

**Designing Virtual Learning Environments  
for the California Association of Tactical Officers**

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## Executive Summary

### Problem of Practice

The California Association of Tactical Officers (CATO) is currently facing financial challenges that the coronavirus and the canceling of in-person classes have exacerbated. Training is the organization's backbone, and its training classes are also its primary source of revenue. In its strategic plan, CATO outlined several opportunities for improvement:

- Increase CATO's revenue by expanding the number of training courses offered while simultaneously decreasing the costs associated with training courses.
- Create a mechanism to determine what courses law enforcement agencies and its members want CATO to offer.
- Design courses available throughout the state that are relevant, engaging, and cultivate learning for the law enforcement community CATO serves.

### Capstone Purpose

CATO's strategy for increasing revenue by expanding the number of courses offered while simultaneously decreasing costs is to develop live virtual classes that are pertinent and promote critical thinking. However, the problem CATO faces is that it currently offers few virtual classes and lacks experience designing virtual learning environments. To implement its strategy, CATO needs to design virtual learning environments that create a meaningful educational experience for the law enforcement community it serves. Informing CATO on how to design virtual learning environments that create a meaningful educational experience is the central research problem for this Capstone Project.

### Research Questions

Informed by the context, problem, literature, and framework, the following research questions were developed:

1. What effect does agency size, SWAT team size, and geographic location have on the type of courses CATO should offer?
2. What effect does being a participant in CATO's training, an individual's rank in a police department, or being a member of the CATO organization have on what type of courses CATO should offer?
3. What are effective design strategies based on the Community of Inquiry framework for CATO's live virtual classes that will create community and a meaningful educational experience through *cognitive presence*, *social presence*, and *teaching presence*?

Decreasing costs associated with in-person training, identifying relevant course curriculum, and designing virtual learning environments that promote critical thinking are the problems of practice CATO wants to overcome. By answering the above questions, this Capstone Project will:



- Identify relevant course curriculum for CATO.
- Provide a virtual learning environment design that supports CATO's in-person classes at a lower cost.
- Make CATO's course curriculum available throughout the state.
- Furnish CATO with a virtual learning environment design that supports a meaningful educational experience for its participants.

## Findings

The Community of Inquiry theoretical framework, interviews with key stakeholders, and surveys of participants guided the design of CATO's virtual learning environments. The intent was to create a meaningful educational experience for the students who attend CATO's virtual classes. The design did this by focusing on three interdependent elements: cognitive presence, social presence, and teaching presence. These three elements promote the learning process by supporting discourse, setting climate, and selecting content.

An analysis of the pre-intervention data provided the following findings:

- CATO's participants and stakeholders want a curriculum centered on critical incident debriefs.
- CATO's participants' and stakeholders' preferred learning method is decision-making exercises in an environment that promotes group interaction and discussion.
- CATO's participants and stakeholders prefer courses that focus on critical incidents involving SWAT and patrol/field operations.
- CATO's participants and stakeholders want the instructors to avoid long lectures presented by PowerPoint.

The design intervention merged the participants' and stakeholders' preferences with the elements of the Community of Inquiry framework. The design intervention was applied to three of CATO's virtual classes. The findings demonstrated an increase in the means for cognitive presence, social presence, and teaching presence. The increase was significant for cognitive presence in all three classes and for teaching presence in two classes. Additionally, Hedges'  $g$  found a large effect size for cognitive presence and teaching presence in all the classes and a medium effect size for social presence. Finally, an analysis of the three classes using the Community of Inquiry Coding Template found indicators of the three presences and established that a meaningful educational experience was taking place based on the framework.

## Recommendations

1. CATO should apply the Community of Inquiry framework's principles of practice to its virtual learning environments.
2. CATO should adhere to the virtual learning environment intervention design.
3. CATO should pay close attention to how teaching presence supports cognitive presence and social presence.



4. CATO should keep the course design process simple by using the Community of Inquiry Coding Template and the Community of Inquiry Survey to guide its design process.
5. CATO should look to specific design strategies outlined in the literature to promote the three presences in its learning environments.



## Introduction

### Partner Organization

The California Association of Tactical Officers (CATO) provides tactical training and education for law enforcement in California. It is a non-profit organization dedicated to delivering information, knowledge, and resources to the 80,000 sworn officers in the state who serve 39 million residents. Its goal is to increase professionalism and proficiency by developing best practices for special weapons and tactics (SWAT) teams and the law enforcement community. CATO executes this goal by sponsoring training programs, developing a website with an extensive library of resources, and holding an annual conference where law enforcement professionals worldwide come to debrief critical incidents and discuss lessons learned.

### Problem of Practice

CATO is currently facing financial challenges that the coronavirus and the canceling of in-person classes have exacerbated. Training is the organization's backbone, and its training classes are also its primary source of revenue. In its strategic plan, CATO outlined several opportunities for improvement:

- Increase CATO's revenue by expanding the number of training courses offered while simultaneously decreasing the costs associated with training courses.
- Create a mechanism to determine what courses law enforcement agencies and its members want CATO to offer.
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### Capstone Purpose

CATO's strategy for increasing revenue by expanding the number of courses offered while simultaneously decreasing costs is to develop live virtual classes that are pertinent and promote critical thinking. However, the problem CATO faces is that it currently offers few virtual classes and lacks experience designing virtual learning environments. To implement its strategy, CATO needs to design virtual learning environments that create a meaningful educational experience for the law enforcement community it serves. Informing CATO on how to design virtual learning environments that create a meaningful educational experience is the central research problem for this Capstone Project.

## Literature Review

### Community of Inquiry Theoretical Framework

#### *Background*

The growingly connected world has caused CATO to evaluate its approach to teaching and learning. Virtual learning environments allow CATO to deliver its content to a vast audience. However, sound educational principles must guide CATO's endeavor into virtual learning if it wants to create a meaningful educational experience for its participants (Garrison, 2016). This





study used the Community of Inquiry theoretical framework to examine and design CATO's virtual learning environments (Garrison et al., 1999). The study's goal was to create a meaningful educational experience for the students who attend CATO's virtual classes. The Community of Inquiry framework is based on a "collaborative constructivist" view of teaching and learning that identifies the relationship between the social environment and personal meaning-making (Garrison, 2016). Hundreds of publications have referenced the Community of Inquiry framework, and it is one of the leading theoretical guides for research on virtual learning (Befus, 2016).

### ***Community***

The Community of Inquiry framework is grounded in John Dewey's progressive understanding of education. He believed community plays an integral part in individual development (Swan et al., 2009). McMillian and Chavis (1986) define community as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, a shared faith that members' needs will be met through their commitment to be together" (McMillian & Chavis, 1986, p. 9). Consistent with Dewey, the Community of Inquiry framework assumes that thinking involves both psychological and sociological influences found in a community (Garrison, 2015).

The Community of Inquiry framework assumes this because community prepares the learning environment for inquiry, which Garrison (2016) defines as the "collaborative approach to problem resolution that transpires in the context of reflective discourse and interactive questioning" (Garrison, 2016, p. 56). Rovai (2000) adds that "strong feelings of community increase the flow of information, the availability of support, commitment to group goals, cooperation among members, and satisfaction with group efforts" (Rovai, 2000, p. 286). A community of inquiry forms when people in a learning community think collaboratively about a problem, using a purposeful and recursive process. The process involves reflecting on the ideas presented while engaging in discourse to construct personal meaning and confirm mutual understanding (Garrison, 2016).

### ***Interaction***

Wang et al. (2001) explain that virtual learners can create community by sharing knowledge through interaction. Dewey (1938) established the principle of interaction when he stated that people create meaning by recurrently sharing thoughts and ideas. He explained that an educational experience is a "transaction taking place between an individual and what, at the time, constitutes his environment..." (Dewey, 1938, p. 43; Garrison, 2016). Interaction is critical because people are social beings, and learning and thinking are inherently social (Garrison, 2016). When there is purposeful interaction, it leads to people thinking collaboratively. When people think collaboratively, they share thoughts and ideas, and as a result, knowledge is constructed and confirmed (Dewey, 1938; Garrison, 2016).

### ***Collaboration***

Collaboration fostered through interaction helps people make sense of their own understanding by exposing their thoughts and beliefs to examination and testing by others (Garrison, 2016). The exposure of thoughts and beliefs is essential because people tend to see and reinforce their



existing beliefs without the critical feedback found in a community of inquiry (Kuhn, 1962; Garrison, 2016). Thinking collaboratively promotes personal reflection but merges that reflection with critical discourse where the group can challenge ideas, thoughts, and beliefs (Garrison, 2016). It leads to people constructing personal meaning and confirming understanding through the discourse and interaction of the group (Garrison, 2016). The Community of Inquiry framework promotes interaction between learners, and interaction between learners in a virtual environment is key to the collaborative thinking that leads to a meaningful educational experience (Akyol & Garrison, 2008; Arbaugh, 2008; Richardson et al., 2017).

### ***Thinking Collaboratively and Confirmation Bias***

Discourse is the essential component to thinking collaboratively because of confirmation bias. Confirmation bias is a cognitive limiting state where people preserve a previously held belief or perspective by unconsciously ignoring contrary evidence (Nickerson, 1998; Garrison, 2016). People tend to selectively see what they are accustomed to or what they want to see and subconsciously reject ideas and evidence that challenge their views of the world (Garrison, 2016). Thus, without help from others, it is difficult for people to objectively examine the credibility and soundness of their beliefs.

Garrison (2016) points out that to overcome confirmation bias, it "requires others to put a metaphorical mirror to our thinking so we can see our ideas more objectively" (Garrison, 2016, p.18). That metaphorical mirror is a collaborative thinking and learning environment. In this environment, people are encouraged to collaboratively and critically explore a problem to identify new and relevant ideas on how to address it. They then interpret those ideas by relating them to their previously held beliefs, questioning accepted truths, and integrating their ideas on approaching the problem (Garrison, 2016). When people go through the process of thinking and learning collaboratively, it leads to meaning-making, a better understanding of the problem, a more robust interpretation of their experiences, and helps them make sense of life events (Garrison, 2016).

### ***Shared Purpose and Open Communication***

Thinking collaboratively develops in learning communities that display open communication and have cohesion found through group identity (Garrison, 2016). The development of community is a necessary component of thinking collaboratively and the Community of Inquiry framework (Swan et al., 2009). Garrison (2016) defines community as having a shared purpose, interdependence, and communication. People have a natural tendency and desire to belong to groups that hold their shared purpose (Wilson, 2012; Garrison, 2016). Shared purpose and a sense of belonging lead to an environment where open communication and critical discourse can occur (Garrison, 2016). This is important because not all interaction leads to collaboration (Zhao et al., 2014). The experience needs to be mutually beneficial to all involved, where each participant feels free to express different perspectives and engage in critical discourse that encourages collaborative inquiry (Garrison, 2016; Dewey, 1916). Shared purpose and open communication are essential for thinking collaboratively.



### ***Leadership***

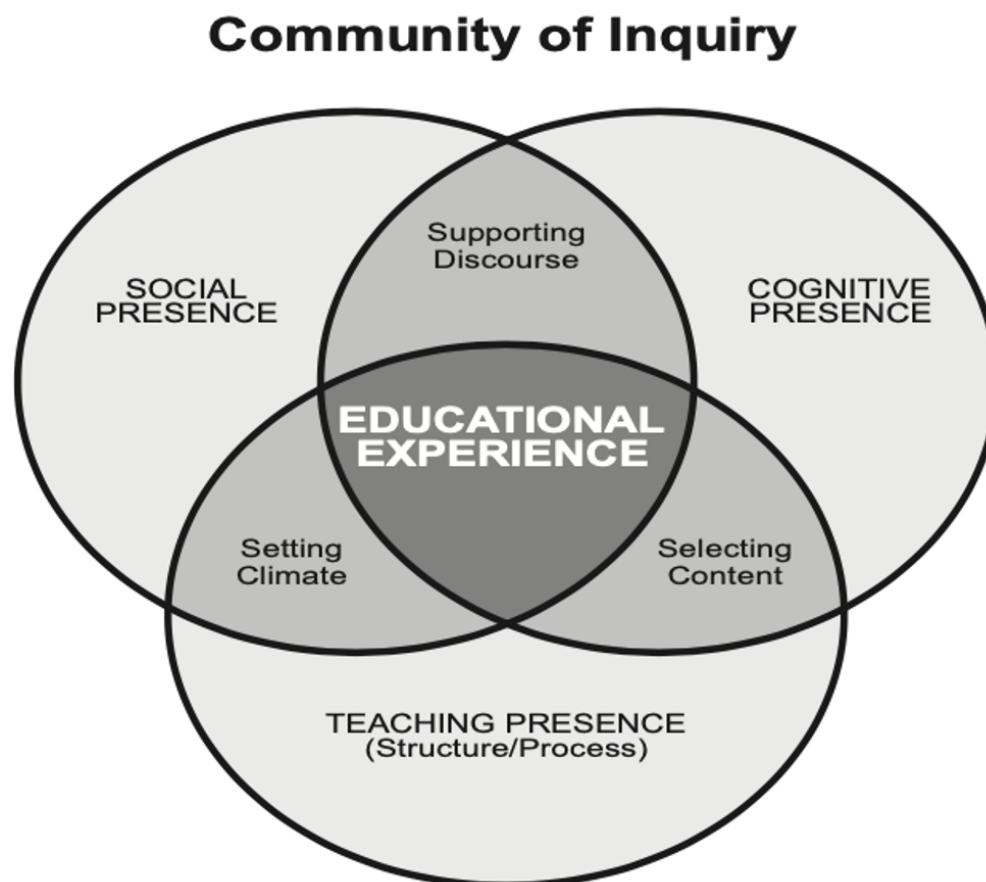
Thinking collaboratively depends on leadership to sustain the open communication and critical discourse necessary for inquiry. Open communication and critical discourse must be continuous for trust within a group to develop (Garrison, 2015). Trust is essential because people need to know they can share thoughts and ideas counter to other perspectives in a risk-free environment (Garrison, 2016). As trust develops, it promotes the learning climate necessary for inquiry, which is the "collaborative approach to problem resolution that transpires in the context of reflective discourse and interactive questioning" (Garrison, 2016, p. 56). Leadership can promote reflective discourse and interactive questioning by:

- Creating an environment that encourages people to share ideas counter to other perspectives (Garrison, 2016).
- Establishing the group's cohesion behind a shared purpose (Garrison, 2016).
- Ensuring participants communicate ideas thoughtfully (Garrison, 2016).
- Unifying the group behind a commitment to the process of critical inquiry (Garrison, 2016).

### ***Community of Inquiry Framework***

The Community of Inquiry framework promotes community that leads to a meaningful educational experience by focusing on *cognitive presence*, *social presence*, and *teaching presence* (Flock, 2020). The Community of Inquiry framework uses the three interdependent elements to understand the effect of a purposeful learning environment on the cognitive process of the individual participants. Figure 1 below shows how the three presences overlap to form the educational experience for the students by supporting discourse, setting climate, and selecting content. As the diagram illustrates, cognitive presence, social presence, and teaching presence are essential to learning and a meaningful educational experience (Garrison et al., 1999).



