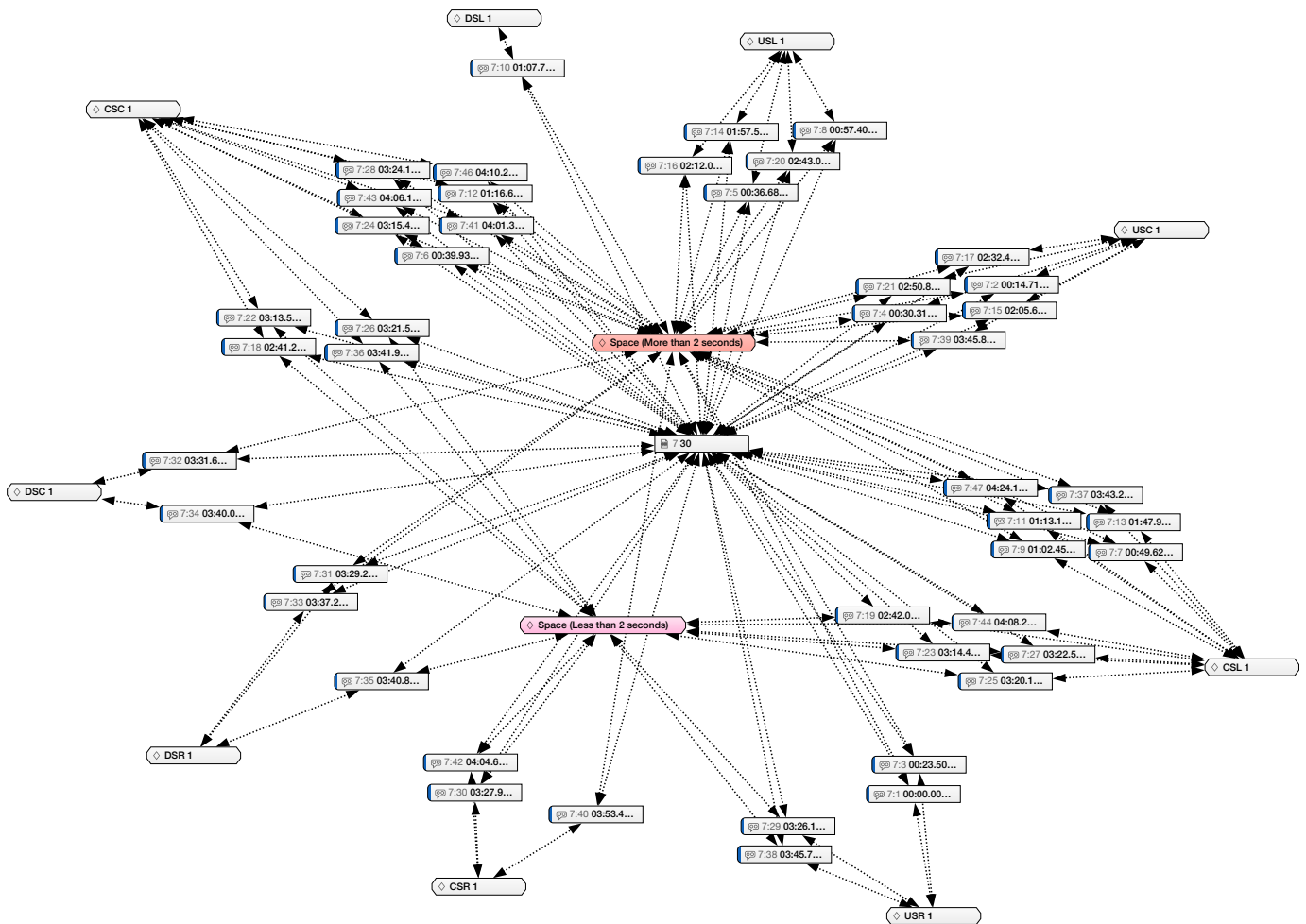
Unison Network Choreographer 2



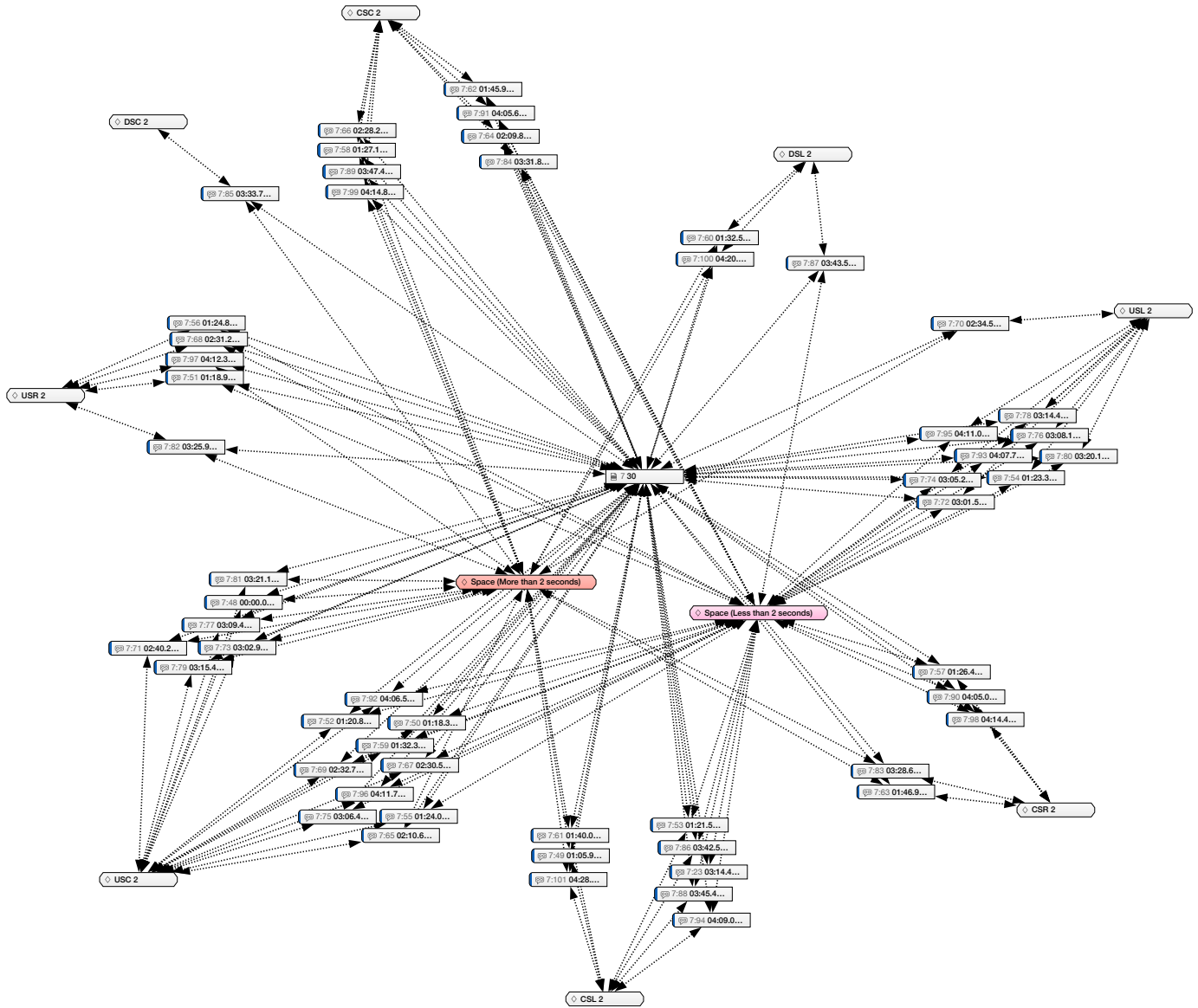
Contact Network
Choreographer 2



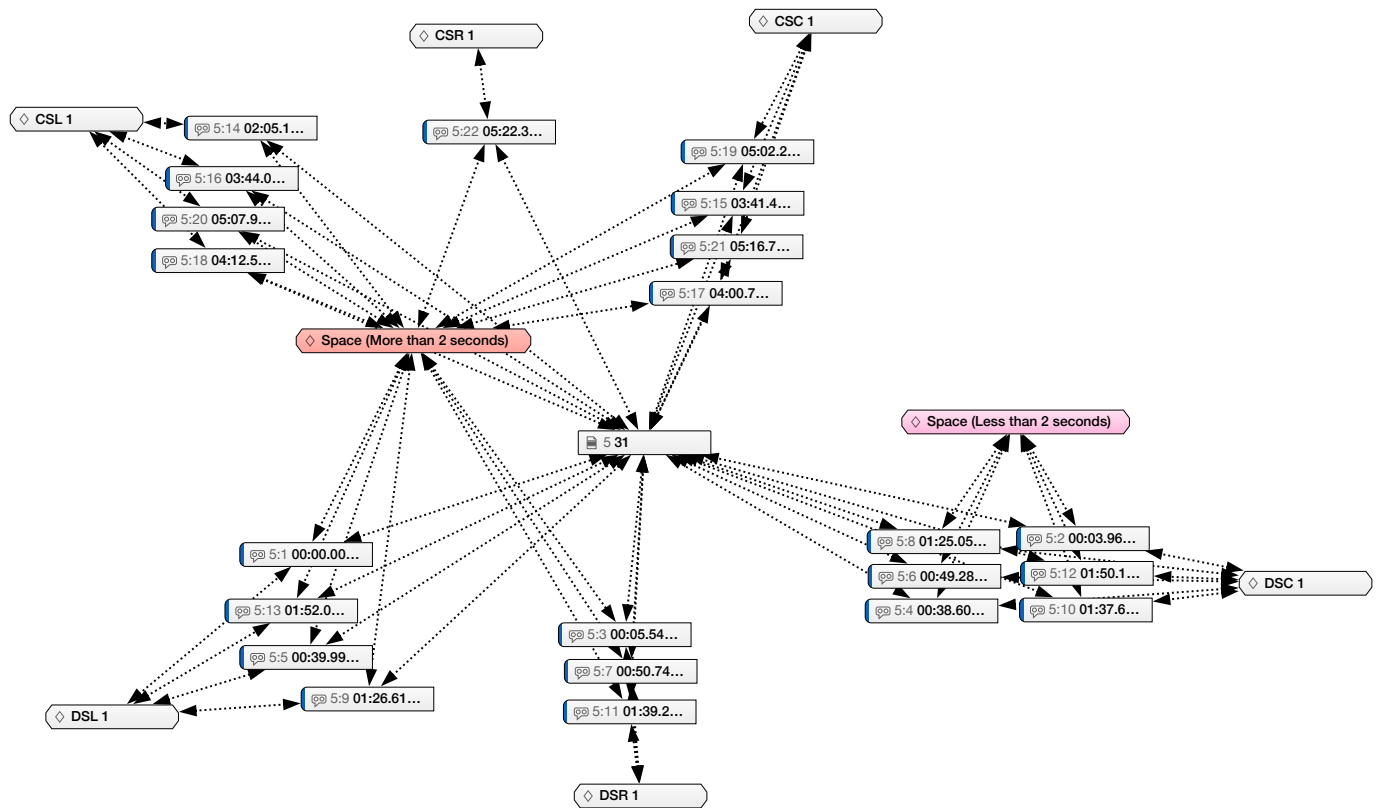
Space Network
Dancer 1
Choreographer 3's in-person dance



