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Original article

Analyzing Online Group Interactions with Critical Qualitative Research Approach

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Abstract

Numerous qualitative methodologies have been used more and more in online contexts however richer methods are needed to document and explain the social norms and communicative acts in the interactions of participants in these kinds of environments. The goal of this paper is to provide examples of critical qualitative analysis in an online learning context. The aim is to share some of the lived reality of employing methods appropriate for analyzing online interactions. In this particular study, explanations, examples, and appropriate citations are provided to detail how online group interactions are analyzed using critical qualitative research approach. Rich description of the inquiry practices is provided in order to help readers evaluate whether or to what extent the method used to analyze the data is applicable to their contexts. Not only experienced researchers but also young scholars who are new to qualitative research methods may benefit from the study.

Keywords: Qualitative inquiry, Distance learning, Online group interactions, Team-work, Critical qualitative research.

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INTRODUCTION

Vygotsky's social-cultural theory (Vygotsky, 1978) is one of the prominent philosophies of online collaborative learning. The major impact of the sociocultural constructivist view has changed the focus of online education, as interaction in asynchronous or synchronous discussions has been emphasized over independent learning (Garrison & Anderson, 2003). As Palloff and Pratt (2005) report, earlier online approaches of delivering content through Internet and "read and discuss" strategy are no longer seen as the best way to deliver content in online classes. Increasingly sophisticated technologies have encouraged online instructors to recognize the value of online collaboration (Garrison & Anderson, 2003; Moore, 1989; Palloff & Pratt, 2013). Thus, sociocultural constructivism is the central theoretical framework for collaborative learning in online education. However, socioconstructivism does not imply "teacherless", but changes the role of the teacher to be less of a knowledge provider and more of a "conductor orchestrating a broad range of activities" (Dillenbourg et al., 2009, p. 14).

Numerous studies have been conducted to explore the many benefits of collaboration among students in traditional classrooms. For instance, students are likely reach a deeper understanding in collaborative learning compared to individual learning (Bennett, 2004; Kaye, 1992) and higher-level reasoning and critical thinking (Johnson & Johnson, 1998; Slavin, 1991). By working together, group members can fill in gaps in each other's understanding (Baldwin et al., 2012; Barron, 2003) and develop problem solving skills (Kaye, 1992). Collaborative learning also encourages students to share complementary skills, opinions, knowledge, and backgrounds (Harasim, 1989; Kaye, 1992), fostering positive changes in students' attitudes towards and relationships with others from different backgrounds (Slavin, 1991). In addition, collaborative learning environments provide an example of real-world applications in that the workplace is moving increasingly toward collaboration (Baldwin et al., 2012). Another benefit of collaboration in classrooms is students tend to display increased responsibility and participation (McComb, 1994). Although collaborative learning in online environments differs from its practice in traditional classrooms, the particular benefits of online collaborative learning afforded by communication tools that bridge the distances among students and instructor have also been identified in the literature.

In collaborative environments, conversations among team members should not be all work-related. Social relations support (Haythornthwaite, 2008) is desirable for creating an atmosphere that fosters learning. Carson and colleagues (2007) conceptualized social support "as the team members' efforts to provide emotional and psychological strength to one another" (p. 1222). According to Hüffmeier and Hertel (2011), social support includes appreciation, care, and emotional strength from team members. They classify social support into social recognition and social encouragement. Social recognition includes appreciation, praise, and acknowledgement of behavior, and social encouragement includes reassurance and cheering. Many researchers have found that social support relations are

necessary for creating an environment that fosters collaborative learning (Carson et al., 2007; Haythornthwaite, 2008; Hüffmeier & Hertel, 2011; Hüffmeier et al., 2014). Moreover, recognition of social support within the team should be particularly motivating, as team members are the ones who know the task and related challenges (Hüffmeier & Hertel, 2011). Additionally, Hüffmeier and Hertel stated that since providing recognition is not a formal criterion for role assignment of team members, when team members "show social recognition they probably mean it" (Hüffmeier & Hertel, 2011, p. 189). Haythornthwaite (2008) wrote that such communications might include expressing companionship, providing emotional support or advice, extending support when problems arise (such as when a colleague is having technical difficulties), and talking about things other than class work.

For online collaborative teams, meeting between tasks to socialize not easy as in face-to-face settings, making it difficult to develop trust and cohesion in online environments (Tseng & Yeh, 2013). In this respect, relationship-oriented communications, such as personal level conversations on such topics as family, interests, and aspirations, can be helpful for work related interactions. These communications are important for building social capital. Similarly, in social interdependence theory, the appropriate use of social skills is seen as an essential element needed for collaboration. The following interpersonal and small group skills are required to achieve mutual goals: (a) get to know and trust each other; (b) communicate accurately and unambiguously; (c) accept and support each other; and (d) manage conflicts constructively (Johnson 2006; Johnson & Johnson 2006). Participating in such conversations gives members more reasons to keep in touch with each other (Settle-Murphy, 2013). Thus, encouraging students to participate in relationship-oriented conversations can be helpful to building trust between team members.

