Transforming Asynchronous Online Discussions with a Structured Conversation System

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Abstract

Research into asynchronous online discussions (AOD) produced conflicting, contradictory results. A central problem was AOD often did not produce a high level of engagement and critical thinking. Synthesizing best practices, a dialectical framework was developed around concrete, actionable levers to improve thinking in online and remote courses. Using a convergent mixed methods triangulation design, a thematic analysis compared AOD for unstructured, structured response system, and the introduction of a structured conversation system, finding a significant improvement using a structured conversation system which incorporated a social and personal component. Instructors needed to organize three levels: the back, the stage, and the front. Using a structured conversation system, instructors can improve and maintain high levels of critical thinking, engagement, and social interaction.

Keywords: online learning, thematic analysis, critical thinking, higher education, COVID-19

Introduction

COVID-19 radically altered the landscape of higher education, with online and remote learning becoming the norm. Student satisfaction varied by school and experience, often being negative and out of sync with faculty experiences (Elshami et al., 2021; Parte & Herrador-Alcaide, 2021). Research into asynchronous online discussions (AOD), a central component of most classes since the start on online and remote education (Thomas, 2002), remained fragmented, incomplete, and lacking (Behar-Horenstein & Niu, 2011; Koskey & Benson, 2017). For most instructors teaching online, there was little training, wide variation in practices, and differences across regions and continents.

There were recommendations on how to conduct AOD but little consensus, though many called for structured discussion systems to improve learning (Ergulec, 2019; Salter & Conneely, 2015). Despite all the frameworks, the whats and hows to guide online instructors were ill-defined and fragmented in the translation from theory to praxis. Two research questions guided the following study: What was the nature of responses in an AOD? How did a structured response system (SRS) and structured conversation system (SCS) impact the quality of responses?

Despite a plethora of research, best practices and the value of AOD were unknown and needed further research (Fehrman & Watson, 2021). Debates and structured response systems (SRS) have been recommended, but there was little research (Foo & Quek, 2019). The paper framed AOD effectiveness as a function of an SRS by starting with a literature review of the salient issues. A convergent mixed methods triangulation design using thematic analysis examined AOD in three stages: the quality of responses in an unstructured discussion, a structured response system, and a structured conversation system. A discussion recommends a new conceptual framework and a concrete course of action for instructors to improve critical thinking in AOD.

Literature Review

With the spread of COVID-19, online and remote learning spread rapidly as a method to continue education in face of the pandemic. At the secondary level, teachers and students were frustrated and struggled with the transition (Coker, 2020a). Fabriz et al. (2021) found the transition to online instruction was not smooth, with most instructors lacking formal training or experience in AOD, resulting in impromptu responses. Face-to-face (F2F) methods did not easily translate into the online environment, especially asynchronous versus synchronous. Three major issues permeated AOD: research effectiveness, critical thinking, and best practices.

Though AOD has been around since the 1980s, like most all college instructors, the only gatekeeper was the proper degree for the course. Many researchers found AOD improved participation rates and learning (Delaney et al., 2019; Yang et al., 2011), but the strategies and tactics were often ill defined and difficult to translate into practice. A concern found early on in AOD was the difficult in discussing and solving problems, though discussing concepts and issues proved successful (Andresen, 2009). Moving beyond the comprehension level

(Brierton et al., 2016) plagued AOD development as a model to encourage originality, creativity, and higher-ordered thinking (Tucker et al., 2014).

Critical thinking had been a central goal of higher education, though many recommended methods (Gao et al., 2013) were abstract and difficult to translate into practices (Redmond et al., 2018). Reflections and questioning were found effective in some cases (Liu, 2019), but others found surface-level results which were often banal (Coker, 2020b). Frameworks, such as the community of inquiry, made broad claims (Arbaugh, 2007; Garrison & Arbaugh, 2007) which were so general and imprecise as to defy definition, explanation, or predictive power. Seemingly, everyone believed critical thinking and actions to improve practice were needed, but research or conclusive findings proved elusive (DeNoyelles et al., 2014).

