Journal of the Scholarship of Teaching and Learning, Vol. 22, No. 2, June 2022, pp.78-95.
doi: 10.14434/josotl.v22i2.31626

Pedagogical Interrelationships: The Transformed Landscape of Deliberations

Anita Chadha
University of Houston, Downtown

Abstract: Research indicates that peer interaction in the online classroom engages students in academic reflective deliberations. This study assesses student peer interactions on a purposefully designed collaborative website in an American politics course offered across two courses. Significant evidence reveals that students are open, candid, and inquisitive of varied positions while interacting with academic reflectivity across each question asked of them. They argue their perspectives with each other, teach and add information to their deliberations while being academically reflective. This study concludes that a peer interactive design is an invaluable method to engage students in academic deliberation while providing educators, researchers, and administrators an innovative means to enhance active learning and participation online.

Keywords: Online pedagogy, Deliberations, Academic Reflectivity, Online education, COVID era pedagogy

Online education has swelled over the decades with a currently estimated 5.8 million students taking online courses even as higher education enrollments have declined overall (Allen & Seaman, 2016). This transformed landscape of higher education has expanded student enrollment without the need for physical class space requirements while prompting the need for greater research as researchers, educators and university administrators seek evaluation of the robustness of online educational offerings.

Much research has shown that neither mode of delivery, online or face-to-face, has been a factor in student success or learning (Galletly et. al., 2020; Ferguson et. al., 2020; Bowen et. al., 2013; Navarro & Shoemaker, 1999). Nor have there been "differences in . . . knowledge and skills were noted" across the modes (Vernon-Dotson et. al., 2014, p. 41). Similarly retention rates were on par (Chadha, 2019a; Pape, 2010) with no significant differences in their course outcomes (Bolsen et. al., 2016; Strandberg & Berg, 2015; Thakur, 2012; Wladis et. al., 2017).

Additionally, interactive critical deliberation were found to be comparable across the modes (Galletly et. al., 2020; Botsch & Botsch, 2012; Delli & Keeter, 2002) yet student peer deliberation in online modes had significantly more positive effects on student achievement than non-interactive or self-learning online (Garas-York, 2020; Dailey-Hebert, 2018; Garrison & Cleveland-Innes, 2005; Lou & d' Apollonia, 2001). In point of fact, online deliberative strategies had greater positive effects due to the benefits provided in online spaces (Kock & Villadsen, 2012; Stegmann et al., 2012; Xiao & Askin, 2015; Garrison & Cleveland-Innes, 2005; Swan, 2002). With additional research evidencing that student-peer deliberative strategies produced higher levels of satisfaction and learning than in courses without peer deliberation (Anderson, 2003; Chadha, 2019a; Boud, 2001; Blount, 2006).

Fostering student peer critical deliberation is not a new concept. In fact, as early as 1916 John Dewey referred to deliberation as the defining component of the educational process that occurs when the student transforms the information passed to him from another, and constructs it into knowledge with personal application and belief (Dewey, 1916). Soon after Toulmin developed his argumentation method, arguing that the process of critical deliberation started with *a claim* based on certain *grounds*. These grounds were based on facts, data, or reasoning upon which the claim was based with a *warrant* that linked the grounds to the claim. What is more is that *qualifiers* were given which pointed out the

limits of the claim and in order to pre-empt counter arguments *rebuttals* were provided to *back* up the argument stronger as a part of the critical deliberative/argumentation process (Toulmin 1958).

Much current research on online critical thinking and argumentation draws on Toulmin's work on argumentation (1958) yet vary based on the context, the type of project and or the discipline which determine which components were necessary for a successful argument. For example, in the hard sciences Clark & Sampson (2007) note that "analytic frameworks focus on many different aspects of argumentation including argument structure, epistemic types of reasoning, conceptual normativity, quality of warrants, number of warrants, logical coherence of claims with warrants, argumentation sequences, patterns of participation, conceptual trajectories, and the process of consensus building which can be applied across disciplines." (Clark & Sampson, 2007, p. 275). Likewise other researchers combined Toulmin's work into models with fewer categories of learning based on the context and discipline (Leitão, 2000, Driver et. al., 2000, Jacoby, 2009, Blount, 2006, and Bloom et al., 1956).

While still others argued that while Toulmin's argumentation structure is conducive in the online environment, the argumentation structure changes as online spaces offer several benefits for deliberation (Quick & Sandfort, 2014; Moore et. al., 2020; Coleman & Moss, 2012; Paul & Elder, 2013; Chadha, 2019a). One of these benefits for critical deliberation online is that there is visual anonymity as students' identities such as their age, gender, race, or religion are masked along with the absence of nonverbal cues shifting the focus to the content of the discussions rather than the identity of the student or participant (Herring, 1993). With identities masked students challenge each other over controversial, diverse, and varied perspectives while sharing their own (diverse) viewpoints. Further, masking of identities has been found to be especially beneficial for those who are shy or feel marginalized as they raise questions, ask for clarity of diverse viewpoints while providing their own (Boud, 2001; Paul & Elder, 2013).

While another benefit of online spaces is that they allow for asynchrony which allows students (un) limited time to think, reflect, and revisit the space before they make an argument or a claim before responding. Moreover, asynchrony allows students to mentally wander through ideas and perspectives, take time to make some sense out of it before reacting as online spaces allow for 'pauses in time' unlike face-to-face classes where the topic moves before there is (un) limited time to wander. As Blount, 2006 stated, "Critical deliberative reflection…is what we call "balcony-dance floor work," because it requires being in the middle of demanding, perhaps confusing, experiences with groups (on the dance floor) while at the same time stepping back to see the larger patterns and dynamics of the group experience (going to the balcony). (Blount, 2006, p. 1).

Research finds that in having the time to distance oneself from the discussion refines their ability to think about the discussion from a different perspective and develop a richer assessment of the topic (Boud, 2001; Paul & Elder, 2013; Blount, 2006; Chadha, 2019b). Moreover, asynchrony online provides a paradoxical benefit in that students have the sense that 'someone is always listening' (Palloff & Pratt, 2007, p. 116) seemingly narrowing the focus of the dialogue between just those involved (Rudestam & Schoenholtz-Read, 2009). A personalized and sustained connection forms among peers with deliberations that flow quickly, freely, and spontaneous despite differences in dialogues (Rudestam & Schoenholtz-Read, 2009).

Notwithstanding the volume of research evidencing the benefits of online spaces for critical deliberation (Galletly et. al., 2020; Ferguson et. al., 2020; Garas-York, 2020; Collison et. al., 2000; Driver et. al., 2000) researchers Garrison & Cleveland-Innes (2005) underline that while online environments are conducive to deliberation three elements are essential to sustaining (longer term) communities of learning. These three elements per their Col framework are the social, teaching, and cognitive presence elements (Garrison & Cleveland-Innes, 2005).