Numerous qualitative methodologies have been used in online contexts. However, richer methods are needed to document and explain the social norms and communicative acts in the interactions of participants in these kinds of environments. In this particular study, explanations, examples, and appropriate citations are provided to detail how online group interactions are analyzed using critical qualitative research approach. Rich description of the inquiry practices is provided in order to help readers evaluate whether or to what extent the method used to analyze the data is applicable to their contexts. Not only experienced researchers but also young scholars who are new to qualitative research methods may benefit from the study.

THE INITIAL STUDY

Purpose of the Initial Study

The author of this paper has previously conducted and published a study (Ergulec, 2017; 2019) with the goal of exploring students' collaboration experiences with and perceptions of a purposeful group assignment and team-building process in an online graduate class and gain a better understanding

of effective grouping strategies in online environments. In the study, students in an online graduate class were assigned to teams based on a purposeful group assignment strategy, and then several team-building activities (e.g., developing agreed-upon group norms, having a rotating facilitator schedule, writing reflections), collectively called the collaborative strategy, are used to keeping the collaborative learning alive. The study was conducted in a web-delivered graduate level course in an education department and data were collected in the form of discussion records, student reflections on their collaborative works, and student interviews, as well as instructor's reflections.

The reflective description here in this paper focuses on the process of applying critical qualitative inquiry in the initial study. The goal of this paper is to provide examples of critical qualitative analysis in an online learning context. The aim is to share some of the lived reality of employing methods appropriate for analyzing online interactions. Given the increasing demand for distance education and the use of online collaborative teams in courses, conducting richer methods may have far-reaching benefits to understand the social norms and communicative acts in the interactions of participants in online learning environments.

Method of the Initial Study

In order to gain a greater understanding of students' collaboration experiences with a purposeful group assignment and team-building process in an online graduate class, an instrumental case study was selected in the initial study. An instrumental case design for research is used, in which, as Stake (1995) commented, "the case serves to help us understand a phenomenon or relationships within it" (p. 77). An instrumental case study approach was chosen for this study because the goal was to understand the use of a purposeful group assignment strategy, which can be considered as one instance of possible grouping strategies. Multiple data collection methods were used to provide a detailed understanding of the case, which increases the validity of the researcher's interpretations (Yin, 2009). Rather than distributing efforts across a larger sample in order to gain the benefits of comparison, intensive effort was invested into achieving the richest possible observations of what is happening in teams.

The study was conducted in a graduate adult education online course, offered at a large Midwestern university. Participants were 15 students who enrolled in the course, they were purposefully grouped into five teams of three members each. The participants resided in a variety of locations, eleven in the Eastern, one in the Central, and one in the Pacific time zone. Data were collected in the form of course materials such as discussion records, students' reflections, and their interviews, as well as the instructor's reflections. Except for the students' interviews and the instructor's reflections, all data were available to the researcher as a part of the course materials that are produced for the class. Interviews were conducted with one student from each team at the end of the course. The instructor's reflections were obtained from debriefings scheduled at three points in the session.

ANALYZING ONLINE GROUP INTERACTIONS

To understand, interpret and explain what was going on in the teams, critical qualitative analysis using Carspecken's (1996) reconstructive analysis procedures, which involve meaning fields, validity horizons, sequence analysis, and role analysis were performed. Specific explanations of how the data were coded and analyzed follow.

Meaning Fields

Carspecken (1996) explains that the purpose of generating meaning fields is to explore possible meanings of a communicative act by capturing "meanings that other people in the setting might themselves infer, either overtly or tacitly" (p. 95). In everyday life, we do not understand each other simply and straightforwardly, but rather we "understand a bounded field of possible meanings with every act" (Carspecken, 2007, p. 3822). As Habermas (1984, 1987) argues, it is difficult to know whether the actor means what s/he says or is feigning the experiences s/he expresses. Feelings and desires are clearly related to the actor's sincerity and truthfulness. Carspecken expresses the same idea when he observes that we cannot know what an actor intended with the act, or what impressions of meaning were received by those who witnessed the act. However, it is possible to discern some possibilities as interpretive participants. At this point, Carspecken recommends constructing meaning fields to specify a range of possibilities. The actor is usually aware of a range of possibilities for each act and some interpretations that the other person may make of the act (Carspecken, 1996). Carspecken calls this range "the uncertainty principle of meaning" (p. 96), indicating that "meanings are always experienced as possibilities within a field of other possibilities" (p. 96). When as outsiders we attribute meanings to an actor's acts, we must realize that our constructed meaning fields may not be same as the meaning fields experienced by the actor. Meaning fields constitute a step in reconstructive analysis, identifying potential meanings and their relationships. Using "and," "or," and "and/or" statements to indicate the differences in reconstructed meanings between the insider (the actor) and outsiders (e.g., those witnessing the act, the researcher, or the reader) is a way to understand potential meanings.