**Figure 1***Community of Inquiry Framework*

*Note.* Community of Inquiry framework. From "Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education," by D. R. Garrison, T. Anderson, and W. Archer, 1999, *The Internet and Higher Education*, 2, p. 88. Copyright 2000 by Elsevier Science Inc.

### ***Cognitive Presence***

Cognitive presence is the core thinking and learning element of the Community of Inquiry framework. Cognitive presence is the degree to which participants in a learning environment are able to construct and confirm meaning through sustained communication and reflection (Garrison et al., 2000; Flock, 2020). It is the knowledge construction that results from interaction and thinking collaboratively (Stewart, 2019).

Thinking collaboratively promotes cognitive presence through open communication, questioning, and inquiry that leads to problem-solving. It moves beyond passive information dissemination found in traditional lectures and forces participants to engage with the material through critical discourse (Garrison, 2016). It also avoids dispersing large amounts of information without spending ample time exploring, reflecting, and analyzing that information



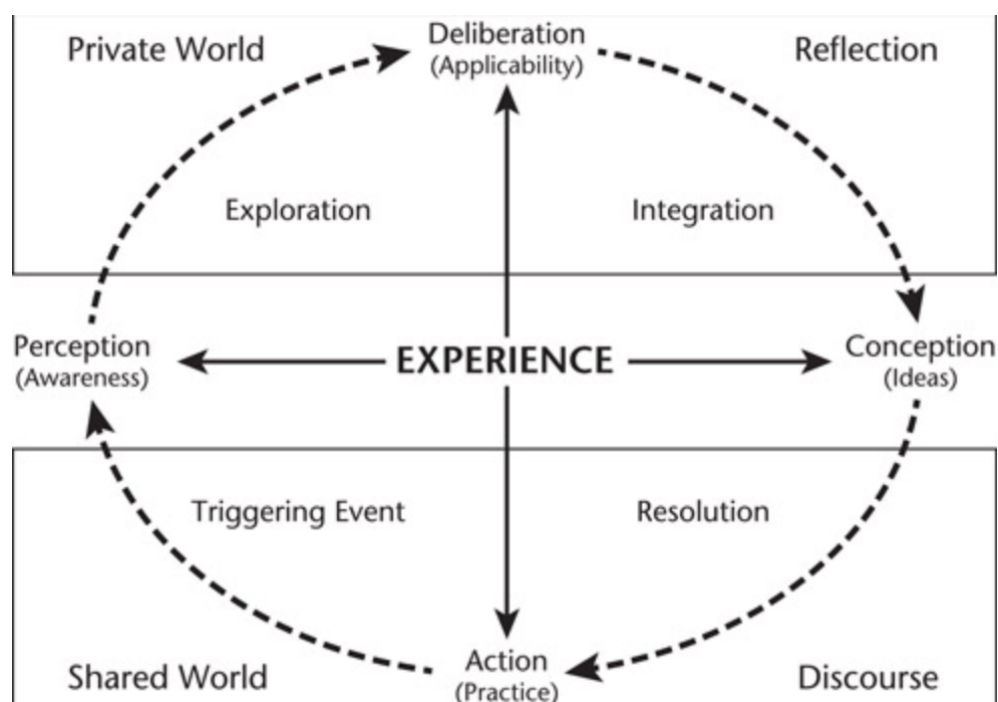
privately and publicly (Garrison, 2016). It works interdependently with social presence to support discourse and interdependently with teaching presence in selecting content. All three presences work together to create a meaningful educational experience for participants.

### Practical Inquiry Model.

Cognitive presence is operationalized through the Practical Inquiry Model. Figure 2 represents the Practical Inquiry Model.

**Figure 2**

*Practical Inquiry Model*



*Note.* Practical Inquiry Model. From "Online Community of Inquiry Review: Social, Cognitive, and Teaching Presence Issues," by D.R. Garrison, 2007, *Journal of Asynchronous Learning Networks*, 11, p. 63.

The Practical Inquiry Model demonstrates how participants in a learning community construct meaning reflectively and negotiate understanding collaboratively (Garrison, 2015). It is a multi-phased process that starts with a triggering event and then moves through the phases of exploration, integration, and resolution (Garrison, 2015). A triggering event sparks the participants' curiosity, such as a problem or ambiguous situation. This curiosity motivates them to explore their prior knowledge and experiences with the concept discussed individually and as a group (Garrison, 2015). Integration follows exploration. Integration occurs when the participants incorporate their prior knowledge with the other perspectives in the class. Finally, the resolution phase occurs when the participants test and apply the newly constructed knowledge to a problem (Stewart, 2019).



The multi-phased recursive process demonstrated by the Practical Inquiry Model is two-dimensional. The first dimension is the opportunity for someone to reflect on a triggering event and share that reflection with others, leading to further reflections (Garrison, 2015). Perception-conception is the second dimension. It represents the inquiry that occurs at the point of transition between the reflective and shared worlds of the participants (Garrison, 2015). The boundary of perception-conception is where participants share their thoughts and mold them collaboratively (Garrison, 2015).

In summary, cognitive presence occurs when people think collaboratively by interacting through dialogue with the other students and the instructor to solve a problem (Stewart, 2019). Dialogue is necessary to the learning experience because it prompts reflection, initiates the integration process, and provides the opportunity to test and apply the new knowledge in the resolution phase (Stewart, 2019). This recursive process demonstrated by the Practical Inquiry Model leads to the construction of meaning and group understanding.

### ***Social Presence***

Social presence is the second element in the Community of Inquiry framework. It is "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships progressively by way of projecting their individual personalities" (Garrison, 2009, p. 352; Akyol et al., 2009). It works interdependently with teaching presence to set the climate and promotes cognitive presence by supporting discourse (Garrison, 2016; Akyol et al., 2009). All three presences work together to create a meaningful educational experience for participants (Garrison, 2016).

Garrison et al. (1999) provide three indicators of social presence. The first is emotional expression, where learners share their thoughts, feelings, and values. The second is open communication, where mutual awareness, respectful exchanges, and recognition of people's contributions occur. The third is group cohesion, where participants develop and sustain a commitment to the group (Garrison et al., 2000). Social presence and the environmental factors it promotes are critical components to the interaction, dialogue, and collaborative thinking necessary for cognitive presence (Garrison et al., 2000).

Social presence has both a motivational and emotional dimension (Garrison, 2016). Human beings are social by nature and desire to connect socially with others in a collaborative environment (Garrison, 2016). This sense of belonging motivates learners (Flock, 2020; Garrison, 2016). It also maintains their interest while directing and sustaining their effort because they feel like contributing members in the inquiry process (Garrison, 2016). Social presence is vital to a sense of belonging because it focuses on how the group's identity is formed by the purpose of the inquiry in conditions of open communication (Garrison, 2015).

As social presence increases over time within the group, personal relationships grow, further increasing open communication and cohesion (Garrison, 2015). It increases when learners identify with the purpose of the learning community in an environment that makes them feel like contributing members (Garrison, 2016). When social presence increases, so does student and instructor course satisfaction, perceived learning by students, and actual learning (Richardson &



Swan, 2003). Thus, social presence is key to sustaining motivation, emotional satisfaction, and learning.

### *Teaching Presence*

Teaching presence is the third element in the Community of Inquiry framework, and it supports both cognitive presence and social presence. It involves instructional design and organization, facilitating discourse, and direct instruction. Instructional design and organization include setting the curriculum, identifying course content, and determining learning activities that promote cognitive presence and social presence (Garrison, 2017). When the curriculum, course content, and learning activities promote cognitive presence and social presence, it leads to a meaningful educational experience in a learning environment, as defined by the Community of Inquiry framework (Garrison, 2016).

The curriculum, course content, and learning activities must be relevant to the participants to create a meaningful educational experience (Garrison, 2016). Curriculum, content, and activities are considered relevant when they support the group's preferred learning interests and goals (Garrison, 2016). This is important because relevant curriculum, content, and activities engage students and make them want to participate in the learning environment (Garrison, 2016). Participation in a learning environment is a crucial component of social presence, and social presence relies on the participants' ability to identify with the community through the course of study (Akyol et al., 2009). Participation in a learning environment is also essential because it leads to the interaction, discourse, and reflection necessary to support cognitive presence. This is because participation is essential to moving the group through the Practical Inquiry Model (Garrison, 2016). When teaching presence supports social presence and cognitive presence, it leads to a meaningful educational experience for participants (Garrison, 2016).

Additionally, relevant curriculum, content, and activities that support the group's preferred learning interests and goals lead to a shared purpose. Shared purpose by the group is necessary for the formation of a community (Garrison, 2016). The formation of a community is essential because inquiry occurs in a community (Garrison, 2015). Garrison (2016) points out that inquiry is the "collaborative approach to problem resolution that transpires in the context of reflective discourse and interactive questioning" (Garrison, 2016, p. 56). This is critical because the reflective discourse and interactive questioning that transpires in a community of inquiry lead to personal meaning-making and mutual understanding, essential learning goals under the Community of Inquiry framework (Garrison, 2015).

Teaching presence also involves facilitating discourse. Facilitating discourse focuses on promoting interactions that lead to individual and group reflection that build understanding collaboratively (Garrison, 2017). It promotes constructive discourse that sustains the learning community and moves the group toward its educational goals (Kennedy & Kennedy, 2010). It must be acutely concerned with promoting both cognitive presence and social presence to ensure that the collaborative thinking environment necessary for learning is ongoing (Garrison, 2017). One method for facilitating discourse is acknowledging well-reasoned contributions to discussions, identifying agreement or disagreement amongst the group, and seeking to reach understanding (Garrison, 2017).



Direct instruction involves presenting the content or problem and asking the group questions relevant to the topic. It also necessitates focusing the discussion on specific issues that lead to the learning goals. Additionally, it requires summarizing the discussion, confirming understanding through assessment and explanatory feedback, and diagnosing student misconceptions (Garrison, 2017).

The most critical role of teaching presence is to focus discourse and establish an environment that promotes open communication and discussion, crucial elements for cognitive presence and social presence (Garrison, 2015). These discussions are essential because interactions and critical discourse are vital to creating a community of inquiry. Consequently, teaching presence is necessary because there needs to be a facilitator who can design a learning environment that promotes open communication and interactive discourse while ensuring that the exchanges between course participants are productive and sustainable (Garrison, 2016).

### *Measuring Cognitive Presence, Social Presence, and Teaching Presence*

#### **Community of Inquiry Coding Template.**

The Community of Inquiry Coding Template is a tool used to measure whether the three presences are occurring in a learning environment. Figure 3 represents the Community of Inquiry Coding Template. Contained in the template are the Community of Inquiry elements, their related categories, and indicators of the presences. The tool helps researchers identify the three presences and determine if the learning environment promotes a meaningful educational experience. A meaningful educational experience occurs when the three presences and their related activities of selecting content, setting climate, and supporting discourse interact. This interaction leads to a community of inquiry, defined as a collaborative learning environment where a group engages in purposeful critical discourse and reflection to construct personal meaning and confirm mutual understanding (Garrison, 2009). The Community of Inquiry Coding Template is grounded in the Community of Inquiry framework and the literature that supports it (Garrison, 2016).





**Figure 3***Community of Inquiry Coding Template*

<b>Elements</b>	<b>Categories</b>	<b>Indicators (examples only)</b>
Social Presence	Open Communication Group Cohesion Personal/Affective	Risk-free Expression Group Identity/Collaboration Socio-emotional Expression
Cognitive Presence	Triggering Event Exploration Integration Resolution	Sense of Puzzlement Information Exchange Connecting Ideas Applying New Ideas
Teaching Presence	Design & Organization Facilitating Discourse Direct Instruction	Setting Curriculum, Methods Shaping Exchange Resolving Issues

*Note.* Community of Inquiry Coding Template (Garrison, 2016).

### **Community of Inquiry Survey.**

The Community of Inquiry Survey measures cognitive presence, social presence, and teaching presence. It is a validated, quantitative instrument that researchers have shown to be a stable measurement device applicable to various studies (Arbaugh et al., 2008). In addition, the survey is significant because it has validated the Community of Inquiry framework and established its tripartite structure (Garrison, 2016). For example, studies have used the survey to confirm the causal relationship between cognitive presence, social presence, and teaching presence. Thus, the research supports the survey as a validated instrument and the relationship amid the three presences (Daspit and D'Souza, 2012; Jo et al., 2011). Figure 4 provides examples of some of the questions used by the survey to measure the three presences.



**Figure 4**

*Examples of Community of Inquiry Survey Instrument Questions*

<b>Teaching Presence</b>
<b>Design &amp; Organization</b>
• The instructor clearly communicated important course topics.
• The instructor clearly communicated important course goals.
• The instructor provided clear instructions on how to participate in course learning activities.
• The instructor clearly communicated important due dates/time frames for learning activities.
<b>Social Presence</b>
<b>Open Communication</b>
• I felt comfortable conversing through the online medium.
• I felt comfortable participating in the course discussions.
• I felt comfortable interacting with other course participants.
<b>Cognitive Presence</b>
<b>Triggering Event</b>
• Problems posed increased my interest in course issues.
• Course activities piqued my curiosity.
• I felt motivated to explore content-related questions.

*Note.* An example of the Community of Inquiry Survey Instrument questions that measure teaching presence, social presence, and cognitive presence (Garrison, 2016).

### **Research Questions**

Informed by the context, problem, literature, and framework, I developed the following research questions:

1. What effect does agency size, SWAT team size, and geographic location have on the type of courses CATO should offer?
2. What effect does being a participant in CATO's training, an individual's rank in a police department, or being a member of the CATO organization have on what type of courses CATO should offer?
3. What are effective design strategies based on the Community of Inquiry framework for CATO's live virtual classes that will create community and a meaningful educational experience through cognitive presence, social presence, and teaching presence?

Decreasing costs associated with in-person training, identifying relevant course curriculum, and designing virtual learning environments that promote critical thinking are the problems of



practice CATO wants to overcome. By answering the above questions, this Capstone Project will:

- Provide a virtual learning environment design that supports CATO's in-person classes at a lower cost.
- Identify relevant course curriculum for CATO.
- Make CATO's course curriculum available throughout the state.
- Furnish CATO with a virtual learning environment design that supports a meaningful educational experience for its participants.

### **Project Design**

To answer my research questions, I chose a mixed-methods approach. The following explains the data I collected to answer my research questions, the analysis methods I used, and my key findings.

#### **Data: CATO Course Evaluation Surveys**

##### ***Data Collection***

In August of 2020, CATO provided me with three course evaluation surveys. CATO administered the surveys to participants in three separate and different courses. The three courses are part of CATO's regular course offerings that individual officers can sign up for through their agency. CATO held all three courses in a live, in-person learning environment. The three courses were:

- February 2020 "SWAT Team Leader" course designed for SWAT supervisors. Twenty-seven participants completed the survey.
- February 2020 "SWAT Commander" course designed for SWAT managers. Eighteen participants completed the survey.
- February 2020 "Supervising High-Risk Warrant Operations" course designed for anyone in law enforcement supervising high-risk warrants. Thirty participants completed the survey.

The survey responses helped answer all three research questions by identifying what course content was relevant to a diverse group of officers and by informing design strategies that promote a meaningful educational experience in CATO's live virtual environments. The participants in these courses represented a diverse group of officers from different police agencies, different geographic locations, different ranks, and varying police department sizes. Their perspectives, based on their survey answers, identified relevant curriculum, course content, and learning activities.