The Col 'Social presence' element and peer teaching relationships: The 'social presence' element in the Col framework was defined as the ability of learners to project themselves 'socially and affectively' into a

community of inquiry. Social presence could be felt in their using such things as students using emoticons, telling stories, and even using humor in their discussions (Rourke et al., 2001; Swan, 2002). Or in their ability to project their personalities into the discussions (Swan & Shih, 2005). Therein the social presence of peers is likened to in the face-to-face free-flowing, just-in-time banter and chit-chat that occurs among students, the banter that helps us get to know each other, experience each other's personalities and connect. Insomuch that a peer's social presence online was a representation of themselves as "real" (Gunawardena & Zittle, 1997, p 8) this realness allowing for frank, unfiltered and authentic deliberations between them.

Moreover, as Boud (2001) explains, online peers share the status as fellow learners without being in a position of authority and/or in the sharing of similar experiences such as being single moms or serving in the military. Therein they easily identify with each other interacting without reservation arguing and challenging each other over any current or controversial question asked of them (Boud, 2001). Genuine inquisitiveness takes root at they listen to each other attentively, ask for clarity in perspectives that broaden a discussion or varied ways to think about a problem (Dixson, 2012). Insomuch they do not simply ask each other for factual information but ask inquisitive and open-ended questions (Dixson, 2012; Chadha, 2019b) that allow for varied ways to think about a problem (Guzdial & Turns, 2000; Dailey-Hebert, 2018). In the sharing of experiences, much learning takes place from the acknowledgment of differing backgrounds and contributions especially knowing that they are interacting with peers (Boud, 2001).

Communities of learning are therefore built alongside the interaction with fellow peers with their interactions deepening, lengthening, and therefore sustaining deliberations. In point of fact, researchers found that ten different forms of peer learning result due to the benefits of online spaces, coupled with peer presence (Griffiths et. al., 1995). These forms include discussion seminars, private study groups, buddy systems, collaborative project work groups, laboratory work groups, workplace mentoring and or community activities (Garas-York, 2020; Griffiths et. al., 1995). Yet one of the most typical and or commonplace form developed was that of a peer teaching or peer tutoring relationship among peers online due to the limited instructional role (Boud et. al., 2014; Falchikov, 2001). These ranged from the traditional proctor or teaching model in which senior students tutor junior students, one with greater knowledge or experience teaches one with lesser knowledge, or one where students in the same class form relationships to help each other with both course content and personal concerns (Griffiths et. al., 1995; Falchikov, 2001).

In this regard, "a reciprocal peer learning process forms based on each peers mutually making contributions, closely approximating Habermas' notion of an 'ideal speech act' in which issues of power and domination are less prominent than when one party has a designated 'teaching' role and thus takes on a particular kind of authority for the duration of the activity" (Boud, p 4, 2001). The reciprocal peer relationship evolves with peers acting as a surrogate transmitting knowledge, helping each other by adding information to teach as each simultaneously learn and contribute to each other's learning. Per the Col framework the social presence takes root as students are comfortable in an online environment that masks their identity allowing for sustained cognitive discussions to take root and flourish supported by the interrelationships among peers (Falchikov, 2001; Frye, 2020; Sun. et. al, 2008).

As envisioned by the Col framework the emphasis online becomes the learning process including the emotional support that students offer each other as opposed to the fixed role of instructor and student. Peers welcome the peer teaching relationship as they have similar experiences and are peers free to comment and or to divulge viewpoints (Boud et. al., 2014). Similarly, the sense of familiarity with a peer effectively encourages peers to respond with vigor across each question asked of them as they are not only curious about peer response yet are as motivated to deliberate across each question asked of them (Falchikov, 2001; Guzdial & Turns,

2000). Accordingly, a peer's social presence affectively connects each peer allowing for deeper deliberations and the argumentation process to take root, a factor found to increase student satisfaction and sustained engagement (Swan & Shih, 2005; Garrison & Cleveland-Innes, 2005).

The Col 'cognitive presence' element and sustained cognitive argumentation:

Relatedly, the second element in the Col framework is the 'cognitive presence' element, one considered to be a consistent deliberative process among peers nourished by the social presence element and furthered due to the benefits of online spaces (Garrison & Cleveland-Innes, 2005). Thus, cognition was considered to be an egalitarian interactive process where students reflect upon ideas exchanged, listen to each other, make arguments, ask for clarification of a peer's perspective while providing information and reasoning that clarifies their own deliberation (Chadha, 2019a; Garrison & Cleveland-Innes, 2005; Swan, 2002).

Just as is true with the social presence element, asynchrony sustains cognition online. With asynchrony students have the freedom to step away taking care of family or work obligations while taking time to digest and think over a deliberation before revisiting the site to respond. Moreover, as online spaces also provide a record of the communication shared in one's absence students can refer to them when rejoining a deliberation, which doesn't leave them out of the deliberation, yet gives them time to think, ponder and rejoin deliberations after they have wandered. In fact, research finds that students appreciated the delay in response which afforded them time to reflect with cognition before they responded (Hill et. al., 2009; Petrides, 2002). While several researchers additionally contend that in having time to pause before response led to greater critical introspections which often surpass the asynchronous experience of learning in face-to-face classes. (Ferguson et. al., 2020; Duesbery et. al., 2019; Chadha 2019b).

Likewise, as was true with the social presence element, a secondary benefit for cognition in online spaces is that student identities are masked which allows encourages provocative viewpoints to surface (Herring, 1993). As they argue and make claims over their viewpoints, they support their discussions with academic references or other media information (Herring, 1993) all the while creating authentic and deeper cognition of issues without shying away from diverse perspectives (Boud et. al., 2014; Garrison & Cleveland-Innes, 2005). Insomuch that they challenge each other's existing ways of thinking, ask for peer clarification of theirs while justifying their own points of view.

While other research finds that rather than just responding to questions posed by an instructor students formulate questions of their own to peers thus learning from not just questioning their peers yet in explaining their ideas to peers as well (Boud et. al., 2014; Chadha, 2019b). Likewise, other research finds that in questioning each other, arguing with them, and challenging each other to think deeply greater opportunities for 'cognitive' engagement are sustained as they learn through their relationships with peers, not just trying to beat the system (Henning, 2004; Hara et. al., 2000; Song et. al., 2004; Smith and Hatton, 1993). Bruffee (1999) named this approach 'constructive conversation' where students learn by constructing questions to ask, arguing their positions, offering rebuttals whether they reach consensus or dissent.