Because all acts or actions have multiple and layered meanings, which are sometimes ambiguous and contradictory, meaning field analysis may help the researcher to articulate the range of possible interpretations of meaning (a process which is more fully explored below in terms of reconstructive validity horizons). To demonstrate the concept, following is a meaning field example from an asynchronous conversation between team members while they work on the assignment.

November 3 at 8:52pm from Desktop

Sara: *Hi ladies! FYI, I created a new Google doc for Module 3 and shared it with everyone. I'd like to do a quick WebEx this week to discuss the assignment – would 8pm work on W or F this week? Let me know what you think. Thank yo*u!

[Observer comments: S is the facilitator of this week so she was responsible for creating the Google doc and sharing it with both the team members and instructor.]

[Meaning Fields: "I am done with the first task of my responsibility as the facilitator" AND "Now it is your turn to take responsibilities" OR "we can start to work on this module's assignment" AND "I decided to set up an appointment" AND/OR "I would like to discuss the assignment first with a synchronous meeting" AND "I think this will make it easier to proceed" AND "As the facilitator, I am available on the following days so pick a time between these two times."]

November 4 at 12:10pm

Cathy: *Either would work for me. Prefer Wed, though.*

[MF: "I am available during those times" AND "But it is better for me to do this on Wednesday" AND/OR "I am not that much busy" OR "I am available nights" OR "I may have something scheduled for Friday night"]

November 4 at 1:42pm

Marry: *I would prefer Wednesday as well.*

As the example demonstrates, the method of constructing meaning fields was used to explore a range of possible interpretations of the actor's meaning, which is always and already co-constructed. By using the AND/OR logical structure, the boundaries of a possible range of meanings are interpretively articulated.

The Norms of the Interactive Process

Each team was required to come up with some stated expectations. These were the stated expectations that the teams developed and publicly agreed to follow as expectations of behavior. In addition to those stated expectations, additional norms were enacted through interactions. There are two layers of the enacted norms, explicit and implicit, and they can be different from the stated expectations of the team members. Explicit norms are easy to grasp and usually enacted for obvious reasons. They are linguistically and symbolically stated in people's interactions, so ideally the intentions of and consensus on an individual's communicative act are accessible for anyone. Due to their level of accessibility, explicit norms are directly obtained from obviously judgmental situations. Also, people have permission to hold others explicitly accountable to these norms. The implicit norms informally and unintentionally emerge through interactions, which are understood and applied informally within a team. Using critical qualitative analysis, the explicit and implicit norms were articulated in this study. Even though some of these norms could be expected from any team working collaboratively in an educational setting, each team's set of norms different from that of the other teams. That is, although the teams were in the same course, the norms differed from team to team.

Carspecken (1996) defines norms as something that "people understand, usually at only tacit, implicit, levels of awareness" (p. 80). He uses the example of passengers on an elevator when he refers to norms. As a cultural norm, people avoid eye contact with strangers in elevators because to do so is usually a tacit rule. We "understand the rule without referring to an explicit articulation of it" (p. 80). Here, Carspecken cautions that even though norms take a rule-like form, they are not rules. Norms can always be modified as people refine, alter, or create them. He points out that "norms pertain to structures through which an actor tacitly takes the position of another person, and meaning depends absolutely on tacit position-taking" (p. 81). For example, in Carspecken's elevator example, "don't sustain eye contact with strangers" is a tacit imperative, which people usually understand without referring to an explicit articulation of it. Such implicit norms are largely determined by cultural norms, which can make them elusive and hard to discern through one type of data collection.

Although people have agreed on the stated expectations for their group, they may not always follow those expectations because people sometimes do not do what they promised or what they committed to. For example, an explicit norm in an online classroom would be "students are responsible to submit their assignments," which is a norm adopted in most classrooms. An implicit norm in an online classroom would be "late submissions are accepted," this may become a norm when the students realize that the instructor does not deduct grade for late submissions.

Similarly, the stated expectations that are created by each team may or may not become a social norm. For example, "trust each other" was one of the stated expectations that were created by one team in this study. This may not become a social norm when team members do not show trust in each other. Thus, in order to understand if the students really follow their stated expectations, multiple sources were analyzed including the teams' discussion records, interviews, reflections, and other available class materials (team projects, Google docs, and discussion log).

