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Social Annotation and an Inclusive Praxis for Open Pedagogy in the College Classroom

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Open social annotation, while offering opportunities for the creation of new knowledge, empowerment, and dynamic dialogue for learning, also contains inherent risk of safety for marginalized student populations navigating open knowledge practices. In this paper, we will explore both the opportunities for subverting traditional knowledge structures offered by open social annotation, while also bringing to the surface the critical tensions that may make engaging in social annotation more dangerous or ineffective for students from historically marginalized backgrounds. Finally, we will offer a framework for constructing social annotation assignments for the college classroom that functions to maximize the potential for equity while taking into account ways to minimize harm in the inevitable tensions of an inherently unsafe online environment. Critical social annotation will be explored as an alternative pedagogical approach.

Open Pedagogy and Social Annotation

Open pedagogy is often promoted as a vital way to increase the inclusivity of the classroom. It is defined as "an access-oriented commitment to learner-driven education and as a process of designing architectures and using tools for learning that enable students to shape the public knowledge commons of which they are a part" (DeRosa & Jhangiani 2018). In this definition exists a commitment to center students in the knowledge-creation process that has traditionally been reserved for those with advanced degrees. Because of this fundamental shift, there are many opportunities to create active engagement, classroom community collaboration, and authentic assessment.

However, in identifying open pedagogy as an approach that also includes the "designing of architectures" that "enable students to shape" knowledge (DeRosa & Jhangiani 2018), open pedagogy must wrestle with the profound inequity of engaging in public discourse, particularly online, for marginalized students. In this way, equity through open pedagogy cannot be achieved by "an access-oriented commitment" (DeRosa & Jhangiani 2018) alone as access does not necessarily mean the opportunity for equitable participation in the classroom. In fact, the implicit assumption that open pedagogy is inclusive may further stall the critical work needed to examine, revise, and reimagine educational resources as a way to create new and underrepresented forms of knowledge in the academy (Watters 2014).

Some have noted that the false conflation of open education with equity is a damaging result of the educational technology field. Pierce (2016) found that technological determinism hastens the adoption of particular types of materials without a clear understanding of how materials can change the learning experience for students. This determinism tends to put forth open educational resources (OER) and open pedagogy as singular and self-contained solutions to contemporary educational challenges with inclusion. More recently, several have argued for the explicit anchoring of open pedagogy in a social justice paradigm. For example, Kalir (2018) argued for an equity-oriented design process in open education while Lambert (2018) challenged the field to shift its discourse in more socially-just ways.

One vital method for engaging in a form of open pedagogy while also deepening critical engagement is social annotation. Social annotation is the use of collaborative technologies to help students draw meaningful connections to texts in-line alongside their peers, practice the strategies of academic writing in-context, and, according to Schacht (2015), help educators to bring to the surface "how thoroughly social the activities of reading and writing have always been." Marshall (1997) demarcated social annotation into two broad types: implicit and explicit. With implicit annotation, readers use more passive types of markup, including highlighting, underlining, and drawing arrows. With explicit annotation, readers synthesize the material with additional text to add back to the document with new meaning and connections.

As such, we view social annotation from a similar theoretical grounding as Kalir and Garcia (2019). While they

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define annotation rather broadly as "a note added to a text" they contend that annotation is an act with five common underlying purposes present across a variety of contexts: "to provide information, to share commentary, to spark conversation, to express power, and to aid learning" (2019). These purposes may overlap in a variety of ways, contingent upon the contributions of the annotator and the context of the work on which they are commenting.

Here, we also frame open social annotation as the use of open-source software on open educational resources with the potential for the creation of student-generated open content. To make use of open social annotation does not necessarily mean that instructional activities must be done in a public layer; however, with thoughtful, inclusive, and critical implementations of social annotation, instructors can help students release their annotations publicly if students so desire.

Existing research suggests social annotation to be an effective pedagogical tool. In part, the appeal of social annotation for many educators is the opportunity to foster more dynamic, engaging classroom dialogues around assigned texts in a course. Social annotation anchors conversation to specific textual points, and, in doing so, assists students in having more evidence-based, granular conversations about key ideas or features of a text. It also allows the conversation to be visually organized around the text itself, rather than removed into a discussion forum in the Learning Management System (LMS).

