A Systematic Review of Research on Moderators in Asynchronous Online Discussions

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Abstract
This systematic review examined research on moderators in asynchronous online discussions (AODs) through a review of 52 sources published over the past four decades. Areas of interest included conceptual frameworks cited in research, publication trends, instructional contexts, research methods and characteristics, and descriptions of the role of the moderator with implications for practice. Results indicate: (1) nearly half of the publications did not cite a conceptual framework focused on moderation; (2) the field is diverse with a wide variety of themes for research designs, outcomes, foci, and questions; (3) half of reviewed publications involved case studies or similarly limited study designs; (4) the majority of publications collected data on students in higher education, but there was a lack of consistency in the reporting of demographic information; (5) research foci tended toward investigating peer moderators or the role of the instructor; (6) research questions tended to focus on strategies of moderators or student performance and discussion quality; (7) most definitions or expectations of a moderator included discussion and social management duties. We conclude by discussing the implications of some of the findings and future research options.

Keywords: moderator, facilitator, asynchronous online discussion, distance education, peer moderator

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It has been over 40 years since the term "moderator" was first used to describe a leadership role in computer-based discussions in educational contexts (Hiltz & Turoff, 1978). Over multiple decades of research involving computer based, computer-mediated, or asynchronous online discussions (AODs), the term "moderator" and the roles it describes have been defined inconsistently, with four conceptual frameworks offering differing positions on the responsibilities and functions of a moderator. Our analysis of literature revealed several key characteristics and factors related to discussion moderation, including the identity, duties and roles, and training or background skills of a moderator.

While there has been literature produced on moderation in online and computer-mediated discussions, there has not been a systematic review of this research. With the dynamic growth of online courses, moderators can play a major role in engaging and supporting learners in asynchronous discussions. In addition, the conceptual frameworks about moderation are dated and may not be sufficient to guide practitioner implementations in the future. This systematic review addresses this gap and highlights important areas where the lack of research evidence limits the ability to make informed decisions for both researchers and practitioners (Robinson et al., 2013) and can be a potent resource for researchers and practitioners, connecting conceptual frameworks with practices for the selection of moderator duties, appropriate training, and necessary support.

Three objectives drove this systematic review. First, we analyzed which conceptual frameworks about moderation have guided researchers and practitioners. Second, we analyzed empirical findings to understand the current state of research, particularly the role of moderators, their duties, and their training and support. Finally, we identified implications for practice and the most important gaps in the field to help guide the direction of future studies. The research questions are:

1. What conceptual frameworks have been adopted in investigations of moderators in AODs?
2. What are the publication trends, instructional context, research design, research outcomes, and research focus of the studies reviewed?
3. How has the role of moderator been described, how has it evolved, and what are implications for practice in AODs?

Literature Review

We provide a description of technological change in the four decades of this systematic review and review two key concepts, the identity of a moderator and the roles a moderator may play in an AOD. We present four conceptual frameworks for moderation, synthesized into a taxonomy of moderator roles. Our methods section describes the systematic process used to review articles for inclusion in our study. In the results and discussion section, we analyze data collected relevant to the three research questions.

Rapid Pace of Technological Change

The four decades covered by this systematic review coexist with massive changes in the technology commonly available to instructors and students. The early period (1978 through the early 1990s) was characterized primarily by institution-only or slow dial-up access using text-based or graphical interfaces. The 1990s saw market dominance of graphical interfaces, the introduction of web browser software, and the creation of the modern internet in 1995. Through the 2000s, persistent and higher-speed access in the form of cable modems and digital subscriber

lines overtook dial-up access, with wireless communications becoming persistent and expected in public spaces such as universities by the 2010s. Similarly, moderated AODs became supported by built-in functions of learning management systems (LMSs) that began in the late 1990s and became industry-dominant in the 21st century. Computer screen sizes evolved from low-resolution 5-inch cathode ray tubes (CRTs) in the 1980s, to 13–19-inch CRT monitors or liquid crystal display (LCD) panels by the 1990s–2000s transition, to widescreen monitor formats in mainstream use by 2010, and eventually to the coexistence of large, high-resolution monitors and smaller-screened devices such as cell phones and tablets by the later 2010s.

Identity of a Moderator

The identity of a moderator can vary considerably. For example, a moderator might be the actual course instructor (Galikyan & Admiraal, 2019; Leinster et al., 2021; Ouyang & Scharber, 2017) or an assistive individual such as a graduate teaching assistant, tutor, or facilitator (Douglas et al., 2020; Kim et al., 2020). In situations where instructors implement peer moderation strategies, moderators may be students (Chen et al., 2019; Kim et al., 2020; Sansone et al., 2018). These identities represent differing levels of social status, power status, expert knowledge, and implied experience as applied to the moderator role. The identity of the moderator may carry important implications for research, since this identity may affect the effectiveness of student moderators, the separation of moderator duties among discussion members, and the training and resources needed for effective moderation.

Roles of a Moderator

Moderators have varying roles in AODs, ranging from social hosting duties (Berge, 1995; Foo, 2021) to leadership and organizational responsibility (Feenberg, 1989; Sajdak-Burska & Koscielniak, 2019; Xie et al., 2018). A moderator may act as a facilitator, assisting the group by coordinating rather than dominating the discussion (Evans et al., 2017; Salmon, 2003). Moderators may fill multiple roles and functions requiring a wide skillset (Vasodavan et al., 2020), and some duties could be split amongst participants, including students (De Wever et al., 2010b; Yilmaz & Karaoglan Yilmaz, 2019; Zhong & Norton, 2018). Scholars differ on the need for and methods of moderator training, but key themes relate to the importance of designing effective online discussion activities (Baran & Correia, 2009), providing robust preparation for individuals who will serve in moderator roles (Tolley, 2003), and clarifying the requirements of the role for prospective moderators (Vlachopoulos & Cowan, 2010b). Training varies from the simple provision of reading materials (Ghadirian, Salehi, et al., 2018) to much more involved formats such as workshops (De Wever et al., 2010b).

Conceptual Frameworks for Moderation

A conceptual framework is a set of systematic conceptual structures used to organize data for purposes of effective inquiry and practice (Dewey, 1938). Frameworks are important in communicating an argument for a study's importance, rigor, and implications for both research and practice (Antonenko, 2015). In our scoping process for this systematic review (Authors, 2022), we found four conceptual frameworks for moderation in AODs: Feenberg's (1989) moderating functions, Berge's (1995) necessary conditions, Salmon's (2003) five-stage model, and Vlachopoulos and Cowan's (2010b) ring-fence. We examined the descriptions of a moderator in each framework and synthesized a taxonomy separated into managerial, monitoring, pedagogical, technical, and social roles. The managerial role involves managing the

AOD, with duties such as opening topics or controlling the agenda. The monitoring role involves duties closer to the discussion, such as recognizing participation or prompting contributions. The pedagogical role covers direct support of learners' understanding and pursuit of ideas, with duties such as meta-commenting and summarization. The technical role involves support for participants' technical knowledge and comfort in participating within the AOD system. The social role involves managing social interactions, supporting participants' social relationships, and maintaining cohesiveness in the discussion group. Figure 1 provides a visual representation of this taxonomy.