As mentioned in the literature review, a critical role of teaching presence is identifying relevant curriculum, course content, and learning activities. This is important because curriculum, course content, and learning activities must be relevant to the participants to create a meaningful educational experience (Garrison, 2016). Curriculum, content, and activities are considered relevant when they support the group's preferred learning interests and goals (Garrison, 2016).



Relevant curriculum, course content, and learning activities also lead to a shared purpose. Shared purpose by the group is necessary for the formation of a community (Garrison, 2016). The formation of a community is essential because inquiry occurs in a community, and a community of inquiry promotes a meaningful educational experience for course participants (Garrison, 2015). Creating a meaningful educational experience in CATO's virtual learning environments is the goal of this Capstone Project. Thus, it was essential to capture what CATO's participants considered relevant curriculum, course content, and learning activities and merge those ideas with the final virtual environment design based on the Community of Inquiry framework.

### *Analysis Methods*

I focused on two open-ended questions contained in each survey. The two questions were:

- How can this course be improved?
- What were the course's strengths?

The questions identified relevant curriculum, course content, and learning activities based on the participants' preferences. They also informed all three of my research questions regarding the type of curriculum CATO should offer and how CATO can design meaningful learning environments based on the Community of Inquiry framework. I examined the answers in Excel, looking for excerpts related to preferred curriculum, preferred learning methods, and preferred learning environments. I clustered relevant excerpts under those categories and analyzed the data to establish my findings. For example, one participant answered the question, "How could this course be improved?" with the following answer:

*More swat team briefs from real events from people who were there. Oakland was great. Always can learn from others. Incident debriefs.*

I categorized this answer as a statement by a participant on a preferred curriculum. That preferred curriculum was critical incident debriefs that focus on learning from the experience of people involved in the actual events. For this Capstone Project, critical incidents include such things as active shooters, hostage rescue situations, armed and barricaded suspects, but can also include fires, floods, and other natural disasters. These incidents are critical because they require people to make decisions under stress. Additionally, the decisions involve risk and resource management, and the leaders making the decisions often must rely on ambiguous and/or incomplete information. Moreover, the leaders involved need to make the decisions under time pressure or risk human casualties and/or property damage. Finally, the wrong decision can subject the organization and the leader to increased liability.

Another student answered the same question by stating:

*Need to have more tabletop exercises.... Also, move people to different tables to meet and grow the network connections with outside agencies.*

I categorized this statement as a preferred learning method. That preferred learning method was decision-making exercises (tabletops). Decision-making exercises involve providing participants with a scenario, such as a critical incident, and asking them what they would do at crucial



decision points. The statement also sheds light on the participant's preferred learning environment, which involved group interaction and discussion.

When I examined the question, "What were the course's strengths?" one student answered by stating:

*The course's strength was the instructors' ability to provide very detailed and thought-producing debriefs on real-life scenarios they were involved in.*

Again, I categorized this answer as a statement by a participant on a preferred curriculum. That preferred curriculum was critical incident debriefs that involved actual events. Another participant answered the same question by stating:

*More debriefs of events and lessons learned.*

I also categorized this statement as a preferred curriculum (incident debriefs). However, this answer provided insight into what participants want out of the incident debriefs. Not only do they want to learn from others and experience the incident through the presenter's eyes, but they want to know the knowledge gained from experiencing such an incident.

Finally, another student answered the question, "What were the course's strengths?" by stating:

*Interaction with other students to hear how they handle different issues/situations.*

I categorized this as a preferred learning environment, and that learning environment involved group discussion and interaction. The primary purpose of that discussion was to learn different approaches to managing critical incidents from other people.

I took the above approach when examining all the answers to both questions. Again, I looked for information on participants' preferences for curriculum, learning methods, and learning environments.

### ***Key Findings***

The following preferences emerged in each class for curriculum, learning methods, and learning environments:

- Preferred Curriculum: Critical incident debriefs that focus on lessons learned
- Preferred Learning Method: Decision-making exercises
- Preferred Learning Environment: Group discussion and interaction on topics presented

It appeared from the brief answers to the survey questions that participants in these courses found value in the lessons people learned from managing critical incidents. They also wanted the courses to challenge them to formulate their own responses to critical incident scenarios. Finally, they wanted to learn through group discussion and interaction different approaches to managing critical incidents.



## **Data: Recordings of CATO's First Two Attempts at Virtual Classes**

### ***Data Collection***

In August of 2020, CATO provided me with video recordings of its first two and only attempts at live virtual classes. The participants were part of CATO's Strategic Leadership Program. The Strategic Leadership Program is an 18-month course of study where cohort participants attend several different leadership classes. CATO usually holds the classes in person; however, because of the coronavirus, CATO administered them virtually. The two classes were:

- May 2020 video recording of a virtual CATO class titled “Leadership”
- May 2020 video recording of a virtual CATO class titled “Risk Management”

I examined this data because I thought it was essential to experience CATO's live virtual environments before recommending a redesign. My third research question focuses on design strategies based on incorporating cognitive presence, social presence, and teaching presence. I wanted to understand how the live virtual environments aligned with the Community of Inquiry framework before attempting to answer that question. Additionally, if I discovered elements in the learning environment that did not align, I would be able to focus my efforts on improving those areas.

### ***Analysis Methods***

I analyzed the recordings using the Community of Inquiry Coding Template to understand the current state of CATO's virtual learning environment and to determine the extent to which the practices aligned with the Community of Inquiry framework. The Community of Inquiry Coding Template helps researchers identify if cognitive presence, social presence, and teaching presence are occurring in a learning environment (Garrison, 2016).



**Figure 5***Community of Inquiry Coding Template*

<b>Elements</b>	<b>Categories</b>	<b>Indicators (examples only)</b>
Social Presence	Open Communication Group Cohesion Personal/Affective	Risk-free Expression Group Identity/Collaboration Socio-emotional Expression
Cognitive Presence	Triggering Event Exploration Integration Resolution	Sense of Puzzlement Information Exchange Connecting Ideas Applying New Ideas
Teaching Presence	Design & Organization Facilitating Discourse Direct Instruction	Setting Curriculum, Methods Shaping Exchange Resolving Issues

*Note.* Community of Inquiry Coding Template (Garrison, 2016).

**Key Findings**

Twelve police officers of different ranks attended the “Leadership” class. The class consisted of a lecture on leadership. The instructor was a university professor and author. The format of the class included:

- Instructor introduction
- Student introductions
- Two hours of lecture
- Two students asked the instructor one question each
- No other interaction

Nine police officers of different ranks attended the second class, titled “Risk Management.” The class consisted of a lecture on risk management. The instructor was an attorney and risk management expert. The format of the class included:

- Instructor introduction
- Student introductions
- PowerPoint
- Two hours of lecture
- No questions from the students to the instructor or vice versa

As mentioned in the literature review, essential elements for learning according to the Community of Inquiry framework include:

- Defining and initiating discussion topics



- Information exchange between participants
- Collaboration
- Connecting and applying new ideas

The “Leadership” class was two hours. It included an instructor introduction, student introductions, an outline provided to the students, two hours of lecture, and only two students asked one question each of the instructor. There was no interaction between students. The “Risk Management” class was similar. It also had instructor and student introductions. The instructor lectured for two hours by PowerPoint, and there were no questions or interactions. Although both lectures were interesting, they lacked the information exchange and collaboration necessary for a community of inquiry.

### **Data: Observation of a Virtual CATO Class Titled “Crowd Management Strategies”**

#### ***Data Collection***

In September of 2020, CATO conducted a virtual class titled “Crowd Management Strategies” that I observed live via Zoom. The participants were part of CATO's Strategic Leadership Program. Consistent with the previous two classes, I examined this data because I thought it was essential to experience CATO's live virtual environments before recommending a redesign. My third research question focuses on design strategies based on incorporating cognitive presence, social presence, and teaching presence. I wanted to understand how the live virtual environments aligned with the Community of Inquiry framework before attempting to answer that question. Additionally, if I discovered elements in the learning environment that did not align, I would be able to focus my efforts on improving those areas.

#### ***Analysis Methods***

I analyzed the class using the Community of Inquiry Coding Template to understand the current state of CATO's virtual learning environment and its comparison to the Community of Inquiry framework. The Community of Inquiry Coding Template helps researchers identify if cognitive presence, social presence, and teaching presence are occurring in a learning environment (Garrison, 2016).

#### ***Key Findings***

Nine police officers of different ranks attended the class. A retired captain with one of the largest police agencies in the nation taught the class. In addition to being a former captain, he is a recognized expert in law enforcement. The format of the class included:

- Instructor introduction
- One hour and a half of lecture
- The class participants asked the instructor a total of four questions
- No interaction between students

Although the lecture was interesting, it lacked the information exchange and collaboration necessary for a community of inquiry.





## **Data: Community of Inquiry Survey of the “Crowd Management Strategies” Class**

### ***Data Collection***

At the conclusion of the virtual “Crowd Management Strategies” class, I administered the Community of Inquiry Survey to the participants. The purpose was to measure the degree to which a meaningful educational experience was taking place based on the framework.

### ***Analysis Methods***

The survey contains 34 questions and uses a five-point Likert-type scale to measure cognitive presence, social presence, and teaching presence. Each number corresponds to the following:

- 1 = strongly disagree
- 2 = disagree
- 3 = neutral
- 4 = agree
- 5 = strongly agree

The survey is divided by each presence, and each presence is sub-divided into its corresponding categories. A series of questions fall under each category. The categories include:

- Cognitive presence
  - Triggering event
  - Exploration
  - Integration
  - Resolution
- Social presence
  - Open communication
  - Group cohesion
  - Personal/affective
- Teaching Presence
  - Design & organization
  - Facilitating discourse
  - Direct instruction

### ***Key Findings***

The mean scores and standard deviations of the three presences are listed in Table 1. These findings establish the baseline that I would use to compare future classes that experienced a design intervention.



**Table 1**

*Table showing the means and standard deviations for cognitive presence, social presence, and teaching presence*

<b>Presence</b>	<b>Mean</b>	<b>SD (Standard Deviation)</b>
Cognitive	3.83	.48
Social	3.99	.45
Teaching	3.95	.56

### **Data: CATO Course Content Preferences Email Survey**

#### ***Data Collection***

In September of 2020, CATO sent a survey that I designed to people on its email contact list. CATO has approximately 1,300 members but has 4,100 names on its current contact list. The list was comprised of current members, past members, class attendees, newsletter subscribers, and conference attendees. Out of 4,100 people on the contact list, 166 took the survey. It is difficult to provide information on how representative the 166 respondents are of the 4,100 because CATO gathered the email list from so many different sources. However, based on the survey, 107 out of the 166 were CATO members, and 119 respondents had attended a CATO-sponsored course.

The survey first identified each participant's rank, agency size, location, SWAT team status, SWAT team size, and CATO membership status. It also asked whether they had ever attended a CATO course or conference and their opinion of live virtual courses as a viable means for CATO to deliver its course content. I collected and examined this data to answer the first two research questions regarding what curriculum CATO's participants preferred. It also informed what curriculum CATO's participants saw as relevant, a critical element in the design role of teaching presence, as mentioned in the literature review. Figure 6 and Figure 7 demonstrate some of the survey results.

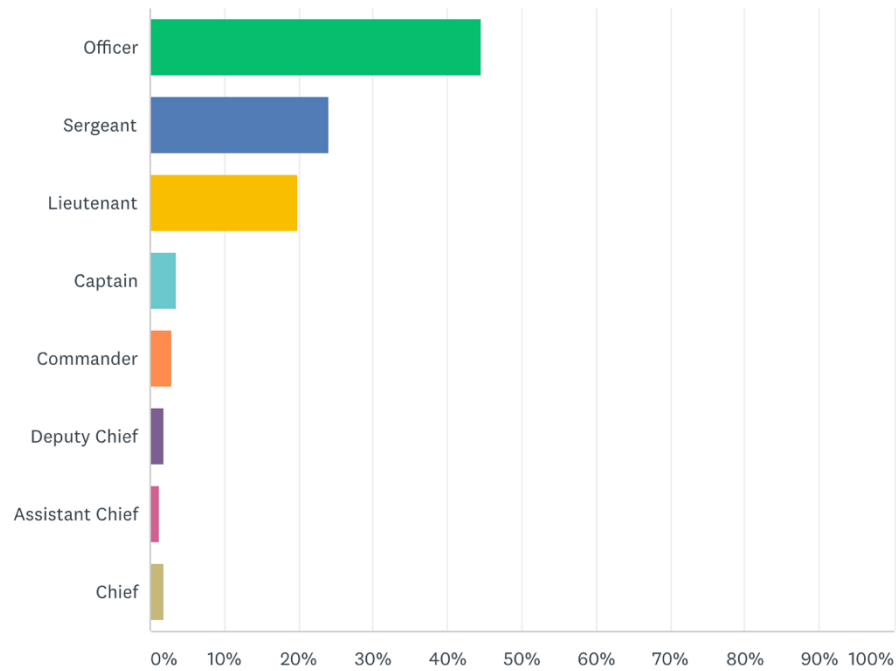


**Figure 6**

*Graph showing the breakdown by rank of people who responded to the survey*

What is your current rank in the law enforcement agency you work for?