However, there is a dearth of research on social annotation in open pedagogy that centers equity. Yet, as with any other technology implemented for learning, careful analysis of its impact on students is essential. In this work, we explore the potential and challenges of social annotation before offering a framework for critical social annotation. Finally, this framework will be actionized with implications for practice.

The Promise and Peril of Social Annotation

Social annotation provides a pathway to take classroom models of knowledge gathering (glossaries, annotated bibliographies, and close reading) and construction (rhetorical analysis, opinions and perspectives on controversy, additive and critical dialogue) beyond the constraints of traditional classroom discussions, particularly those of the online discussion forum (Dean 2015). Instead of these knowledge gathering and generating practices occurring in isolation in the form of disparate and individual assessments, social annotation provides an opportunity to synthesize, layer, and build upon these different processes while communicating within a course text. These practices, in turn, disrupt traditional knowledge practices in higher education that are structured around hierarchy, one-way knowledge transfer, and historical definitions of what knowledge means.

In addition to these powerful opportunities for intertextual, situated academic writing, social annotation has also been shown to have promise for furthering deep dialogue:

> The participatory ethos of social annotation aligns it with the promise of radical democracy: free

expression, common ownership, mutual commitment … The promise stands in marked opposition to those aspects of higher education pedagogy and scholarship that remain even in democractic societies, hierarchical, exclusive, proprietary, and competitive (Schacht 2015).

Accordingly, the social justice implications of social annotation are far-reaching. Yet the potential of social annotation to support new, more equitable methods of knowledge construction does not exist devoid of complication. As such, there exists the need for critical identification, reflection, and analysis of social annotation practices as a pathway toward equity in open pedagogy.

Social annotation, while offering opportunities for the creation of new knowledge, does also contain an inherent risk of safety for marginalized student populations. In this paper, we will explore the opportunities for subverting traditional knowledge structures offered by open social annotation while also investigating the critical tensions that may make engaging in social annotation more dangerous or ineffective for students from historically marginalized backgrounds. Finally, we will offer a framework for constructing social annotation assignments for the college classroom that functions to maximize the potential for equity while taking into account ways to minimize harm in the inevitable tensions of an inherently unsafe online environment. We turn this effort towards thoughtful implementation of social annotation in pedagogical approaches as critical social annotation.

Technical Affordances

Social annotation allows new forms of interaction with course materials and among peers that go beyond the constraints of traditional social learning tools such as discussion boards or forums. Of particular interest is the ability of social annotation to be flexible and adaptive to the needs of different disciplines, assignment and activity styles, and student populations. The flexibility of annotation allows students and faculty to leverage technology in ways that center their individual and collective needs. It offers increased levels of control to support the ways in which learners communicate both privately and in the community of peers in meaningful and dynamic ways. Below, we've identified several key technical affordances that enable thoughtful implementation of social annotation:

- **Social Engagement Options:** Annotation tools can provide the flexibility to participate independently, collaboratively, privately, within the classroom community, or openly. This includes a variety of private and social engagement options.
- **Anchored & Dialogical:** Annotations can be anchored to a specific part of the text allowing engagement with specific textual elements. The anchoring of annotations to specific parts of text also enables a more granular opportunity to respond to various arguments and ideas.
- **Intertextual & Multimodal:** Through hypertext, annotation tools can provide the opportunity to make

connections across different texts to create richer meanings. In addition, the annotation tool provides for multiple modes of communication beyond text.

· **Privacy and Ownership of Data:** Annotation tools can allow students and educators to access their data without extensive technical expertise. In using an appropriate annotation tool, student-generated data would not be privately-owned. Instructors seeking to incorporate social annotation into their coursework should ensure privacy protections are in place to protect student data.