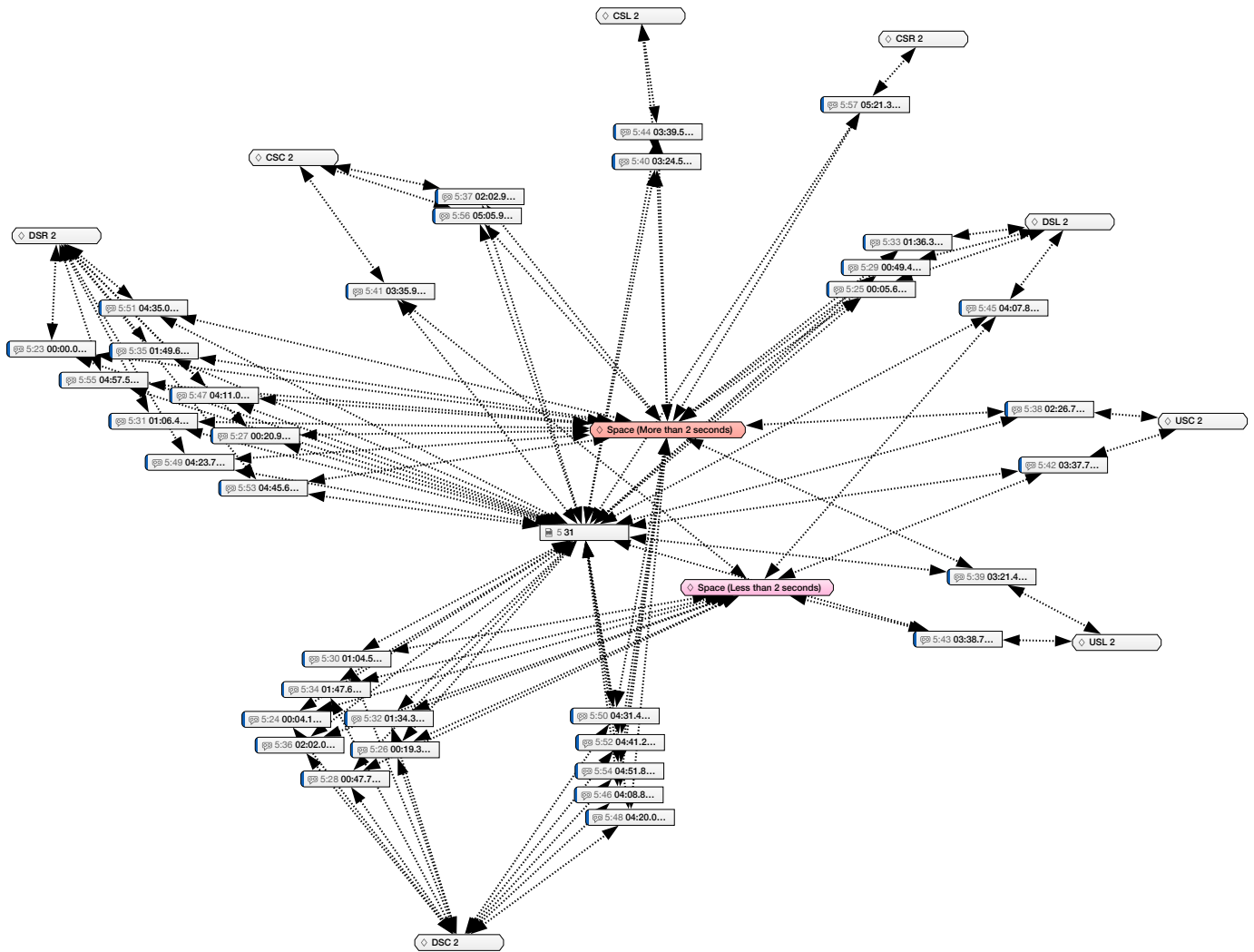
Space Network
Dancer 2
Choreographer 3's in-person dance



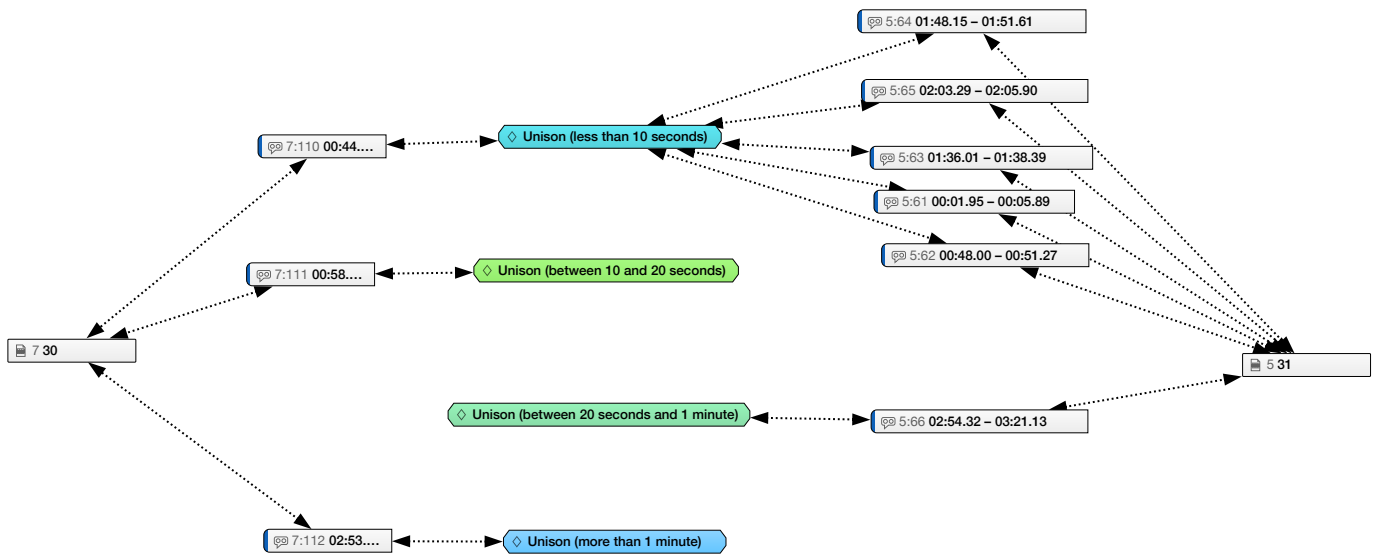
Space Network
Dancer 1
Choreographer 3's remote dance