Many SRSs have been suggested to analyze or inform practices, such as SQUAD (Oriogun, 2003), EASY (Foo, 2021), CSA (Cheung & Hew, 2005), and BSMT plus RED (Boa et al., 2018). There were many similarities, such as contextualizing, questioning, debating, and activation of strategies, but some ideas were abstract. Across all frameworks, providing a structure sought to move beyond canned, low-level responses. The level of achievement was possibly correlated to prior academic achievement and the quantity of participation (Palmer et al., 2008). A constant across all frameworks was the lack of adoption or utilization on a mass scale, limiting all findings since there was little replication or reproducibility. Most frameworks failed to explicate instructor actions before and after.

Beyond an SRS, there were many recommendations to improve AOD. First, students should work ahead of time learning and interacting with academic content before initiating discussions (Koszalka et al., 2021). Secondly, perspective taking by means of role-playing improved participation and critical thinking (Chadwick & Ralston, 2010; Ghadirian et al., 2019; Hou, 2012). Third, increased levels of participation improved critical thinking and students' grades (Goggins & Xing, 2016; Williams & Lahman, 2011; Xia et al., 2013). Deep involvement with extended elaboration increased critical thinking, but types of prompts mattered and instructors overly involved hurt participation (Chou et al., 2019; Li & Yu, 2020; Zhu, 2006).

Critical thinking research predated AOD by centuries, with F2F investigations finding a constant which persists in the online and remote environment: Critical thinking interventions have a poor track record of improving student learning and creating high-ordered thinking skills, with restatements and gratuitous compliments very common (Niu et al., 2013; Rusdi & Umar, 2015; Tiruneh et al., 2014). Beyond stating making critical thinking interventions explicit, improvements in learning have been elusive (Abrami et al., 2008; Huber & Kuncel, 2016). Similar to reading comprehension strategies, most interventions were discipline specific and lacked generalizability.

Practices in AOD vary widely in universities at all levels. No university was identified which had discussion requirements beyond frequency and type of posts. Quality varied widely, even within the same university. Rubrics, if not overwhelming, and modeling of expectations improve the quality of AOD (Giacumo & Savenye, 2020; Osborne et al., 2018). Despite the research into SRS, the complexities and time involved were factors which prevented mass

implementation of best practices. Little research exists into the nature of developing conversations beyond posting without reciprocation, with Delahunty (2018) stating: "it is worth noting that the student-driven (S) forums were composed almost entirely of independent posts, and according to the coding descriptors there was no evidence of cumulative or exploratory talk . . ." (para. 11). The following research sought to improve SRS by transformation into a structured conversation system and by being embedded, be easy and quick to implement for most any instructor.

Conceptual Basis

To develop a framework for improving rigor and increased student achievement, a conceptual framework was developed using theory and research findings as well as my knowledge and experience both in online or remote and face-to-face instruction. The entire conceptual framework can be summed as a critical dialectical. The foundation of the conceptual basis was readers-as-meaning-makers (Iser, 1972) and subsumption theory, or learners framed learning within the confines of prior knowledge (Ausubel, 1962). To operationalize these two ideas, purposefully manipulative actions worked to create, support, and reward an environment where actions which could impede critical thinking were removed or minimized.

The intervention conversation corner-question/debate/alternatives (CC-QDA) framework was designed to support Iser and Ausubel's theories and increase social interaction. First, there must be a bank of knowledge, where students have a shared but diverse set of information which can be explained and understood; one cannot analyze, synthesize, and evaluate unless one first knows, comprehends, and applies knowledge (Duron et al., 2006). Secondly, the truth and use of knowledge were considered fractured, ambiguous, and debatable (Feldman, 2005). Thirdly, questioning was a way to make one's own gaps in knowledge visible, probe and elaborate on meaning making from others, and stimulate and sustain conversations (Alexander et al., 2010; Friedman, 2013; Zingaro & Oztok, 2012). Fourth, requiring students to use QDA with forced replies to replies (i.e., besides responding to an initial post, students must also follow up within their own thread to continue the conversation) built peer moderation, which can improve student-to-student learning (Oh et al., 2018).