Dynamic Online Discussions

Initial studies show that students generally perceive annotation as useful to the learning process. In their study, Nokelainen et al. (2003) found that of all the sampled students in their empirical study using an online annotation system, the majority of subjects agreed (or strongly agreed) that viewing others' comments and annotations assisted their learning. Studies using a Social Annotation Model-Learning System (SAM-LS) which incorporates several aspects of instructional design, social annotation technology, and team-based learning suggest that students using social annotation may achieve better outcomes measured by instruments designed to assess reading comprehension and meta-cognition (Johnson, Archibald, & Tenenbaum 2010). Studies on the cognitive processes engaged by social annotation reveal that increased annotation may be associated with successful group inquiry learning; furthermore, high levels of collaboration with annotations explain more than 70% of the variance for group cognitive and metacognitive outcome differences (Li, Pow, & Cheung 2014). In their pre- and post-test study, Hwang, Wang, and Sharples (2007) found that a majority of students perceived annotation as beneficial to their learning. Their initial work also showed that test results for students with access to annotation were significantly increased in contrast to those without access to the selected annotation tool (though these results may be due to other exogenous variables or biases such as student motivation).

Lavagnino (1997) argued that personal comprehension and interpretation of text materials are improved with marginal annotation as it has the capacity to clarify, demystify, or adjust a reader's first reaction to the material as they are reading. This may be due to an increased awareness and focus on metacognition. Hartman (2001) argues that metacognition, or "the act of thinking about one's own thinking," is a critically important academic skill that allows students to gain new facility in navigating their learning processes, executive management for reflecting on learning, and strategic academic planning. This is furthered by Porter-O'Donnell (2004) who posits that the power of teaching annotation can not only greatly increase comprehension of course material, but also change student interpretations and understandings of the material by slowing the reading down and promoting active reading.

Fostering dynamic dialogue around the text itself offers a powerful opportunity to deepen the conversations students have, provided the design of annotation

tools is thoughtfully shaped. Seatter (2019) explores how digital text annotation tools can cultivate communities of practice in the virtual space. Seatter evaluates a variety of free, web-based annotation software that could be implemented in the classroom. In doing so, Seatter identifies three primary areas for evaluation: flexibility, usability, and sociality. Using this framing, the need exists not just for flexibility across a variety of contexts but also a centering of the need for "sociality." In other words, in order to be useful, the tool must also allow users to interact publicly. By evaluating social annotation tools via the three criteria outlines, Seatter identifies the most effective approaches to "how they enable social reading through textual commentary." It is clear from this that the ability to foster more authentic dialogue is a key component for the successful implementation of social annotation in the college classroom.

By recognizing the far reaching impact that annotation practices can have on the way in which people navigate contexts, instructors may enrich the design of open pedagogical assignments that use social annotation features.

Connection to Critical Thinking

Several conflicts arise in teasing out the nuances of annotation as an instructional strategy and engagement approach. Some early literature shows that while social annotation may increase reading comprehension and synthesizing, it has a limited impact on improving student critical thinking (Johnson et al. 2010). This may be due to instructional design practices, over-engineering annotation assignments and activities, or rote or tedious engagement design. Further, Mendelman (2007) demonstrated that highly-structured or rote activities may decrease opportunity for critical thinking; instructors using social annotation must take care to avoid over-engineering organic discussions. Social annotation activities must be tightly aligned with effective instructional design in order to avoid student boredom, loss of motivation, or lowered interest (Merriënboer, Jelsma, & Paas 1992). Moreover, Peterson (2013) identified that, as a study technique, annotation may have limitations, particularly where students are not taught how to prioritize or connect relevant information when marking up text material.

As we explore below, re-approaching from social annotation with a critical lens may allow instructors to more intentionally design annotation activities while acknowledging the critical tensions and limitations in the approach.

Social Annotation as an Expression of Power

To situate our exploration of social annotation as a pedagogical practice, we must explore both the historical power and ongoing usage of annotation as a knowledge construction tool. Annotation is an essential tool of traditional academic work and while contemporary technologies offer (and often require) new methods for annotating texts, it is not a new practice – nor is the "sociality" inherent in contemporary collaborative annotation profoundly new either. Annotation, in and of itself, has always been a dialogic process: a "talking back" to texts that offers the

reader a way to engage in, critique, and apply knowledge (Kalir & Garcia 2019).