Figure 1

Taxonomy of Moderator Roles

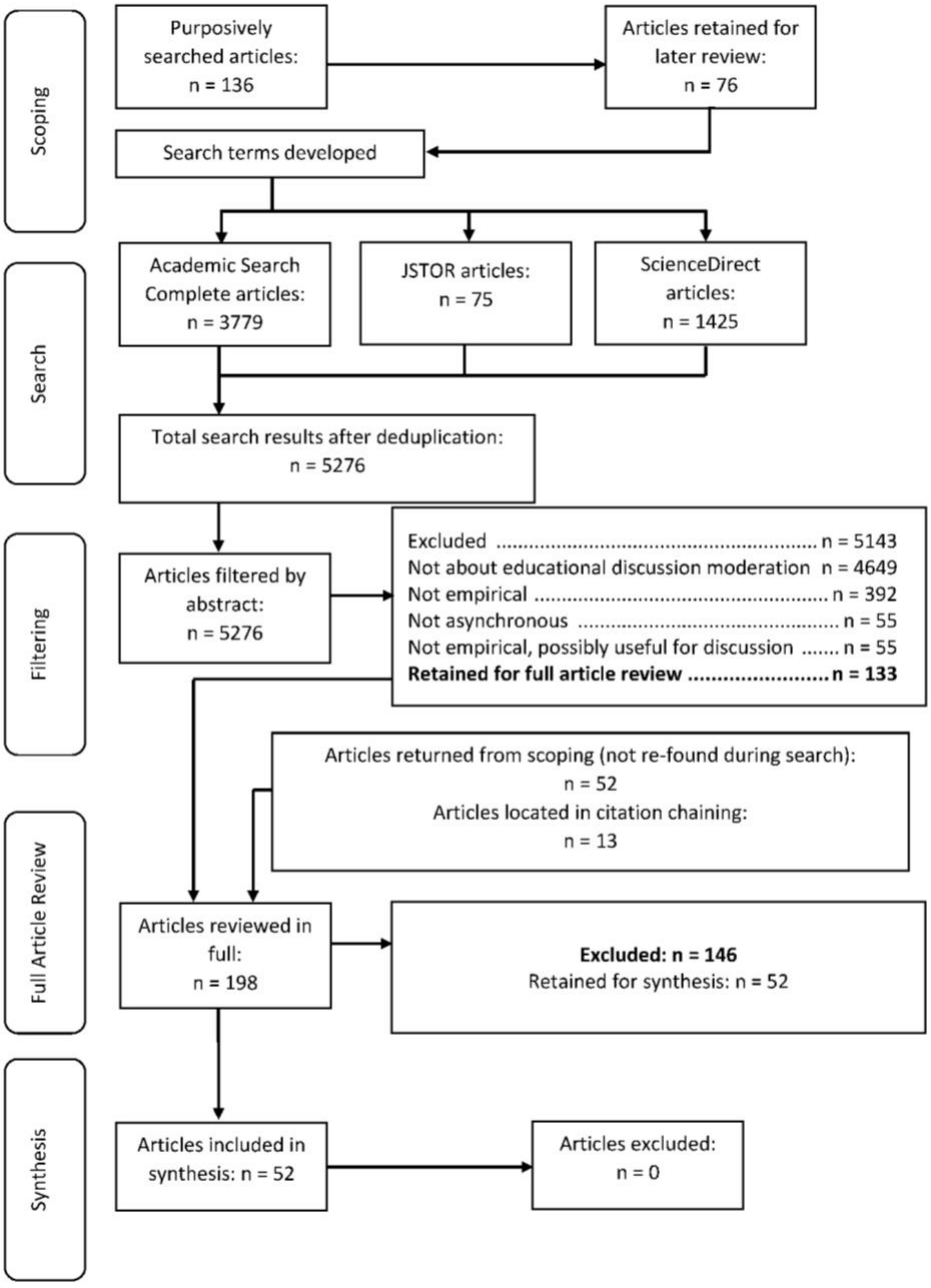
	Managerial Role Creates the agenda, sets norms for behavior and participation, shows leadership	**Monitoring Role** Recognizes contributions, reassures commenters, prompts continued participation	**Pedagogical Role** Focuses discussion, weaves threads, summarizes, supports learning, combats information overload	**Technical Role** Addresses technical problems and concerns, supports users' comfort with the system	**Social Role** Promotes social relationships, encourages group cohesiveness and networking
Feenberg's Moderating Functions (1989)	Contextualizing	Monitoring	Meta-communicating Weaving		
Berge's Necessary Conditions (1995)	Managerial		Pedagogical	Technical	Social
Salmon's Five-Stage Model (2003)	Stage 3		Stage 4 Stage 5	Stages 1-5	Stage 1 Stage 2
Vlachopoulos and Cowan's Ring-Fence (2010)			Inside the ring-fence		

Methods

The methodology for this systematic review followed the steps of analyzing systematic review data suggested by multiple authors (Boland et al., 2017; Gough et al., 2017; Petticrew & Roberts, 2006). In this section, we discuss the five stages involved in the review process: scoping, search, filtering, full article review, and synthesis. Like Moore and Miller (2022), we hope that providing details of our process will establish trustworthiness (Page et al., 2021) and enable others to replicate our study. Figure 2 provides a visual representation of our systematic review process, which determined 52 sources to include for data extraction and synthesis.

Figure 2

Systematic Review Process



Scoping

We chose to begin with scoping for three reasons. First, scoping is a best practice in the preparation of systematic reviews (Petticrew & Roberts, 2006). Second, we had concerns regarding possible complications with the term "moderator" as both a term for persons with leadership roles in discussions and as a term used in statistical analysis. The scoping process allowed us to determine appropriate alternative primary search and secondary search terms to limit the impact of alternative uses of "moderator" in this review. Finally, we were mindful of the pace of change and the tendency for terms to shift over time in the educational field (Bonk et al., 2004). Our scoping process involved multiple probing searches and refinement passes to refine the parameters for the systematic review. We used this iterative scoping process to determine inclusion/exclusion criteria, search terms, time period, and search engine requirements, based on recommendations from Boland et al. (2017).

Inclusion/Exclusion Criteria

Table 1 provides the inclusion/exclusion criteria applied to all papers examined at the full article review stage.

Table 1

Inclusion/Exclusion Criteria

Criterion	Inclusion	Exclusion
Time Period	1978 through 2018	Studies published outside this range
Publication Type	Peer-reviewed journal or book	Publications of other types (including grey literature)
Language	English	Non-English and not translated to English in full.
Search Acquisition	Meets search terms via abstract-only searching in determined search engines, retained from scoping review, or located via citation chaining	
Moderator Duties	Participants in the research must have performed moderator duties.*	Moderator duties were not clearly defined or were limited to a single activity by each participant without further interaction.**
Moderator Role	At least one moderating role must be discussed in the paper.	The term "moderator" was exclusively used as a statistical term.
Evidence	Most empirical evidence must be specifically related to moderation or moderator duties and roles.	Paper lacked empirical evidence related to moderators or moderator duties.
Research Environment	Discussions must have taken place in an asynchronous online environment.	
Moderated Discussion Duration	Moderated AOD activity must have occurred for at least 45% of the class or event duration.***	

* Moderator duties could be split among multiple participants.

** An example would be moderators only posting an opening post or conversation starter, without further moderator duties.

*** We felt that studies where moderation was used in a large portion of instructional time would provide robust insights and evidence into the phenomena involved. Moderation time could be split among multiple participants, such as a rotation in which each student performed moderator duties for one week.

Search

We set the systematic review search to the following parameters. The search period was set from 1978 to 2018 to allow for a four-decade span from the first use of the term "moderator" regarding AODs. Search engines were chosen (Academic Search Complete, JSTOR, ScienceDirect) for their ability to handle the number of search terms, with abstract-only searching, and a minimal number of split passes to be deduplicated. Table 2 provides the primary and pairing search terms used for this review.

Table 2

Search Terms Used in this Systematic Review

Primary search terms	Secondary search terms
Moderator (moderating, moderation, moderated)	Online Discussion
Facilitator (facilitating, facilitated)	Online Education
Tutor	Online Learning
Teacher	Distance Education
Instructor	E-Learning
	E-Learning Courses
	Asynchronous
	Asynchronous Discussion

Filtering and Full Article Review

The review process was conducted in tandem between two reviewers. Author 1 filtered initial results of the search by abstract, confirming the filtering and discussing any articles flagged for further analysis with Author 2. Articles retained through abstract filtering were then evaluated as full articles against the inclusion/exclusion criteria independently by both authors, with disagreements between authors resolved via discussion. We applied a second phase of citation chaining to all articles selected for inclusion, to locate potential articles not found through the search engines; articles located through citation chaining were evaluated through abstract filtering and then the same full-article review process. An important part of the inclusion criteria was that the articles had to include empirical research results, not solely anecdotal analysis, or recommendations. Although the search period had been set for 1978–2018, the earliest article to meet criteria for inclusion was from 1989; other articles prior to this point were excluded for reasons such as not containing empirical research, not involving asynchronous communications, or not being related to discussion moderation. After the full article review phase, a total of 52 sources met criteria for inclusion in data extraction and synthesis.

Data Extraction and Synthesis

Appendix B provides a table listing each of the 52 articles included for synthesis in this review. Author 1 evaluated each article against a previously defined Qualtrics data entry form that included fields for bibliographic data and descriptive characteristics required for coding and synthesis, with confirmation provided in oversight by Author 2.