As espoused by the Col framework, the social and cognitive elements work in parallel as students deliberate in a space that is comfortable while additionally thinking through and exploring ideas with their peers without the presence of an authority figure (Boud and Walker, 1998; Griffiths et. al., 1995). As other researchers noted with these varied benefits afforded by an online environment, students better articulate what they understand and are more open to arguing these perspectives, as well as critiquing others sustaining the cognition element (Boud and Walker, 1998; Griffiths et. al., 1995).

The Col Teaching presence element and online site design

While the third element of the Col framework is the teaching presence element. Surprisingly, this element is not only the presumed instructor, but defined as "the design, facilitation, and direction of cognitive and social processes for…meaningful and educationally worthwhile learning outcomes" (Anderson, 2003, p. 12). With the immense growth in online education researchers' evidence that online education is based on the notion that the teacher is more a moderator, facilitator or negotiator with the students taking on the sense of responsibility, driving and or 'teaching/acting as tutor' in their learning (Boud, 2001; Griffiths et. al., 1995).

Crucially then then the design and organization of an online site is not an afterthought but built in a meaningful and purposefully way such that the site is familiar and comfortable for students while being conducive for sustaining genuine deeper cognitive deliberations (Chadha, 2019b; Lorenzo & Ittelson, 2005; Garrison & Cleveland-Innes, 2005; Wessner & Pfister, 2007; Cho et al., 2018; Evans et al., 2017). Therein the three elements in the Col framework overlap and work together to not just build critical thinking communities but communities that are sustained over a period of time (Xiao & Askin, 2015; Showers et. al., 2015; Carcasson & Sprain, 2012; Garrison & Cleveland-Innes, 2005).

Limits

Despite the rapid growth in online deliberative research undoubtedly there are several limits of online education. The most pronounced limits are that of the intertwined issues of learner isolation and inequality. To address online learner isolation researchers, recommend that educators build assignments that make use of peer interaction citing the Col framework social presences element as the most effective means to minimize learner isolation while additionally building an engaged community of learners (Garrison & Cleveland-Innes, 2005; Hamann et al., 2009). Other researchers suggest creating discussion forums to engage students with each other and the content to minimize leaner isolation (Conrad & Openo, 2018; Chadha, 2019d). While yet other researchers suggest offering both synchronous and asynchronous sessions to minimize learner isolation (Hamann et al., 2009; Joo et. al., 2016).

However, while synchronous sessions provide a sense of presence these could lead to a secondary limit of online spaces that of inequality as not all students were able to attend due to home, work priorities, or a student who is deployed. To overcome this limit researchers, suggest a combination of synchronous and asynchronous while offering additional times for synchronous sessions for those who have conflicts (Hamann et al., 2009; Joo et. al., 2016, Lou et. al., 2001). While yet another limit online is that of support and training from university instructional technology. Yet with online learning becoming mainstream especially due to COVID 19 this is not considered to be a limit.

Calls for research

Indubitably, with the landscape of higher education transformed and the growth in online deliberative research several calls for research are issued. A call to further research on online deliberations is issued (Ferguson et. al., 2020; Garas-York, 2020; Anderson, 2003; Hamann et al., 2009). And another call for research is issued for evidentiary proof of an online site that would sustain online student engagement (Swan, 2002; Garrison & Cleveland-Innes, 2005; Chadha, 2019a). This study answers that dual call and is therefore significant, firstly, as it creates a unique customized, subscription-based website, with evidentiary proof of sustaining peer engagement over an entire semester. Second, it

furthers research on online deliberations thus making this research doubly significant therefore responding to both calls for research.

With the purpose of this research to evidence academic deliberation among students online and that these deliberations are sustained over the entire semester I turn to both Garrisons Col framework and to Toulmin's argumentation model. Using the Col framework my study employs the social, cognitive, and teaching presence elements to provide evidence of sustained deliberation. Likewise using Toulmin's model, yet reorganizing categories based on the context and discipline similar to past researchers (Leitão, 2000, Driver et. al., 2000, Jacoby, 2009, Blount, 2006, and Bloom et al., 1956) my study reorganizes Toulmin's categories to accommodate for deliberation in an online environment.

In my reorganization I created a model by which to judge the quality of an argument for the social sciences and for an online environment. I reference "quality" to be the *structure* rather than the normative content of the argument. This approach allows coded phrases to be aggregated and evaluated for their argumentative strength, and then adapt this to my mixed methods approach for analysis. Yet before elaborating upon this model, I first describe my mixed methods approach, the data and the website designed for critical deliberation.

Methods

The purpose of the collaboration was to be as an interactive means of academic deliberation among students across two identical courses over the entire semester. To assess academic deliberation a mixed methods approach was used. First, content analysis of the all the posts and responses (525) during the semester was performed followed by statistical testing them through ANOVAs. Content analysis was used as it is a commonly used technique to code discussion boards. For example, content analysis has been used in evaluating online dialogues (Wu and Hiltz 2004; Hamann et al., 2009); qualitative content analyses that incorporate complex schemes for coding phrases in dialogue (Hmelo-Silver 2003) and studies that quantify the discourse itself (De Wever et. al., 2006). As all coding was done by the instructor no inter coder issues existed.

The collaboration was added to the instructors' two "American Government" courses which was offered during the same semester, the same class level and the same mode of instruction as shown in Table 1. The instructor distributed a common set of standardized instructions in her syllabi to both her classes, class X and class Y. These requirements were three-fold. 1) First, students had to post eight (8) times and respond (8) eight times to the same minimum number of questions, for a total of sixteen times over the semester. The weekly post and response to discussion questions would build and maintain a discussion- oriented online community. 2) Second, students were required to post and respond using a minimum length of 75 words. Other than the minimum word guidance and the requirement to respond and reply to the same minimum number of discussion questions, no other guidance was provided to the students such as how to make claims, provide arguments, evidence and so forth, however, student conversations were monitored for signs that students were abiding by general rules of respect and civility. 3) Third, the professor assigned a course grade, 10% to the collaborative activity as shown in the comparability of course e-collaboration in the same table 1.

Table 1. Comparability of course e-collaboration.

	Class X	Class Y
Course Name	American Government	
Course Level	Freshman level	
Collaboration requirement in Syllabus	8 posts and 8 responses 75-word minimum length 10%	

As shown in Table 1, the collaboration linked an identical course, American Government, which was taught at the same level during the same semester using an identical schedule of topics and had three identical collaborative requirements. The course itself would cover the same content using the same schedule throughout the semester along with the weekly question asked of both classes during the same week.

The professor obtained IRB approval for the collaboration prior to semester start. All students had to sign a consent form for the collaboration and were given a choice of an alternative project if they chose not to consent. Students then had to request permission to join the site, and after the instructor verified their signed consent, they were allowed to join the site. Any student 18 years or under had to have parental consent to join. At semester start and end students were asked to take pre- and post-semester surveys.