As we consider the embedded risks in social annotation, the concept of "expressing power" via annotation is of central importance (Kalir & Garcia 2019). Power is navigated through the disruptive potential offered by annotation. To add notes to a text in a public forum is not a neutral exchange of ideas; it imbues power. Whether one is in disagreement or agreement with the text, the assertion of one's perspective upon a text in a public forum either shares power or creates a tension wherein social power is being negotiated between the original author, annotator, and the readers of both of these texts. As such, Kalir and Dean theorize that annotation functions as a disruptive media because it "has the potential to alter conventional author-reader interactions" (Kalir & Dean 2018). In essence, texts are no longer free from a context devoid of public commentary.

As a result, Kalir and Dean envision educators' use of social annotation as a power-disrupting tool for students to reorient the knowledge-production process (Kalir & Dean 2018). In doing so, they argue that the practices of web annotation, while potentially disruptive, are also amplifications of traditional media practices and their inherit value systems. Critical engagement with both the potential and peril of social annotation is vital for application to the college classroom.

Defining Social Annotation as Critical
Identifying Othering & Power in the Context of Social Annotation
The presence and challenge of microaggressions in the online classroom is a relatively new area of exploration in instructional design (Ortega, Andruczyk, & Marquart 2018). In their study, Ortega et al. discuss the ways in which their instructional design team responded to instances of microaggressions in their online social work program (2018). They cite the long term implications and impacts of microaggressions on the success of minority student populations (such as long-term health impacts, academic security in the discipline or fields, turnover in the discipline, and systematic exclusion) as a key reason why explicit addressal of oppression is of vital concern (2018). They contend that it is possible to "enact violence through these technologies" that are operationalized in the online learning space (33). To counter technology-mediated violence, the researchers used a collaborative approach leveraging teaching assistants, instructional designers, and faculty to intervene during unproductive and harmful dialogues, built new responsive assignments for student reflection, and facilitated dialogue in the aftermath of harmful conversations. Through these approaches, the authors highlight the need for more intensive and intentional dialogue within the field of online learning so that educators can build a robust response to the unique challenges posed by these dialogues in the online space.

While Ortega et al. did not focus on social annotation as a teaching method – their focus was primarily on group chats, video calls, and discussion forums – their work bears relevance for social annotation. They identified

common microaggressions that could be furthered or amplified in the space of marginal dialogue between students: from incidences of "colorblindness" or stereotypical assumptions. None of these potential issues are exclusive to the mode in which they are delivered and as such, are of vital concern for all educators committed to anti-oppressive pedagogies. Potential interventions include creating new self-reflective assignments, offering opportunities to debrief based on affinity groups, and foregrounding key terminology of social justice to help students name and identify their own identity formation and social development.

In addition to microaggressions, othering, a social process wherein consistent exclusivity is reinforced culturally, has been identified in online learning, as well (Phirangee & Malec 2017; Hughes 2007). Othering has been found to damage marginalized student populations' professional and academic identities and isolate them from the social presence vital for effective online learning. Interactions between students and faculty can contribute to the ongoing process of othering. As social annotation works to increase overall student engagement, it is likely that increased conversation – particularly the types of conversation that coalesce around controversial or challenging topics in a text – may lead to more incidents of microaggressions and, as a result, othering. As such, we think it is of vital concern that faculty work to understand the ways in which the incorporation of a new technology and learning experience may further these potential harms.

These concerns suggest that power is embedded in interactions in the online learning space. Invariably, conversations that reinforce or subvert student power dynamics will arise in the learning space, and it follows that such dynamics could transfer to the student discourse housed in social annotation assignments and the group commentary of course materials. As a result, we propose a framework for critical social annotation that can enable faculty to implement this technology in ways that disrupt, rather than reinforce, problematic power differentials encoded in online dialogues. This framework centers equity along lines of difference as the critical component of effective social annotation.