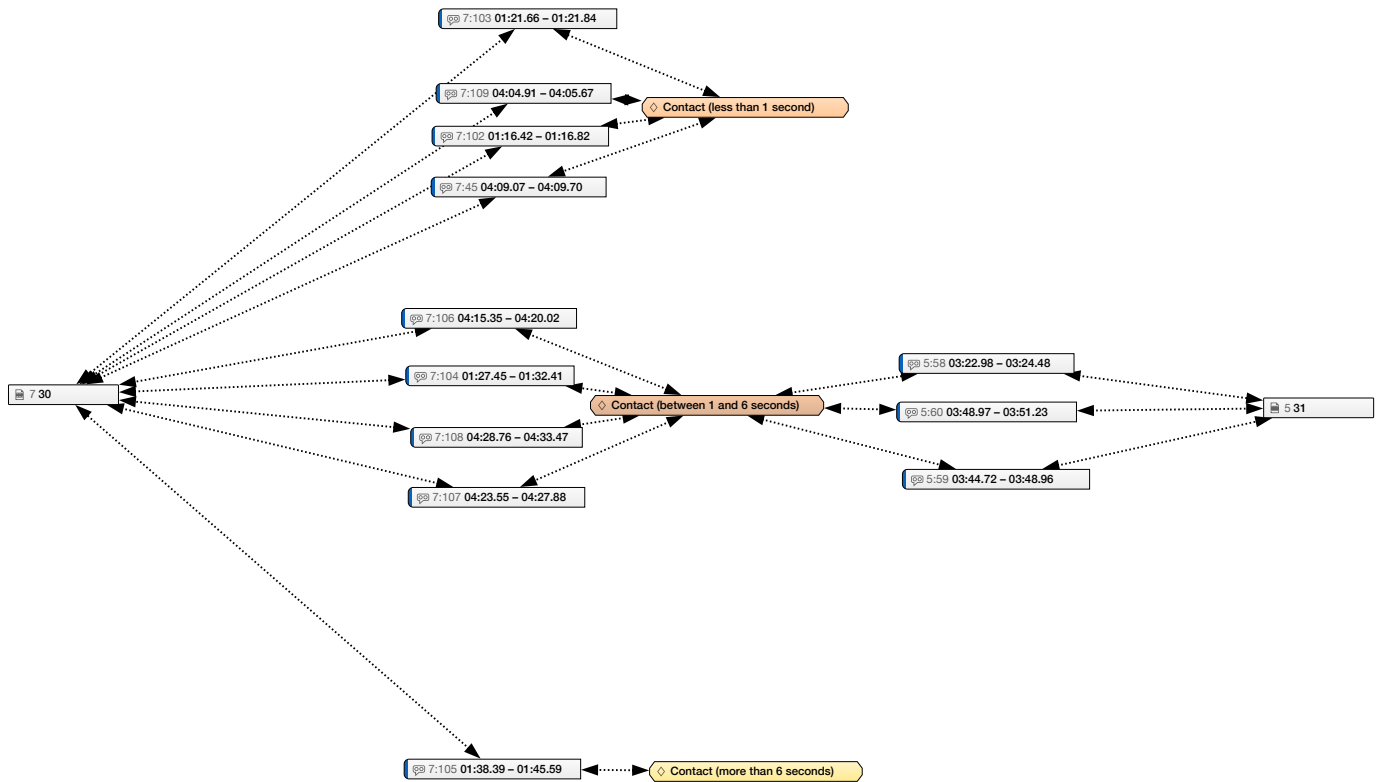
Space Network
Dancer 2
Choreographer 3's remote dance