Constructing the E-Collaborative Site

With comparability across courses and the intent of the collaboration to be an interactive space for deliberation of academic content, the professor rented and designed an online collaborative space prior to the start of the semester using this site: http://americanpoliticsspring2013.ning.com. The instructor then designed the space as suggested by the Col framework to be a space for student interactivity and familiarity. The space was set up similar to Facebook, thus creating a site that would be familiar for students while being a site where a student would respond to the question and another student such that they could interact seamlessly as shown in Figure 1. In creating a site design that was familiar to students their focus would be on the content allowing for deliberative cognition among peers to develop rather than time spent on the structure of the site.

Relatedly, the site was accessible by invitation only after the instructor verified that they had signed human consent forms where they allowed access to the site. On this one site, the instructor posted a weekly question for both classes. Students would post to the instructors' discussion question (DQ) while additionally responding to a peer.

When designing and structuring the e-collaboration the professor was mindful of various pedagogical goals in the collaboration. Specifically, that of encouraging and increasing student interaction and participation, development of and an understanding of opposing views, improving critical thinking, developing a deeper sense of community, and providing peer presence so that learner isolation did not occur.

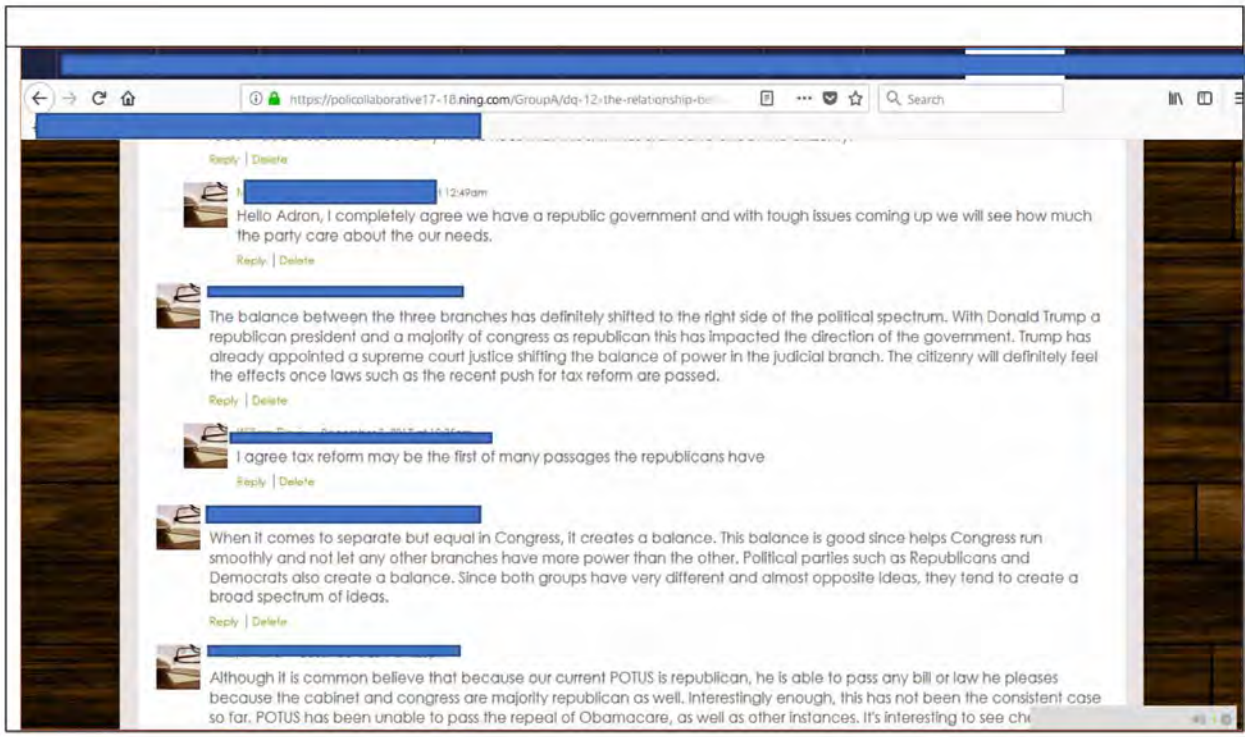

Figure 1. Example of online site designed for interactivity.

With the intent of the site and the collaboration to be an academic site for student deliberation I looked for evidence that students deliberated with academic reflectivity over the entire semester. Therefore, the dependent variable would test for student academic reflectivity. A point of note is that no guidance was provided to the students such as how to make claims, provide arguments, evidence and so forth.

Using Toulmin's model as a guide I developed an evaluative framework focused on the online environment and the social sciences in that the type of interaction, not content, determined "quality." In my adaptation, I propose that the quality of the dialogue should be judged on the range, type, nature, and frequency of argumentative elements contained in peer-to-peer responses. My framework therefore was a more parsimonious hierarchy of four types (instead of Toulmin's six model categorization) as shown in Table 2. Coding each phrase within a posting for argumentative elements, or variables, within each online response allowed the ability to distinguish the four levels of academic argumentation. It should be noted that a complete statement or posting could contain any number of these different elements.

Table 2. Toulmin's argumentation model compared to my model.

	Toulmin's argumentation model	→	My model (2020)
Levels	Characteristics of Argumentation	Type	Characteristics of argumentation
6	*B*acking *is* provided to make the original argument stronger	4	Students use *"Arguments"* to make and back up their claim while acknowledging other points of view.
5	The rebuttal is an acknowledgement of another valid view of the situation.		
4	Q*ualifiers* were given which pointed out the limits of the claim	3	Students warrant their argumentation qualifying their claim by using academic texts, references
3	A *warrant* links the grounds to the claim		

			and more to support their claim "teaching" each other while additionally.
2	The *grounds* of an argument are provided by facts, data, or reasoning upon which the claim was based.	1 -2	Students make a claim and "*add and or provide academic or reference information*" as the grounds on which they base their claim.
1	A *claim* is made.		

In my model a Type 1/Type 2 would mean that a student made a claim supported by adding academic or reference information as their grounds to support their claim. In Type 3 students sustained engagement by "teaching" each other qualifying their claim by using academic and or reference materials in support of their claim(s). At the highest-level Type 4, students made "arguments" to back up their claim while providing qualifiers in their arguments and providing rebuttals acknowledging peer perspectives.

Additionally what conditions are likely to affect students' willingness to engage in deliberation with each other? Although many variables influencing the process of deliberation they remain outside the purview of this study (micro-level factors for example, or other structural factors that I did not measure such as placement within a discussion thread, length of a discussion question prompt, timing of a question in a semester, and so forth). As the purpose behind the collaborative website was to provide an interactive means of discussion for students from two different yet identical courses the dependent variable measured for academic deliberation. Likewise, the research questions would measure for student academic deliberation across the two classes.