A Framework for Critical Social Annotation
Acknowledging student power dynamics and the risks involved with social annotation, we propose critical social annotation as a framework for leveraging the potential of social annotation for greater classroom equity, where the term critical necessitates the practice of centering the contributions of historically marginalized populations. In the context of social annotation, this includes cultivating dynamic discussions across difference and supporting meaningful knowledge co-creation through the annotation process. As a teaching method, critical social annotation allows for equitable conversations to unfold in-line with the knowledge being presented in course texts. In this way, it can potentially subvert or even redress instances of inequity in course content.

Critical social annotation is a teaching method that is responsive to the pertinent pedagogical concepts of the

learning space, participant power, and knowledge creation. While this framing is helpful for noting many of the subtextual elements that students encounter when completing assignments for courses, it does not encapsulate all factors. We hope this framework offers a flexible starting point for addressing the many tensions inherent in instructional design, and we recognize that social justice pedagogy is always responsive to context and relationships. Below, we briefly define what each pedagogical conceptualization means and how it surfaces concerns unique to social annotation.

Learning Space

Critical social annotation can create meaningful pathways toward inclusion and equity by deconstructing norms around access and privilege in the learning space. Online, the space of learning is mediated through the technologies that faculty (and, more frequently, course and program administrators) choose to implement in their courses. Social annotation takes us out of the conventional learning space of the typical learning management system discussion forum. Instead, students engage in dynamic discussion with their faculty and peers right on the text they are discussing. Not only is the content quite literally more present and apparent as students interact with it, their contributions are anchored to specific points in the text. Further, the student-to-student and student-to-text dynamics more accurately mirror threaded discussions in other online contexts outside of the learning space wherein conversation can be more fluid, organic, and oftentimes, incendiary.

This learning model transforms the learning space in ways of which faculty should be mindful. Annotating publicly presents potential for harm for students with non-dominant identities. When we suggest educators reflect upon the learning space, we are recommending attention is paid to the costs of public scholarship for students of historically marginalized backgrounds.

Annotation enables response. It allows for student conversation to coalesce around difficult concepts, complex textual moments, or ideologically entrenched issues. As a result, there is a profound opportunity for students to control the location of the site of learning. Through annotation, a layer of contention is added to the learning space. Dissenting perspectives may have a tangible space to exist in the original context wherein the idea being troubled resides. However, in order to achieve this, critical social annotation relies on the ongoing acknowledgment of the way in which power is mediated through online communication.

Participant Power

In many ways, social annotation is the assertion and expression of power. It affords power to students with overrepresented identities and situates overrepresented perspectives as central points of discussion and knowledge. This power should be explored alongside students to address the complex histories and epistemologies that generate knowledge.

Social annotation also affords power to the text being annotated. For example, what is deemed worthy of reading in a college syllabus is the result of impactful decision-making. When students are asked to annotate a text, instructors and administrators afford the text, the author, and their ideas space and centrality in students' learning experience. For example, discussions or materials that overrepresent whiteness can create an environment where students of color may experience harm, lack of safety, erasure, or tokenization.

By being cognizant of the ways in which social identities shape the learning environment, instructors are better equipped to disrupt power asymmetries among students, particularly for underrepresented students in the classroom. Further, critical social annotation provides students with the opportunity to be empowered to comment on this knowledge and worldview.

Knowledge Creation

Critical social annotation seeks to achieve education equity by centering marginalized identities and recognizing the ways in which social power is a part of the knowledge-creation process. In the classroom, assignments and activities that seek to produce new content, new perspectives, or new ideas cannot be created or understood equitably without accounting for lines of student differences. In fact, attempting to produce knowledge without explicitly centering inclusivity and diverse ways of knowing may lead to erasure, epistemicide, and institutional exclusion (Hall & Tandon 2017). Embedded in larger pedagogical practices, critical social annotation must be accompanied with thoughtful instructional design and scaffolded learning and reflection on identity-based difference.

The transformative power of social annotation in the online classroom lies in the extent to which annotation offers viable opportunities for collaborative, co-construction of knowledge. Critical social annotation undermines norms around knowledge authority and unilateral knowledge transfer. In other words, in contrast to many commercial materials that provide a one-way transfer of information, critical social annotation allows students to react, respond, and add to the transfer of knowledge for themselves and for peer students. It invites participants to explore their own understandings and knowledges while also deconstructing the ways in which privilege and power may influence their perspectives. In this way, it is disruptive of the gatekeeping practices traditionally used in higher education to create hierarchical systems of knowledge.