There were delimitations to the conceptual basis which demarcated what it was not. While others found length requirements stymied AOD (Zingaro & Oztok, 2012), there needed to be some type of directive, else students will fill the void with what might be inappropriate. Some frameworks claimed social interactions were a requirement; the present study believed social and personal interactions were generally helpful but depended heavily on other factors (e.g., student age, motivation, and length of class, etc.). There was the contention critical thinking might be enhanced by social interaction, but results were inconclusive and lacked a research basis (Cundell & Sheepy, 2018; Lowenthal & Dunlap, 2020; Yoo & Huang, 2013). Still, the CC-QDA framework was an anomaly in the literature: Social and personal connections beyond the academic prompt were formally built in the system. Finally, stifling creativity was a real concern and hinged on moving students from pure recall and explanation into a situation with complexity and balance of perspectives (Lambert, 2020). Hence, instructor interaction, enforcement of standards, and maintenance and expansion must be ever present

but not to the point where students neither felt safe nor respected to take risks in exposing oneself to being wrong.

Methods

There were three stages to the intervention and data collection using a convergent mixed methods triangulation analysis. All students had to post a response without being able to be in the forum ahead of time and have two responses. By doing this, students could not copy off other students for the initial post, and students had to develop a conversation beyond everyone writing the same ideas to each other's initial post. Stage 1 involved collecting discussions in a class with an unstructured AOD. Stage 2 used the structured response system of conversation corner with question-debate-alternatives (CC-QDA). The points were modeled before and during class, with regular feedback. Unlike other rubrics, this rubric formally included an optional social mechanism, the CC. The CC component allowed participants to share stories about one's personal life and encouraged students getting to know each other beyond coursework (such as sharing what was going on in one's personal life, etc.). Prompts included required and optional readings to discuss. Stage 3 added a length component to CC-QDA/333, where students had to write three responses for each part of QDA and a response to a person who responded to the initial post to develop a conversation.

Each stage was analyzed and informed the use and research of each subsequent stage. Following Coker's (2021b) and Fereday and Muir-Cochrane's (2006) recommendations, thematic analysis was largely deductive and used Microsoft Excel and Word. All data were downloaded and assigned a pseudonym. The sample was analyzed by number of words, and a t test was conducted using SPSS 28 comparing length of responses from one cohort to the next. The coding schema used in vivo codes, descriptors, depths of knowledge (DOK) to analyze the level of responses, memos, and Aha! moments. To operationalize DOK, DOK used key verbs to rate each discussion part of QDA (level 1: recalling/remembering, level 2: applying/explaining, level 3: reasoning/planning/evidence, and level 4: synthesizing/evaluation). The assumption was each step went from low critical thinking to high critical thinking. Second-round coding involved categorizing each component of the discussion and writing a summary.

There was third-round coding by categorizing holistically each response based off the level and number of DOK in each. From this analysis, archetypes were developed to explain and predict the typology of discussions. Intermittent thematic formation (ITF) produced iterative coding and an auditable trail after every three or four codes; IFT used a search for negative and divergent cases to check for disconfirmation (Coker, 2021b). To improve reliability and validity, the data were recoded after a period to see if there was agreement. Also, results were compared with the theoretical and research findings of others.

Sample

The location was a public university in the Midwest of the United States. All students had at minimum of a master's degree, were enrolled in a 100% asynchronous online program leading to a post-master's degree, and were taking a semester-long graduate education course.

Students were required to write an initial post and have at minimum two replies. For the first group, there were 10 students consisting of seven males and three females with eight White students and two Black students. The second group included eight students, with the following characteristics: five females and three males, with six White students and two Black students. Both groups had students in their 30s and 40s; all students had been in the workforce for ten or more years.

Data Collection

The first group used an unstructured response system. The second group, which will be called the CC-QDA group, involved two steps: step one was CC-QDA and step two had a requirement of three items per QDA and a requirement of a conversation (a response to another poster's response). After class ended, all discussions from a learning management system were downloaded, students were assigned a pseudonym to protect confidentiality, and any personal information was redacted. Microsoft Word was used to store the data, and Microsoft Excel was used to code the data. SPSS 28 was used to conduct statistical analysis.