Research questions

Accordingly, I had four research questions. The first three research questions represented various forms of student peer interactions and/or argumentation similar to Toulmin's work while the fourth research question represented Garrisons Col framework in support of sustaining online deliberative communities over the course of the semester.

Therefore, my first research question was 1) would students interact adding information to the deliberation with academic reflectivity, a Type 1 and 2 argumentation level in my model. 2) Would students teach each other with academic reflectivity, a Type 3 argumentation level in my model 3) would students argue their perspectives with academic reflectivity a Type 4 argumentation level in my model? While the fourth research question would measure the sustained use of the deliberative process, therefore my fourth research question was 4) would students create academically reflective posts and responses to each of the questions asked of them sustaining academically reflective deliberations throughout the semester. These variables were operationalized accordingly.

The dependent variable: academic deliberation

To measure academic deliberation, I created an index based on six elements. First, that students were deliberative or critically (*reflective*). Second, I coded for whether the post included an *honest question* that created further deliberation among students (rather than a rhetorical one), such as when a student asked a peer to think about another aspect of an issue (*honest*). Third, I looked for evidence that they used references such as an assigned text or the professor's teachings (*class text*); or in links or references to outside media or sources such as an article, video clip, or other online materials supporting assertions students made (*media*). Fifth, I coded for *length* (short, medium, or long based on the number

of words), as a proxy for effort to articulate an argument. Students who wrote virtual essays, for example, clearly achieved a different level of critical thought than those who merely offered an opinion that was expressed in a few lines. The composite variable, "academic deliberation" represented a sum of the scores for these five elements. Therefore, a post that evidences academic deliberation would incorporate all five elements: reflective + honest + class text + media materials + length based on past deliberative research (Hamann et. al., 2009; Chadha, 2019d) operationalized accordingly.

Operationalizing the dependent variable

1. *Reflectivity* meant that the student was thinking critically across issues and were involved in a dialogue seeking out alternative perspectives (Stitzlein, 2014). Such discussion, however, does not just talk for the sake of talking; it involved critically reflecting on one's own beliefs while simultaneously being open to learning other ideas or perspectives from peers (Stitzlein, 2014). Reflectivity was coded as 1; non-reflective a 0.

2. Civic application meant that the students were thoughtful citizens discussing civic issues such as the First Amendment or voting issues rather than just mentioning them. Civic application was coded as 1; no application a 0.

3. *Posing an honest question* was measured as students asking one or more questions that enlarged the scope of the discussions, rather than rhetorical ones that assumed answers. Posing honest question was coded as 1; no honest question asked a 0.

4. *Use of academic text* was measured by student references ideas to which they had been exposed in class or to those ideas mentioned by their professors or within class discussions. The use of text was coded as 1; no use of text a 0.

5. *Media materials or outside links* was measured by students' posting or citing media-related sources to external sites, such as a reference to court cases that would further student learning. The use of media materials was coded as 1; no use of media materials a 0.

6. *The length* was measured on a scale of 1–3 where 1 was a short response of usually 75 words or fewer, 2 was a medium response while 3 was a long response usually longer than 10 lines.

A point to note is that the total number of postings per student (example: student X posted six times a day, five days in a row) was not used as a measure toward deeper learning because the total number of posts and responses are not necessarily linked to academic reflectivity. Rather, the score was a measurement of thoughtful understanding and contribution to a post or response, and one that would facilitate interaction through the use of academic class text references, outside links, and media materials. In doing so, the posts would be more thorough with deeper deliberation enhanced by the materials making the posts themselves lengthier, rather than greater in number.

With the dependent variable measuring for evidence of academic reflectivity in student interactions the independent variables measured if their interactions were sustained throughout the semester and if their style of interaction followed an argumentation model such that students argued with each other, added information, and taught each other with the variables operationalized accordingly.

Operationalizing the independent variables

7. *Added information.* This variable measured students adding academic citations, media materials or academic texts to support their claim. Adding information was coded as 1; not adding information was a 0. (A Type 1 and 2 argumentation level in my model).

8. *Teach.* This variable measured a student's attempt to impart knowledge and or give instruction, an attempt to teach each other clarifying and expanding upon the content. Teaching was coded as a 1; not teaching coded as a 0. (A Type 3 argumentation level in my model).

9. *Argue:* This variable was a measurement of students furthering deliberation, "arguing" from a defensible position in an attempt to form informed perspectives about civic issues. Arguing was coded as 1; not arguing was coded as a 0. (A Type 4 argumentation level in my model).

10. *DQ (Discussion question*) Lastly, I wondered if students would sustain reflective deliberation over the entire semester. Therefore, the variable DQ was not an argumentation variable yet one based on sustained reflective deliberation over the entire semester. *DQ* was the weekly question the instructor asked students over the entire semester. A point of note was that the weekly DQs did not follow any particular schedule. Yet the DQs ranged from questions about the ongoing opioid crisis, immigration, the role, and responsibility of government, whether women ISIS fighters should be allowed to come home and more.

Findings and Discussion

A mixed methods approach was used to provide evidentiary results. First, content analysis of student posts and responses was performed, followed by ANOVAS testing the content analysis. Content analysis of the interaction variables showed that a large majority (63%) of students had type 4 interactions, this type typified students arguing with each other with academic reflectivity. While another large percentage (59%) had type 3 interactions typifying students teaching with each other with academic reflectivity. While a smaller percentage (28%) had type 1/2 interactions, typifying students adding information that furthered deliberations as shown in Table 3.

Table 3. Deliberative engagement/Argumentation types: (N = 525).

	% Of Interactive Posts	Elements of Deliberative engagement/Argumentation type
Type 4	63%	Argue
Type 3	59%	Teach
Type1/2	28%	Add Information

The mean and standard deviation scores by academic deliberation across the two universities showed that academic deliberation were equivalent across the two universities as seen in Table 4.

Table 4. Mean and standard deviation scores by reflectivity.

	Mean	N	Standard Deviation
Class X	1.6270	311	.87756
Class Y	3.5888	214	1.41058
Total	2.4267	525	1.48171

Next ANOVAs were run revealing statistical significance of academic deliberation scores across both classes. Students argued with each other while being academically reflective ($p < .000$). They taught each other while being academically reflective ($p < .000$) and they added information ($p < .000$) that extended and furthered academic reflective deliberations. Moreover, students responded with academic deliberation across each of the questions asked of them with academic reflectivity ($p < .000$) providing evidence for sustaining academically deliberations across the entire semester and in support of each of the four hypotheses as shown in Table 5. Furthermore, these significant ANOVA

findings of peer interactions are illustrated in a student exchange on a question about our country's opioid problem as provided in Appendix A.