To make full use of this potential, critical social annotation is designed for collaborative learning towards unknown or not overly prescribed outcomes and meanings. In turn, this allows for students to direct the discussions more authentically to areas of meaningful interest.

Implications for Practice
Critical Social Annotation for Greater Classroom Equity
With the central concerns around equity thus far outlined and the alternatives offered by applying a critical lens, we now turn to the implications for teaching practice and

explore the unique benefits that critical social annotation can offer to make online classrooms more equitable. To do so, we have framed our discussion around the potential areas of concern: learning space, participant power, and knowledge creation. While these areas can be prone to problematic behavior, they also offer unique opportunities to subvert the historically marginalizing practices of higher education. Implications for practice are explored and outlined, but we note that these categories and strategies are by no means exhaustive.

Learning Space: Intentional Design and Care

Intentional design in the crafting of the learning space is a key factor for successful implementation of any new technologies in teaching and learning. Social annotation mitigates the confines of the traditional LMS discussion board in ways that may improve engagement and help students make meaning from textual evidence. In doing so, however, instructional designers and faculty must attend to the way in which social annotation is still the space of the classroom. For many students, it may resemble threaded discussion forums from other online contexts like social media. As such, it may invite a different type of discourse than what is normally exhibited in an LMS discussion board. It is imperative to keep in mind that the learning space may become equally implicated as hostile. As students are onboarded to social annotation technologies, we recommend careful foregrounding that the space is still the classroom and their commentary still an academic endeavor. Below, we have identified some implications for practice that may be helpful when leveraging critical social annotation for greater classroom equity:

- Participate in cultural competency trainings, inclusive teaching workshops, and other modes of personal and professional development related to power, privilege, and oppression as it operates in the university and broadly in society;
- Seek the guidance of institutional resources such as diversity and equity offices, centers for teaching and learning, institutional disability offices, and other as available;
- Ensure social annotation tools are accessible for all learners;
- Do not assume all students have equal access to internet broadband (particularly in contexts of distance or online education) and design assignments accordingly;
- Help students understand the ways in which the social annotation space functions in relation to the classroom setting and academic context;
- If using social annotation systems that rely on anonymity, do not assume that the online learning space offers equal anonymity to all students or that all students would like to operate under a fundamental erasure of social difference;
- Enable and encourage multimodality and intertextuality to help students create meaning in different ways and leverage the advantages of social annotation technologies;

- Allow for layers of contention by encouraging student annotation to coalesce around sections of a text with nuance, controversy, or differing perspectives;
- Reinforce support for students who may be struggling in invisible ways with the course dialogue by offering students opportunities to contact faculty or other instructional supports directly.

Participant Power: Community Building and Faculty Interventions

As identified earlier, social annotation involves the navigation of power. As such, participant power is of vital concern when designing and facilitating a course using critical social annotation. The opportunities for student empowerment are promising here; students can make known the ways in which a text's viewpoint may be limited and share their perspectives with their peers in near real time. They can link to other alternatives, highlight terminology that needs to be unpacked, and offer new interpretations of the text in ways that will fundamentally impact how their peers read and engage with the text.

Such opportunities deeply subvert the traditional hierarchical structure of knowledge at the university (as we discuss in the following section), and in doing so, they offer unique opportunities for student empowerment. That being said, not all students have access to the same amount of power in classroom discussions due to social differences including ability, class, gender, nationality, race, sexual orientation, and other identities. Social annotation occurs in the context of evolving relationships between students and faculty. Those relationships are not inherently balanced and power may differ between participants which impacts the contributions they are able to make. Faculty may want to provide support for students to help mitigate power imbalances based on differing social identities. To do so, they may consider the following techniques which are based primarily in thoughtful community development and faculty intervention:

- Surface the decision-making behind which texts are read and annotated in a given course and the histories implicated in those decisions. Recognize that annotation may further entrench texts into the academic canon;
- Empower students to exercise agency by adding texts to the conversation, further enabling the centering of marginalized perspectives that might not have been afforded space and time on the syllabus;
- Monitor social annotation assignments closely. The time from incident to response is key for preventing further harm to online students who may be implicated in a given comment;
- Assuming that contentious dialogue will occur, recognize that all students may not feel safe challenging bias or discrimination within the space of social annotation. Offer consistent opportunities throughout the semester for students to address what is happening in the social annotation space with faculty via self-reflection or other means;
- Validate student contributions that bring to the surface historically underrepresented viewpoints with-

out tokenization. Demonstrate the authentic, meaningful value these contributions have to the body of knowledge in a given field;

· Plan for when microaggressions occur, not if. Determine a communication plan between faculty and students affected. Do not assume that students will feel safe coming forward with challenging experiences and do not count on them to be the only method for bringing issues to faculty attention.

Knowledge Creation: Modeling Criticality and Open-Ended Learning

Of central importance to an equitable learning experience is a reimagining of academic disciplines which have otherwise historically contributed to marginalization and oppression. By fostering new methods for knowledge creation, of which critical social annotation is one method, faculty can offer up new possibilities for co-creating meaning not previously accessible. To do so, we contend that there are two major instructional design components that must be attended to: modeling of criticality and allowing for open-ended learning.

While this may seem to be a bit counter to the heavily engineered learning outcomes and alignments that online learning seeks to create, authentic dialogues with students often lead to a variety of unpredictable but impactful places. While we can design intentionally for the success of all students, critical social annotation offers unique pedagogical benefits that can only be fully brought to fruition through open-endedness. Faculty committed to a critical social annotation practice will need to allow for knowledge to be collaboratively co-constructed in ways they may not anticipate. This unknown is central to amplifying a key benefit of critical social annotation. To mitigate risks while offering openness, we contend that the following practices can cultivate a support structure that promotes transformative knowledge creation in online learning:

· Engage with content critically. Model questioning of the content included in a social annotation activity, particularly of potential absences of perspectives or oversights by authors;
· Foreground conversations as open-ended and collaborative searches for greater understanding. Reiterate the spirit of this in annotation when relevant – particularly as students identify or pick up on unexpected ideas;
· Encourage collaboration to co-construct meaning to assist students not only in building community but in troubling individualistic ideas of scholarship that unnecessarily limit the ways in which knowledge is created and shared culturally;
· Publicly recognize and affirm diverse contributions to the learning space and any openly-licensed social annotations.

Areas for Further Exploration

When designing critical social annotation learning experiences, care must be taken to acknowledge the way in which power is enacted in the knowledge creation process. How students navigate this dynamic space for learning is of vital concern, including issues pertaining to learning space (peer critique, public scholarship, and surveillance), participant power (censorship, implicit bias, and student labor), and knowledge creation (assimilation, appropriation, and erasure). These tensions must be brought to the surface and explored alongside students as they learn about and interrogate the histories of marginalization that are pervasive across higher education.

As instructors and instructional designers begin to explore social annotation as an open pedagogical method for student engagement and knowledge creation, there are still many questions to be answered. The potential benefits and implications for practice outlined here are just the beginning of the ongoing critical digital pedagogy needed to thoughtfully and responsibly incorporate social annotation into online teaching practices. Further areas for exploration include: discipline-specific applications and the variety of methods pertinent to diverging content areas; overall changes to student engagement when compared to courses using more traditional discussion forums; faculty presence in social annotation particularly as it pertains to prompting discussion and modeling critical thinking; and the development of community agreements and faculty intervention strategies that best serve the needs of historically marginalized student populations.

From anchored close reading to dynamic situated online discussions, social annotation offers an opportunity for deeper learning from the texts we assign our students. The potential of social annotation tools to change digital reading practices and online discussions, while vital, is also an area of concerning complexity. As educators approach this space, criticality is central to a practice that leverages these tools for greater classroom equity.

Competing Interests

The authors have no competing interests to declare.

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