Answered: 166 Skipped: 0

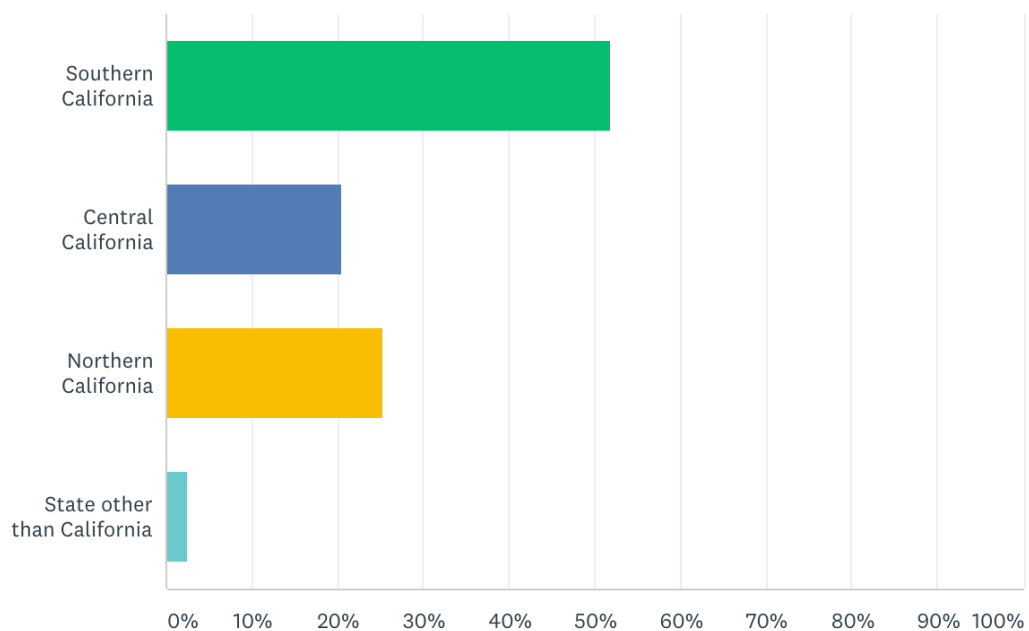


**Figure 7**

Graph showing the breakdown by location of people who responded to the survey

## Where is your agency located?

Answered: 166 Skipped: 0



The survey also asked participants to rank what course content they would most like CATO to offer. The list contained 12 courses. I chose the courses from CATO's current course offerings, and, based on conversations with a CATO Board Member and CATO's Vice President, potential future course offerings. The twelve courses were:

- De-Escalation Strategy and Tactics
- Critical Incident Commander
- Patrol/Field Tactics
- SWAT Commander
- SWAT Team Leader
- Crowd Management Strategies and Tactics
- Leadership and Organizational Culture
- Crisis Negotiation
- Vehicle Takedowns/Vehicle Containment
- SWAT Team Auditing
- Tactical Medic
- Noise Flash Diversion



### *Analysis Methods*

After obtaining the data, I weighted and scored the responses. I assigned a weight to each class based on the respondents' preferences. The most preferred choices received a weight of 12, while the least preferred courses received a weight of 1. I then scored each course based on the response count for that answer choice and its weight value. The formula I used is below:

w = weight of ranked position  
x = response count for answer choice

$$\frac{X_1W_1 + X_2W_2 + X_3W_3 \dots X_nW_n}{\text{Total Response Count}}$$

### *Key Findings*

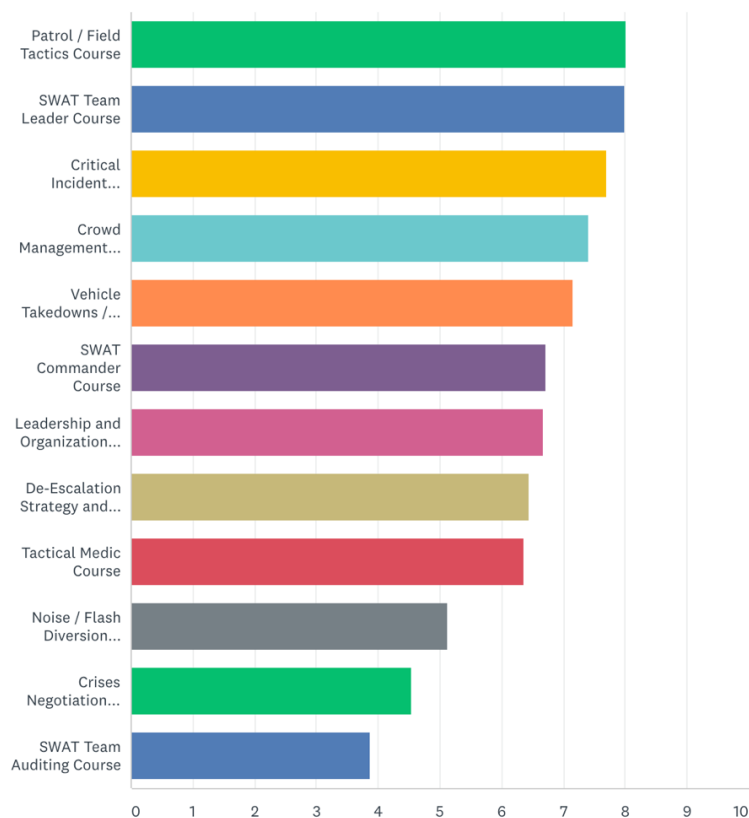
Figure 8 demonstrates the results overall.

#### **Figure 8**

*Graph demonstrating the weighted and scored results of the course survey*

What course content would you most like CATO to offer? Rank 1 through 12 with 1 being the most desired course content and 12 being the least.

Answered: 166 Skipped: 0



The top three classes overall were:

**Table 2**

*Table demonstrating the top three courses overall*

<b>Overall</b>	<b>Course</b>
#1 Ranked Course	Patrol/Field Tactics
#2 Ranked Course	SWAT Team Leader
#3 Ranked Course	Critical Incident Commander

I then analyzed course preferences by rank, agency size, agency location, SWAT team status, SWAT team size, CATO membership, and CATO course/conference attendance. I again weighted and scored the responses.

Table 3 demonstrates how the results reflect the survey participants' preferences for courses covering:

- Critical Incident Command
- Patrol/Field Tactics
- SWAT Team Leader/Commander

**Table 3**

*Table demonstrating the number one ranked courses based on different independent variables*

<b>Agency Size</b>	<b>#1 Ranked Course</b>
25 or less	Critical Incident Commander/De-Escalation Strategy and Tactics
26 to 50	Critical Incident Commander
51 to 100	Critical Incident Commander
101 to 200	Patrol/Field Tactics
501 to 1000	Patrol/Field Tactics
1001 to 2000	Critical Incident Commander/SWAT Commander
2001 and above	SWAT Team Leader

<b>Rank</b>	<b># 1 Ranked Course</b>
Officer	Patrol/Field Tactics
Sergeant	Critical Incident Commander
Lieutenant	Critical Incident Commander
Captain	Critical Incident Commander
Commander	SWAT Commander
Deputy Chief	Crowd Management Strategies and Tactics
Assistant Chief	Critical Incident Commander/Leadership and Organizational Culture
Chief	Critical Incident Commander



Agency Location	#1 Ranked Course
Southern California	Critical Incident Commander
Central California	Patrol/Field Tactics
Northern California	SWAT Team Leader
State other than California	SWAT Commander

Does the Agency have a SWAT Team?	#1 Ranked Course
Yes	SWAT Team Leader
No	Patrol/Field Tactics

SWAT Team Size	#1 Ranked Course
10 or less	Patrol/Field Tactics
11 to 20	Patrol/Field Tactics
21 to 30	Patrol/Field Tactics
31 to 40	SWAT Team Leader
41 to 50	SWAT Commander/SWAT Team Leader
51 or more	Critical Incident Commander/De-Escalation Strategy and Tactics

CATO Member	#1 Ranked Course
Yes	SWAT Team Leader
No	Patrol/Field Tactics

CATO Course and/or Conference Attendance	#1 Ranked Course
Yes	Critical Incident Commander
No	Patrol/Field Tactics

*Note.* Each survey response was weighted and scored to identify the most preferred courses.

## Data: Interviews with Key Stakeholders

### *Data Collection*

I also conducted 10 interviews with key stakeholders as part of my research for this Capstone Project. Five of the interviews occurred pre-intervention. These interviews included:

- November 2020 Interview with the President of CATO
- December 2020 Interview with the Vice President of CATO
- December 2020 Interview with a CATO Board Member
- December 2020 Interview with CATO's Director of Training
- January 2021 Interview with a former Director of Training for CATO and current CATO Instructor

I chose these five people to interview because they are decision-makers within the organization. Understanding their perspectives on the direction of the organization, its curriculum, its learning methods, and its learning environments were critical in informing how the design elements of the Community of Inquiry framework fit into their vision for CATO.

Additionally, they are all current or former police officers with extensive experience in police training, both as an instructor and participant. They represent a diverse group of officers from different police agencies, different geographic locations, different ranks, and varying police department sizes. Their responses would help answer all three research questions by identifying what course content was relevant to a diverse group of officers, and by informing design strategies that promote a meaningful educational experience in CATO's live virtual environments. Finally, it was essential to capture what they considered relevant curriculum, course content, and learning activities and merge those ideas with the final virtual environment design based on the Community of Inquiry framework.

The five interviews encompassed over four hours of content that I recorded via Zoom. The interviews were semi-structured using a questionnaire I created. There were 14 questions. Some of the questions included:

- What subject matter do you think is important for CATO to design its course curriculum around? Why?
- What type of environment do you think best promotes your learning experience?
- What contributes to you feeling comfortable participating, interacting, and dialoguing in a learning environment?

### *Analysis Methods*

The questions guided the interview, and I asked each interviewee the same set of questions. However, the interviews took on a conversational tone that allowed the interviewees to share their thoughts on curriculum, learning methods, and learning environments. I transcribed the interviews and transferred the content to Dedoose for analysis. I examined the data for excerpts related to preferred curriculum, preferred learning methods, and preferred learning environments. I then clustered relevant excerpts under those categories and analyzed the data to establish my findings. For example, when I asked the President of CATO what subject matter he thought was important for CATO to design its course curriculum around, he responded by explaining how he saw a need for instruction on how to command a critical incident in his organization. He stated:

*I saw the need within the organization for critical incident command and the lack that we had within our organization.*

I categorized this as a statement regarding preferred curriculum and that curriculum being critical incident management. He explained further why a curriculum in critical incident management was important by referencing his experience in CATO's Strategic Leadership Courses. He stated:

*They started a strategic leadership program, which I started as a sergeant, which talks about critical incidents, decision making, and command level decisions.... It was a small cadre, a group of eight of us with nearly one-on-one mentorship from people who are experts in this field. It really helped make me feel a lot more comfortable in a command role.*





He expanded on why talking about critical incidents in a small cadre made him more comfortable in the command role:

*I felt a little bit more prepared from the critical incident standpoint to be able to say, "This is no different than any other practical problem. This is how we're going to handle this. This is how we're going to address it."*

His statement demonstrated that he preferred a curriculum based on critical incident management because it offered an opportunity for people to learn from experts. He hoped that by learning from experts in critical incident management, class participants would become more skilled in the command role. Instruction on critical incident management ultimately made him feel more prepared to command a critical incident, and he thought others could benefit from the same knowledge.

The Vice President of CATO discussed why he preferred a curriculum based on best practices for critical incident management designed around incident debriefs. He explained that he wanted exposure to incident debriefs because of the experience he gained from listening to people discuss them. He stated:

*I listen to their experiences, right? I listen to their scenarios. I listen to the principles behind those scenarios. I remember the stories because there's emotion attached to the stories. And then when I see something similar, it goes in my Rolodex, and I go, oh, look, that's very similar to this. And I don't start off from the beginning. I start off, you know, somewhere in the middle. And that's basically the art, right? So that's the challenge for me, for CATO is how can we use relevant examples that people can link together with something they know was real and fill that Rolodex with experience.*

His preferred curriculum was critical incident management that focused on incident debriefs. He preferred incident debriefs because of the experience he gained from listening to how others approached an event. He valued that experience because he knew he could later apply it to a similar circumstance.

When I asked the President of CATO what type of environment he thought best promotes his learning experience, he talked at length about transitioning away from lecture-based learning and what he called "Death by PowerPoint." During the conversation, he stated:

*Our training has been the same type of training from the era that you and I came up with, that somebody sits up there and they talk, and it's a lecture, lecture-based learning. And I'm still a little bit prone to that when I teach a class. I mean, it's how I went through school from preschool all the way to college, and it's how every cop class I ever went through is, you show up, and this guy is going to yammer on with death by PowerPoint.*

He added:

*So, we've got to transition. We have tried to commit to it. We have instructors who were trying to get some engagements and back and forth, have some conversation, work through scenarios, have some tabletop components to it. So DMEs, decision-making exercises, and things like that.*



I categorized this as a statement regarding a preferred learning method and a preferred learning environment. The preferred learning method was decision-making exercises, which I mentioned above involve providing participants with a scenario and asking them what actions they would take at crucial decision points. The preferred learning environment involved group interactions, exchanging ideas, and conversations.

The Vice President of CATO also explained why he preferred decision-making exercises as a learning method and why he uses them in his own in-person classes:

*We do like to break people up and have them apply those principles that we just talked about so they can manipulate them with their hands. They can talk about them. They can learn from their peers about how they might solve that particular problem.*

He preferred decision-making exercises because they allowed people to apply their knowledge to a problem while gaining perspective from others on how they would address the same situation.

I took the above approach when examining all the interview transcripts. Again, I looked for information on participants' preferences for curriculum, learning methods, and learning environments.

### **Key Findings**

The following preferences emerged from the interviews related to curriculum, learning methods, and learning environments. Those preferences included:

- Preferred Curriculum: Critical incident management and incident debriefs
- Preferred Learning Methods: Decision-making exercises / avoid long lectures using PowerPoint
- Preferred Learning Environment: Group interaction and group discussion

### **Intervention Recommendations**

In the project design above, I discussed the findings based on the data I collected and subsequent analysis. The first set of data I examined included three surveys. CATO administered the surveys to the participants of three separate in-person courses. Those courses included:

- SWAT Team Leader
- SWAT Commander
- Supervising High-Risk Warrant Operations

The findings demonstrated the preferred curriculum, learning method, and learning environment of the survey participants. Those preferences included:

- Preferred Curriculum: Critical incident debriefs that focus on lessons learned
- Preferred Learning Method: Decision-making exercises
- Preferred Learning Environment: Group discussion and interaction on topics presented



Teaching presence involves setting the curriculum, identifying course content, and choosing activities to guide the learning process (Garrison, 2017). For curriculum, content, and activities to promote a meaningful educational experience, they must be relevant to the participants. The surveys determined that one way to set curriculum relevant to CATO's participants is to design it around incident debriefs that focus on lessons learned. Furthermore, CATO can guide the learning process and promote group discussion by incorporating decision-making exercises that pose a problem (triggering event) to encourage discourse and collaborative learning. Not only will this design support social presence, but the knowledge construction that results from the interaction and thinking collaboratively will support cognitive presence (Stewart, 2019). Thus, CATO can merge its participants' preferences for curriculum, learning methods, and learning environment with the Community of Inquiry framework to create a relevant and meaningful educational experience.

The next set of data I examined included video recordings of CATO's first two attempts at a live virtual environment and a live observation of its third attempt. Those classes included:

- May 2020 video recording of a virtual CATO class titled “Leadership”
- May 2020 video recording of a virtual CATO class titled “Risk Management”
- May 2020 observation of a virtual CATO class titled “Crowd Management Strategies”

I concluded that CATO's first three attempts at virtual classes reflected a traditional lecture format but were not communities of inquiry as defined by the framework. If CATO wants to promote the critical thinking and meaningful educational experience that results from a community of inquiry, CATO must avoid excessive lecture and incorporate design elements that encourage and support group interaction, information exchange, and collaborative thinking.

I also examined an email survey sent to people on CATO's contact list. I collected and examined this data to answer the first two research questions regarding what curriculum CATO's participants preferred. It also informed what curriculum CATO's participants saw as relevant, a critical element in the design role of teaching presence, as mentioned in the literature review.

The course subject matter preferred by the survey participants included:

- Critical Incident Command
- Patrol/Field Tactics
- SWAT Team Leader/Commander

CATO can incorporate the subject matter of all three courses into a virtual learning environment. As discussed above, teaching presence involves setting the curriculum, identifying course content, and choosing activities to guide the learning process (Garrison, 2017). The surveys from the “SWAT Team Leader”, “SWAT Commander”, and “Supervising High-Risk Warrant Operations” courses determined that one way to set curriculum relevant to course participants is to design it around incident debriefs. The email survey informs CATO further that the incident debriefs should revolve around critical incidents involving SWAT and patrol/field operations.