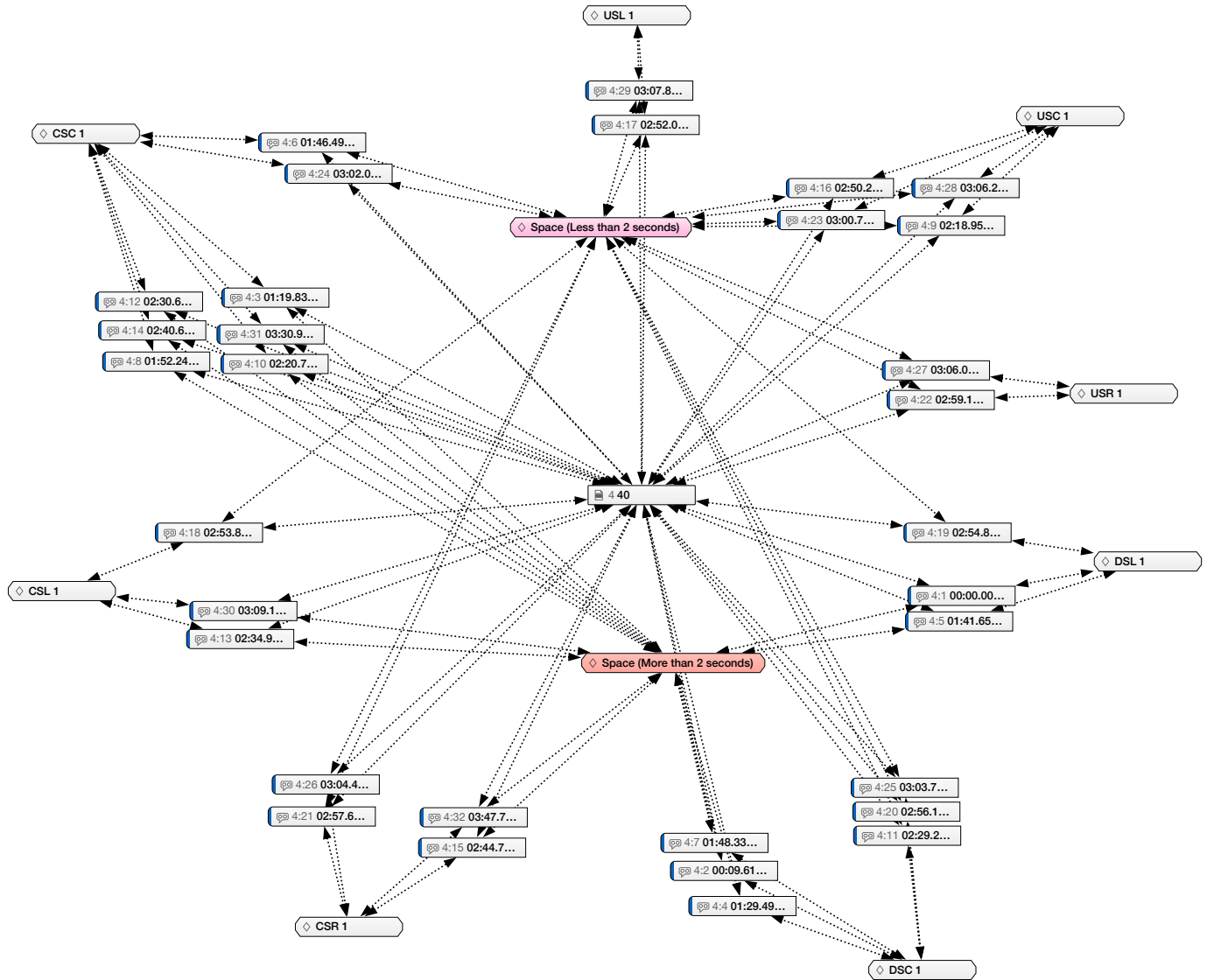
Unison Network Choreographer 3



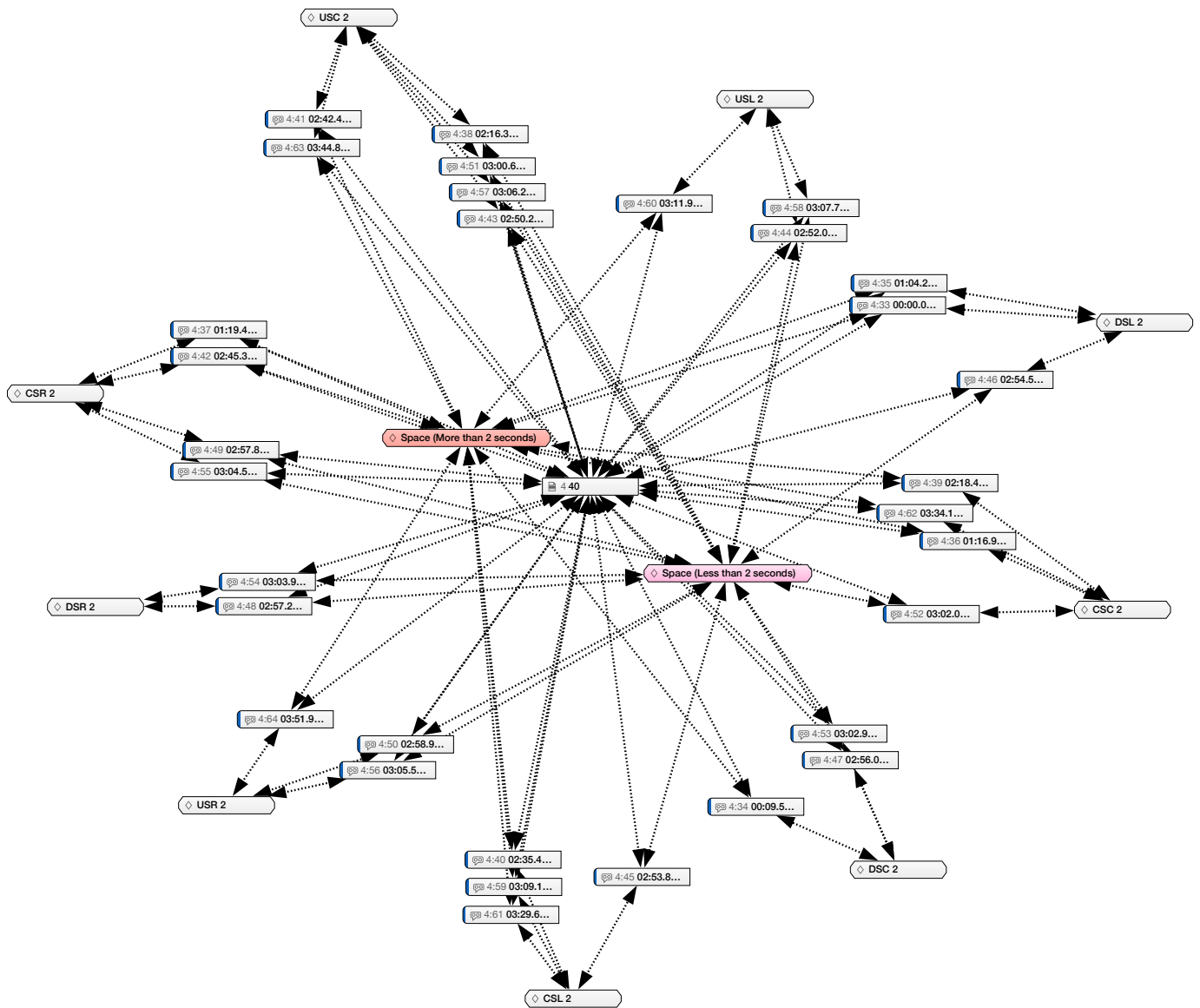