Results

The unstructured response group mirrored findings replicated and reproduced many times. Students wrote comparatively little compared to the CC-QDA group, and what they did followed a typical pattern of compliment-restatement-unity (CRU). Every student unwittingly employed the same typology. For the compliments, the start was, "I appreciate," "Great post," and "Put so wonderfully." Restatement simply summarized what the poster said. Unity ended with everyone was together, such as "I agree," "I would echo," and "I found the same thing." There were no divergences, disagreements, or questions. While the wording changed, the typology was remarkably consistent for all posters. Approximately two-thirds of each posts defied DOK coding, so they were labelled emotional/celebratory. Rarely did any student move beyond DOK level 1.

For CC-QDA, two results stood out. First, students enjoyed the CC component. Many students commented during and after class they looked forward to CC more than anything in all their classes (one student stated, *sua sponte*, "In all the chaos of COVID, I look forward more than anything to these little chats during my work week"). Students shared many kinds of personal stories, from vacations to grandchildren and sometimes the negative (e.g., deaths, mental health problems, and breakups, etc.). Most students regularly conducted a CC throughout the class.

Secondly, the DOK level improved from level 1 to a much wider variety of 1s, 2s, and 3s. There were no 4s, or the highest level. Like students in the unstructured response, students improved but seemed to try to get by without being too risqué. A finding was students sometimes dressed up responses to look sophisticated, but the responses were more sophistry than substance. An example bears this out: 9 of 14 alternatives for all students were generalities stating little and showing weak contextualization.

Stage 2 was modified for the following post by becoming CC-QDA/333 and a reply to a discussion and a follow up to a reply to develop a conversation. Students had to write three

points per each component, all-or-nothing grade, required contextualization, and specific points and arguments. The DOK average for the unstructured group was .729, CC-QDA was 1.67, and the CC-QDA/333 was 2.96 (the difference in responses for the CC-QDA was statistically significant using a t test with $t(7) = 3.49$, $p = .01$). CC-QDA/333 produced longer responses (word counts: unstructured average 70.75; CC-QDA average 164.57; CC-QDA/333 average 295.71; a t test comparing the two CC-QDAs was $t(7) = 2.62$, $p = .039$), more elaboration, and higher levels of DOK per poster.

Analysis

There has been consistent findings SRS improved students' engagement, level of critical thinking, and peer-to-peer interaction (Lim et al., 2011; Roulston & Halpin, 2021). CC-QDA, the addition of 333, and a conversation component by responding to a reply improved students' responses and changed the typology of CRU. For the back matter, instructor participation and standards seemed to matter as much as the SRS. The stage, or what students did, can be classified by archetype and guided instruction.

What level of instructor participation was optimal? The Goldilocks' problem defined the issue: too little, too much, or just right. With data in this class and comparisons with previous experiences, instructors who participated in every thread within a discussion shut down participation and limited peer-to-peer interaction. Other instructors claimed limited or no involvement, but then the students did not gain the benefit of the instructor's expertise and might as well make the class self-study. The just right level seemed to be participating in a quarter to a third of all students' initial posts (e.g., 20 students would see 5-7 posts by the instructor). Too many posts or writing a book, and the instructor monopolized discussions. Too little, and not only did the instructor expertise get lost, but students lost the sense of direction (i.e., there were no accountable standards). Brief posts, micromodeling the SRS/SCS, role playing, and asking questions kept the conversation going and did not monopolize the conversation.

Issuing an all-or-nothing standard improved responses from CC-QDA to CC-QDA/333. The downside was students were intimidated and took more time to respond. The upside was everyone knew the exact expectations. Part of this also involved the instructor monitoring, fixing, and assisting students who either did not know the requirements or missed a section. A common technique to improve writing was by getting students to write lengthier responses, and the clear requirement worked here.

Requiring embedded articles and assigned chapters in the prompt be formally referenced increased students' completion of assigned readings. The larger idea was students had a common bank of knowledge, so students had similar vocabulary and ideas. Students were encouraged to conduct other readings, since too great of an overlap would mean discussions would be stale and all repeating the same information. Intensity could be increased or decreased depending on the performance of each student.