Additionally, CATO can guide the learning process and promote group discussion by developing decision-making exercises that pose a problem (triggering event) and involve critical incidents



faced by SWAT and patrol/field operations. As stated above, the decision-making exercises will encourage discourse and collaborative learning. The knowledge construction that results from the interaction and thinking collaboratively will support cognitive presence (Stewart, 2019). Thus, CATO can merge its participants' preferences for curriculum, learning methods, and learning environment with the Community of Inquiry framework to create a relevant and meaningful educational experience.

I also conducted 10 interviews with key stakeholders as part of my research for this Capstone Project. Five of the interviews occurred pre-intervention. These interviews included:

- November 2020 Interview with the President of CATO
- December 2020 Interview with the Vice President of CATO
- December 2020 Interview with a CATO Board Member
- December 2020 Interview with CATO's Director of Training
- January 2021 Interview with a former Director of Training for CATO and current CATO Instructor

The following preferences emerged from the interviews related to curriculum, learning methods, and learning environments. Those preferences included:

- Preferred Curriculum: Critical incident management and incident debriefs
- Preferred Learning Methods: Decision-making exercises / avoid long lectures using PowerPoint
- Preferred Learning Environment: Group interaction and group discussion

The interviews contributed to a foundation already laid forth by the course surveys, the findings I made regarding CATO's first three attempts at a virtual environment, and the email survey. CATO's participants and CATO's stakeholders see a need for a curriculum based on critical incident management. They want the critical incident management courses to include decision-making exercises that promote interaction, discussion, and collaborative learning in an environment that limits the use of lectures presented by PowerPoint. They desire critical incident management courses that include decision-making exercises because they want the experience of contending with critical incidents. They find this experience valuable because they can apply the knowledge gained from it to similar circumstances they encounter in the future. Moreover, they desire group interaction and group discussion because they want to learn different approaches to managing the critical incidents discussed from other students. This need aligns with the Community of Inquiry framework because decision-making exercises that pose a problem (triggering event) in an environment with open communication lead to the interaction that encourages, supports, and relies upon the three presences necessary for a community of inquiry.

## **Intervention**

### **Design**

In December of 2020, I shared my findings with CATO. As a result, one board member was eager to design virtual learning environments based on the findings and the design elements of the Community of Inquiry framework. The design included decision-making exercises based on



actual critical incidents. As discussed under the project design for this Capstone Project, critical incidents include such things as active shooters, hostage rescue situations, armed and barricaded suspects, but can also include fires, floods, and other natural disasters. These incidents are critical because they require people to make decisions under stress. Additionally, the decisions involve risk and resource management, and the leaders making the decisions often must rely on ambiguous and/or incomplete information. Moreover, the leaders involved need to make the decisions under time pressure or risk human casualties and/or property damage. Finally, the wrong decision can subject the organization and the leader to increased liability.

The CATO board member and I decided that the decision-making exercises would include a scenario provided to the participants. Within each scenario, we would identify key points where the people involved in the actual event had to make critical decisions. At each decision-making point, the facilitator would separate the course participants into breakout rooms on Zoom. Then, the facilitator would instruct the groups to discuss the scenario amongst themselves and develop a plan of action on how to approach the problem. Additionally, the facilitator would tell them that at the end of each breakout session, one person from each group would share how they decided to confront the problem with the entire class. The facilitator would instruct the groups to nominate a different person to share at each decision-making point.

Throughout the class, the facilitator would remind the participants that the purpose of the decision-making exercise was to learn from one another, ask questions, challenge each other's ideas respectfully, with the intent of improving everyone's decision-making ability in a similar future incident. Built into each scenario would be relevant body camera footage, surveillance footage, maps, and diagrams to provide perspective for the participants. The design would include a maximum of 15 students in each class to ensure everyone involved had a chance to participate.

As each group shared their approach to the problem, the facilitator would identify areas of agreement and disagreement. The facilitator would also encourage the participants to engage in discourse, challenge each other's ideas, build on each other's approaches, and ask questions to understand the different methods for dealing with the problem. The design would include inviting recognized experts in critical incident management, attorneys, experts in SWAT tactics, experts in patrol tactics, and anyone else with relevant expertise or perspectives to observe the class. Their purpose would be to provide feedback, ask questions, challenge, and build upon the ideas offered by the participants.

Finally, at the conclusion of the scenario, and after each group identified how they would approach the problem at each decision point, the officers involved in the actual incident would provide a detailed debrief. The debrief would include a discussion of lessons learned and mistakes identified while also providing an opportunity to discuss with the class participants why they made the decisions they made. An added purpose of the debrief would be to provide context, relevance, and perspective on the complexity of the event. The participants would be unaware that the people involved in the actual incident were observing the class. The reason for this design element was to make sure the participants generated frank discussion on what decisions they would have made, without fear of offending the officers involved in the event.



### **How the Community of Inquiry Framework Informed the Design**

The Community of Inquiry framework and the data collected informed the design in several ways. First, as mentioned in the literature review, the Community of Inquiry framework is grounded in John Dewey's progressive understanding of education that emphasizes community. He believed community plays an integral part in individual development (Swan et al., 2009). McMillian and Chavis (1986) define community as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, a shared faith that members' needs will be met through their commitment to be together" (McMillian & Chavis, 1986, p. 9).

A strong sense of community is essential because it prepares the learning environment for interaction that leads to inquiry. Garrison (2016) defines inquiry as the "collaborative approach to problem resolution that transpires in the context of reflective discourse and interactive questioning" (Garrison, 2016, p. 56). A strong sense of community prepares the learning environment for inquiry because "strong feelings of community increase the flow of information, the availability of support, commitment to group goals, cooperation among members, and satisfaction with group efforts" (Rovai, 2000, p. 286). The interaction fostered by community and involved in inquiry is significant because, as Dewey (1938) pointed out, people create meaning by recurrently sharing thoughts and ideas through interaction. It is also essential because, as Wang et al. (2001) discovered, virtual learners can create community by sharing knowledge through interaction.

Consistent with the above research, we intended the design to create a community of officers with the shared goal of improving their understanding of critical incidents in an environment that fostered the interaction necessary for knowledge creation and community. The CATO board member and I did this by basing the design on critical incident decision-making exercises that encourage interaction and the sharing of ideas. We wanted the decision-making exercises to promote purposeful collaboration because when there is purposeful collaboration, people share thoughts and ideas, and as a result, knowledge is constructed and confirmed (Dewey, 1938; Garrison, 2016).

Collaboration is vital because it promotes cognitive presence, the core thinking and learning element of the Community of Inquiry framework. Cognitive presence is the degree to which participants in a learning environment are able to construct meaning through sustained communication and reflection (Garrison et al., 2000; Flock, 2020). The design of the decision-making exercises, breakout sessions, share-outs, and observer feedback promotes cognitive presence through open communication, questioning, and inquiry that leads to problem-solving. Furthermore, the decision-making exercises move beyond the passive information dissemination found in the format of CATO's first three attempts at virtual classes and force the participants to engage with the problem posed through critical discourse (Garrison, 2016).

Additionally, we hoped through the design to move the participants through the Practical Inquiry Model process by incorporating decision-making exercises into the virtual learning environment. We wanted to do this by confronting them with a triggering event. The triggering event in the case of a decision-making exercise would be the problem faced at the decision point that was ripe with ambiguity, limited information, conflicting information, and multiple possible solutions. We hoped that the triggering event would motivate the participants to explore their



prior knowledge and experience regarding the problem posed, both as individuals and as a group. We then wanted the triggering event to move the participants to the point where they integrated their prior knowledge with the other perspectives in the class. The integration of knowledge is critical because it allows the participants to move to the resolution phase where they can apply the new knowledge to the problem presented, in this case, the decision.

The design also included group breakout sessions and share-outs with the entire class. We included the group breakout sessions and share-outs because this type of collaboration helps people make sense of their own understanding by exposing their thoughts and beliefs to examination and testing by others (Garrison, 2016). The board member knew from his own experience that approaches to critical incidents differ across cities, counties, and states. Unfortunately, these approaches are not always based on sound concepts and principles. We decided that the breakout sessions and share-outs were critical in the design because the exposure of thoughts and beliefs was essential. This is because people tend to reinforce their existing beliefs without the critical feedback found in a community of inquiry (Kuhn, 1962; Garrison, 2016). As mentioned in the literature review, people are inclined to see selectively what they are accustomed to or what they want to see—all the while subconsciously rejecting ideas and evidence that challenge their views of the world (Garrison, 2016). This occurs because it is difficult for people to objectively examine the credibility and soundness of their beliefs without help from others (Garrison, 2016). The breakout sessions and share-outs would also foster the themes of group interaction and group discussion discovered during the surveys and interviews as preferred learning environments.

The design of the decision-making exercises also supported teaching presence. Teaching presence is the leadership component of the Community of Inquiry framework. It involves setting the curriculum, direct instruction, and facilitating discourse. Setting the curriculum is essential to establish course content that will lead to discourse, and direct instruction is needed to present the problem. We designed the critical incident decision-making exercises to encourage teaching presence by having the facilitator set the curriculum, present the problem, identify areas of agreement and disagreement, promote discourse, and sustain the collaborative inquiry.

However, the most critical role of teaching presence is to focus discourse and establish an environment that promotes open communication and discussion (Garrison, 2015). This is because cognitive presence depends on teaching presence to sustain the discussion and inquiry necessary for thinking collaboratively (Garrison, 2016). Thinking collaboratively is key to moving through the Practical Inquiry Model process. Thus, teaching presence's role of facilitating discourse is vital because it promotes interactions that lead to individual and group reflection, which build and shape understanding collaboratively (Garrison, 2017). To support collaborative thinking and inquiry, we included design elements that would enable the facilitator to encourage an environment where participants engage in discourse to challenge each other's ideas and build on each other's approaches. The same design elements urged the facilitator to acknowledge well-reasoned contributions to discussions and identify agreement or disagreement while also seeking to reach individual and group understanding (Garrison, 2017).

Additionally, we wanted the design elements of teaching presence we included in support of cognitive presence to support social presence as well. A key indicator of social presence is open communication, respectful exchanges, and recognition of people's contributions. Social presence



motivates learners and increases student course satisfaction, perceived learning, and actual learning (Richardson & Swan, 2003). The intention of having the facilitator encourage open communication, the exchange of ideas, and the asking of questions, was to promote social presence within the group. Also, by recognizing well-reasoned arguments and contributions to group discussion, we hoped to increase the participants' sense of belonging, maintain their interest, and make them feel like contributing members of the inquiry process, all necessary components for social presence (Garrison, 2016).

Next, the data informed our design because it showed that critical incident management was a preferred curriculum, and decision-making exercises were a preferred learning method. Curriculum, content, and activities are considered relevant when they support the group's preferred learning interests and goals (Garrison, 2016). This is important because relevant curriculum, content, and activities engage students and make them want to participate in the learning environment (Garrison, 2016). Participation in a learning environment is essential because it leads to the interaction, discourse, and reflection necessary to support cognitive presence and social presence (Garrison, 2016). When teaching presence supports cognitive presence and social presence, it leads to a meaningful educational experience for participants (Garrison, 2016).

Moreover, relevant curriculum, content, and activities that support the group's preferred learning interests and goals lead to a shared purpose. Shared purpose by the group is necessary for the formation of a community (Garrison, 2016). The formation of a community is essential because inquiry occurs in a community (Garrison, 2015). Garrison (2016) points out that inquiry is the "collaborative approach to problem resolution that transpires in the context of reflective discourse and interactive questioning" (Garrison, 2016, p. 56). This is critical because the reflective discourse and interactive questioning that transpires in a community of inquiry lead to personal meaning-making and mutual understanding, essential learning goals under the Community of Inquiry framework (Garrison, 2015).

Finally, we knew that decision-making exercises based on critical incidents would allow us to incorporate scenarios involving patrol/field tactics and SWAT team leader/commander aspects, preferred subject matter based on the surveys. Decision-making exercises based on critical incidents also allowed the avoidance of traditional PowerPoint lectures while promoting group interaction and discussion—a direction the stakeholders wanted CATO's learning environments to reflect.

### **Implementation**

CATO administered three classes based on the design above. CATO held the classes virtually on Zoom, and the participants included police officers from California. The classes were:

- February 2021 virtual CATO class titled “Decision-Making Exercise and Debrief: SWAT Team Operations Involving the Mentally Ill.” Thirteen participants attended the class.
- March 2021 virtual CATO class titled “Decision-Making Exercise and Debrief: Active Shooter.” Eleven participants attended the class.
- April 2021 virtual CATO class titled “Decision-Making Exercise and Debrief: Hostage Rescue.” Thirteen participants attended the class.





To provide perspective, I will describe the Active Shooter decision-making exercise. We based the decision-making exercise on an active shooter incident that occurred in November 2018. It happened in Thousand Oaks, California, at the Borderline Bar and Grill. The Borderline Bar and Grill is a western-style bar frequented by college students. Thirteen people were killed that night, including the perpetrator and a police officer.

The decision-making exercise included video of the incident, body camera footage of responding officers, and the responding officers' radio traffic. The scenario had three decision points. The first decision point was how to approach the situation as the first two officers on the scene. The second decision point was how to approach the problem as the first supervisor on the scene confronted with multiple casualties, an officer down inside the location, and an active shooter still inside the bar. The final decision point was how to approach the situation as the first commander on scene confronted with the incident's aftermath. The board member who worked with me on CATO's virtual learning environment design facilitated the class. Figure 9 represents the template he created for his reference.

### Figure 9

*Facilitator Template for the Virtual CATO Class "Decision-Making Exercise and Debrief: Active Shooter"*

<b>Active Shooter/Officer Down (Borderline Nightclub)</b>
<b>Scenario Narrative (≤ 350 words)</b>
<p>1. You are the on-duty supervisor, working night shift when you hear officers getting dispatched to a "245 in progress" call at a local nightclub. You know that this nightclub is usually crowded, and fights sometimes break out as a result of intoxicated patrons. You also know that off-duty officers are known to frequent this nightclub. You are close to the location, so you advise dispatch that you will be responding as well. Upon arrival, you see patrons running away from the establishment. It just so happens another neighboring agency is there at the location because they were advised by patrons fleeing that shots were being fired. Other officers are responding from your agency but are two minutes away. As you walk toward the nightclub, you can see patrons down in the parking lot, but no shots are being fired (firing has ceased).</p> <p><i>As a supervisor, what are your thoughts as you're responding? What, if anything, are you going to communicate to your personnel?</i></p> <p>2. Now you're going to be switching roles. You are now the second sergeant working night shift in the same city. You hear the call go out and begin responding. You hear your partner sergeant arrive on scene and report that shots are being fired in the bar. Additionally, he reports there are possibly two shooters. The first sergeant on scene radios that victims are seen down outside the bar. He also radios that he and the two other officers from the neighboring agency are "making entry." A short time later, you arrive on scene and see patrol officers/deputies staged outside to the front of the bar. Your sergeant has not been heard from for two minutes, no shots are being fired, and patrons have told you that multiple people are shot inside the establishment. Dispatch advises they are receiving calls from patrons of the bar who are</p>



trapped in the attic, bathrooms, the kitchen area, and are hiding; however, again, no shots are being fired.