Data for synthesis were exported to a Microsoft Excel document and then separated into discrete documents by Author 1 for coding and analysis, with continual revision and discussion between Author 1 and Author 2. Both authors coded each article and discussed disagreements to reach consensus. In the following sections, we review and discuss the findings from data extraction and discussion based on these findings.

Results and Discussion

Research Question 1: What Conceptual Frameworks Have Been Adopted in Investigations of Moderators in AODs?

Nearly half of the papers reviewed (n = 25, 48.1%) did not cite a conceptual framework that focused on moderation. For those that did, we observed variation in the citation patterns. Table 3 provides a count of the individual framework citations, along with counts for observed combinations. The initial four frameworks listed were located during the scoping process and were presented in the literature review. Six papers used the Community of Inquiry (CoI) framework (Garrison et al., 2000) as a basis for their research involving moderated AODs; CoI is broader in scope than the initial four frameworks. CoI covers the design and management of classes using computer-mediated communications both synchronous and asynchronous, centered around ideas of cognitive presence, social presence, and teaching presence. For example, Evans et al. (2017) used CoI to analyze facilitator contributions in interprofessional education AODs to search for indications of teaching presence.

Three papers in our review cited research that did not meet our definition of a framework specifically for moderation: Kaye (1987), Mason (1991), and Chan et al. (2009). Mason (1989) used a set of assumptions from Kaye (1987) as a basis of analysis and subsequent discussion. Two papers cited Mason's (1991) guidelines for moderators (Murphy et al., 1996; Vlachopoulos & Mcaleese, 2004); this was unsurprising as these guidelines were later adapted into a full framework by Berge (1995). Chan et al. (2009) produced a typology of discussion thread patterns, used by Ghadirian et al. (2016) to analyze the effect of specific supports scripted for peer moderators in AODs.

Nandi et al. (2012) proposed the most similar example of a framework for moderation of AODs to our taxonomy, citing Baran et al.'s (2011) analysis of roles for an online teacher. They did not present their framework as developed specifically for moderators, but rather as "a new framework to provide implementation guidelines for online instructors" (Nandi et al., 2012, p. 26). The five categories of the proposed framework have some similarities to the taxonomy of moderator roles presented in our literature review, with managerial and instructional design, pedagogical, facilitator, technical, and social roles. This may be due to their following Baran et al.'s (2011) use of terminology from Berge (1995), and then filling in the gap between managerial and pedagogical roles by adding their concept of the facilitator role.

The two frameworks most commonly cited together (n = 7, 13.5%) were those of Berge (1995) and Salmon (2003). A subset of papers citing these two (n = 3, 5.8%) also cited the CoI framework. One paper (Vlachopoulos & Mcaleese, 2004) cited Mason (1991) as well. The majority of these papers (n = 5) were works by first author Vlachopoulos. We did not observe any patterns of framework adoption by year. The latest citation found for Feenberg's (1989) framework was 2014, and the latest citations for Berge (1995) and Salmon (2003) were 2018.

Table 3

Frameworks by Citation Count and Combinations of Citations

Framework	Count	Combination	Count
Feenberg (1989)	5	Feenberg + Berge	1
Berge (1995)	11	Feenberg + Other	1
Salmon (2003)	13	Berge + Salmon	7
Vlachopoulos & Cowan (2010b)	1	Berge + Vlachopoulos & Cowan	1
		Berge + Other	4
Other		Salmon + Vlachopoulos & Cowan	1
Community of Inquiry (Garrison et al., 2000)	6	Salmon + Other	3
		Feenberg + Berge + Other	1
Mason (1991)	2	Berge + Salmon + Other	3
Chan et al. (2009)	1	Berge + Salmon + Vlachopoulos	1
Kaye (1987)	1		
Baran et al. (2011)	1		

Research Question 2: What Are the Publication Trends, Instructional Context, Research Design, Research Outcomes, and Research Foci of the Studies Reviewed?

Publication Trends

We found 82 authors for the 52 papers included in this review representing 58 institutions, with 34 unique first authors representing 37 institutions. Since authors were not static in residency or position over time, we observed 130 different author roles. The majority were faculty (n = 100, 76.9%); the rest were students (n = 15, 11.5%), academic staff (n = 8, 6.2%), or fell into other categories such as staff of outside companies or institutions (n = 7, 5.4%).

Table 4

Most Prolific Authors and First Authors

Authors		First Authors	
Name	**Paper Count**	**Name**	**Paper Count**
Martin Valcke	11	Bram De Wever	5
Hilde Van Keer	11	Panos Vlachopoulos	5
Bram De Wever	8	Marijke De Smet	4
Tammy Schellens	7	Kui Xie	4
Panos Vlachopoulos	5	Hajar Ghadirian	3

A prolific group of authors (n = 5) from Ghent University in Belgium accounted for a plurality (n = 11, 21.2%) of papers included in this review. The published research we located spanned from 2005 through 2010 and tended to focus on topics involving the use of peer moderators or cross-age peers (such as graduate or higher-level students) serving as moderators (De Smet et al., 2010a; De Wever et al., 2010b; Schellens et al., 2007). Vlachopoulos was unique in representing multiple countries (n = 4), institutions (n = 5), and roles (n = 5) in publications from 2004 through 2014.

Table 5

Institutional Author Credit Counts, by All Authors and First Author Only

All Authors		**First Author Only**	
Institution	**Paper Count**	**Institution**	**Paper Count**
Ghent University	41	Ghent University	11
Ohio State University	8	National Institute of Education, Nanyang Technical University	3
University Putra	7	Ohio State University	3
Texas A&M	6	University of Tehran	3
National Institute of Education, Nanyang Technical University	5	(All others)	1 each

Table 6

Paper Counts Per Country and Year (by First Author)

Country	Year																														Total
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
USA								1				1				1		1	1		2		1			1	1		2	1	13
Belgium																	1		2	2	2	4									11
United Kingdom	1					1	1							1		1			1	1											7
Iran																													1	2	3
Singapore															1								2								3
Canada														1		1								1							3
Australia																								1		1			1		3
China																						1							1		2
New Zealand																						1									1
Germany																			1												1
Taiwan																								1							1
Italy																														1	1
India																						1									1
Spain																						1									1
Malaysia																												1			1
Total Per Year	1	0	0	0	0	1	1	1	0	0	0	1	0	2	1	3	1	1	5	3	4	8	3	3	0	2	1	1	5	4	52

Note. The search period for the protocol covered the years 1978–2018. The years before the first paper meeting inclusion criteria (1989) have been truncated for readability. The majority of publications (n = 47, 90.4%) came from 31 peer-reviewed journals; the remainder were book chapters (n = 5, 9.6%). Table 7 displays the breakdown of journals involved.

Publications included in this review spanned the globe, with authors representing 16 countries. The number of publications varied by year and country; Table 6 presents the publication information in graphical form, as publications by first author per country each year (years with no represented publications are omitted). The earliest paper included in this review was from a first author in the United Kingdom (Mason, 1989). Research from first authors in the United Kingdom (*n* = 7,13.5%) spanned the timeframe from 1989 through 2008; the most prolific country, the United States (*n* = 13, 25%), had research spanning 1996 through 2018. Neither of these countries' publication records seem to represent a pattern of focused research by a coordinated team similar to what we observed from Ghent University (*n* = 11, 21.2%).

Table 7

Journals Represented by Included Papers

Journal Name	Paper Count
Computers & Education	4
Distance Education	4
The Internet and Higher Education	3
American Journal of Distance Education	2
British Journal of Educational Technology	2
Innovations in Education & Teaching International	2
Instructional Science	2
International Journal of E-Learning & Distance Education	2
Journal of Research on Technology in Education	2
Learning and Instruction	2
Small Group Research	2
Journals with only 1 published article represented	20

Instructional Context

Almost all of the studies included performed research in a higher education environment, with some papers including overlaps between categories. The most prevalent was a higher education undergraduate setting (*n* = 33, 63.5%), and the second most prevalent was the graduate level (*n* = 25, 48.1%). A few studies included examinations of other settings (*n* = 7, 13.5%) such as informal learning communities for test preparation (n = 1), professional development (n = 2), or working groups (n = 2), or were not clear about the setting (n = 2).