Table 5. Significant ANOVA scores by gender, reflectivity, across classes and discussion posts.

	DF	Mean square	F	Sig.	Partial eta
Corrected model	56	14.652	20.787	.000	.713
Intercept	1	1020.846	1448.232	.000	.756
DQ	12	3.159	4.482	.000	.103
Argue	1	62.424	88.558	.000	.159
Adds Info	1	19.370	27.479	.000	.055
Teach	1	13.749	19.505	.000	.040

a. R Squared = .713 (Adjusted R Squared = .679)
b. Computed using alpha = .05

With significance in ANOVAs, LSD Post hocs followed. The post hocs assure statistically significant support of each of the hypothesis ($p < .002$) as seen in Table 6. Additionally, semester end surveys provide the student perspective indirectly supporting these hypotheses and the collaboration.

Table 6. LSD post hocs by academic reflectivity and question.

(I) DQ	(J) DQ	Mean Difference (I-J)	Std. error	Sig.	Lower Bound	Upper Bound
5	1	1.4339*	.17814	.000	.8601	1.5385
	2	.5705*	.18203	.002	1.0839	1.7840
	3	.6310*	.19069	.001	.2128	.9282
	4	.6042*	.18511	.001	.2562	1.0057

Post semester surveys

Semester end surveys provided tangentially support for each of the four hypotheses and the significant results in this study. Students were asked if they "felt comfortable *arguing* or challenging your peers online?" A large majority (73%) responded they did while just 12% said no and another minority 15% had no response providing indirect support to the hypothesis that students argued with each intently furthering academic deliberation across the classes.

Likewise, another semester end survey question asked students "what kinds of questions did they prefer responding to? Questions that were current and controversial? Theoretical based questions? Both? No preference?" (A point to note is that the collaboration was on political issues students therefore students were asked both current and controversial issues in politics). A large majority (73%) said they had no preference on the type of question asked. While 19% said they preferred responding to controversial question and 8% said they preferred responding to theoretical questions. Again, the semester end question provides a tangential observation about the hypothesis that students would respond across each type of question asked of them with academic deliberation.

Relatedly another semester end question asked, "now that you have discussed both current and controversial political questions with your peers online, does that now make you more comfortable discussion political issues/questions with your peers face-to-face?" Again, a large majority of students (65%) responded affirmatively while a minority (4%) said no and 31% said maybe.

This semester end question indicated that deliberations are sustained beyond the academic semester when peer presence, cognition and site design are constructed within an online framework, as espoused in the CoI framework.

Conclusions

With our landscape in education transformed to online learning and the need to engage our students in meaningful academic interactions in online courses grows across the globe, this research is significant for several reasons, most especially, as it responds to the two calls for research. For one it furthers research on online deliberative research. Second, it responds to the call for a purposefully designed online space that sustains a semester long student deliberation. Third, this research finds statistically significant evidence that students engage with deliberative thought, as seen in each of the four hypotheses, similar to the argumentation processes designed by Toulmin. And likewise, that online deliberations are sustained throughout the semester when employing the three elements espoused by the CoI framework to sustain online discussions.

And fourth, students found value in and appreciated the online deliberative process as noted by them in their own words, I "leant tolerance," I "became aware", "I learnt many things from my peers…because they have different lifestyles…so they know about different stuff…I did not know but I learned when reading some of the comments". "I was exposed to their different people political views", "I think the biggest benefit was that you get many new viewpoints on issues".

While others expressed that with the masking of identities online, "people aren't as shy to express their opinions", it was "Less intimidation", "the biggest benefit was that discussing politics online was better than face to face because I felt okay talking about my point of view without feeling judged", "When you do it face to face most of the time people tend to get offended", and "The online space allowed me to collect my response thoughts clearly."

Online deliberations are a pedagogically viable strategy as they produce (a) academically reflective interactions among students and the content (b) students unreservedly ask each other questions (c) the practice of being a peer teacher or reciprocal tutor that clarifies crucial thought (d) the questioning argumentation process and the pursuit of varied perspectives (e) the giving and receiving of information as one reflecting differing points of view (f) analysis of and evaluation of arguments, interpretations, beliefs, or theories (g) thought-provoking communication in giving and receiving feedback, even as they argue and challenge each other as they learn and test their own learning. With the landscape of education and educational priorities changed, learning is not just the acquisition of a body of knowledge, but the process of becoming a participant in their education, a challenge that is ripe for continued research.

Appendix

Appendix 1. Example of student interactivity: Student response to Instructor initiated Discussion Question (DQ) on the current opioid crisis.

I have mixed feelings about this country's opioid problem and the government's inconsistent response to dealing with it. When I evaluate problems, I tend to study history and look at the way an issue was handled in the past as this is typically an indication of how it will be managed in the future because history tends to repeat itself but in this opioid crises, I am finding that this is not the case.

There was once a great opioid issue in this country in the 70's after the Vietnam War and the government's response to the problem was increased and tougher law enforcement. There was also another great drug crises in the late 80's and early 90's with the crack cocaine epidemic and the government's response to address the problem was to label it a war, build more prisons, and create

harsh criminal justice laws designed specifically to facilitate the mass incarceration of the victims of the drug crises. In each of these prior drug crises the victims were mostly isolated to impoverished black and Latino communities and the governments reflexive response was to build prisons and lock these people up as criminals…Isn't it interesting that now the governments reflexive response for this new drug crisis, which is isolated mostly to white middle class communities, is to use the department of health rather the department of justice to address the problem. In the past we dealt with drug epidemics by criminalizing the behavior of drug users and now we deal with them by victimizing the behavior of drug users.

I find it problematic that our government spent billions of taxpayers' dollars building more prisons to fight the problem in black and Latino communities but now that the problem is mostly in white communities, they propose to spend billions of taxpayer dollars to provide health care solutions. To me the answer is to save those dollars and simply use those very same prisons for the current drug epidemic, but this will not happen because those in power know that employing the same harsh criminal justice response would lead to the destruction of entire communities and this cannot be tolerated if the community is white but can be tolerated if the communities are black or Latino. This current response makes me question the objectivity, fairness and consistency of our government when dealing with a drug addiction crisis in this country.

Wow Shawn! Your point of view never crossed my mind until reading your post and it really has me thinking and almost a bit upset. You are absolutely right!! How the prior drug crises were handled in the past definitely won't fly with the current one. The Government will never be as cruel with handling an epidemic such as this in white communities as they have and still are within black and Latino communities. It's a shame but it's our reality. I hope your post continues to open the eyes and minds of others as it did for me. Thanks for sharing.