*What are you going to do with the resources you have? What are your considerations regarding the nightclub and lack of activity inside? Are you going to wait or make entry?*

3. Officers from the neighboring agency now tell your deputies that the primary sergeant has been shot and is down. An officer/deputy on the perimeter confirms that the primary sergeant is down and can be seen on the front landing/entry area of the bar. Dispatch estimates 20 plus people hiding in the bar. As you are receiving this information, a single gunshot is heard from inside the bar. Are you going to initiate a rescue? What are your priorities?

### **Chaos**

#### ***Time and noise injects.***

1. Multiple units from outside agencies respond to assist (what to do with them).
2. Media happens to be in the area and begins filming.
3. Upon hearing of the shooting, multiple family members arrive on scene, ascertaining the status of their family members that were inside.

#### ***Challenge Injects***

1. What if officers/deputies start acting on their own accord, contrary to your direction?
2. Local hospitals are at full capacity (delegate to fire/MCI)?

### **Facilitation**

#### ***Constraints and Restraints (Include Time Limits)***

1. The size of each focus group should ideally be less than four people. The time limit for each section is two to three minutes before asking for a preferred course of action.
2. Allow only two or three minutes after injects before asking for thoughts.

#### ***Training Aids***

1. A map/picture identifying the front of the nightclub and an aerial shot of the nightclub.
2. Picture of downed citizens in a nightclub.

#### ***Talking Points***

3. What do you think is happening? Why?
4. Initial focus of effort and general orders (delegate, align decision making authority with situational awareness, principles before procedures).
5. Priority of life? Point of entry?
6. What to do after the threat is neutralized and the scene is secure?
  - a. Notifications/hospital/crime scene preservation.
  - b. Unify command/establishing relationships with your fire department.

Several experts in law enforcement observed the class, including an author and expert on managing critical incidents at the patrol/field level. After the decision-making exercise, officers involved in the actual event and those who investigated the incident provided a detailed debrief. The debrief included the decisions people made and why, lessons learned, and a discussion of the complex nature of the incident. The debrief also included a question-and-answer session, a discussion of the event's lasting effects on the people involved, and what impact the event had on the police department. At the conclusion of the class, I administered the Community of Inquiry Survey to the class participants.



## Intervention Data Analysis

### Data: Community of Inquiry Surveys of Four Virtual Classes

#### *Data Collection*

I analyzed four virtual classes using the Community of Inquiry Survey. Those classes included:

- Crowd Management Strategies (Class 1)
- Decision-Making Exercise and Debrief: SWAT Team Operations Involving the Mentally Ill (Class 2)
- Decision-Making Exercise and Debrief: Active Shooter (Class 3)
- Decision-Making Exercise and Debrief: Hostage Rescue (Class 4)

I analyzed the survey data to determine if the design intervention increased cognitive presence, social presence, and teaching presence. An increase would support the intervention as an effective design strategy for CATO's live virtual classes based on the Community of Inquiry framework.

#### *Analysis Methods*

For analysis purposes, I designated the classes Class 1, Class 2, Class 3, and Class 4. Class 1 was used as a baseline because it had no intervention. I compared Class 1 to Classes 2, 3, and 4. I conducted a two-sample t-test for unequal variances because the class participants were not randomly chosen, and the classes had varying numbers of participants. Table 4 shows the mean of the three presences for Classes 2, 3, and 4 compared to the means of Class 1, along with the p-values for a two-tailed test with a .05 level of significance. The null hypothesis was that there would be no significant difference in the means for cognitive presence, social presence, and teaching presence between Class 1 and the other three classes.

After comparing the means and obtaining a p-value with the two-sample t-test, I measured effect size with Hedges'  $g$  to examine how much Class 2, Class 3, and Class 4 differed from Class 1 on the three presences. I used Hedges'  $g$  instead of Cohen's  $d$  to measure effect size because Hedges'  $g$  outperforms Cohen's  $d$  when sample sizes are less than 20. Hedges'  $g$  outperforms Cohen's  $d$  when sample sizes are less than 20 because Hedges'  $g$  uses pooled weighted standard deviations instead of pooled standard deviations (Cohen, 1977; Durlak, 2009; Ellis, 2010; Hedges, 1981; Hedges & Olkin, 1985; Glen, 2020). Cohen's  $d$  and Hedges'  $g$  are interpreted in a corresponding way. A  $g$  of 1 indicates that two groups differed by 1 standard deviation. A  $g$  of 2 indicates that two groups differed by 2 standard deviations, and so on. Cohen (1977) provided the following rules for interpreting effect size results (Cohen, 1977; Durlak, 2009; Ellis, 2010; Hedges, 1981; Hedges & Olkin, 1985; Glen, 2020).

- Small effect (cannot be discerned by the naked eye) = 0.2
- Medium effect = 0.5
- Large effect (can be seen by the naked eye) = 0.8



**Table 4**

*Table Comparing the Class Means for Cognitive Presence, Social Presence, and Teaching Presence*

Class 1 ( $n=8$ ) compared to Class 2 ( $n=13$ )

<b>Presence</b>	<b>Class 1 Mean / SD</b>	<b>Class 2 Mean / SD</b>	<b><i>p</i>-value (<math>\alpha=.05</math>) two-tail</b>	<b>Hedges' <i>g</i></b>
Cognitive	3.83 / .48	4.71 / .37	.0008	2.13 (large effect)
Social	3.99 / .45	4.30 / .43	.142	.71 (medium effect)
Teaching	3.95 / .56	4.44 / .49	.060	.95 (large effect)

Class 1 ( $n=8$ ) compared to Class 3 ( $n=11$ )

<b>Presence</b>	<b>Class 1 Mean / SD</b>	<b>Class 3 Mean / SD</b>	<b><i>p</i>-value (<math>\alpha=.05</math>) two-tail</b>	<b>Hedges' <i>g</i></b>
Cognitive	3.83 / .48	4.55 / .44	.005	1.58 (large effect)
Social	3.99 / .45	4.36 / .49	.108	.78 (medium effect)
Teaching	3.95 / .56	4.71 / .40	.006	1.60 (large effect)

Class 1 ( $n=8$ ) compared to Class 4 ( $n=13$ )

<b>Presence</b>	<b>Class 1 Mean / SD</b>	<b>Class 4 Mean / SD</b>	<b><i>p</i>-value (<math>\alpha=.05</math>) two-tail</b>	<b>Hedges' <i>g</i></b>
Cognitive	3.83 / .48	4.51 / .56	.009	1.28 (large effect)
Social	3.99 / .45	4.39 / .63	.116	.70 (medium effect)
Teaching	3.95 / .56	4.55 / .49	.026	1.16 (large effect)

*Note.* Table comparing Class 1's means for all three presences with the means of Class 2, Class 3, and Class 4 using a two-sample t-test for unequal variances (two-tailed test  $\alpha=.05$ ). Hedges' *g* was used to measure effect size.

### **Key Findings**

The means for cognitive presence, social presence, and teaching presence for Classes 2, 3, and 4 increased compared to Class 1. However, according to the two-sample t-test for unequal variances, the only significant increase in the means across all three classes was for cognitive presence. Classes 3 and 4 both saw significant increases in the means for both cognitive presence and teaching presence. Classes 2, 3, and 4 did not show a significant increase in social presence compared to Class 1. There were also no significant differences in the means when I compared Classes 2, 3, and 4 with each other.

Using Hedges' *g* to examine how much Classes 2, 3, and 4 differed from Class 1 on the three presences demonstrated that all three classes showed a large effect size in cognitive presence and



teaching presence compared to Class 1. Additionally, all three classes showed a medium effect size in social presence when compared to Class 1.

### **Data: Observation of the Three Classes that Experienced the Intervention**

#### ***Data Collection***

I observed the three classes that experienced the intervention live via Zoom. Those classes included:

- Decision-Making Exercise and Debrief: SWAT Team Operations Involving the Mentally Ill (Class 2)
- Decision-Making Exercise and Debrief: Active Shooter (Class 3)
- Decision-Making Exercise and Debrief: Hostage Rescue (Class 4)

The purpose was to determine whether the three presences were represented. Indicators of the three presences would show that the participants experience a meaningful educational experience. This would support the intervention as an effective design strategy based on the Community of Inquiry framework.

#### ***Analysis Methods***

As stated above, the format of the classes incorporated the intervention design elements. Those elements included a concise description of the class topics by the instructor, a statement by the instructor regarding netiquette, clear instructions on how to participate in class activities, followed by the first portion of a scenario leading up to a critical decision. After providing the scenario, the instructor broke the groups out into rooms for approximately five minutes. Upon their return, each group discussed how they would approach the problem with opportunities for participants and observers to ask questions and engage in discussion. The instructor repeated this process at each decision-making point. He then invited the officers involved in the actual incident to provide a debrief, followed by an opportunity to ask questions and discuss lessons learned.

I used the Community of Inquiry Coding Template to identify indicators of the three presences in each class. See Figure 10.



**Figure 10***Community of Inquiry Coding Template*

<b>Elements</b>	<b>Categories</b>	<b>Indicators (examples only)</b>
Social Presence	Open Communication Group Cohesion Personal/Affective	Risk-free Expression Group Identity/Collaboration Socio-emotional Expression
Cognitive Presence	Triggering Event Exploration Integration Resolution	Sense of Puzzlement Information Exchange Connecting Ideas Applying New Ideas
Teaching Presence	Design & Organization Facilitating Discourse Direct Instruction	Setting Curriculum, Methods Shaping Exchange Resolving Issues

*Note.* Community of Inquiry Coding Template (Garrison, 2016).

I created coding tables for each class that identified the presence, the category of the presence, and the indicator of the presence I observed. Table 5 contains a portion of the Community of Inquiry Coding Table for Class 3 as an example. The table is in chronological order based on when the indicators of the presences occurred.



**Table 5***Community of Inquiry Coding Table for Class 3*

<b>Element</b>	<b>Category</b>	<b>Indicator</b>
Social Presence Teaching Presence Cognitive Presence	Open Communication Facilitating Discourse Exploration	Group 3 answered the instructor's questions and referenced the picture the instructor displayed at the beginning of the scenario.
Teaching Presence Social Presence	Facilitating Discourse Group Cohesion	The instructor acknowledged the well-reasoned argument of Group 3.
Social Presence Cognitive Presence	Open Communication Group Cohesion Exploration Integration Resolution	Group 1 acknowledged the sound decisions of the other groups and built upon what they said. Group 1, in turn, addressed how they would confront the problem.
Teaching Presence Cognitive Presence	Design & Organization Facilitating Discourse Exploration	The instructor invited one observer to provide direct instruction on how he would approach the incident.
Teaching Presence Cognitive Presence	Direct Instruction Facilitating Discourse Information Exchange	The observer provided how he would have approached the incident. He then asked the groups probing questions as to why they made the decisions they did.
Social Presence Cognitive Presence	Open Communication Group Cohesion Exploration	A group volunteered and explained why they disagreed with the observer and gave a detailed explanation behind their thinking.

*Note.* A portion of the qualitative coding table based on the Community of Inquiry framework displaying observations of the three presences in Class 3.



### ***Key Findings***

As mentioned in the literature review, essential elements for learning according to the Community of Inquiry framework include:

- Defining and initiating discussion topics
- Information exchange between participants
- Collaboration
- Connecting and applying new ideas

Cognitive presence, social presence, and teaching presence support these elements, and the Community of Inquiry Coding Template provides a tool to measure if the three presences are occurring in a learning environment. The coding template does this by defining key indicators of the presences. Critical to understanding the coding template is that it is grounded in the Community of Inquiry framework and the literature that supports it.

Remember, “Crowd Management Strategies” (Class 1) did not meet the elements of a community of inquiry because it only consisted of an instructor introduction, an hour and a half of lecture, a total of four questions from the students to the instructor and no interaction between students. The goal of the intervention was to create a meaningful educational experience for CATO's participants based on the Community of Inquiry theoretical framework. To do this, the intervention had to sustain the interaction and dialogue needed for collaborative thinking and to create a community of inquiry. To measure if this occurred, I looked for evidence of the three presences based on the Community of Inquiry Coding Template.

The qualitative coding analysis demonstrated that the intervention design supported the three presences. For example, below is a list of the indicators for cognitive presence, social presence, and teaching presence identified during the observation of Class 3.

#### **Decision-Making Exercise and Debrief: Active Shooter (Class 3).**

##### ***Cognitive Presence.***

- The instructor explained that class observers would provide feedback and engage in dialogue with class participants regarding their decisions (exploration, integration).
- The instructor provided the scenarios and the problems for the groups to resolve (triggering event).
- Each group explained what they discussed and how they decided to address the first decision-making problem (exploration, integration, resolution).
- There was discussion between the groups on points of agreement (exploration).
- The observers provided divergent opinions (exploration).
- Groups built upon the ideas developed by other groups (integration).
- The instructor asked clarifying follow-up questions throughout the class after the groups discussed their decisions (exploration).
- Groups explained how they engaged in debate on specific issues before integrating their ideas and arriving at a solution (exploration, integration, resolution).





- Groups explained why they agreed and disagreed with another group's approach to the problem, and they explained why (exploration).
- Observers built on the groups' decisions by adding additional information as to how they would address the problem (exploration, integration).
- After the officers involved in the incident provided a debrief and discussed the failures that occurred, the instructor asked if the groups would like to share how they would overcome the failures. Two groups volunteered and provided answers (exploration, integration, resolution).

### ***Social Presence.***

- Students participated, answered questions, and offered opinions beyond what the instructor expected (open communication).
- The instructor introduced the observers and provided their expertise in law enforcement (personal/affective).
- The instructor explained that class observers would provide feedback and engage in dialogue with class participants regarding their decisions (open communication).
- The instructor made a statement that people should share their ideas regardless of rank or position (open communication).
- The instructor asked the participants to introduce themselves once they broke out into their groups (personal/affective).
- The instructor acknowledged groups when they made a well-reasoned argument (group cohesion).
- The groups agreed and disagreed with each other's decisions throughout the class. Their agreements and disagreements included explanations (open communication, group cohesion).
- The groups acknowledge the well-reasoned arguments of other groups throughout the class (open communication, group cohesion).
- Observers provided feedback and direct instruction throughout the class (open communication).
- People used the chatbox to ask questions and make comments (open communication).

### ***Teaching Presence.***

- The instructor provided a clear explanation of the decision-making exercise (design & organization).
- The instructor provided a time frame for completing the decision-making exercise (design & organization).
- The instructor explained that class observers would provide feedback and engage in dialogue with class participants regarding their decisions (facilitating discourse).
- The instructor explained the goals of the class: Mentally experience the incident, learn from others in the class, apply the learning to similar incidents in the field (design & organization).
- The instructor provided a statement regarding netiquette for the class (design & organization).



- The instructor repeated how to participate in class activities, specifically by reminding everyone to rotate the person who does the share-out for each group (design & organization).
- The instructor focused the discussion by telling the participants from what perspective he wanted the participants to look at the problem (direct instruction).
- Two groups used a map provided by the instructor to explain how they would address the problem (facilitating discourse).
- The instructor asked clarifying follow-up questions throughout the class after the groups discussed their decisions (facilitating discourse).
- The instructor acknowledged the groups when they made a well-reasoned argument (facilitating discourse).
- The instructor resolved issues by having the experts in critical incident management who were observing the class discuss specific content applicable to the decisions made by the groups (direct instruction).
- The instructor asked probing questions to keep the participants engaged in productive dialogue (facilitating discourse).
- The instructor encouraged the observers to provide feedback on the groups' decisions to help them understand the strengths, weaknesses, and concerns related to those decisions (direct instruction).
- The observers provided feedback, agreed with participants, disagreed with participants, and provided instruction on several topics relevant to the decisions throughout the class (facilitating discourse, direct instruction).