Subject areas for the included studies broke down similarly. The majority were in education (*n* = 34, 65.4%). Other studies worked across a mixture of disciplines (*n* = 4, 7.7%), in information technology (*n* = 4, 7.7%), in psychology (*n* = 3, 5.8%), in the medical field (*n* = 2, 3.8%), in social work (*n* = 1, 1.9%), English as a foreign language (*n* = 1, 1.9%), or did not indicate their subject areas clearly (*n* = 3, 5.8%).

Subjects of data collection carried only minor variations. The vast majority of papers collected data on students (*n* = 44, 84.6%), with the second most common group being instructors (*n* = 19, 36.5%). Graduate students or higher-year students operating as tutors or facilitators were third (*n* = 6, 11.5%) followed by other educational support staff (*n* = 2, 3.8%). Four papers collected data on individuals outside of these groups, looking at adult learning council coordinators (*n* = 1, 1.9%), moderators of a community of practice (*n* = 1, 1.9%), interprofessional education facilitators (*n* = 1, 1.9%), and members of a test preparation forum (*n*

= 1, 1.9%). We observed slightly more variety in the combinations between the indicated groups, presented below in Table 8.

Table 8

Combinations of Subject Groups for Data Collection

Subject Groups	Number of Papers
Students	22
Students and Instructors	16
Students and Graduate Assistants	4
Instructors	2
Graduate Assistants	2
Students and Other Staff	1
Students, Instructors, and Other Staff	1

The authors of papers included in this review did not consistently provide demographic information regarding the subjects of the research. Less than half of the papers (*n* = 22, 42.3%) provided gender breakdowns in a male-female format; the rest either did not report genders (*n* = 18, 34.6%), defined numbers for only one gender (*n = 4*, 7.6%), or did not provide usable participant counts (*n* = 8, 15.4%). We observed a similar pattern for age categories; the majority of papers (*n* = 33, 63.5%) did not provide age data, and the rest provided data in a variety of formats that were beyond synthesizable use. Some only provided age ranges or average ages; some added in other information, such as median ages or a split of categories; and some provided vague or broad age ranges, such as "were of the baby boom generation, with two thirds between the ages of 40 and 60" (Gray, 2004, p. 22) or "[f]orty-eight percent indicated that they were younger than 40 years old" (Russell et al., 2009, p. 454). We found a similar lack reporting regarding ethnicity, as nearly 79% (*n* = 41) of papers included no demographic ethnicity data.

We observed some variation in the course environments being studied. The most common were fully online courses (*n* = 23, 44.2%), followed by hybrid (*n* = 20, 38.5%), and then face-to-face with supplemental asynchronous discussions (*n* = 5, 9.6%). The remaining four did not fit these categories, either by not providing enough information for certainty (*n* = 2, 3.8%), not being an instructed course (*n* = 1, 1.9%), or studying multiple cases with one fully online and the second hybrid (*n* = 1, 1.9%).

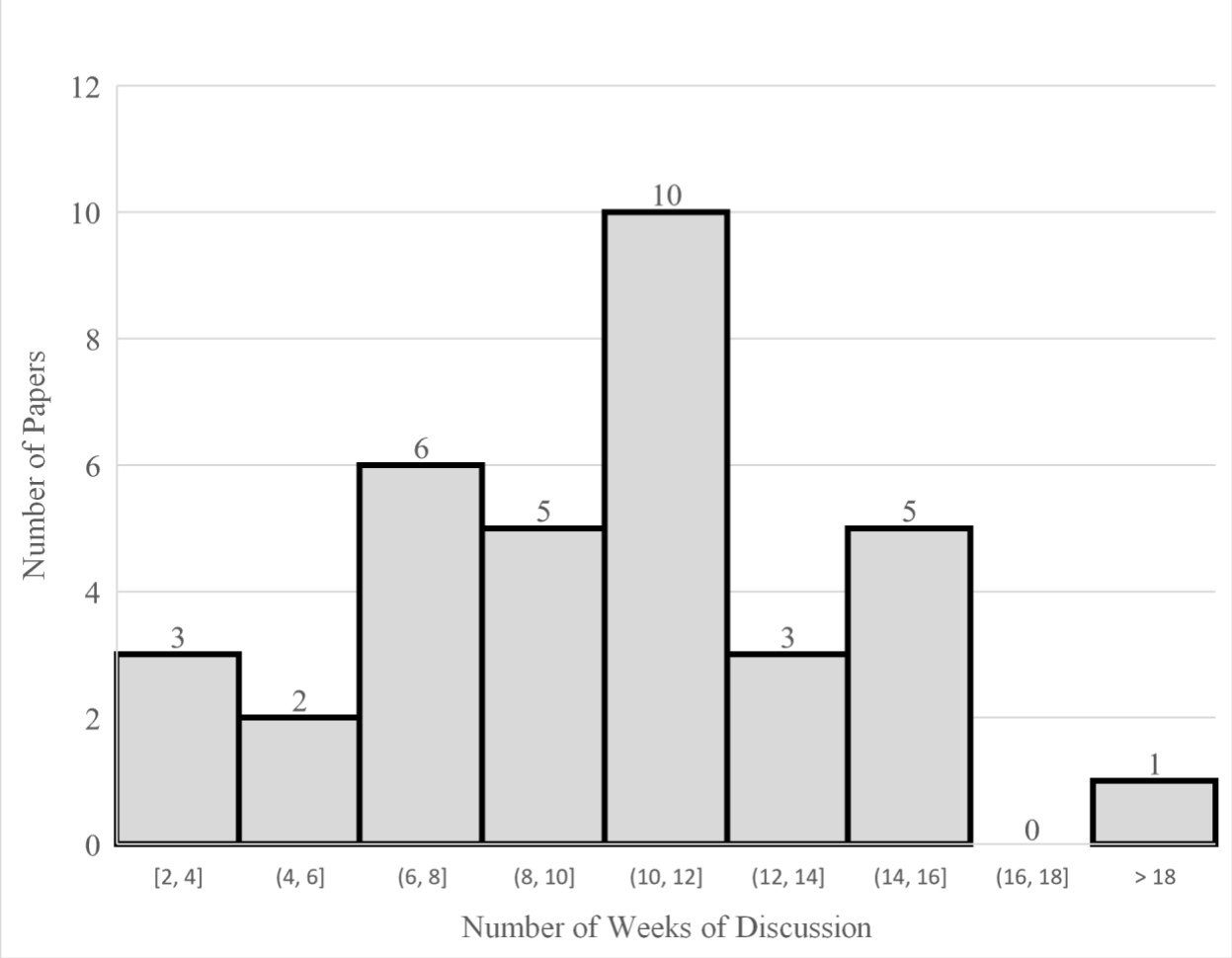
Structures for asynchronous discussions studied varied as well. The majority of studies described a weekly participation requirement (*n* = 39, 75.0%); a few others required participation on an irregular schedule (*n* = 2, 3.8%), daily (*n* = 1, 1.9%), or did not specify requirements clearly (*n* = 10, 19.2%). Lengths of discussion topics could be one week (*n* = 23, 44.2%), two weeks (*n* = 9, 17.3%), three weeks (*n* = 5, 9.6%), or one month (*n* = 2, 3.8%). A few papers described variable lengths of discussion topics (*n* = 5, 9.6%) or did not specify lengths (*n* = 8, 15.4%). For example, Hew and Cheung (2011a) described the length of discussions in their research as "ranged from 6 to 41 days" (p. 309), while Baran and Correia (2009) described a more common pattern of students volunteering to serve as a peer moderator for selected topics on a weekly basis.

Total time spent in discussions was similarly varied. For papers that quantified discussion amount in weeks (*n* = 35, 67.3%), we observed a minimum of two weeks, maximum of 34, with a median of 12 (*M* = 10.9, *SD* = 5.5). Other descriptions of total time spent included one month (*n* = 1, 1.9%), two months (*n* = 1, 1.9%), three months (*n* = 2, 3.8%), one semester (*n* = 3, 5.8%), an academic year (*n* = 1, 1.9%), as a cohort over multiple semesters (*n* = 2, 3.8%). Again,

a subset did not provide enough specificity to quantify (n = 7, 13.5%). Figure 3 provides a histogram of the spread of total weeks of discussion, for papers providing the total duration in weeks. Timeframes in this group were generally indicative of a college-level semester, such as those between six and 15 weeks (n = 29, 82.9%); outliers tended to be papers such as Mason's (1989) focused around events with no such limitation.