As the interactions of team members were observed, the culture of the participants become clear to the researcher. At this point, document analysis of the discussion records helped the researcher to understand the intersubjective content of the participants' social life, including objectivity, subjectivity, and normativity. As Habermas stated, a norm exists when it is recognized as valid or justified by the people who acknowledge it. A norm is morally justified within a community only if it is agreed upon as a result of free discussion that gives equal status to all participants in the dialogue. Thus, analyzing discussion records, as well as the interviews and weekly reflections, provided a clear picture of what was happening in an online collaborative learning team. Collecting data from multiple sources using multiple methods was key to understand the implicit and explicit norms at work in an online educational community. These interactions provided information about whether or not the people in the community followed the stated expectations. In a group, implicit norms may affect how the group members treat

each other, how they refer to each other, and the degree to which they accept humor or off-topic discussions.

Reconstructive Validity Horizons

In addition to the meaning fields, the notion of reconstructive validity horizons was employed to see claims to truth, which may not be visible through the meaning fields analysis. Carspecken (1996) explains the purpose of establishing validity horizons as reconstructing into "explicit discourse, cultural and subjective factors that are largely tacit in nature" (p. 93) and argues that "reconstructive analysis is at heart a creative endeavor, akin to the creativity involved each time we understand other people in everyday life" (p. 94). He refers to this process of reconstructing meaning as a hermeneutic process because the outsider, in this case the researcher, is a communicative being and can imagine herself in the situation as a third person. That is, the researcher is mentally present as a "virtual participant" (p. 98). When the outsider/researcher is trying to deliberate on the observed acts, she is taking the position of the actor and the others in the setting. It is the same idea as when Habermas (1984, 1987) talks about putting ourselves in others' shoes to consider their needs in order to assume the perspectives of everyone else affected by a practice. The purpose for using the method of reconstructive validity horizons is discussed by Zhang and Carspecken (2013):

> The process of articulating "validity horizons" in qualitative data analysis (Carspecken 1996) involves moving inferentially connected portions of the background of a meaning horizon into explicit articulation. It is a useful method for qualitative data analysis. However, the structures that are instantiated by meaningful acts have inferential implications that exceed even the tacit awareness of an actor. They can be discovered during the course of an interaction if one actor brings them to light so that another actor will be able to "see" them. They can also be noticed and articulated by an outside observer in ways that none of the actual participants have any awareness of (if the observer takes a performative position, i.e., is a virtual participant) (p. 209)

For every act, there are validity claims that are obvious in terms of the meaning, and there are also validity claims that are less obvious as to the meaning. Foregrounded claims are immediate meanings relative to the interpretation from the meaning field. On the other hand, backgrounded claims are further meanings relative to the foregrounded claims. In addition to the backgrounded and foregrounded claims, analyzing the meanings according to the types of validity claims is useful to understand subtle meanings and make rich interpretations. First, objective claims indicate what is and what works in the world. Multiple observers can understand these kinds of claims in the same way by employing the same methods and definitions. Second, subjective claims indicate what, with regard to experiences, is internal to the first person. The validity of these claims involves testing the person's honesty and sincerity, so the person's internal world can be understood through his/her expressions. The third type is normative-evaluative claims, which imply a mutually-agreed upon, shared set of norms and

values. Normative-evaluative claims concern what is proper, appropriate, and conventional, and these kinds of norms are articulated by using words like "should" and "ought." These norms take a rule-like form and concern "the nature of our world rather than 'the' world or 'my' world" (Carspecken, 1996, p. 83). In order to determine if a normative-evaluative claim is valid, other norms that support or contest it should be examined.

For clarification, an example is provided, reconstructed from Carspecken (1996), of imagining that an artist and another person meet in a restaurant. The person shakes the artist's hand and says "I am really happy to see you here. I have seen many of your works and am very impressed with them." Objectively, the person is making the claim that he really saw the artist's work. This claim is verifiable in several ways such as calling on the reports of others with whom he went to see the artist's exhibition or showing his ticket to the exhibition. Normatively, he makes the claim that the artist's work meets standards of merit, which encourages other people to see her exhibits. Subjectively, he claims to have a warm feeling toward the artist and to admire her.

In order for the researcher as relative outsider to understand these norms, first she needs to take the positions of the actor, of those addressed by the act, and of other people in the situation. She must take a performative attitude toward the activity, virtually occupying the positions of others in the situation. Second, since position taking depends on cultural generalities and typifications, which are defined as recognized social situations where comprised of a range of possible roles, norms, audience, and "such things as interactive rhythm and tempo" (Carspecken & MacGillivray, 1998, p. 179), the outsider must try to gain understanding of those cultural situations because it would be different according to whether a situation was familiar or novel to the outsider. Third, because we assign possible meanings to acts based on our previous life experiences and using our cultural typifications, those meanings can be inaccurate. When several possibilities come to our minds as we reconstruct others' acts, as outsiders we need to examine the reasons why they come to mind, a process Carspecken refers to as normative reflection. Becoming clear about norms is an important part of the hermeneutic process. Even though we preliminarily understand acts based on our own cultural typifications, we may find that our understandings are not accurate when we consult them repeatedly in the situation. What an outsider believes to be a norm may not be a norm for the actor or the others in the situation. Thus, the outsider needs to modify his/her perception of the norms. In addition to cultural typifications, personal factors may influence the actor's or others' acts. Thus, Carspecken (1996) notes, "a reconstruction of meaning must be cognizant of the contribution of highly individualized modes of action as well as more shared features" (p. 101).