The Community of Inquiry Coding Template also allowed me to identify when key indicators were missing from a class. For example, the class “Decision-Making Exercise and Debrief: SWAT Team Operations Involving the Mentally Ill” (Class 2) represented the three presences well. However, I noticed during my analysis that there were several missing indicators that, if included, could improve the representation of the three presences.

### **Decision-Making Exercise and Debrief: SWAT Team Operations Involving the Mentally Ill (Class 2).**

#### ***Missing Indicators for Cognitive Presence.***

- There was no discussion as to how the newly generated knowledge created by the interactions of the participants and the observers could be applied to other situations or scenarios (resolution).

#### ***Missing Indicators for Social Presence.***

- There was limited risk-free expression. The divergent opinions, challenges, and disagreements came from the observers. There were few examples where participants expressed disagreement (open communication, risk-free expression).

#### ***Missing Indicators for Teaching Presence***

- The instructor did not focus discussion on specific issues related to the problem. Instead, he asked general questions on how each group would approach the situation (direct instruction).



## **Data: Interviews with Key Stakeholders**

### ***Data Collection***

I conducted 10 interviews with key stakeholders as part of my research for this Capstone Project. Five of the interviews occurred post-intervention. These interviews included:

- February 2021 interview with an author, a recognized expert in law enforcement, former President of CATO, and observer of Classes 2, 3, and 4
- April 2021 interview with a current SWAT Commander and participant in Class 2 and Class 3
- April 2021 interview with a current SWAT Commander and participant in Class 2
- April 2021 interview with a former Director of Training for CATO, current CATO instructor, and observer of Class 2 and Class 3
- April 2021 interview with an attorney, businessperson, current instructor for CATO, and observer of Class 2

I chose these five people to interview because of their past and current roles in the CATO organization, either in leadership positions and/or teaching positions. Understanding their perspectives on the direction of the organization, its curriculum, its learning methods, and its learning environments were critical in informing how the design elements of the Community of Inquiry framework fit into their vision for CATO.

Additionally, four of the interviewees are current or former police officers with extensive experience in police training, both as instructors and as participants. They represent a diverse group of officers from different police agencies, different geographic locations, different ranks, and varying police department sizes. The final interview was with an attorney, businessperson, and current instructor for CATO with a vast amount of experience in police training. The interviewees' responses would help answer all three research questions by identifying what course content was relevant to a diverse group of officers and by informing design strategies that promote a meaningful educational experience in CATO's live virtual environments. All the interviewees had attended at least one class that had experienced the design intervention.

The five interviews comprised over three and a half hours of content that I recorded via Zoom. The interviews were semi-structured using a questionnaire I created. There were 14 questions. Some of the questions included:

- What subject matter do you think is important for CATO to design their course curriculum around? Why?
- What type of environment do you think best promotes your learning experience?
- What contributes to you feeling comfortable participating, interacting, and dialoguing in a learning environment?

### ***Analysis Methods***

The questions guided the interview, and I asked each interviewee the same set of questions. However, the interviews took on a conversational tone that allowed the interviewees to share



their thoughts on curriculum, learning methods, and learning environments. I transcribed the interviews and transferred the content to Dedoose for analysis. I examined the data for excerpts related to preferred curriculum, preferred learning methods, and preferred learning environments. I then clustered relevant excerpts under those categories and analyzed the data to establish my findings. For example, the attorney, businessperson, and current instructor for CATO discussed why critical incident debriefs were his preferred curriculum and what made them important. He stated:

*We don't learn from a thousand perfectly executed warrants. We learn from the one that gets screwed up, right? So, you've got to have that environment where that's okay.... One of the first questions I ask people when we interview them for the lecture series is, "What was the worst thing that happened?" And if they go, "Oh, man, it was a great operation," they're not coming.... We're done talking at that point because it was a great operation. "You never had any problem?" I can't learn anything, right? So, my guy is the guy that goes, "How long do you have. I got a list."*

*"Now, out of that list, what did you learn? What did you change? What information was available at the time that you could have had that you didn't get and why? Why didn't you have it? How could you have gotten it? How did that change your procedures and your SOP going forward?" I think those are the kinds of things we need to dig into with curriculum where we're really looking at the learning opportunities, not sitting around and telling cool hero stories.*

As mentioned above, I categorized this as a statement regarding preferred curriculum. The preferred curriculum was critical incident debriefs. I also noted how, just like in the previous interviews, the value of critical incident debriefs were the lessons learned from them. For clarification, SOP stands for standard operating procedures.

Another interviewee, an author, and expert in critical incident management, explained why he thought decision-making exercises were an essential learning method. He stated:

*One of the things that I learned doing all the research is that humans across the board do not repeat unproductive behaviors. What that means is that they learn. They don't go back and repeat a mistake that they know is not going to lead them to the objectives. So, as a result of that, they gain expertise. One of the advantages of planning and decision-making is we can create training that almost identically mimics real life. Because we do not repeat unproductive behaviors, we start where we left off and that gives us an advantage. So going through these decision-making exercises is, oh, I don't even know how to describe it. It's valuable to me.*

I categorized this as a statement regarding a preferred learning method. That preferred learning method was decision-making exercises. The benefit that the interviewee derived from decision-making exercises was that they allowed people to learn what worked and what did not work in managing a critical incident. The participants could then apply that learning later in an actual, similar event.



Another interviewee and current SWAT commander added why decision-making exercises were his preferred learning method.

*It's very hard for somebody to make decisions during a critical incident or a high-risk situation when they haven't done it yet. And so, you remove the physical part of the job. And you just make them think. You're just focusing on that. The mental, the brain part of the tactics, it is extremely valuable because now, when you're really in that stressful situation, you've been there, and you've done that.*

Again, the interviewee referenced the learning that occurs when people are forced to make decisions based on problems they confront in a scenario. Confronting the problem presents an opportunity for people to learn what works and what does not in an environment of safety. They can then apply that experience to an actual event.

Similar to the pre-intervention interviews, the interviewees saw a need for limited use of PowerPoint. When I asked what learning methods were important for CATO to focus on, the former Director of Training for CATO stated:

*Getting the students more engaged than just the old traditional death by PowerPoint lecture and no interaction with students.*

Finally, when I asked the attorney, businessperson, and CATO instructor what contributed to his feeling comfortable participating, interacting, and dialoguing in a learning environment, he discussed creating a safe environment for participants. At one point, he stated:

*Training is about learning. Learning is about making mistakes. You don't learn by doing things correctly. You learn by doing them incorrectly. You learn by not knowing. You learn by making mistakes. So, let's do that in a training environment, and let's create a culture around our training environment that allows for that without shame and judgment and ego damage. And then, within that, let's create an environment where we can disagree, where we can argue about things, where we can hash through. One of the best things about SLP was watching these leaders, and future leaders develop their thinking by arguing with each other and getting perspectives that they would not normally get, right? I mean, one of the problems that I think we suffer from is being in an echo chamber where we tend to surround ourselves with people that agree with us. You don't learn by surrounding yourself with people that agree with you. You learn by arguing with people who have a completely different opinion.*

I categorized this as a statement regarding a preferred learning environment. The preferred learning environment promoted group interaction and discussion where people could learn from each other.

I took the above approach when examining all the interview transcripts. Again, I looked for information on participants' preferences for curriculum, learning methods, and learning environments.



### ***Key Findings***

The following preferences emerged from the interviews related to curriculum, learning methods, and learning environments. Those preferences included:

- Preferred Curriculum: Critical incident debriefs
- Preferred Learning Methods: Decision-making exercises / avoid long lectures using PowerPoint
- Preferred Learning Environment: Group interaction and group discussion

### **Recommendations**

#### **Recommendation 1**

"A community of inquiry is a group of individuals engaged in thinking collaboratively through the purposeful and recursive process of reflection and discourse" (Garrison, 2016, p. 87). A community of inquiry aims "to construct personal meaning and confirm mutual understanding" (Garrison, 2016, p. 87). The intervention demonstrated that CATO could improve the meaningful educational experience of its participants by designing virtual communities of inquiry based on the Community of Inquiry theoretical framework. The Community of Inquiry framework illustrates that a meaningful educational experience requires thinking collaboratively. Thinking collaboratively occurs in purposeful and cohesive communities of inquiry that promote open communication. CATO should allow the framework to continue to inform its virtual learning environment designs with the intent of improving the meaningful educational experience of its participants (Garrison, 2011). CATO can do this by adhering to the Community of Inquiry framework's principles of practice.

The principles rely on teaching presence to support and sustain communities of inquiry through course design, facilitation of discourse, and direct instruction, all categories of teaching presence that promote cognitive presence and social presence (Garrison, 2016). Those principles of practice include:

#### ***Principles 1 and 2***

1. Design learning environments that create an atmosphere of open communication and trust (social presence).
2. Plan for critical reflection and discourse (cognitive presence).

Principles 1 and 2 promote a virtual learning environment design that supports a collaborative thinking and learning experience by focusing on social presence and cognitive presence (Garrison, 2016).

#### ***Principles 3 and 4***

3. Establish community and cohesion based on a shared interest in the subject matter (social presence).



4. Establish inquiry dynamics that stimulate growth, understanding, information exchange, and examination of ideas (cognitive presence).

These two principles encourage the facilitation of a collaborative thinking and learning experience by the instructor that promotes social presence and cognitive presence (Garrison, 2016).

### ***Principles 5 and 6***

5. Sustain an environment of respect (social presence).
6. Sustain inquiry that moves to resolution (cognitive presence).

Finally, principles 5 and 6 demonstrate the importance of direct instruction to sustain an environment of open and risk-free expression (social presence) while also guiding the participants through the Practical Inquiry Model to the point of resolving the problem confronted (cognitive presence) (Garrison, 2016). CATO needs to understand that with any design it implements, it must consider the interdependence of the three presences in creating a meaningful educational experience (Garrison, 2016).

### **Recommendation 2**

CATO should continue to use and refine the virtual learning environment design outlined in the intervention. The stakeholders, the context, the literature, the framework, and the problem informed the design. Based on the Community of Inquiry Survey results, it improved the participants' meaningful educational experience. First, the design increased cognitive presence in all three classes. An increase in cognitive presence is critical because cognitive presence is the core thinking and learning element of the Community of Inquiry framework. It is the degree to which participants in a learning environment are able to construct and confirm meaning through sustained communication and reflection. It represents the knowledge construction that results from interaction and thinking collaboratively (Stewart, 2019; Garrison et al., 2000; Flock, 2020). An increase in cognitive presence for all three classes demonstrates to CATO that the design based on the Community of Inquiry framework improved the meaningful educational experience of its class participants.

Second, although the means for social presence in all three classes increased compared to Class 1, those increases were not significant and only showed a medium effect size. This is critical because social presence measures if open communication, respectful exchanges, and recognition of people's contributions occur in a learning environment. Social presence motivates learners and increases student course satisfaction, perceived learning, and actual learning (Richardson & Swan, 2003). Social presence also supports cognitive presence and is a necessary component of a meaningful educational experience based on the Community of Inquiry framework. The design intended to promote social presence by encouraging open communication, the exchange of ideas, and the asking of questions amongst the class participants. Unfortunately, there was no significant increase in social presence in any of the classes compared to Class 1. This indicates that CATO should explore further what design elements of the Community of Inquiry framework might increase social presence and the meaningful educational experience of its participants.



Third, the means for teaching presence in all three classes increased compared to Class 1. Those increases were significant for Classes 3 and 4 and showed a large effect size for Classes 3, 4, and 5. This is critical because teaching presence promotes constructive discourse that sustains the learning community and moves the group toward its educational goals (Kennedy & Kennedy, 2010). It must be acutely concerned with promoting both cognitive presence and social presence to ensure that the collaborative learning environment necessary for learning is sustained (Garrison, 2017). A significant increase in teaching presence for two classes and a large effect size in all three demonstrate to CATO the possibility of improving the meaningful educational experience of its participants by designing a virtual learning environment based on the Community of Inquiry framework. It also demands further exploration as to why there was no significant increase in teaching presence in Class 2 and what design elements for the Community of Inquiry framework might have caused improvement in Classes 3 and 4.

Additionally, observation analysis using the Community of Inquiry Coding Template revealed that indicators of cognitive presence, social presence, and teaching presence occurred in all three classes that experienced the intervention. Those indicators demonstrate that the essential elements for a community of inquiry were found in each class, further supporting the intervention design. Those elements included:

- Defining and initiating discussion topics
- Information exchange between participants
- Collaboration
- Connecting and applying new ideas

They also demonstrate that the intervention design was a drastic departure from the lecture-based format of CATO's first attempts at a virtual environment. Again, even though the content of those lectures was interesting, they did not take the participants through the Practical Inquiry Model process. This process includes presenting the class with a triggering event (problem), exploring and reflecting on the problem both individually and as a group, integrating ideas to form new knowledge, and applying the new knowledge to the problem. However, the intervention took the participants through the Practical Inquiry Model process. The class design initiated discussion topics, created information exchange and collaboration between the participants, and moved them toward connecting and applying new ideas to solve the problem posed. All three classes accomplished this task as demonstrated by the indicators of the three presences. One can assume that based on the framework, critical thinking took place.

Finally, the last five interviews support CATO's use of the intervention design. For example, the interviewees preferred a curriculum designed around critical incident management. Their favored learning method was decision-making exercises. Their desired learning environment was one that fosters open communication, divergent opinions, and group cohesion. Finally, they thought CATO should avoid extended lectures, limit the use of PowerPoint, and instead promote group interaction, discussion, and collaboration. The design intervention supports each of the above elements.

The findings support the conclusion that the intervention created a meaningful educational experience for the class participants as defined by the Community of Inquiry theoretical framework. Thus, CATO should use and continue to refine the intervention design.





### Recommendation 3

CATO should pay close attention to how teaching presence supports cognitive presence and social presence. The observation and analysis of Classes 2, 3, and 4, using the coding template, demonstrated that teaching presence is the driving force behind social presence and cognitive presence. First, teaching presence creates the environment necessary for the open communication and group cohesion found in social presence by constantly ensuring the participants are comfortable dialoguing in the learning environment. Second, teaching presence promotes the interaction, collaboration, integration of ideas, and problem resolution necessary for cognitive presence by focusing the discourse through instruction on course topics, probing questions, and constant feedback.

### Recommendation 4

CATO should keep the course design process simple by using the Community of Inquiry Coding Template and the Community of Inquiry Survey to guide its design process. The coding template outlines the categories that fall under each presence and the indicators of those presences. CATO should strive to represent each one of those categories and corresponding indicators in its virtual course content. The coding template will also allow CATO to measure improvement and the effect of each new design decision. For example, an analysis of Class 2 showed that CATO could use the Community of Inquiry Coding Template to improve its course design by identifying when a course is missing critical indicators of the three presences. Class 2 showed no group discussion on applying the knowledge gained from the class to similar but different circumstances, a key indicator of cognitive presence.