Lastly, after analyzing all the data, themes about typologies were examined and categorized. Four archetypes were identified: satisficers, celebrators, ambivalents/narcissists, and thinkers

(collectively, SCANT). By using SCANT, one was able to examine the validity and reliability of previous findings to see if there was agreement with the levels of DOKs assigned. Satisficers learned what others were doing and went through the motions. Most thinking was at the 1 or 2 level, and creativity and depth were limited. Celebrators used the CRU typology and either were all emotional or at level 1. Ambivalents/narcissists were infrequent, but they usually entered class with either advanced knowledge or belief they already knew everything there was to know. The ambivalents/narcissists played it safe and tried to dazzle everyone with a hodge-podge of collected facts and jargon which showed no erudition, lacked contextualization, and without threats of punitive grades, were affronted they had to follow directions. The last archetype was the thinkers. Thinkers analyzed, synthesized, and evaluated, but they also were careful to restate and show agreement with who they were replying. The archetypes were a continuum and had a mix, but moving to thinkers required purposeful action.

Applying a fix-it strategy kept students on track and allowed the instructor to evolve the standards and expectations to a higher level. When quality suffered, students were penalized but allowed to make fixes to improve grades with direct feedback and minimums. Scaffolding and interventions depended on diagnosing how the students performed and the level of receptivity. Many students had a halo effect, seeing everything they produced as magnificent and begrudgingly changed their performance. Two issues arose which impacted performance: Lack of a recombinant narrative and social desirability. Explicitly requiring a recombinant narrative—where students interacted with the prompt by the conduit of other students' narratives helped reduce the chances of plagiarism and canned answers. Social desirability meant most students—perhaps more so in graduate education courses—wanted to give only compliments, show agreement, and refrain from anything which did not conform to the group norms of avoiding debate, disagreements, and divergences. Avoiding argumentation created a safe space at the expense of little meaningful critical thinking.

There were two levels to the *illusio* of an SRS and SCS: the explicit one and the implicit one. The explicit one of the SRS and SCS was the CC-QDA/333 and the instructor's monitoring and boundary maintenance. Much more difficult to see, at least before the thematic analysis, was students unconsciously see what others were doing, modeled the behavior, and sought confirmation from others (Archer, 2010). Hence, one group had 100% celebrators and the first CC-QDA intervention mostly had satisficers. Margaret Archer's research suggested students operate on different levels of reflexivity (Caetano, 2015), and a major concern was most students were afraid one could not separate debating from personal attacks.

A great deal of work on the instructor's part was to minimize defensiveness and taking issues personally. Derisking behavior was taught, modeled, and encouraged. There were four steps: activation, monitoring, enforcing, and enhancements. Rationales and narratives were given about CC-QDA to show students divergences and disagreements were healthy, honored diversity, and built multiple perspectives. The conversation component of CC-QDA/333 precluded a cascade of two generic responses and meant students had to respond to each other. Micromodeling involved individual components of CC-QDA modeled and annotated by the instructor; students could briefly see what was expected and receive feedback on their own

work.

Instructor presence was the critical feature maintaining a high level of engagement in AOD (Muir et al., 2019) and was practiced utilizing restrained micromodeling. Micromodeling included three components: brevity, precision, and annotations with rationales. By micromodeling simulations, role playing, continuing the conversation by responding to a response, and scenarios a week early, students could see the expectations and standards. An SCS ultimately changed the analytical gaze outward and honored diversity by developing different perspectives and a secondary challenge which must be incorporated into future deliberations.

Validity and Reliability

Validity and reliability were enhanced by many factors. First, all information was systematically coded and compared for uniformity in the development of a codebook. Secondly, using rating and typology scales with ITF meant the data had to be reanalyzed and confirmed with previous findings. By geotagging all data, checks were performed to recode data a second time to see if there was agreement. Saturation was inappropriate, as all data sets were analyzed, but the analysis embedded triangulation throughout the research process by comparison with others' research findings, theoretical and conceptual frameworks, and using a statistical approach to examine some previous findings. Where needed, there was reconciliation to develop agreement with the entire research. Memoing throughout assisted with reflexivity to try to minimize bias. The entire process was mapped out and audited to examine if the goals and objectives of the research plan were met.