In the analysis of the interactions among team members in the online environment, first the meaning fields were noted, followed by validity horizons of possible validity claims, including

objective, subjective, and normative claims. In the context of the analysis of the study, an example of reconstructive validity horizons is demonstrated based on the previous participant response:

***Original post**: Isabel: "For example, I had another group where we didn't do that sort of norming experience so we didn't have norms about communication, collaboration, or supporting each other. Then two of the group members ended up doing the whole project, it was the worst group experience ever. But for this group in this class, I can say this is the best group experience I've had. I think having those norms helped it to be the best. If we also had the norms in my other group experience, then we would pull them up and show to the people who are not doing their responsibilities. Then he might have changed and started to help with the project. But we just had anybody like that in our group this class."*

	Possible Objective Validity Claims	**Possible Subjective Validity Claims**	**Possible Normative Evaluative Validity Claims**	**Possible Identity Claims**
Fore-ground	Norms help people to behave appropriately. Norms set up boundaries for proper behavior in a group. You may need to bring up the norms, if one is not following or doing his responsibilities	Having norms as a group is important for me. Norms help group members to be on track. I believe having norms makes a team better. I think norms made difference in a better way.	Groups should have norms. Norms should be brought up, if one of the group members is not following.	I am a student in this team. We are a team. I have responsibilities as a group member. I am a responsible student in this team.
Mid-ground	With norms irresponsible people can be turned to responsible. Norms can make people behave differently.	Norms helped to make this group experience best for me. I feel having norms makes group experiences better. When you don't have norms, one or two people usually end up doing the assignments.	Norms should be created in a way that has some boundaries for the group members. Team members should behave based on norms. People in a group should follow norms.	
Back-ground	You don't have to remind norms to the people.	Norms made us a team. I liked norming exercise. It is a valuable exercise. I don't want to do the work for somebody else. When some members end up doing the whole project, it is not good for the group.	Everybody in a group should be equal.	I follow norms.

There are foregrounded and backgrounded relations in addition to the categories of validity claims (objective, subjective, normative, and identity claims). Under every act, there are validity claims that are obvious in terms of the meaning and there are also validity claims that are less obvious to the meaning. Those obvious claims are former and in the foregrounded and the latter are on the background. For example, in this analysis, even though the interviewee talked about some of the obvious norms they had as a group, there were also backgrounded norms that produced through reconstructive horizon analysis. For example, "everybody in a group should be equal." is a backgrounded normative evaluative validity claim. The foregrounded claim for this was "groups should have norms."

In addition to the backgrounded and foregrounded claims, analyzing the meanings according to the type of validity claims is useful to understand subtle meanings and make rich interpretations. First, objective claims indicate what is and what works in the world. Multiple people can understand these kinds of claims in a same way by employing the same methods and definitions. Second, subjective claims indicate what is about experiences internal to the first person. The validity of these claims involves testing the person's honesty and sincerity. So, the person's internal world can be understood by through her expressions. For example, from the interviews, "I liked norming exercise" is a backgrounded subjective claim as it implies to the person's internal world. Third type of claim is normative-evaluative claims that imply a social world for which there is a mutually-agreed, shared set of norms and values. While analyzing the interview questions, the normative-evaluative claims was found to be the most useful claims to produce the norms through analysis. These are claims about what is proper, appropriate, and conventional. These kinds of norms are articulated by using words like should and ought. These norms take a rule-like form and they concern "the nature of our world rather than "the" world or "my" world" (Carspecken, 1996, p. 83). In order to determine if a normative-evaluative claim is a valid, other norms that support or contest it should be examined.

Even though the groups in the interview stated their own norms, through the interview analysis more normative claims could be articulated. For example, while the group in this example has a norm about communication and collaboration, they don't have an explicit norm about "In an online class, group members should be more careful about regular communication." Thus, even though there are norms that are explicitly stated by the group members, there are also norms that are implicit and can be articulated through critical analysis. Lastly, there are identity claims which reference and autonomous I, that has ontological uniqueness given a shared social group. For example, in the interviews some of the identity claims are "I am a member in this team" or "I follow norms" or "I am a responsible student."

Sequence Analysis

While meaning fields and reconstructive validity horizons are generally conducted to understand the meaning of a specific act, sequence analysis breaks interactions into meaningful segments characterized by some sort of interactive patterns or rhythms. Thus, sequence analysis provides a broader

understanding of the situation, which can be recognized intuitively and generally can be spotted by observing negotiations, bids and setting shifts. Interactive sequences include rhythms, roles, and umbrella norms.