Figure 3

Histogram of Number of Weeks Spent in Discussion



Research Design Characteristics

Examination of the types of research revealed several categories. Where authors self-described their type of research, the entry was coded to match. Where authors did not explicitly delineate the type of research, we examined the text to determine the appropriate category. Half of the papers (n = 26, 50.0%) involved case studies or research limited to a specific course or event, suggesting questions of generalizability for these small-scale studies. Table 9 provides the types of research identified and a breakdown of the case study or small study category as well.

Table 9

Types of Research Conducted on Moderation in AODs

Research Type	All Included Studies		Case or Small Studies	
	Count	Percentage	Count	Percentage
Single case nonexperimental	21	40.4	13	50.0
Group experimental	10	19.2	0	0.0
Qualitative	8	15.4	6	23.1
Group nonexperimental	6	11.5	3	11.5
Mixed methods (qualitative & quantitative)	3	5.8	1	3.8
Other*	2	3.8	1	3.8
Action research	1	1.9	1	3.8
Single-case experimental	1	1.9	1	3.8

*Studies in the Other category self-described as "semi-qualitative" (Vlachopoulos & Mcaleese, 2004, p. 401) and as an empirical inquiry studying multiple cases (Gairín-Sallán et al., 2010).

Research Outcomes and Results

We found research outcomes and results reported in a wide variety of formats; no common theme was represented across a majority of papers. The most common themes in results involved peer moderation in some form (n = 18, 34.6%) and student outcomes (n = 18, 34.6%), with a small overlap (n = 7, 13.5%) of papers discussing both. For example, Szabo (2015) compared peer facilitation to instructor facilitation and observed differences in participation rates, participation quality, and characteristics of individual postings. She concluded that peer facilitation increased overall participation rates but at a risk of discussions becoming superficial; instructor facilitation increased the quality of student responses, and instructor coordination with peer facilitators to produce initial discussion prompts increased the quality of discussion further (Szabo, 2015). Eight papers discussed the benefits of peer moderation, such as encouraging active participation (Baran & Correia, 2009) and empowering students (Poole, 2000). Another few (n = 3) discussed the benefits of both peer moderation and instructor moderation, and a remainder (n = 6) focused on other themes while overlapping the discussion of peer moderation. One outlier paper discussed results indicating instructor moderation to be superior to peer moderation (Hylton, 2007).

We found similar separations in discussions of student outcomes. The most prevalent group (n = 10, 19.2%) discussed student outcomes in the form of knowledge construction measurements. Other papers discussed student outcomes in terms of benefits to student or group communication (n = 6), with an outlier (n = 1) contradicting and finding no evidence that tutors were able to move their groups past introductory stages of conversation (De Smet et al., 2008). Two papers addressed learning outcomes, but one indicated a benefit to student achievement under instructor-facilitated discussions (Hylton, 2007) while the other concluded that moderated discussion supports were no more effective than a well-designed self-paced course (Russell et al., 2009). A final paper indicated that participants learned to express themselves effectively in text and developed communication styles that led to positive attitudes toward moderated AODs (Murphy et al., 1996).

We also looked into papers addressing role assignment (n = 8, 15.4%), a model in which moderator duties (such as posing an initial question, summarizing the discussion, or seeking

outside material to add to the conversation) are dispersed among multiple students in a discussion. The majority of the papers (n = 5) were mixed on the question of benefits related to role assignment, while the remainder (n = 3) were more strongly in favor. Papers indicating mixed results tended to focus on differing impacts to students depending on the roles they were assigned in a discussion (De Wever et al., 2007; Schellens et al., 2007).

Remaining themes involved in outcomes and results included impacts of moderation on participation levels (n = 13, 25%), analysis of styles of moderation (n = 9, 17.3%), and results involved in exploring or defining the role of a moderator (n = 8, 15.4%). A few papers (n = 7, 13.5%) provided results on moderation performance topics such as whether moderators could successfully follow protocols or adopt specific styles, such as Vlachopoulos and Cowan's (2010b) observation that moderators were unable to successfully implement a learner-centered style as intended. Even fewer addressed student perceptions of moderated AODs (n = 3, 5.8%), or leadership topics such as the usefulness or growth of leadership in peer moderation (n = 2, 3.8%). Single outlier topics included results from the training of students as moderators (n = 1, 1.9%) (De Smet et al., 2010a) and an examination of the mental habits of peer moderators (n = 1, 1.9%) (Hew & Cheung, 2011b). A small minority of papers (n = 3, 5.8%) did not report outcomes as such in their text.

Table 10 provides a list of the themes uncovered in research outcomes and results, in total and by research type. We did not notice dominant overlaps in themes; the noticeable overlaps came in connections between peer moderation and student outcomes (n = 7), participation levels (n = 6), and styles of moderation (n = 5), and between role assignment and student outcomes (n = 6), with a further 14 overlaps only covering 1-3 sources. For a visual representation of the overlap counts between themes, see Table A1 in Appendix A.

Table 10

Themes Identified in Research Outcomes and Results, by Research Design

Theme	Research Design								
	Single case nonexperimental	**Group experimental**	**Qualitative**	**Group nonexperimental**	**Mixed methods (qualitative & quantitative)**	**Other**	**Action research**	**Single-case experimental**	**Total Papers**
Peer Moderation	8	3	3	3			1		18
Student Outcomes	7	6	1	3			1		18
Participation Level	5	2	1	2	1	1	1		13
Moderator Style	5	1	1	1		1			9
Role Assignment	1	6						1	8
Moderator Role	7				1				8
Moderator Performance	2		4		1				7
No Outcomes	1		1			1			3
Student Perceptions	1			1				1	3
Leadership	1	1							2
Moderator Training		1							1
Peer Moderators				1					1

Research Foci and Research Questions

We examined research foci and research questions in a few ways. First, we examined the research to see if it focused on individuals with instructional roles (instructors, tutors, or other professional staff) acting as moderators, on students or other participants with assigned duties in a peer-moderator role, or students or participants as members of the discussion without assigned moderator duties. Table 11 provides a count of papers for the individual categories and a count of papers with overlapping foci.

Table 11

Research Focus and Participant Category

Participant Category	Paper Count
Peer Moderator	34
Instructional Role	22
Participant/Student	7
Not Clearly Indicated	1
Combinations	
Instructional Role + Peer Moderator	5
Instructional Role + Participant/Student	3
Peer Moderator + Participant/Student	4

We coded twelve overall themes from the research foci and questions. Table 12 provides a list of these themes, along with a short description of each theme and an example citation. Table 13 provides a count of papers addressing each theme, and separate counts by type of participant focus.

The strongest connection between themes was in examinations of strategies employed by moderators (n = 24, 46.2%), overlapping with student performance and discussion quality (n = 16) and role assignment (n = 7). Examinations of the performance of moderators (n = 10, 19.2%) did not overlap with explorations of moderator strategies, but 30% of these papers (n = 3) connected to student performance and discussion quality. Much like the category of research outcomes and results, no theme held a majority of the field, suggesting that there is not agreement on how to study moderation in AODs. One paper combined investigations of moderation-related themes with non-moderation-related items (Ghadirian, Salehi, et al., 2018). For counts of the papers that overlap for a given theme, see Table A2 in Appendix A.