Contact Network Choreographer 3



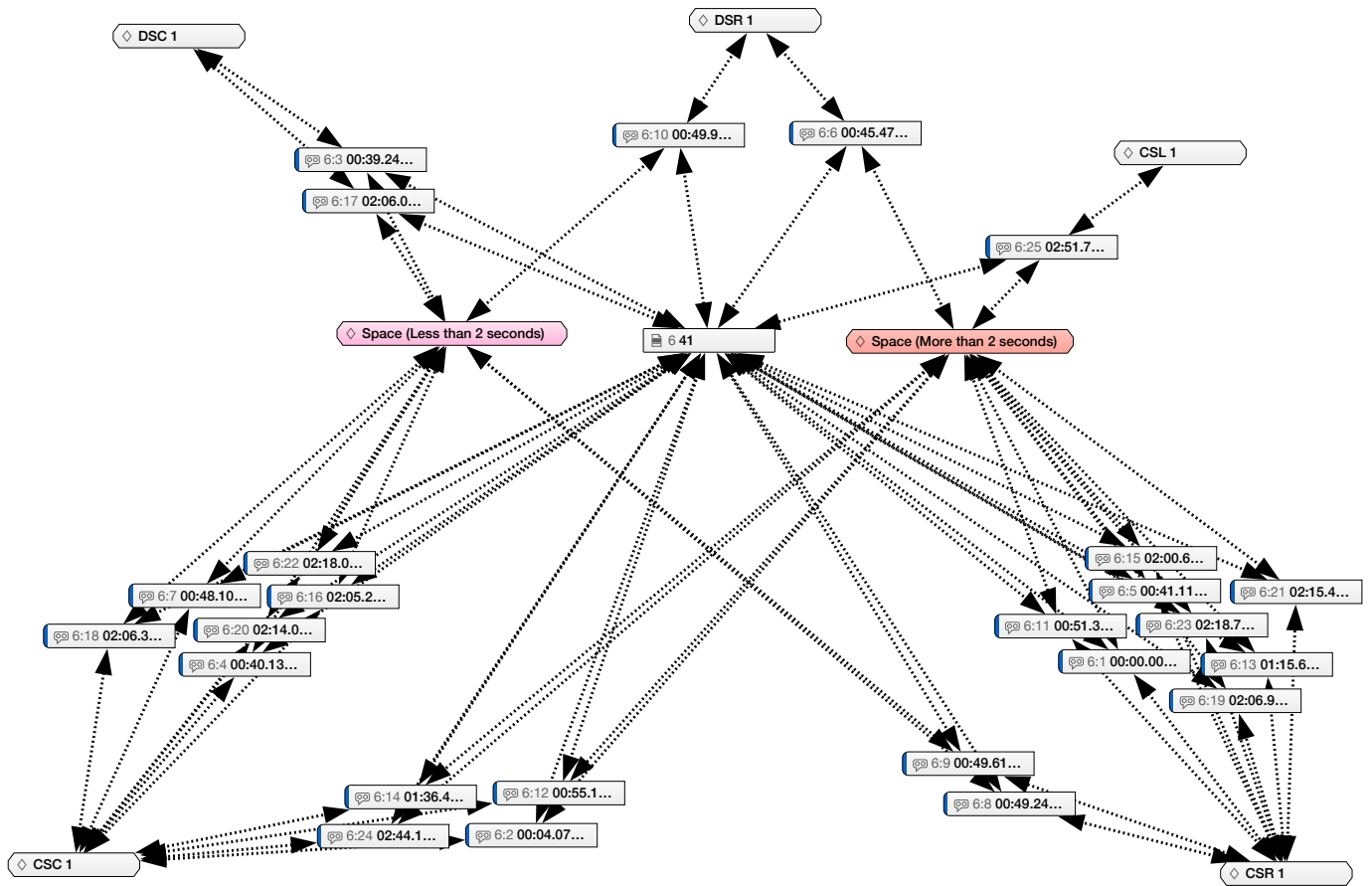
Space Network
Dancer 1
Choreographer 4's in-person dance