In this study, sequence analysis was used to understand complex situations in which an act was played out. These situations included relationships among the participants and how conversations shifted over time. By doing sequence analysis, the researcher was able to see roles and umbrella norms in the participants' interactions.

Role Analysis

Role analysis were also performed in order to capture the complexities of interaction and experience among group members, as roles always invoke norms and values and always serve some interactive function (Carspecken, 1996). According to Carspecken (1996), "a role is a pragmatic unit of meaning, understood holistically but only in such a way as to perform congruently with it" (p. 136). When a particular role of a person is identified, some basic forms of behaviors can be expected. However, each role being played is a "pragmatic unit of meaning" (Carspecken, 1996, p. 136), and it is always associated with validity claims. When a role in play is recognized, the future actions of the player can be predicted, but not ensured. In addition, in social interactions, even though one person plays a role, it may be rejected or accepted by others. Thus, analyzing the roles played by all participants in the communicative sequence is an important step in critical qualitative inquiry to understand interactions.

Analyzing roles helped the researcher to see group regulations and typifications in action among group members by providing a holistic understanding of a role, of how a singular role is composed of multitude of activities, and of the process of identifying role sets. Hermeneutic strategies helped the researchers to articulate possible implicit and explicit roles. Roles analysis began by marking and naming roles that were implicit in the interactive sequences. Then, each role was described in terms of its own sequence and then explained what happened in each sequence including its interactive relation to other roles and the perspectives prioritized through the role and by the audience. Taking into account the responsibilities, actions, communications, and interactions of the roles, they were categorized as leaders or actors. Within these broad categories, eventually over 20 various roles were identified. The following example illustrates the role analysis conducted in this study.

Name: Procrastinating Autocratic Leader

Describe: The person who completes the task, assignment, or provides input on the day before the due date, on the due date, or after due date. The person is responsible as she tries to complete the assignment, by starting the discussion – even it was late. This is also characterized by individual control over all decisions and little input from group members. These types of group members typically make choices based on their own decisions and judgments and rarely accept

advice from their peers. Autocratic leadership involves absolute, authoritarian control over a group.

What is happening in this sequence: She is the assigned leader (last name starts with E) she was supposed to create the Google doc and then the team was supposed to complete it by July 5th, however, she posted just the titles of the assignment – not even a Google doc, on July 5th, which does not give time to other team members to add, reflect, provide feedback on the assignment. When she realized that it was a late post, she wanted to complete the assignment ASAP, which also put pressure to other members. Then, she just picked the team name as Discussers, write some norms, and then assigned the last module to herself, because as she explained: it was "a weekend I don't have my son will make me a better facilitator." All of these decisions were taken by her without asking other members opinions. In addition, she suggested a phone call to hast everything out really quickly. And picked the time for the afternoon of July 5th, specially for 3-4pm, with no other option by saying "we could also do a phone call just to hash everything out really quickly. Is anyone available this afternoon around 3 or 4pm?"

Umbrella Norms

1. The students should complete their assignments.
2. Teams should work on the assignments collaboratively.
3. Team members should respond to facilitator's first thread.
4. If the facilitator is late to start, team members should hash the assignment out really quickly.
5. The facilitator should assign some tasks to the team members.
6. The team members should follow the facilitators' opinions.
7. The team members should each facilitate a week.
8. The team members should have something to add to the assignment.
9. Teams should share the projects with the instructor; it is a requirement of the facilitator.
10. Teams do not have to reach consensus before submitting the work to the instructor.
11. Team members should check the discussion board in a certain time or asap.

Because role analysis was built on the concept of validity horizons, it shares some norms with validity horizons. However, the difference between them was that in role analysis, the norms and values were analyzed in a sequence as a whole rather than analyzing them in association with individual persons or acts (Carspecken, 1996). Through role analysis, umbrella norms were created that could be drawn on to determine the constitution of the communicative act in order to construct the meaning.

Teams' Umbrella Norms

The analysis of the umbrella norms started by reading through the sequence, first describing what the team members were talking about. Then the umbrella norms were identified by seeking what seemed to be informally understood and communicated by the team members, what seemed to be contested among team members, and what kinds of norms explained why an interaction went the way it did. By starting with these, the other norms entailed in the communicative act were observed.

In order to grasp the implicit norms of each team, the umbrella norms that emerged in the role analysis were combined into one set of umbrella norms for each team. These sets of umbrella norms enabled the researcher to understand the nature of communicative acts in the online learning environment, which enabled the researcher to deeply articulate the structure of norms, which were explicitly or implicitly taken for granted by each individual.