Table 12

Descriptions of Themes Identified in Research Foci and Questions

Theme	Description	Example Citation
Strategies Employed by Moderators	Focus involved specific techniques or styles, such as variations in the frequency of posting by moderators.	(Ghadirian, Fauzi Mohd Ayub et al., 2018)
Student Performance and Discussion Quality	Examination of effects on student performance, such as posting frequency or types of comments.	(Ghadirian, Fauzi Mohd Ayub et al., 2018)
Performance of Moderators	Examinations of performance of moderators, or students when assigned the moderator role.	(Sansone et al., 2018)
Role Assignment	Examinations of different strategies for assigning moderation roles to discussion participants.	(Wise et al., 2012)
Qualities, Skills, or Experiences of Moderators	Examinations of qualities of moderators, such as comparison of AOD moderation skills to face-to-face moderation skills, or how peer moderators perceived the experience.	(Wise et al., 2012)
Defining the Role of Moderator	Examinations of the role of a moderator, to define the ideal role played or the situation of the role in different settings.	(Nandi et al., 2012)
Training of Moderators or Learning to Moderate	Examinations of different methods or supports used to train moderators or assist participants in learning to moderate AODs.	(Vlachopoulos & Cowan, 2010b)
Comparing Instructor Moderation to Peer Moderation	Comparisons of instructor moderation to peer moderation structures, either by the performance of moderators or performance of discussion participants.	(Szabo, 2015)
Learning Outcomes or Knowledge Construction	Examinations of the effects of AOD moderation on learning outcomes or knowledge construction.	(Ouyang & Scharber, 2017)
Leadership or Teaching Presence	Examining or detecting leadership or teaching presence within moderated AODs.	(Sun et al., 2017)
Identities in Discussions	Examining the concept of identities and how identities were negotiated between moderators and other participants in moderated AODs.	(Xie et al., 2017)
Not Directly Related to Moderation	Research focus items that were not directly related to moderation in AODs, such as examining student cognitive processes without framing against moderator activity. (The paper also included other themes related to moderation.)	(Ghadirian, Salehi et al., 2018)

Table 13

Research Focus and Question Themes, by Participant Focus

Theme	Participant Focus							Total Papers
	Instructors	Peer Moderators	Untyped Moderators	Discussion Participants	Instructors + Peer Moderators	Instructors + Participants	Peer Moderators + Participants	
Strategies Employed by Moderators	9	13			1		1	24
Student Performance and Discussion Quality	1	12			4	1	2	20
Performance of Moderators		9					1	10
Role Assignment		8						8
Qualities, Skills, or Experiences of Moderators	1	6						7
Defining the Role of Moderator	2		1			2		5
Training of Moderators or Learning to Moderate	1	4						5
Comparing Instructor Moderation to Peer Moderation		1			3			4
Learning Outcomes or Knowledge Construction	2	2						4
Leadership or Teaching Presence							2	2
Identities in Discussions							1	1
Not Related to Moderation		1						1

Research Question 3: How Has the Role of Moderator Been Described, How Has It Evolved, and What Are Implications for Practice in AODs?

In this section, we review results regarding the definition and expectations of a moderator. We also include results regarding implications for practice, and recommendations for training, as these are intrinsically linked to the definition of a moderator and the expectations of someone performing the role. The definitions and expectations of a moderator demonstrate support for the managerial, monitoring, pedagogical, technical, and social roles of our taxonomy, though the concept of technical support did not emerge in implications for practice or moderator identity. We hypothesize that this category may have mostly been passed to institutional support staff with the growth of intuitive interfaces and standardized LMS products for university-wide distance education programs.

Definitions and Expectations of the Moderator

In reviewing definitions and expectations of a moderator, we began with separate tables of extracted content, comparing statements related to definitions and then to expectations. We found a subset of papers that did not include a definition (n = 15, 28.8%) and another subset that did not include expectations (n = 15, 28.8%), with a minor overlap in papers including neither (n = 3, 5.8%). After coding each group of statements individually, we merged the sets of statements and compared them to determine a more unified set of themes for both definitions and expectations. Table 14 lists themes uncovered and delineates the number of papers supporting each theme in definitions and/or expectations. In addition, a breakdown of five subthemes for discussion management is shown. Table 15 provides a general description of each theme for definitions and expectations of the moderator, along with an example citation.

Table 14

Themes for Definitions and Expectations of the Moderator

Theme	Supported Definitions	Supported Expectations	Supported as Either	Supported as Both
Discussion Management	24	32	42	25
General Discussion Management	18	12	24	7
Topic Setting	7	15	17	5
Guiding the Discussion	4	9	12	1
Setting the Discussion Structure	5	5	8	2
Expected Management Skills	2	6	7	1
Social Management	20	23	31	12
Learning, Information Exchange, and Knowledge Construction	15	6	18	3
Weaving	11	11	17	5
Questioning	13	10	15	8
Feedback	10	7	14	3
Meta-Commenting	9	8	13	4
Participation	4	11	13	2
Leadership	5	1	5	1
Technical Support	4	1	4	1
Influences on Moderators	3			
Expectations of Moderator Styles		4		

Table 15

Descriptions of Themes for Definitions or Expectations of the Moderator

Theme	Description	Example Citation
Discussion Management		
General Discussion Management	Monitoring, facilitating, stimulating, or maintaining the flow of a discussion.	(Sansone et al., 2018)
Topic Setting	Selecting, setting, or presenting the topic and/or agenda for a discussion.	(Xie et al., 2014)
Guiding the Discussion	Keeping the discussion focused or on topic; posing leading questions or providing new directions for the discussion when needed.	(Sansone et al., 2018)
Setting the Discussion Structure	Determining discussion strategy; setting norms, rules, and expectations for participant behavior.	(Xie et al., 2017)
Expected Management Skills	Determining when and how to intervene in a discussion, or gain the attention and focus of participants when needed.	(Vlachopoulos & Cowan, 2010b)
Social Management	Managing social aspects such as welcoming participants, mediating disputes, preventing some participants from dominating the discussion, or prompting and inviting participation from others.	(Sansone et al., 2018)
Learning, Information Exchange and Knowledge Construction	Promoting learning or educational goals; fostering exchanges of information and knowledge construction behaviors.	(De Smet et al., 2010a)
Weaving	Summarizing discussions, identifying areas of agreement or disagreement, drawing or proposing conclusions indicated by a discussion.	(Hew & Cheung, 2011a)
Questioning	Posing questions designed to assist the discussion by probing points, requesting clarification, eliciting opinions, or contradicting points to encourage critical thinking.	(Nandi et al., 2012)
Feedback	Providing feedback to participants on their contributions, responding to questions by participants; insisting that participants support points with data or rational argument.	(Nandi et al., 2012)
Meta-Commenting	Moderators intervene to clarify the discussion purpose, encourage multiple views of issues, or steer the discussion toward new concepts or ways of thinking.	(Nandi et al., 2012)
Participation	Moderators participate in the discussion, point out questions or concerns left unanswered, or provide their own comments and opinions.	(Szabo, 2015)
Leadership	Moderators provide leadership to a discussion.	(Xie et al., 2018)
Technical Support	Moderators provide technology support to participants or humanize the technology involved.	(Tagg, 1994)
Influences on Moderators	Moderators learn while performing their duties or shape the role by their individual traits and personality.	(Ghadirian, Fauzi Mohd Ayub et al., 2018)
Expectations of Moderator Styles	Specific expectations of moderator styles, such as minimizing intervention to an as-necessary level, at a higher rate to address internal discussion content, or to fade out intervention rates as participants grow more experienced in the discussion process.	(De Smet et al., 2010a)

Statements of Implications for Practice

As with definitions and expectations, we began this analysis with separate tables of extracted content for explicitly phrased benefits resulting from moderated AODs, explicitly phrased challenges, and other statements phrased more neutrally as implications. Statements for a given category did not need to connect just to students; for instance, there were indicated impacts such as a potential reduction of workload for instructors in the event of successful implementation (Ghadirian, Salehi et al., 2018). Most commonly, papers included implications for practice without explicitly naming benefits or challenges (n = 28, 53.8%). Others included statements of both benefits and challenges (n = 10, 19.2%), benefits but not challenges (n = 5, 9.6%), or challenges but not benefits (n = 5, 9.6%). A few papers included no statements of practice implications (n = 4, 7.7%). After coding each group of statements individually, we merged the sets of statements and compared them to determine a common set of themes. Table 16 provides a list of the themes, along with an indicator for whether they appeared as benefits, challenges, or implications for practice. Table 17 provides a general description of each theme, along with an example citation.