Discussion

Developing asynchronous online discussions beyond surface-level learning has been researched for years. There were many recommendations on how to improve asynchronous online discussions: elaboration and debating, instructors who push but do not dominate, and scaffolding based upon student need (Aloni & Harrington, 2018; Mazzolini & Maddison, 2007; Wass et al., 2011; Zhu, 2006). Critical thinking should be the central goal, such as stages (Sharma & Hannafin, 2004) and interventions (Puig et al., 2019), but the research often lacked specificity and transferability to the wider audience. Complex, well-written prompts were also not enough (Christopher et al., 2004).

Part of the problem was the community of inquiry framework, with many citations, was banal, offered little practical advice, and lacked teeth to enforce. Even the assumptions underlying the framework were questionable. First, saying one needs an instructor, interaction, and academic work was like Maslow's hierarchy of needs was one level (food, water, and shelter). Secondly, the recommendations were beyond obvious, and one can cite at least two major problems. Adult learning theory suggested most adults were independent, self-motivated, and might not be interested in social situations compared to younger learners (Merriam, 2001; Muir et al., 2019). Another issue was putting people together does not make a community.

A humanistic theory of education (Coker, 2021a) and deprivation theory better explained the phenomena students were under (Dhami et al., 2007). Students were placed in an artificial,

limiting environment which forced demands on speech and interaction which must conform to the instructor's expectations (often esoteric and mysterious), mediated by how colleagues cope with the new regime. With each new class, the role of the instructor, often led by someone with little or no training, created tensions and demands which can be difficult to know and apply. The path of least resistance, including satisficing, was a real problem (Burik, 2021), as what passed as acceptable became infused in everyone's response patterns.

As shown in Figure 1, a community must focus on the holistic needs of the learners and built starting with norms, values, beliefs, and attitudes which center on developing authentic conversations. Derisking (rewarding risk taking, knowledge was fractured and incomplete, everyone was colleagues with an unconditional positive regard, multiple truths, and diverse perspectives, etc.) became a central communal value (Blackie et al., 2010). Helping students cope with the loss of freedom while eschewing a play-it-safe attitude to protect one's image was at the heart of the community (Klein, 2015), with the instructor explicitly setting locus of control, freedom of movement, and boundary definitions (Goodnight, 1982).
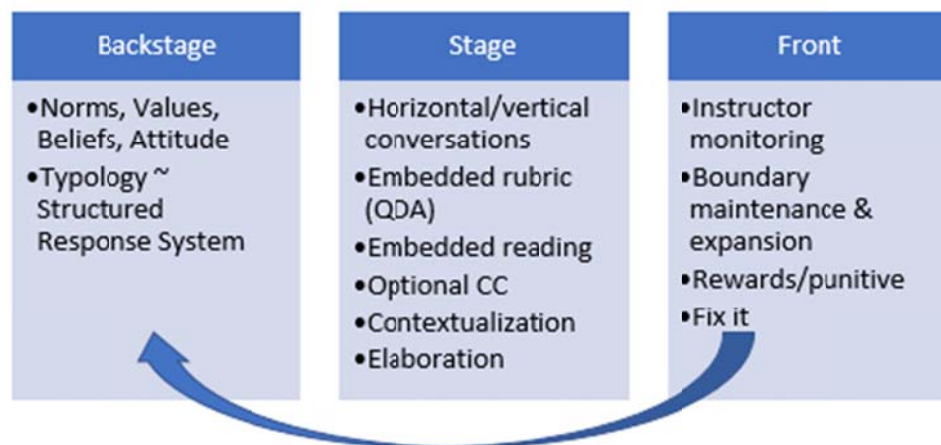

Figure 1. Cycle of critical thinking in asynchronous online discussions

Housekeeping made the implicit explicit. A timeframe (e.g., initial post required early in the time period to give students time to respond), a fluid and open prompt with embedded reading asking for a highly contextualized answer (Calderon & Sood, 2020), and a typology directed by the structured conversation system (SCS) (Sigafoos et al., 2019), with the possibility of role playing (Darabi et al., 2011), set the stage. For the current study, CC-QDA/333 was used and embedded the rubric directly into the response to avoid the problem of complex, external rubrics (Bernstein & Isaac, 2018). Conversation promulgation demanded students respond to an initial post which had not been answered and the second discussion post follows up to one of these replies; a weakness in many AOD models was because students did not have to follow up conversations, responses did not develop meaningful discussions (violating a Gricean maxim that conversations were reciprocal and responsive, Ho & Swan, 2007). Contextualization circumvented banal, routine, and plagiarized answers, while elaboration—thick descriptions—provided a narrative and forced details to expand on one's thoughts.