CONCLUSION

In this paper, the process of analyzing online group interactions with critical qualitative research approach have been demonstrated. While there are several qualitative methodologies used in analyzing contexts in online environemnets, richer methods are needed to document and explain the social norms and communicative acts in the interactions of participants in these kinds of environments. Thus, the goal of this paper was to provide examples of critical qualitative analysis in an online learning context. The aim was to share some of the lived reality of employing methods appropriate for analyzing online interactions. Explanations, examples, and appropriate citations are provided to detail how online group interactions were analyzed using critical qualitative research approach. Rich description of the inquiry practices was provided in order to help readers evaluate whether or to what extent the method used to analyze the data is applicable to their contexts.

Qualitative research is based on multiple perspectives and assumptions that require methods of evaluating that differ from the methods of quantitative research (Merriam, 2009). In an effort to address methodological issues in this study, close attention was paid to trustworthiness and transferability of the study. In this study, several approaches were used to establish trustworthiness. First, triangulation techniques (Lincoln & Guba, 1985) were used. Patton (2002) elaborates on this strategy by saying, "triangulation strengthens a study by combining methods. This can mean using several kinds of methods or data, including using both quantitative and qualitative approaches" (p. 247). By employing multiple data collection methods in this study to achieve a detailed portrait of the case, the validity of the researcher interpretations was strengthened (Yin, 2009). Triangulation was implemented by collecting data with multiple approaches (including documents analysis and interviews). It was ensured that the findings were not the result of a one-dimensional investigation, but rather they represent the situation.

Data was checked across multiple sources. For example, data was analyzed from the discussion records and compared the results with data from weekly reflections and interviews.

Triangulation was consolidated by collecting and comparing between a variety of different data sources (Lincoln & Guba, 1985, p. 306). For example, each member of each team provided an individual reflection and perspective on each week's collaboration. Because the reflections were individually submitted, participants were more likely to be open to sharing their thoughts. In addition, data was collected from an entire course, which included each team's discussion boards and the whole class discussion board. In order to create convincing validity claims, all of the asynchronous discussions for each team were analyzed and targeted elements in the asynchronous discussions of the whole class to investigate additional concepts.

Lastly, considering posting times is crucial in analyzing online communications. In face-to-face communication, the third person or observer does not have pay attention to the timing of conversation turns, such as who said what at what time, because it is occurs naturally and the observer is monitoring simultaneously. Conversely, in an asynchronous discussion in which a deadline has significant influence on how people communicate, posting times are crucial for the analysis. For these reasons, posting times were checked to determine whether communications took place in advance of a deadline, close to the deadline, or after the deadline.

In a qualitative research approach, during the analysis the researcher approaches the data with his or her own experiences, which runs the risk of bias if the analysis is completed by only one researcher. In addition, in a face-to-face communication, the researcher who is using critical qualitative analysis methods can see the participants' gestures and other non-verbal actions and expressions. However, in an online format, the researcher is able to analyze only the text and make interpretations based on that. Thus, the process wholly text-based if other kinds of communication tools (e.g., Skype in this study) are not used. In order to minimize this limitation, a colleague was enlisted to provide a peer debriefing of the ongoing analysis (Glesne, 2016). In this role, she frequently checked for possible bias and helped the researcher compose descriptive names for the roles identified in the analysis. Mainly she provided feedback on the researcher's interpretations of the interactions. Then another colleague, who had knowledge of critical qualitative inquiry, especially reconstructive analysis, provided a more formal debriefing during the analysis.

While multiple data collection methods were used to provide a detailed understanding of the case, the researcher was concerned about the limited scope of the data used for analysis in this study. One of the limitations was the little access to the interactions among team members. The data was limited to asynchronous communications such as online discussion boards. Some of the teams also used other communication channels, such as email, texting, and virtual communications. There was one team that had virtual meetings extensively, and a few other teams that used text messaging occasionally. Except

on rare occasions when the teams chose to share those communications, the researcher had no access to these exchanges. Although the study ensured validity of results by conducting critical qualitative analysis on the interactions on the discussion boards and triangulating through weekly reflections and interviews, more participants and observation of a wider range of interactions are recommended for future studies.

Author Note

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REFERENCES

Baldwin, T. T., Bommer, W. H., & Rubin, R. S. (2012). *Managing organizational behavior: What great managers know and do*. McGraw-Hill.

Barron, B.J. (2003). When smart groups fail. *Journal of the Learning Sciences, 12*(3), 307-359. https://doi.org/10.1207/S15327809JLS1203_1

Bennett, S. (2004). *Supporting collaborative project teams using computer-based technologies*. In T. S. Roberts (Ed.), Online collaborative learning: Theory and Practice (pp. 1-27). Information Science Publishing.

Carspecken, P.F. (1996). *Critical ethnography in educational research: a theoretical and practical guide*. Routledge.

Carspecken, P. F. (2007). Reconstructive analysis. In G. Ritzer (Eds.), *Blackwell Encyclopedia of Sociology* (pp. 3822–3925). Wiley-Blackwell.