Table 16

Themes Uncovered Analyzing Statements of Benefits, Challenges, or Implications for Practice

Theme	Number of Papers	Category of Statements		
		Benefits	Challenges	Implications for Practice
Social Implications	21	X	X	X
Learning or Knowledge Construction	18	X	X	X
Role Assignment	11		X	X
Student Behavior	11	X	X	X
Instructional Efficiency	9	X	X	X
Leadership	8			X
Student Agency or Empowerment	6	X		X
Modeling	5	X	X	X
Preventing or Treating Confusion	1	X		
Related to Course Design				
Course Design	20			X
Course Interfaces	8		X	X
Participation				
Participation Improvement	12	X		X
Participation Issues	2		X	X
Comparisons of Moderator Structures				
Instructors vs. Peer Moderators	8			X
Single Moderators vs. Team Moderation	4	X		X
On Moderators				
Moderator Role and Expectations	22			X
Moderator Styles or Strategies	21		X	X
Moderator Training	19	X	X	X
Being Assigned Moderator Status	4	X		X

Choosing a Moderator	2			X
Graduate Students as Moderators	1	X		
Moderator Concerns	1		X	

Table 17

Descriptions of Themes for Statements of Benefits, Challenges, or Implications for Practice

Theme	Description	Example Citation
Social Implications	Perceived benefits, challenges, or implications for social management of AODs. Benefit example: a perceived approachability of peer moderators to students. Challenge example: the potential for text messages to be misinterpreted.	(Murphy et al., 1996)
Learning or Knowledge Construction	Statements relating moderator activities to learning outcomes.	(Ghadirian, Salehi et al., 2018)
Role Assignment	Statements relating to assigning roles to students in discussion.	(Szabo, 2015)
Student Behavior	Statements regarding the behavior of students in performing moderator duties or reacting to actions by moderators.	(Sansone et al., 2018)
Instructional Efficiency	Impacts of moderation on the workload of instructors.	(Ghadirian, Salehi et al., 2018)
Leadership	Statements regarding a need for instructors to retain some facets of leadership, or the importance of leadership to guide a discussion.	(Szabo, 2015)
Student Agency or Empowerment	Benefits or impacts of allowing students to take leadership roles and actions, such as setting discussion topics or being assigned a peer moderator status.	(Ghadirian, Fauzi Mohd Ayub et al., 2018)
Modeling	Statements on instructors or moderators setting discussion parameters or providing examples of expected conduct by their moderator behavior.	(Evans et al., 2017)
Preventing or Treating Confusion	Statements on the importance of moderators acting to prevent confusion on the part of discussion participants.	(Tagg, 1994)
Related to Course Design		
Course Design	Statements on how course design aspects such as the specificity of role assignments, discussion group sizes, or assessment of learner needs affect moderated AODs.	(Ghadirian, Salehi et al., 2018)
Course Interfaces	Statements on how aspects of technological interfaces can impact moderated AODs.	(Nandi et al., 2012)
Participation		
Participation Improvement	Statements on how moderated AODs can improve student participation.	(Sansone et al., 2018)
Participation Issues	Statements on factors that can negatively impact moderated AODs, such as allowing an overabundance of purely social commentary.	(Anshu et al., 2010)

Table 17 (continued)

Theme	Description	Example Citation
Comparisons of Moderator Structures		
Instructors vs Peer Moderators	Comparisons of function or effectiveness of instructor actions as moderators to actions of peer moderators.	(Szabo, 2015)
Single Moderators vs Team Moderation	Comparisons of effectiveness or efficiency of using teams of moderators as opposed to a single moderator.	(Szabo, 2015)
On Moderators		
Moderator Role and Expectations	Statements on expected moderator behavior or functions within an AOD.	(Ouyang & Scharber, 2017)
Moderator Styles or Strategies	Statements regarding styles of moderation adopted, or strategies used by moderators in AODs.	(Ouyang & Scharber, 2017)
Moderator Training	Statements regarding the necessity of training moderators, or specific recommended behaviors or techniques to train moderators in.	(Ghadirian, Salehi et al., 2018)
Being Assigned Moderator Status	Effects of assigning moderator status to a participant, such as changes in participation rate or style.	(Sansone et al., 2018)
Choosing a Moderator	Statements on qualities relevant to choosing a moderator.	(Gairín-Sallán et al., 2010)
Graduate Students as Moderators	Statements regarding benefits of using graduate students to act as moderators in undergraduate AODs.	(Murphy et al., 1996)
Moderator Concerns	Peer moderators' concerns regarding their ability to moderate AODs successfully, such as knowing when or how to intervene, or an appropriate amount and frequency of postings.	(De Smet et al., 2010b)

Identity of Moderators

The majority of papers involved moderators who were peers in discussions, such as student moderators or members of a community of learning (*n* = 32, 61.5%). For example, Xie et al. (2014) found an increase in participation quantity, diversity, and interaction attractiveness during the times when students were assigned the moderator role in a discussion. The second most common were moderators as instructors or instructional staff (*n* = 16, 30.8%), followed by structures where the moderators could come from either category (*n* = 5, 9.6%). For example, Gray's (2004) research studied the moderating duties and roles of paid coordinators in online communities of practice, finding these staff moderators "critical in sustaining the online community over an extended period and enhancing the learning function" (p. 20).

A few papers involving peer moderators also involved role assignment, a structure in which moderator duties are split among multiple peer individuals (*n* = 6, 11.5%). These papers split student duties among specifically scripted tasks such as starting the discussion, summarizing points made, ensuring that relevant concepts are addressed, or looking for outside source materials to contribute (De Wever et al., 2007, 2010b).

Training Types, Recommendations for Training, and Non-Training Supports

We separated statements regarding training into three categories: types of training, recommendations for training, and non-training supports. Types of training included ideas such as modeling, in-class training, and the provision of reading materials. Modeling may be accomplished by using trial periods with assigned roles (De Wever et al., 2007; Schellens et al., 2007). It might also be accomplished by having instructors perform the role before, and/or alongside, peer moderators (Rourke & Anderson, 2002; Schellens et al., 2005; Xie et al., 2011). For in-class training and reading materials, De Smet et al. (2008) described a training program starting two weeks before classes in which peer moderators received face-to-face instruction as well as written reference materials including guidelines, practical examples, and reminders.

Recommendations for training included role assignment, targeted training on specific moderation techniques, and encouraging or requiring moderators to engage in reflective activities. Specific targeted training recommendations included finding a balance between individual and group support (De Smet et al., 2009), constructing effective questions for promoting engagement (Hylton, 2007), and understanding different moderating styles (Baran & Correia, 2009; Liu & Yang, 2012).

Non-training supports included having moderators operate in supportive teams or recruiting moderators with previous experience in the role. The use of teams to moderate was a common and long-running theme in papers (*n* = 16, 30.8%), as early as Mason (1989) and as late as Szabo (2015). Rourke and Anderson (2002), focusing on the concept of teaching presence, found students preferred teams of peer moderators to an instructor's moderation. They observed an advantage for the peer moderator teams in that "they worked in teams of four; therefore, they possessed sufficient resources to fulfill all of the teaching presence responsibilities," such as keeping the discussion "responsive, interesting, and structured" (p. 17).

Table 18 outlines the number of papers supporting a theme for each category, along with the overall number of papers supporting the theme. Brief descriptions of these themes follow below in Table 19, with one example citation provided for each theme. The majority of papers (*n* = 30, 57.7%) described performing some sort of training for moderators; the remainder (*n* = 22, 42.3%) provided no descriptions of training. A single paper (Nandi et al., 2012) represented

training moderators as part of the research but did not provide any specific information on the nature or duration of the training.

Table 18

Themes Involved in Training-Related Statements

Theme	Category			Total Paper Count
	Types of Training	Recommendations for Training	Non-Training Supports	
Modeling	16	6		18
Moderation Teams			16	16
In-Class Training	15			15
Reading Materials	15			15
Specific Training		12		12
Previous Training			10	10
Role Assignment	7	7		8
Balance		5		5
Reflection		3	2	5
Encouragement	2	1		3
Cross-Age			2	2
Workload		2		2
Administrative Support			1	1
Follow-Up		1		1
Instructional Design		1		1
Instructor Duties		1		1
Moderator Interventions		1		1
Role Taking	1			1
Who to Train		1		1