### Figure 11

*Community of Inquiry Coding Template*

Elements	Categories	Indicators (examples only)
Social Presence	Open Communication Group Cohesion Personal/Affective	Risk-free Expression Group Identity/Collaboration Socio-emotional Expression
Cognitive Presence	Triggering Event Exploration Integration Resolution	Sense of Puzzlement Information Exchange Connecting Ideas Applying New Ideas
Teaching Presence	Design & Organization Facilitating Discourse Direct Instruction	Setting Curriculum, Methods Shaping Exchange Resolving Issues

*Note.* Community of Inquiry Coding Template (Garrison, 2016).

CATO should also use the Community of Inquiry Survey to guide the design process. The survey provides insight into improving each category and the corresponding presence. For example, a portion of the survey in Figure 12 demonstrates some of the indicators of the design and organization elements of teaching presence. The survey questions indicate to CATO what elements it should include in its course content and what behaviors it should encourage.

**Figure 12**

*Community of Inquiry Teaching Presence Questions*

<b>Teaching Presence</b>
<b>Design &amp; Organization</b>
<ul style="list-style-type: none"> <li>• The instructor clearly communicated important course topics.</li> </ul>
<ul style="list-style-type: none"> <li>• The instructor clearly communicated important course goals.</li> </ul>
<ul style="list-style-type: none"> <li>• The instructor provided clear instructions on how to participate in course activities.</li> </ul>
<ul style="list-style-type: none"> <li>• The instructor clearly communicated important due dates/time frames for learning activities.</li> </ul>

*Note.* Community of Inquiry Survey teaching presence questions for the design and organization category (Garrison, 2016).

For example, when designing a class, CATO can look to the coding template under teaching presence to make sure it includes design and organization elements. If unsure what those design elements are, it can look to the survey questions for indicators, such as the instructor clearly communicated course goals or the instructor provided clear instructions on how to participate in course learning activities.

CATO can do the same for cognitive presence. For example, if it wants to introduce a triggering event but is unsure what a triggering event is, it can look to the coding template and survey for guidance. The coding template and survey would inform CATO that a triggering event is a problem that increases interest in the course, causes a sense of puzzlement, piques curiosity, and makes class participants want to explore further. The intervention design did this by introducing a problem related to a critical incident and relevant to the class participants. The intervention design then created a decision-making exercise around that problem to move the participants through the Practical Inquiry Model process of exploration, integration, and resolution.

By utilizing the coding template and the survey to guide the design process and combining that guidance with the principles of practice and essential elements, CATO would ensure that its course design reflects the Community of Inquiry theoretical framework. Additionally, CATO would make certain that the design contained the necessary indicators of cognitive presence, social presence, and teaching presence essential to creating a meaningful educational experience for its course participants. Finally, CATO could use the same coding template and the survey to measure performance with an eye toward continuous improvement.



## Recommendation 5

Moving from general to more specific design strategies, CATO can promote the three presences in its virtual learning environments by doing the following:

### *Cognitive Presence*

- Encourage the exploration of different ideas and multiple perspectives by asking thought-provoking open-ended questions (Richardson et al., 2009).
- Show public support and encouragement when people present diverse and divergent opinions (Richardson et al., 2009; Stephens & Roberts, 2017).
- Use group discussions and small breakout sessions to encourage reflection, thoughts, and ideas (Dunlap et al., 2016).
- Use case studies, stories, simulations, and games to involve students in the learning process (Dunlap et al., 2016).
- Provide repeated opportunities for participants to test ideas and receive feedback (Richardson et al., 2009).
- Identify key concepts you want participants to take away from a course and design course activities around those concepts (Richardson et al., 2009).
- Develop collaborative projects where participants have the opportunity to share differing viewpoints on how to approach a problem (Richardson et al., 2009).
- Avoid prescribing excessive content and provide time to converse, reflect, and integrate concepts discussed with other perspectives in the learning environment (Garrison, 2016).
- Organize courses around concepts and themes (Garrison, 2016).
- Use Socratic questioning to initiate reflection and guide the participants toward learning outcomes (Garrison, 2016).

### *Social Presence*

- Have participants share their biographies and what they hope to gain from the course content (Richardson, Ice, & Swant, 2009).
- Explicitly explain to the participants the importance and what is expected when it comes to student-to-student interaction (Stewart, 2017).
- Make sure the student-to-instructor ratio is small (Rovai, 2000).
- Incorporate audio and video within the course content (Lowenthal & Parscal, 2008; Seckman, 2018).
- Share personal stories and professional experiences relevant to the course content (Lowenthal & Parscal, 2008).
- Address students by name (Lowenthal & Parscal, 2008).
- Require participants to respond to their classmates during share-out sessions (Richardson et al., 2009).
- Design collaborative activities that involve problem-solving tasks in small groups (Richardson et al., 2009).
- Establish an appropriate social climate for in-group and cross-group communications that contributes to open communication and a collaborative learning environment (Stephens & Roberts, 2017; Szeto, 2015).



- Establish the rules of netiquette for the course (Richardson et al., 2009; Stephens & Roberts, 2017).

### ***Teaching Presence***

- Explicitly explain to the participants the importance, and what is expected, when it comes to student-to-student interaction (Stewart, 2017).
- Be involved in class discussions but understand that sharing instructor ideas too soon can limit student discourse (Watson et al., 2017).
- Limit class size (Lowenthal & Parscal, 2008).
- Resist the urge to be too involved in participants' discussions and focus on facilitating student interaction instead (Richardson et al., 2009).
- Use small groups combined with collaborative projects to support interaction (Richardson et al., 2009).
- Design, organize, and structure collaborative learning activities (Lowenthal & Parscal, 2008).
- Define course goals and expectations (Richardson et al., 2009).
- Develop course content that forces students to solve problems (Dunlap & Lowenthal, 2018).
- Provide timely and constructive feedback (Watson et al., 2017).
- Ensure feedback is clear, explicit, and then allow participants to ask questions for clarity on the feedback (Dunlap & Lowenthal, 2018).
- Review course designs for clarity and consistency (Richardson et al., 2009).
- Explicitly state, and frequently repeat, course instructions and goals for all activities (Richardson et al., 2009).
- Model facilitation discourse in discussions with participants that does not undermine continued engagement (Garrison, 2016).
- Provide the leadership that sets a welcoming tone for open communication and risk-free expression that makes people comfortable challenging ideas and evaluating erroneous arguments (Garrison, 2016).

## **Conclusion**

### **Discussion**

In its strategic plan, CATO outlined several opportunities for improvement:

- Increase CATO's revenue by expanding the number of training courses offered while simultaneously decreasing the costs associated with training courses.
- Create a mechanism to determine what courses law enforcement agencies and their members want CATO to offer.
- Design courses available throughout the state that are relevant, engaging, and cultivate learning for the law enforcement community CATO serves.

CATO's strategy for increasing revenue by expanding the number of courses offered while simultaneously decreasing costs is to develop live virtual classes that are pertinent and promote



critical thinking. To implement its strategy, CATO needed to design virtual learning environments that create a meaningful educational experience for the law enforcement community it serves. The central research problem for this Capstone Project was to inform CATO on how to design virtual learning environments that create a meaningful educational experience.

Informed by the context, problem, literature, and framework, I developed the following research questions:

1. What effect does agency size, SWAT team size, and geographic location have on the type of courses CATO should offer?
2. What effect does being a participant in CATO's training, an individual's rank in a police department, or being a member of the CATO organization have on what type of courses CATO should offer?
3. What are effective design strategies based on the Community of Inquiry framework for CATO's live virtual classes that will create community and a meaningful educational experience through cognitive presence, social presence, and teaching presence?

The Community of Inquiry theoretical framework, interviews with key stakeholders, and surveys of participants guided the design of CATO's virtual learning environments. The intent was to create a meaningful educational experience for the students who attend CATO's virtual classes. The design did this by focusing on cognitive presence, social presence, and teaching presence, three elements that promote the learning process by supporting discourse, setting climate, and selecting content.

An analysis of the pre-intervention data provided the following findings:

- CATO's participants and stakeholders want a curriculum centered on critical incident debriefs.
- CATO's participants' and stakeholders' preferred learning method is decision-making exercises in an environment that promotes group interaction and discussion.
- CATO's participants and stakeholders prefer courses that focus on critical incidents involving SWAT and patrol/field operations.
- CATO's participants and stakeholders want the instructors to avoid long lectures presented by PowerPoint.

I merged the participants' and stakeholders' preferences with the elements of the Community of Inquiry framework and developed a design intervention. I applied the design intervention to three of CATO's virtual classes. The findings demonstrated an increase in the means for cognitive presence, social presence, and teaching presence. The increase was significant for cognitive presence in all three classes and for teaching presence in two classes. Additionally, Hedges'  $g$  found a large effect size for cognitive presence and teaching presence in all the classes and a medium effect size for social presence. Finally, an analysis of the three classes using the Community of Inquiry Coding Template found indicators of the three presences and establish



that a meaningful educational experience was taking place based on the framework. In the end, the intervention results combined with the recommendations provide a template for CATO to create virtual communities of inquiry. They also provide CATO with the tools to measure performance and continuously improve its learning environments.

### **Avenues for Continued Inquiry**

CATO is currently incorporating the findings and recommendations of this study. However, the design elements of the Community of Inquiry theoretical framework are not limited to virtual environments. CATO should consider studying the impact that a design based on the Community of Inquiry framework would have on its in-person courses.

### **Limitations**

Several limitations could have impacted the findings of this Capstone Project. First, the sample size for the CATO Course Content Preferences Email Survey was small compared to the number of people on CATO's contact list. Small sample sizes can make it difficult to find significant relationships because the limited data is not representative of the entire group. Second, I was the only person that analyzed the qualitative data. The interpretation of qualitative data can be highly subjective. It is recommended to have more than one researcher look at qualitative data independently and subsequently look for areas of agreement to support the interpretations as reasonably objective. Third, I used a rank order question to determine course content preferences. The rank order question provided a relative sense of whether participants preferred one type of course offering over another, but it did not furnish any information on how much more. Finally, I have been a police officer for 17 years and a SWAT team member for 14 years. This could have influenced how I saw and interpreted the findings based on the subject matter.



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## Appendix A

### Community of Inquiry Survey Instrument (draft v14)

#### Teaching Presence

##### *Design & Organization*

1. The instructor clearly communicated important course topics.
2. The instructor clearly communicated important course goals.
3. The instructor provided clear instructions on how to participate in course learning activities.
4. The instructor clearly communicated important due dates/time frames for learning activities.

##### *Facilitation*

5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.
6. The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.
7. The instructor helped to keep course participants engaged and participating in productive dialogue.
8. The instructor helped keep the course participants on task in a way that helped me to learn.
9. The instructor encouraged course participants to explore new concepts in this course.
10. Instructor actions reinforced the development of a sense of community among course participants.

##### *Direct Instruction*

11. The instructor helped to focus discussion on relevant issues in a way that helped me to learn.
12. The instructor provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.
13. The instructor provided feedback in a timely fashion.

#### Social Presence

##### *Affective expression*

14. Getting to know other course participants gave me a sense of belonging in the course.



15. I was able to form distinct impressions of some course participants.

16. Online or web-based communication is an excellent medium for social interaction.

***Open communication***

17. I felt comfortable conversing through the online medium.

18. I felt comfortable participating in the course discussions.

19. I felt comfortable interacting with other course participants.

***Group cohesion***

20. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.

21. I felt that my point of view was acknowledged by other course participants.

22. Online discussions help me to develop a sense of collaboration.

**Cognitive Presence**

***Triggering event***

23. Problems posed increased my interest in course issues.

24. Course activities piqued my curiosity.

25. I felt motivated to explore content-related questions.

***Exploration***

26. I utilized a variety of information sources to explore problems posed in this course.

27. Brainstorming and finding relevant information helped me resolve content-related questions.

28. Online discussions were valuable in helping me appreciate different perspectives.

***Integration***

29. Combining new information helped me answer questions raised in course activities.

30. Learning activities helped me construct explanations/solutions.

31. Reflection on course content and discussions helped me understand fundamental concepts in this class.



***Resolution***

32. I can describe ways to test and apply the knowledge created in this course.
33. I have developed solutions to course problems that can be applied in practice.
34. I can apply the knowledge created in this course to my work or other non-class related activities.

**5-point Likert-type scale**

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

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**Appendix B**  
**CATO Email Survey**

1) What is your current rank in the law enforcement agency you work for?

- Officer
- Sergeant
- Lieutenant
- Captain
- Commander
- Deputy Chief
- Assistant Chief
- Chief

2) How many sworn personnel are employed by your agency?

- 25 or less
- 26 to 50
- 51 to 100
- 101 to 200
- 201 to 500
- 501 to 1000
- 1001 to 2000
- 2001 and above

3) Where is your agency located?

- Southern California
- Central California
- Northern California



State other than California

4) Does your agency have a SWAT team?

Yes

No

5) If yes, how many officers are assigned to the team?

10 or less

11 to 20

21 to 30

31 to 40

41 to 50

51 or more

6) Are you a CATO member?

Yes

No

7) Have you attended a CATO conference or attended a CATO sponsored course?

Yes

No

8) What course content would you most like CATO to offer? Rank 1 through 10 with 1 being the most desired course content and 10 being the least.

De-Escalation Strategy and Tactics Course

Critical Incident Commander Course

Patrol/Field Tactics Course

SWAT Commander Course

- SWAT Team Leader Course
- Crowd Management Strategies and Tactics
- Leadership and Organizational Culture Course
- Crises Negotiation Course
- Vehicle Takedowns/Vehicle Containment Course
- SWAT Team Auditing Course
- Tactical Medic Course
- Noise/Flash Diversion Course

9) Online courses are a viable alternative for CATO to deliver educational content?

= strongly disagree

= disagree

= neutral

= agree

= strongly agree

10) Would you consider attending live online courses through CATO if the subject matter was relevant to you and your agency?

Yes

No

11) If applicable, would you consider allowing your personnel to attend live online course through CATO if the subject matter was relevant to your agencies training needs?

Yes

No

Not applicable



## Appendix C

### Stakeholder Interview Questions

- 1) What is your current or past position within a police organization?
- 2) What is your experience with police tactical teams and police tactical education?
- 3) What is your experience with the CATO organization?
- 4) What subject matter do think is important for CATO to design their course curriculum around? Why?
- 5) What type of environment do you think best promotes your learning experience?
- 6) What are some things the instructor can do to create an environment that promotes a satisfying learning experience?
- 7) What contributes to you feeling comfortable participating, interacting, and dialoguing in a learning environment?
- 8) What characteristics of course content makes you excited to learn versus not excited?
- 9) Do you have any experience with online learning environments?
- 10) If yes, what was the learning context
- 11) If yes, what were the things you enjoyed about the learning environment?
- 12) If yes, what were the things you did not enjoy about the learning environment?
- 13) If no, do you see any benefits or concerns with an online learning environment?
- 14) Do you have any concerns as to whether an online learning environment will work with the tactical education offered by CATO?