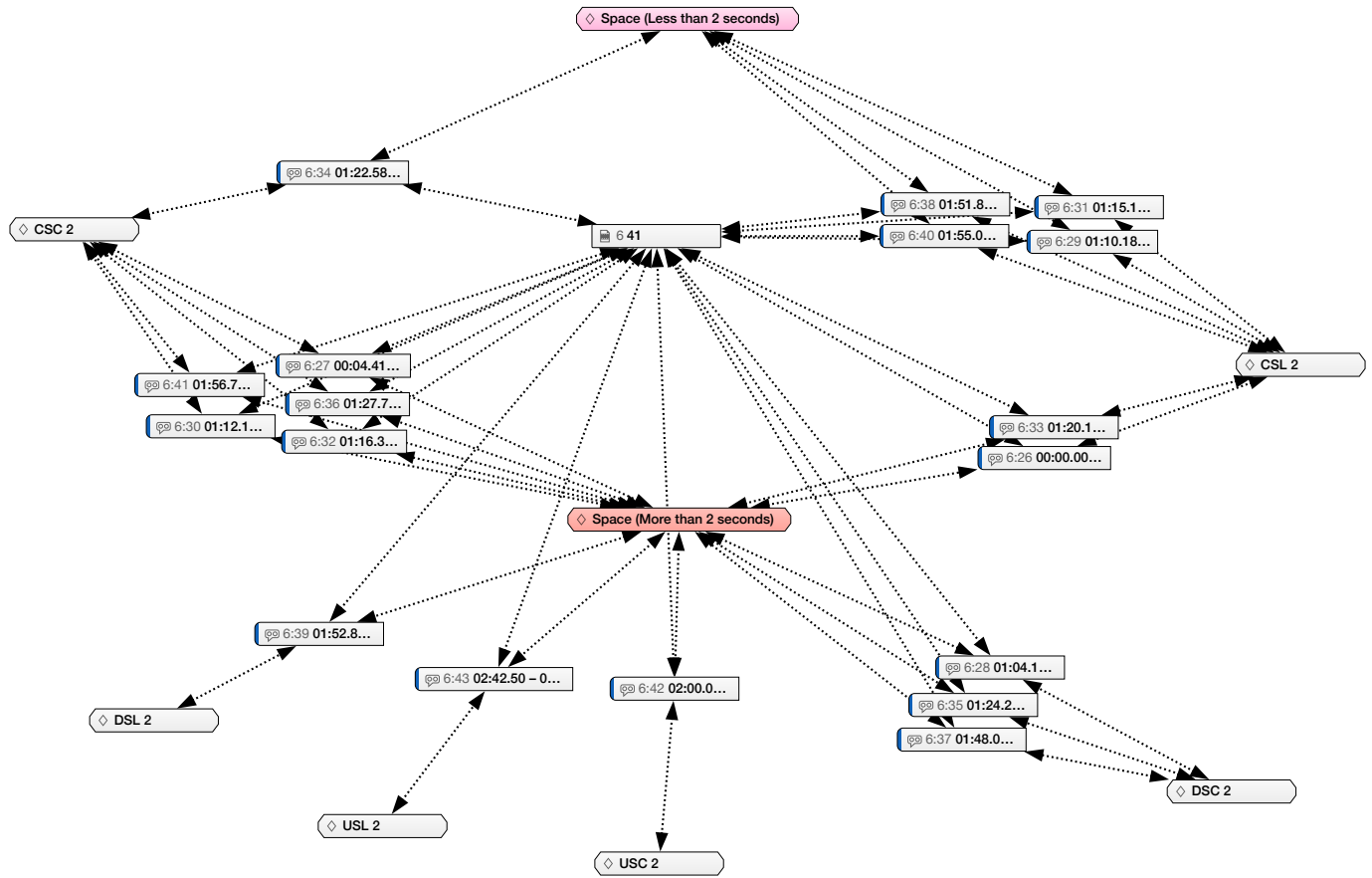
Space Network
Dancer 2
Choreographer 4's in-person dance



