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Leveraging the Critical Incident Technique (CIT) in Identifying Effective Team Learning Thematic Paradigms

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Abstract: The research explores the reconceptualization of the Critical Incident Technique (CIT) as a systematic and bricolage approach for the collection and deconstruction of critical incidents. I present the technique as a qualitative, constructivist method for identifying and for deconstructing team learning thematic paradigms associated with effective performance.

Keywords: critical incident technique, team learning, high performing teams

I present the use of the CIT as a qualitative method in identifying categories of effective team learning using three major paradigms: “knowledge acquisition, participation, and creation” (Decuyper, Dochy, & Van den Bossche, p. 116). Originally, Flanagan (1954) presented the CIT as a positivist quantitative method to record observations of human behavior in a defined situation. Mayhew (1954) explained the recording of observations resulted in “reasonably complete categories of effective and ineffective behavior” (p. 591). Subsequent literature indicated researchers re-conceptualized the CIT as a viable methodology to investigate research designs containing constructionism epistemologies and interpretivist theoretical frameworks (Bott & Tourish, 2016; Brunton & Jeffrey, 2010; Fenwick & Cieri, 1996). Through the use of computer mediated communications (CMC) and a case study approach, I expand the use of the CIT from a traditional positivist framework to a method enabling a qualitative constructivist framework. Through this evolving application of the CIT, researchers achieve a flexible, systematic approach for the investigation of high performing teams’ applications of team learning thematic paradigms.

Investigating Teams’ Applications of Team Learning Paradigms

Literature defines team learning as processes and outcomes of micro-organizational interactions where team members collaborate and construct outcomes through the acquisition and communication of knowledge, experience, and shared responsibility (Decuyper et al., 2010;

Raes, Kyndt, Decuyper, Van den Bossche, & Dochy, 2015). The increased frequency of high performing teams operating in chaotic environments or crisis management situations (Williams, Gruber, Sutcliffe, Shepherd, & Zhao, 2017) presents the need to investigate team learning paradigms and the correlation of these themes to effective team performance. I present the CIT as a methodology to investigate groups' applications of these paradigms and to document teams' overall performance in meeting the members' stated outcomes. I replicate the micro-organizational environment of high performing teams through the lens of examining the performance of elite outdoor expedition (OE) teams during world class, international expedition races.

Social Context: High Performing Outdoor Expedition Action Team

I operationally define the social context of an outdoor expedition (OE) action team as an elite, high performing, micro organization of individuals competing and socially interacting within charged and chaotic environments over extended, continuous periods of approximately seven to ten days. Teams participate in the events as a single intact unit of four members where at least one team member is a female. Sundstrom, McIntyre, Halfhill, and Richards (2000) define action teams as:

...groups that conduct complex, time-limited performance events involving audiences, adversaries, or challenging environments. Members are usually expert specialists who carry out complementary, interlinked roles... Examples include military tank crews, negotiating teams, firefighters, surgery teams, investigative units, rescue units, spill containment units, and professional musician groups. (p. 47)

Similar to first responder organizations and military squads, expedition teams collectively interact and execute actions within dangerous environments where attractors are highly unpredictable. Clarke (2003) describes the expedition environment as a chaotic arena where the social context of team members' social constructionism represents "the complexities, messiness, and denseness of actual situations and differences in social life" (p. 556). Burke, Salas, and Diaz (2008) describe teams' application of team learning paradigms while operating in hazardous, unconstrained environments as performing tasks "in the wild" (p. 218). Teams' transition from a traditional antecedent of human-to-human social interactions within a stable environment to a larger, uncertain, and chaotic human-to-wild constructionism stresses team members' learning and meaning making. Members' critical reflections, self-awareness, and biases become less clearly defined (McNay, 1999; Sweetman, 2003). Brunton and Jeffrey (2010) present the CIT as a viable approach to investigate micro-organizations' effective and non-effective applications of

team learning processes where observations are “especially useful for analyzing complex tasks, which may require non-routine behavior” (p. 241).

Components of the CIT

Major characteristics of the CIT are; the process utilizes an inductive approach, the conceptual framework lacks in rigidity, and the design is highly flexible and exploratory in nature (Gremier, 2004). Burke et al. (2008) present while an extensive list of team learning literature exists on groups interacting in stable environments, there is a lack of research for teams performing in the wild. Through the use of CIT as a generator of observations and data, the research adds to literature regarding the thematic paradigms associated with teams’ processes, effectiveness, and learning.

I tailored a qualitative approach using the CIT method, a case study approach and an inquiry-based methodology. I developed the research design by applying Flannigan’s (1954) five components of critical incident study. When formulating the first component, I established the intentions for behavior. The expedition teams’ desired organizational intentions or outcomes were to survive the event as an intact unit, to complete the race, and to prove effectiveness by achieving an upper tier finish placement in the expedition event (Carpenter, 2018). The second component consisted of plans and specifications for observations and data collection. A key principle of the research was that I clearly defined critical incidents under investigation (Mayhew, 1956). The criteria for incidents inclusion were subjective and emerged from both computer-mediated-communications (CMC) data and field observations (Sautter & Hanna, 1995). By using a bricolage form of data gathering, I established a pattern of analysis for further investigation. I used three criteria to define critical incidents. First, all observations of the expedition teams employing team learning variables during events - international expedition races greater than three days in length- served as possible critical incidents. Second, the critical incidents presented a “significant contribution...to the general aim” (Flanagan, 1954, p. 338). Finally, the critical incidents contained three components: (a) context prior to the start of the incident; (b) a multi-perspective observation of the incident; and (c) impacts, if any, on teams’ organizational outcomes (Butterfield & Borgen, 2005).