I argue that the government should be involved in the crisis caused by Opioids. This is to include synthetic, and prescription opioids. The main reason for my concern and stance is for the overall problem that it has caused the government billions of dollars throughout a small time. For example, in these past couple of years many people have been seen overdosing on opioids and are administered Narcan to help them overcome their opioid overdose. Thus, EMS is called, and they are then transported to a hospital where they receive treatment. Most of the times, the patient does not have any insurance which causes the state to act and perform their duties as emergency life services. This causes a wheel of issues to revolve around and cause issues for everyone.

Personally, I would cause said victim of overdose to do community service hours for the cost of medical that they will most likely not cover. Secondly, I would also raise the bonds and people who are in possession of said control substances. Lastly, the time for such crimes pertaining to size of substances carried should raise the standard on jail time. I would also allow people to work as workers (as seen in Harris County Jail) to repay their debt and alleviate the congestion inside of the jail. The issue is governmental for the simple fact that end all be all, the state ends up paying the bill with their sources. The only strength that I can see from opioids are that they maintain in the control of those persons that are prescribed their medication to help them get better and alleviate their pain. They are not meant for a feel good, high and or a fad that most people end up overdosing on.

References

Allen, I.E. and Seaman, J. (2016). Online report card: Tracking online education in the United States. Babson Survey Research Group. Retrieved from http://onlinelearningsurvey.com/reports/onlinereportcard.pdf

Anderson, T. (2003). Modes of interaction in distance education: Recent developments and research questions. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of distance education* (pp. 129–144). Mahwah, NJ: Lawrence Erlbaum.

Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). Taxonomy of educational objectives, handbook I: The cognitive domain.

Blount, A. G. (2006). Critical reflection for public life: How reflective practice helps students become politically engaged. *Journal of Political Science Education*, *2*(3), 271-283.

Bolsen, T., Evans, M., & Fleming, A. M. (2016). A comparison of online and face-to-face approaches to teaching Introduction to American Government. *Journal of Political Science Education*, *12*(3), 302–317. doi:10.1080/15512169.2015.1090905

Botsch, R. E., & Botsch, C. S. (2012). Audiences and outcomes in online and traditional American government classes revisited. *PS, Political Science & Politics*, *45*(3), 493–500. doi: 10.1017/S104909651200042X

Boud, D., Cohen, R., & Sampson, J. (Eds.). (2014). *Peer learning in higher education: Learning from and with each other*. Routledge.

Boud, D. (2001). Making the move to peer learning. In D. Boud, R. Cohen, & J. Sampson (Eds.), *Peer learning in higher education: Learning from and with each other* (pp. 1–21). Sterling, VA: Stylus Publishing.

Bowen, W., Chingos, M., Lack, K., Nygren, T. (2013). Interactive learning online at public universities: Evidence from a six campus randomized trial. Journal of Policy Analysis and Management. 33(1), 94-111.

Bruffee, K (1999) Collaborative Learning: Higher education, interdependence and the authority of knowledge, 2nd edn, The Johns Hopkins University Press, Baltimore

Carcasson, M., & Sprain, L. (2012). Deliberative democracy and adult civic education. *New Directions for Adult and Continuing Education*, *2012*(135), 15-23.

Chadha, (2019a). Engaging learners: A digital best practice in *Handbook of research on innovative digital practices to engage learners.*

Chadha, (2019b). Deepening engagement—the intimate flow of online interactions. In International *Journal of Online Pedagogy and Course Design.*

Chadha, (2019c). Personalizing and extending deliberation in the online classroom: future horizons. In *Journal of educators online.*

Chadha, (2019d). Graduate online pedagogy. A framework for collaborative communities of learning. In *Fostering multiple levels of engagement in higher education environments.*

Cho, J., Ahmed, S., Keum, H., Choi, Y. J., & Lee, J. H. (2018). Influencing myself: Self reinforcement through online political expression. *Communication Research*, *45*(1), 83-111.

Collison, G., Elbaum, B., Haavind, S., & Tinker, R. (2000). Facilitating online learning: Effective strategies for moderators. Madison, WI: Atwood Publishing.

Conrad, D., & Openo, J. (2018). *Assessment strategies for online learning: Engagement and authenticity*. Athabasca University Press.

Coleman, S., & Moss, G. (2012). Under construction: The field of online deliberation research.

Clark, D. B., & Sampson, V. D. (2007). Personally-seeded discussions to scaffold online argumentation. *International Journal of Science Education*, *29*(3), 253-277.

Dailey-Hebert, A. (2018). Maximizing interactivity in online learning: Moving beyond discussion boards. *Journal of Educators Online*, *15*(3), n3.

Delli Carpini, M. X., & Keeter, S. (2002). The Internet and an informed citizenry. *Departmental Papers (ASC)*, 2.

De Wever, B., Schellens, T., Valcke, M., & Van Keer, H. (2006). "Content analysis schemes to analyze transcripts of online asynchronous discussion groups: A review." *Computers and Education,* 46: 6–28.

Dewey (1916). *Democracy and Education: An Introduction to the Philosophy of Education by Dewey*. Project Gutenberg. http://www.gutenberg.org/ebooks/852

Driver, R., Newton, P., & Osborne, J. (2000). Establishing the norms of scientific argumentation in classrooms. Science Education, 84 (3), 287–213.

Duesbery, L., Frizelle, S., Twyman, T., Naranjo, J., & Timmermans, K. (2019). Developing and Designing Open Border Teacher Education Programs: Case Studies in Online Higher Education. *Journal of Educators Online*, *16*(1), n1.

Evans, S., Steele, J., Robertson, S., & Dyer, T. (2017). Personalizing Post Titles in the Online Classroom: A Best Practice? *Journal of Educators Online*, *14*(2), n2.

Falchikov, N (2001) Learning Together: Peer tutoring in higher education, Routledge, cDJ London

Ferguson, S., Liu, Y., & Enderson, M (2020). Student Understanding of System of Equations and Inequalities: A Comparison Between Online and Face-to-Face Learning. *Journal of Educators Online*, *17*(2).

Frye, B (2020). Understanding Student Engagement Among Online Clinical Students During Academic Residency Experience. *Journal of Educators Online*, *17*(1).

Garas-York, K (2020) Exploring Student Engagement in an Online Course. *Journal of Educators Online*, *17*(2).

Galletly, R., Carciofo, R., & Jiaotong, X (2020). Using an Online Discussion Forum in a Summative Coursework Assignment. *Journal of Educators Online*, *17*(2).

Garrison, D. R., & Cleveland-Innes, M. (2005). Facilitating cognitive presence in online learning: Interaction is not enough. *The American journal of distance education*, *19*(3), 133-148.