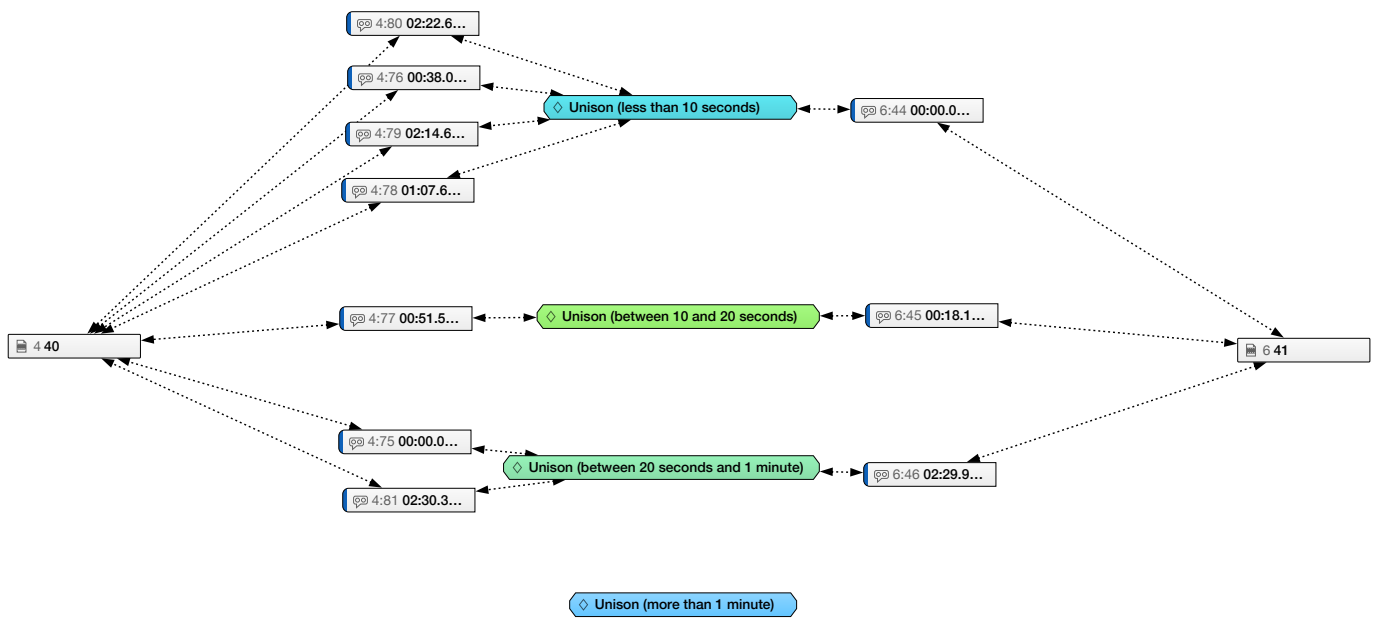
Space Network
Dancer 1
Choreographer 4's remote dance



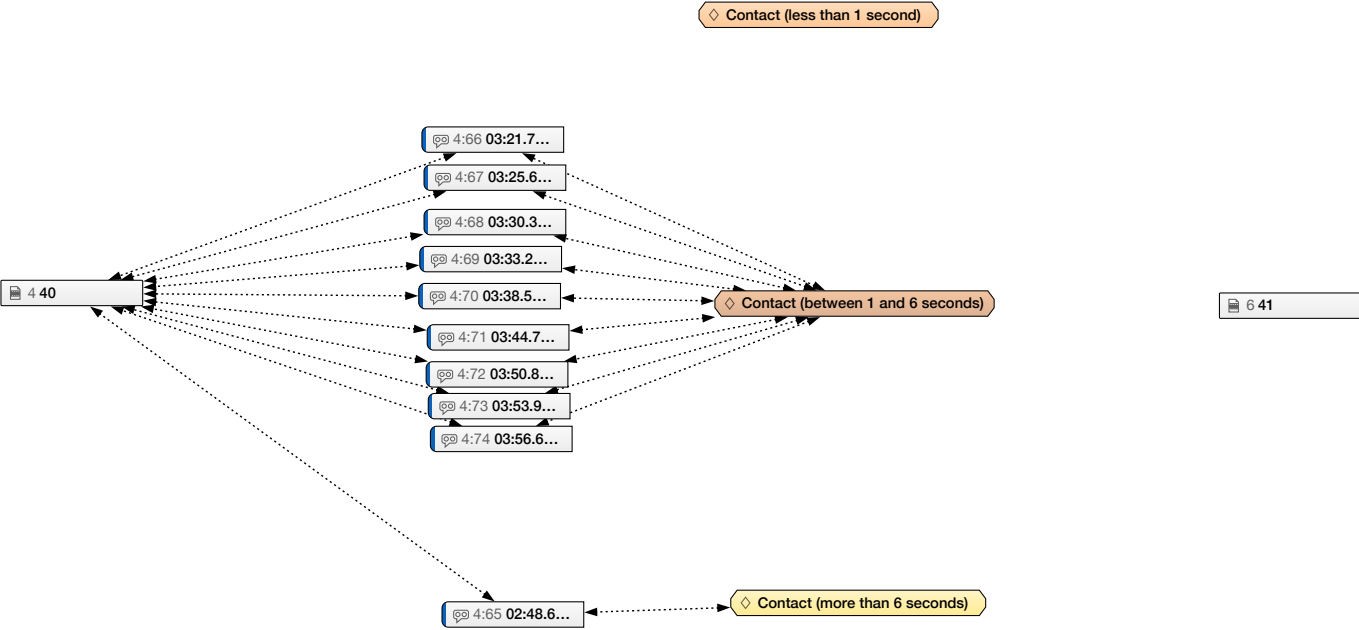
Space Network
Dancer 2
Choreographer 4's remote dance



Unison Network Choreographer 4



Contact Network
Choreographer 4



Code	10	11	20	21	30	31	40	41
Contact (between 1 and 6 seconds)	0	0	2	2	4	3	9	0
Contact (less than 1 second)	0	0	0	3	4	0	0	0
Contact (more than 6 seconds)	0	0	0	1	1	0	1	0
CSC 1	7	3	6	12	11	4	8	10
CSC 2	16	9	7	12	8	3	4	6
CSL 1	8	3	1	13	11	4	3	1
CSL 2	11	5	6	3	7	2	4	6
CSR 1	8	1	6	4	3	1	4	10
CSR 2	7	2	1	5	5	1	4	0
DSC 1	2	0	4	7	2	6	6	2
DSC 2	4	1	1	3	1	12	3	3
DSL 1	3	0	1	5	1	4	3	0
DSL 2	2	2	2	0	3	4	3	1
DSR 1	1	1	1	3	3	3	0	2
DSR 2	3	0	0	3	0	9	2	0
Space (Less than 2 seconds)	48	7	18	32	47	17	34	16
Space (More than 2 seconds)	75	29	33	62	53	40	30	27
Unison (between 10 and 20 seconds)	1	0	3	0	1	0	1	1
Unison (between 20 seconds and 1 minute)	0	0	2	1	0	1	2	1
Unison (less than 10 seconds)	2	1	2	0	1	5	4	1
Unison (more than 1 minute)	1	0	0	0	1	0	0	0
USC 1	10	0	2	2	6	0	4	0
USC 2	15	3	5	8	16	2	6	1
USL 1	7	3	2	6	5	0	2	0
USL 2	5	3	2	2	9	2	3	1
USR 1	8	0	4	0	4	0	2	0
USR 2	6	0	0	6	5	0	3	0