The CIT’s third component, data collection, maximized my flexibility in obtaining holistic views of richly sourced data. When developing the OE research design, I needed to address the challenge of capturing critical incident data across the spectrum of teams’ performances. During OE competitions, teams were separated by hundreds of miles of distance. Higher performing teams were at the front wave of the competition where lower

performing teams or units encountering medical, mechanical or dynamic difficulties lagged farther behind. I resolved the dilemma through the use of CMC, personal communications, imagery, digital footprints, and social contexts capturing data at critical times, places, and points of actions (Ignacio, 2012). Chell (1998) described the use of the CIT as a post-modern approach where the technique served as a tool for the development of reinforcing patterns of analyses and as a digital member check of observations. Through the use of a multi-perspective data collection approach and the method of instance, I preserved the complexity and idiosyncrasies of critical incidents for post- race analysis.

The fourth component, data analysis, served as the generator for the identification of critical incidents and thematic team learning paradigms. Arrow, McGrath, and Berdahl (2000) cited the need for “data collection, analysis, and interpretation that allow us to take into account dynamics or the moment in time at which certain activities occur or conditions surface” (p. 138). During my post event analysis, I constructed critical incidents using a bricolage of information. The following paragraph depicted one example of a critical incident formation from a compilation of data.

“Emergency at 34”

On day 4 of the 2017 Adventure Series World Championship, a volunteer at a transition area transmitted a text message over the command communications net at approximately 10:18pm, August 13, 2017. “Emergency at 34 (W.B (pseudonym), personal communication). The event director replied, “Which team? Whats happening?” (M.H. (pseudonym), personal communication). W.B. replied, “We need medicine team. Hypothermia”. M.H. responded, “Wrap in space blanket. Its in the CP gear bin. Get them in the car with heater on.” I was recording observations at a different transition point approximately 120 miles from the site and unable to observe the event. I noted the personal communications in my field observation log as a critical incident requiring additional investigation at a later time.

At the conclusion of the event, I investigated the incident further. I spoke with transition personnel and obtained videos of the fallen racer, a .gpx file of the teams’ actions leading up to the crisis, and photographs of the incident. I also captured the team’s race blog. The team was an international competitor with limited english language proficiency. Using a computer-generated translation application, I translated the team’s race blog to gain an appreciation of a member’s self-reflection of the crisis. I conducted a pattern of analysis to identify any team learning paradigms. At the time of the incident, the international team was in

second place and excited about the possibility of reaching the finish line near the top of a world championship leader board. Team member “M” (pseudonym) blogged;

It is surreal: we double without any effort and distance the 2 teams of Swedes, we are in second position of the world championships and we struggle to believe. We still concentrate, still 3 hours of packraft and 3 hours of cycling before arrival.” (M, 2017)

Flanagan’s (1954) fifth CIT component contained the interpretation of findings. By using the CIT, I systematically deconstructed teams’ applications of variables during critical incidents. The deconstruction led to an abundance of data and to a deeper understanding of the complexities and human behaviors associated with high performing teams operating under conditions of uncertainty. In the case of the international team, based upon the artifacts, I linked the critical incident to the paradigm of participation and the sub-element, team reflexivity at the moment of action. At the point of the crisis, the international team suffered from fatigue and the self-imposed pressure of finishing the event at the higher echelon of competition. Prior to the paddle in the staging area, a member displayed fatigue and discomfort with the cold temperatures. Versus weighing the risks associated with members falling asleep while pack rafting across a lake, at night, in freezing temperatures, the team chose to move forward. Members assumed the physical task of paddling maintained or increased body temperatures warding off the possible conditions of hypothermia. While rafting, the same member drifted into sleep. Unable to maintain his body temperature, the team member succumbed to hypothermia and slumped unconscious into another member’s legs. The team desperately paddled to a shoreline and shouted for an emergency medevac. Based upon the artifacts, I linked the critical incident to the paradigm of participation and the sub-element of team reflexivity.

Implications of Research

Research investigating high performing action teams’ applications of team learning thematic paradigms in the wild is lacking. By re-conceptualizing the CIT as a method for analyzing constructionism epistemologies and interpretivist theoretical frameworks, I apply systematic and bricolage approaches for the collection and deconstruction of critical incidents. Watkins, Suh, Brenes-Dawsey and Oliver (2018) similarly conclude that “while the portrayal of the incidents is relatively similar, the cross-case analysis of critical incident data is different in each approach- from a straightforward collection of common themes to increasingly interpretive approaches that problematize the incidents against an existing theory through deductive,

inductive, and potentially abductive approaches" (p. 29). The research adds to literature regarding the application of the CIT as a qualitative approach to observe and analyze action teams' learning paradigms and the correlation of team learning with teams' outcomes, performance, and learning.

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