Griffiths, S, Houston, K and Lazenbatt, A (1995) *Enhancing Student Learning Through Peer Tutoring in Higher Education,* Educational Development Unit, University of Ulster, Coleraine

Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *American journal of distance education*, *11*(3), 8-26.

Guzdial, M. & Turns, J. (2000). Effective Discussion through a Computer-Mediated Anchored Forum. The Journal of the Learning Sciences, 9(4), 437-469

Hamann, K., Pollock, P. H., & Wilson, B. M. (2009). Learning from "listening" to peers in online political science classes. Journal of Political Science Education, 5(1), 1–11. doi:10.1080/15512160802612011

Hara, N., Bonk, C. J. and Angeli, C. 2000. Content analysis of online discussion in an applied educational psychology course. *Instructional Science*, 28(2): 115–152

Henning, W. 2004. "Everyday cognition and situated learning". In *Handbook of research on educational communications and technology*, 2nd, Edited by: Jonassen, D. 143–168. Mahwah, NJ: Erlbaum.

Herring, S. C. (1993). Gender and democracy in computer-mediated. *Computerization and Controversy: Value conflicts and social choices, 3*(2), 476-489.

Hill, J. R., Song, L., & West, R. E. (2009). Social learning theory and web-based learning environments: A review of research and discussion of implications. *The Amer. Jrnl. of Distance Education*, *23*(2), 88-103.

Hmelo-Silver. (2003). "Analyzing collaborative knowledge construction: multiple methods for integrated understanding." *Computers & Education,* 41(4): 397-420.

Jacoby, B. (2009). Civic engagement in higher education. *Concepts and practices. Jossey-Bass, San Francisco.*

Joo, B. K., Lim, D. H., & Kim, S. (2016). Enhancing work engagement. *Leadership & Organization Development Journal*.

Kock, C., & Villadsen, L. S. (2012). Rhetorical citizenship and public deliberation (Rhetoric and democratic deliberation, Vol. 3). University Park, PA: Penn State Press.

Leitão, S. (2000). The potential of argument in knowledge building. *Human development*, *43*(6), 332-360.

Lorenzo, G., & Ittelson, J. (2005). An overview of e-portfolios. *Educause learning initiative*, *1*(1), 1-27.

Lou, Y., Abrami, P. C., & d'Apollonia, S. (2001). Small group and individual learning with technology: A metaanalysis. *Review of Educational Research*, *71*(3), 449–521. doi:10.3102/00346543071003449

Moore, A., Fredheim, R., Wyss, D., & Beste, S. (2020). Deliberation and Identity Rules: The Effect of Anonymity, Pseudonyms and Real-Name Requirements on the Cognitive Complexity of Online News Comments. *Political Studies*, 0032321719891385.

Navarro, P., & Shoemaker, J. (1999). The power of cyberlearning: An empirical test. Journal of Computing in Higher Education, 11(1), 29–57. doi:10.1007/BF02940841

Paul, R., & Elder, L. (2013). *Critical thinking: Tools for taking charge of your professional and personal life*. Sonoma, CA: Pearson Education.

Palloff, R. M., & Pratt, K. (2007). *Building online learning communities: Effective strategies for the virtual classroom*. John Wiley & Sons.

Pape, L. (2010). Blended teaching and learning. *Education Digest*, *76*(2), 16–21.

Petrides, L. A. 2002. Web-based technologies for distributed (or distance) learning: Creating learning-centered educational experiences in the higher education classroom. *International Journal of Instructional Media*, 29(1): 69–77.

Quick, K., & Sandfort, J. (2014). Learning to facilitate deliberation: practicing the art of hosting. *Critical Policy Studies*, *8*(3), 300-322.

Rudestam, K. E., & Schoenholtz-Read, J. (2009). *Handbook of online learning*. Thousand Oaks, CA: Sage Publications.

Showers, E., Tindall, N., & Davies, T. (2015, August). Equality of participation online versus face to face: condensed analysis of the community forum deliberative methods demonstration. In *International Conference on Electronic Participation* (pp. 53-67). Springer, Cham.

Smith, D L and Hatton, N (1993) Reflection in teacher education: a study in progress, Educational Research and Perspectives, 20 (1), pp 13-23

Song, L., Singleton, E. S., Hill, J. R. and Koh, M. H. 2004. Improving online learning: Student perceptions of useful and challenging characteristics. *Internet and Higher Education*, 7(1): 59–70.

Stegmann, K., Wecker, C., Weinberger, A., & Fischer, F. (2012). Collaborative argumentation and cognitive elaboration in a computer-supported collaborative learning environment. Instructional Science, 40(2), 297–323. doi:10.1007/s11251-011-9174-5

Stitzlein, S. M. (2014). Teaching for dissent: Citizenship education and political activism. Boulder, CO: Paradigm.

Sun, P.C., Tsai, R. J., Finger, G., Chen, Y.Y., & Yeh, D. (2008). What drives a successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction. Computers & Education, 50(4), 1183-1202. doi:10.1016/j. compedu.2006.11.007

Swan, K. (2002). Building learning communities in online courses: The importance of interaction. *Education Communication and Information*, *2*(1), 23–49. doi:10.1080/1463631022000005016

Swan, K., & Shih, L. F. (2005). On the nature and development of social presence in online course discussions. *Journal of Asynchronous learning networks*, *9*(3), 115-136.

Thakur, D. (2012). Diversity in the online deliberations of NGOs in the Caribbean. Journal of Information Technology & Politics, 9(1), 16–30. doi:10.1080/19331681.2012.635960

Toulmin, S. (1958). *The uses of argument*. Cambridge: Cambridge University Press.

Vernon-Dotson, L. J., Floyd, L. O., Dukes, C., & Darling, S. M. (2014). Course delivery: Keystones of effective special education teacher preparation. Teacher Education and Special Education, 37(1), 34–50. doi:10.1177/0888406413507728

Wessner, M., & Pfister, H. R. (2007). Points of cooperation: Integrating cooperative learning into web-based courses. In *The role of technology in CSCL* (pp. 21-46). Springer, Boston, MA.

Wladis, C., Conway, K., & Hachey, A. C. (2017). Using course-level factors as predictors of online course outcomes: A multi-level analysis at a U.S. urban community college. Studies in Higher Education, 42(1), 184–200. doi:10.1080/15512160701338304

Wu, Dezhi and Starr Roxanne Hiltz. (2004). "Predicting Learning from Asynchronous Online Discussions." *Journal of Asynchronous Learning Environments,* 8(2): 139-152.

Xiao, L., & Askin, N. (2015). Rationale sharing in large-scale online deliberations. In iConference 2015 Proceedings. Retrieved from http://hdl.handle.net/2142/73741