Kathryn Butler
Colby College Department of Theater and Dance
Annie Kloppenberg and Jim Scott
kibutler@colby.edu

Viewer Response to Contemporary Dance
Consent Form

You are invited to take part in a research survey regarding audience response to contemporary dance. Your participation will require a maximum of 1 hour. There are no known risks or discomforts associated with this survey. Taking part in this study is completely voluntary. Your responses will be kept strictly confidential. Demographic data collected will not be used to associate responses to individual participants. Any report of this research that is made available to the public will not include your name or any other individual information by which you could be identified. If you have questions or want a copy or summary of this study's results, you can contact the researcher at the email address above. All data collected for this study and consent forms will be kept confidential. The data will be stored in a secure location. Signing this document indicates that you have read this document and you agree to participate to the best of your ability.

Name (print) _____

Name (sign)_____

Date_____

Audience Response Survey

Sunday, December 4th evening

Age: _____

Please circle

Over the last year, approximately how many dance performances have you seen?

0

1-4

5-19

20+

Do you consider yourself a choreographer?

Yes

No

Do you consider yourself a dancer?

Yes

No

How much do you know about how these dances were created?

A lot

A little

Nothing at all

Which thesis performances have you already attended?

Friday, December 2nd

Saturday, December 3rd

Sunday, December 4th afternoon

TITLE

<i>Mark only one box per row</i>	Disagree strongly	Disagree somewhat	Agree somewhat	Agree strongly
The dancer's movement was what I would expect to see in a dance piece.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The dancers were communicating with each other (aurally, visually, physically) during the work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was aware of the other audience members during the piece.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I viewed the dancers primarily as people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I had questions while watching the dance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sounds, music, or speaking played an important role in this work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aspects of the performance caused me to make connections to my own life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The piece had a narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There was at least one abrupt shift, unexpected moment, or change that caused me to become drawn-in to the work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The dancers were committed in their performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time passed quickly during the piece.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I viewed the dancers primarily as shapes and lines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I think I will still remember this piece in a month.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The dancers seemed appropriately prepared to perform the work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was interested in the dancer's spatial arrangements during the work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layering of multiple performance elements played an important role in this piece.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Audience Response Survey Data - Summarized**In-person: group==0****Remote: group==1**

```
. summarize q1 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q1	315	3.546032	.6959449	1	4

```
. summarize q1 if group==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q1	316	3.332278	.8397104	1	4

```
. summarize q2 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q2	315	3.6	.5961661	2	4

```
. summarize q2 if group==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q2	316	3.310127	.853764	1	4

```
. summarize q3 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q3	315	2.028571	.9042413	1	4

```
. summarize q3 if group==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q3	316	2.297468	.9462339	1	4

```
. summarize q4 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q4	316	3.496835	.7104589	1	4

```
. summarize q4 if group==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q4	315	3.406349	.7612998	1	4

```
. summarize q5 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q5	315	3.044444	.9018343	1	4

. summarize q5 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q5	315	3.190476	.8753005	1	4

. summarize q6 if group==0

Variable	Obs	Mean	Std. Dev.	Min	Max
q6	315	3.406349	.794061	1	4

. summarize q6 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q6	315	3.057143	.9493065	1	4

. summarize q7 if group==0

Variable	Obs	Mean	Std. Dev.	Min	Max
q7	316	2.196203	1.004491	1	4

. summarize q7 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q7	316	2.193038	1.01922	1	4

. summarize q8 if group==0

Variable	Obs	Mean	Std. Dev.	Min	Max
q8	316	2.867089	.8589727	1	4

. summarize q8 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q8	314	2.713376	.956237	1	4

. summarize q9 if group==0

Variable	Obs	Mean	Std. Dev.	Min	Max
q9	316	3.117089	.874085	1	4

. summarize q9 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q9	316	2.933544	.8794017	1	4

```
. summarize q10 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q10	316	3.047468	.9500008	1	4

```
. summarize q10 if group==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q10	315	2.974603	1.061481	1	4

```
. summarize q11 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q11	315	3.685714	.5409526	1	4

```
. summarize q11 if group==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q11	316	3.642405	.5537513	2	4

```
. summarize q12 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q12	316	3.291139	.7791228	1	4

```
. summarize q12 if group==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q12	315	3.279365	.7807719	1	4

```
. summarize q13 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q13	315	2.860317	1.012429	1	4

```
. summarize q13 if group==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q13	315	3.171429	1.020089	1	4

```
. summarize q14 if group==0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
q14	315	1.847619	.8682028	1	4

. summarize q14 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q14	313	1.884984	.8984663	1	4

. summarize q15 if group==0

Variable	Obs	Mean	Std. Dev.	Min	Max
q15	313	2.731629	.9083954	1	4

. summarize q15 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q15	315	2.742857	.9310145	1	4

. summarize q16 if group==0

Variable	Obs	Mean	Std. Dev.	Min	Max
q16	316	3.553797	.6018106	1	4

. summarize q16 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q16	316	3.572785	.5671593	2	4

. summarize q17 if group==0

Variable	Obs	Mean	Std. Dev.	Min	Max
q17	315	3.095238	.8726978	1	4

. summarize q17 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q17	314	2.942675	.906082	1	4

. summarize q18 if group==0

Variable	Obs	Mean	Std. Dev.	Min	Max
q18	310	3.1	.8043168	1	4

. summarize q18 if group==1

Variable	Obs	Mean	Std. Dev.	Min	Max
q18	310	2.880645	.8525307	1	4