Image maintenance and social desirability can lead to students playing it safe and mirroring and internalizing fellow students and the instructor. Instructor feedback was the most important factor in improving student participation and responses (Ragusa & Crampton, 2018). The front matter had instructors monitoring the SCANT framework, support and feedback, and rewards and punitive measures. In my experience, requests often failed to change student behavior, while a poor grade—often with the offer to improve—resulted in a begrudging change in behavior. Instructors can be too involved and stifle creativity (Nandi et al., 2012), but scaffolding through micromodeling (e.g., guided responses with annotations, sentence stems, and examples), boundary maintenance, and an as needed fix-it strategy for students or the group off course can result in clarifying norms, values, beliefs, and attitudes.

The habitus, or system of dispositions and long-lasting schemas (Bourdieu, 2017), meant the instructor formed knowledge in common, and without an ordered--if not contrived environment--most students will mimic the dance partner in front of them. Nature abhors a vacuum, and if no structure exists, social standing as a student dictated a *de minimus* approach and social desirability--the compliment-restatement-unity (CRU) typology. The habitus was malleable, situational, and required an instructor to teach, model, maintain, and expand the communal system dependent on gradual release and how closely students approximated expectations. Students' encoding and decoding mandated constant attention on the part of the instructor to how and why directions were interpreted and applied. Academic press, or an instructor modeling and enforcing high standards, was a process to create an intensity in learning.

Hew et al. (2010) found there was not one answer to how to structure asynchronous online discussions. Part of the modelling applied in the research and refined in the discussion recommends approaches which were applicable to all situations but concrete, actionable, and measurable. Whether a toolkit (Chen et al., 2018), reflective capabilities (Bye et al., 2009; Coker, 2020b), or Socratic questioning (Lee et al., 2014), a framework should provide guidance and the possibility of expansion. CC-QDA/333 with a SCS was but one living rubric which can transform asynchronous learning spaces with both a social and academic presence.

Limitations

There were several limitations to the current study. First, the age group involved mostly adults in their 30s and 40s; children and young adults would, as a generalization, require different levels of interventions and instructor intensity due to different levels of maturity and concerns for social connections. Secondly, the current study used a post-graduate class, which resulted in high levels of motivation. Mandatory classes, K-12 school, and undergraduates would have different levels of motivation. While the results were situated within the broader conceptual and research frameworks, future research should specifically examine levels of instructor involvement, role playing and simulation effects, and the use of multiple prompts to improve interest (e.g., a discussion question has five prompts, with student groups assigned to each one, so not everyone answers the same question, etc.).

Conclusion

COVID-19 created a massive shift to online and remote instruction. For the first time in history, F2F became secondary to synchronous, asynchronous, or hybrid instruction. Hara et al. (2000) found AOD to be effective and with general high levels of thinking, but such findings have not stood the test of time (Al-Husban, 2020; Alsaleh, 2020). AOD were largely ineffective and *pro forma* unless instructors built and maintained a system to enhance and enforce student participation and quality of responses (Mokoena, 2013). The AOD space must be constructed around actionable norms, values, and beliefs to build and sustain a critical dialect of student-to-student and student-to-instructor interaction (An Le & Hockey, 2022). Methods included SCS, micromodeling, and embedded readings to create a shared space and sense of understanding.

Critical thinking interventions, both within and outside online/remote environments, have a poor track record. Hew and Cheung (2012) found best practices had downsides and often did not work as reported. AOD can neither be reduced to a formula nor left to chance. Developing the three levels of back, stage, and front offered the possibility of the instructor wrapping an approach around the particulars of one's class while paying attention to the different knowledge domains of one's discipline. A dialectical framework can be enhanced with a structured conversation system and appropriate supports; instructors, from kindergarten to college, have a moral imperative to adopt and sustain best practices.

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