Carspecken, P. F. & MacGillivray, L. (1998). Raising consciousness about reflection, validity, and meaning. In Shacklock, G. & Smyth, J. (Eds), *Being Reflexive in Critical Educational and Social Research* (pp.171-190). Falmer.

Carson, J. B., Tesluk, P. E., & Marrone, J. A. (2007). Shared leadership in teams: An investigation of antecedent conditions and performance. *Academy of Management Journal, 50*(5), 1217-1234. https://doi.org/10.2307/20159921

Dillenbourg, P., Jarvela, S., & Fischer, F. (2009). The evolution of research on computer-supported collaborative learning: From design to orchestration. *Technology-Enhanced Learning, 1*, 3–19. https://doi.org/10.1007/978-1-4020-9827-7_1

Ergulec (2017). *Students' collaboration experiences of a purposeful group assignment strategy and team building in an online graduate class.* (Order No: 10604243) [Doctoral dissertation, Indiana Universtiy Bloomington]. ProQuest Dissertations and Theses Global.

Ergulec, F. (2019). Instructional strategies for forming online collaborative teams. *International Journal on E-Learning, 18*(4), 349–372. https://www.learntechlib.org/primary/p/207505/

Garrison, D. R., & Anderson, T. (2003). *E-Learning in the 21st century: A framework for research and practice.* Roufiedge Falmer. https://doi.org/10.4324/9780203166093

Glesne, C. (2016). *Becoming qualitative researchers: An introduction*. (5th ed.) Pearson.

Habermas, J. (1984). *The theory of communicative action, volume I*. Beacon Press.

Habermas, J. (1987). *The theory of communicative action, volume 2*. Beacon Press.

Harasim, L. M. (1989). On-line education: A new domain. In R. Mason and A. Kaye (Eds.) *Mindweave: Communication, computers and distance education* (pp. 50-62). Pergamon Press.

Haythornthwaite, C. (2008). Learning relations and networks in web-based communities. *International Journal of Web Based Communities, 4*(2), 140-158. https://doi.org/10.1504/IJWBC.2008.017669

Hüffmeier, J., & Hertel, G. (2011). When the whole is more than the sum of its parts: Group motivation gains in the wild. *Journal of Experimental Social Psychology, 47*(2), 455-459. https://doi.org/10.1016/j.jesp.2010.12.004

Hüffmeier, J., Wessolowski, K., Randenborgh, A., Bothin, J., Schmid-Loertzer, N., & Hertel, G. (2014). Social support from fellow group members triggers additional effort in groups. *European Journal of Social Psychology*, *44*(4), 287-296. https://doi.org/10.1002/ejsp.2021

Johnson, D. W. (2006). *Reaching out: Interpersonal effectiveness and self-actualization* (9th ed.). Allyn & Bacon.

Johnson, D. W., & Johnson, F. (2006). *Joining together: Group theory and research* (9th edn). Allyn & Bacon.

Johnson, D. W., & Johnson, R. T. (1998). Cooperative learning and social interdependence theory. In R. S. Tinsdale, L. Heath, J. Edwards, E. J. Posavac, F. B. Bryant, J. Myers, … E. Henderson-King (Eds.), *Theory and research on small groups* (pp. 9–35). Plenium Press.

Kaye, A. (1992). Learning together apart. In A. R. Kaye (Ed.), *Collaborative learning through computer conferencing* (pp. 117-136). Springer-Verlag. https://doi.org/10.1007/978-3-642-77684-7_1

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.

McComb, M. (1994). Benefits of computer-mediated communication in college courses. *Communication Education, 43*(2), 159-170. https://doi.org/10.1080/03634529409378973

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. Jossey-Bass.

Moore, M. G. (1989). Three types of interaction. *The American Journal of Distance Education, 3*(2), 1-6. https://doi.org/10.1080/08923648909526659

Palloff, R. M. & Pratt, K. (2013). *Lessons from the virtual classroom* (2nd Ed). Jossey-Bass.

Settle-Murphy, N. M. (2013). *Leading effective virtual teams: Overcoming time and distance to achieve exceptional results*. Auerbach Publications

Tseng, H. W., & Yeh, H. T. (2013). Team members' perceptions of online teamwork learning experiences and building teamwork trust: A qualitative study. *Computers & Education, 63*, 1-9. https://doi.org/10.1016/j.compedu.2012.11.013

Slavin, R. E. (1991). Synthesis of Research of Cooperative Learning. *Educational leadership*, *48*, 71–82.

Stake, R. E. (1995). *The art of case study research*. Sage Publications.

Vygotsky, L. S. (1978). Mind in society. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Ed.), *Mind in society the development of higher psychological processes* (p. 159). Harvard University Press.

Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 4). Sage Publications.