Table 19
Descriptions of Training-Related Themes

Theme	Description	Example Citation
Modeling	Trial periods to practice moderation, or periods where a more experienced individual (such as a teacher) demonstrated moderating activities.	(Xie et al., 2018)
Moderation Teams	Moderators operate in multiple-member teams. Support structures are provided such as focus group review sessions, or private discussion areas for moderators to consult team members.	(Szabo, 2015)
In-Class Training	One or more direct training sessions using class time.	(Ghadirian, Salehi et al., 2018)
Reading Materials	Reference materials such as handbooks, guidelines, materials or discussion records from prior courses, or helpful websites.	(Ghadirian, Salehi et al., 2018)
Specific Training	Statements referring to training moderators in specific methods or styles of moderation.	(Ghadirian, Salehi et al., 2018)
Previous Training	Previous experience with online discussion moderation, face-to-face discussion moderation, or as professional educators.	(Ouyang & Scharber, 2017)
Role Assignment	Specific moderator duties are distributed among multiple members of a discussion, usually related to a peer-moderation structure.	(Wise et al., 2012)
Balance	Training moderators to find a balance in moderation aspects, such as between clear role descriptions and overly rigid scripting, or balancing the amount of social interaction allowed compared to task-focused interaction in a discussion.	(Anshu et al., 2010)
Reflection	Engaging in reflective practices, such as keeping a logbook or reviewing moderation activities against guidelines or a framework.	(Vlachopoulos & Cowan, 2010b)
Encouragement	Encouraging moderators in the development, application, or expansion of their communication styles. Providing extrinsic motivation, such as offering extra grading points to peer moderators.	(Murphy et al., 1996)
Cross-Age	Drawing moderators from more advanced cohorts in a school environment.	(De Smet et al., 2009)
Workload	Recommendations designed to reduce the amount of time or effort necessary for moderation.	(Nandi et al., 2012)
Administrative Support	Planning moderator interventions in cooperation with a more experienced individual, such as a researcher.	(Kienle & Ritterskamp, 2007)
Follow-Up	Augmenting initial moderator training with continued professional development and social supports.	(Gairín-Sallán et al., 2010)
Instructional Design	Conducting a learner and needs analysis to prepare for implementing peer moderation.	(Baran & Correia, 2009)
Instructor Duties	Recommended instructors be cautious not to use “student centered” design as a pretext to shift facilitation duties onto peer moderators solely to reduce teaching workload.	(Baran & Correia, 2009)
Moderator Interventions	Training on when and how to intervene in discussions, and how to signal to students when a moderator is acting in the moderator capacity.	(Vlachopoulos & Cowan, 2010b)
Role Taking	Instructing moderators on a framework and asking them to attempt a particular moderation style.	(Vlachopoulos & Mcaleese, 2004)
Who To Train	Described identifying candidates with attitudes and qualities compatible with moderation tasks as equally important to moderator training.	(Gairín-Sallán et al., 2010)

Conclusions and Future Research

As we examined these articles in the context of our research questions, we found a discordant field in terms of frameworks, research foci and questions, and research outcomes. We looked for possible patterns of adoption for frameworks, but we found inconsistency. Almost half (n = 25, 48.1%) of the papers reviewed did not cite a conceptual framework focused on moderation. We did not encounter a commonly cited framework (Berge, 1995; Feenberg, 1989; Garrison et al., 2000; Salmon, 2003) originally proposed after 2000. This is surprising given the growth of distance education and rapid change in technology that supports moderated AODs. Citations of previous knowledge and frameworks are important since they illustrate connections of the research to a wider field and to concepts that influence a study's design (Antonenko, 2015). The inconsistency in citations and number of papers not citing a framework suggest that writers may not be aware of prior research or communicating with others involved in the topic.

In looking for consistency and dominant themes, we crafted tables to provide a visual representation of overlapping paper counts for research foci and questions, and outcomes and results (see Appendix A, Tables A1 and A2). In both cases we were surprised by the lack of consistency, with scattered themes overlapping in one to three papers and some themes providing no overlap at all. This provided further evidence of discord within the field.

We noticed patterns in the research focusing on higher education settings and might anticipate this changing in the next few years as distance education technology penetrates the K–12 world, especially following the COVID-19 pandemic. The lack of consistency in reporting demographic information on subjects also makes it difficult to speak to the generalizability of results across included papers. Half of the sources qualifying for inclusion were conducted as case studies or similarly small-scale studies. These points suggest a need for wider and larger-scale investigations on the implementation and techniques for moderated AODs, expanding the populations studied as well as the learning environments, to increase the generalizability of results and recommendations. It also supports a need for more coordination and cooperation between researchers to consistently decide what is beneficial to measure and how to measure it. We found no large-scale studies in which, for instance, 10+ instructors were asked to implement and test a specific mode or framework of discussion moderation. We did identify a group of prolific authors from Ghent University, representing a large number of articles (n = 11, 21.2%) in six years. The advantages to collaboration were evident in this regard since the team of authors were able to produce several papers on moderated AOD topics in a relatively short period; formation of such working groups might be a method to generate larger-scale research with more generalizable results in the future.

Almost half of the papers included focused on strategies employed by moderators, matching the definitions and expectations of a moderator for discussion (n = 42, 80.8%) and social (n = 31, 59.6%) management. This aligns with the managerial and social roles shown in our taxonomy of moderator roles. Categories connected to the monitoring and pedagogical roles (knowledge construction support, weaving, questioning, feedback, meta-commenting, and participation) also saw support. We found few papers to support an expectation for moderators to engage in the technical role (n = 4, 7.7%); with the development of an intuitive user interface, LMSs, and adoption of distance education at university-wide levels, it may be that this role has widely passed to institutional support staff. No new roles were identified in the literature included in this study.

In evaluating the definitions, expectations, and statements related to practice, we noticed some separations between roles, most notably those things that were tightly connected to an

instructor's role (such as course design or the retention of some leadership facets) and some connected to peer moderation such as benefits through student agency or empowerment. We also noticed a majority focus on peer moderators (n = 34, 65.4%) and a strong minority focus on instructors (n = 22, 42.3%), demonstrating that both structures are valid for investigation. The most common themes were investigations of moderator strategies (n = 24, 46.2%) and student performance or discussion quality (n = 20, 38.5%), with a solid overlap of papers connecting these themes (n = 16, 30.8%).

In analyzing existing frameworks for our taxonomy, we encountered some similar sentiments with Berge's (1995) framework targeted at instructors, Salmon's (2003) framework addressing instructors and offering guidance on selecting students to assist in moderating duties, and Vlachopoulos and Cowan's (2010b) framework separating other instructional facets from moments when an instructor wears the moderator hat. We suggest that future frameworks and research should take this distinction into account, working to separate the instructor's role more clearly from those duties that can safely be appointed to students or assistants within an AOD. We also note that many papers did not describe training their moderators. Natural questions to ask here are, how would someone become an effective moderator without training? Is it possible that some papers involving instructors as moderators deemed prior training unimportant to mention? The lack of reporting on training creates issues for usability of results in the field. For instance, papers that report the effects of peer moderation on student learning outcomes without describing the structure, training and/or moderator strategies involved, do not offer clear and generalizable guidance to instructors looking to replicate the design in their courses. Future research could explore these questions further, or survey instructors who moderate on how they learned their craft.

Limitations

As noted by Martin et al. (2020), there are limitations inherent in systematic reviews. These include limitations related to the search engines used, the search terms used, the possibility of selection and publication biases due to preferences on the part of journals for topics or research methodologies, and the limitations of coding and reliance on author descriptions. In addition, our inclusion criteria focused on academic and educational environments with structured, moderated discussions and did not deliberately target informal settings such as social media which could have produced different results or perspectives on moderators.

Final Thoughts

Before the COVID-19 pandemic, online educational models were growing and becoming more recognized as effective (Blumenstyk, 2022; Johnson et al., 2020; Seaman & Johnson, 2021). We see this trend continuing and, given that poor implementations of moderation can have negative impacts on both faculty and students, a growing need for instruction and frameworks to assist practitioners in conducting effective moderated AODs as part of their courses. We provide our comments in this spirit, intending our research suggestions to provide entry points into topics that will be critical to the future refinement of discussion moderation techniques and implementation.

Declarations
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Appendix A

Tables Displaying Overlap Counts of Themes for Research Outcomes and Results, and Research Focus and Questions

Table A1

Overlap of Themes in Research Outcomes and Results, by Source Count

Theme	Peer Moderation	Student Outcomes	Participation Level	Moderator Style	Role Assignment	Moderator Role	Moderator Performance	Student Perceptions	Leadership	Moderator Training
Peer Moderation		7	6	5		1	1	1	2	1
Student Outcomes	7		2	2	6	2	1			
Participation Level	6	2		3	1		1	1		
Moderator Style	5	2	3					1		1
Role Assignment		6	1					1		
Moderator Role	1	2								
Moderator Performance	1	1	1							
Student Perceptions	1		1	1	1					
Leadership	2									
Moderator Training	1			1						

Note. Themes with no overlap (n = 1) and the category of no reported outcomes are not included in this table.

Table A2

Overlap of Themes in Research Focus and Questions, by Source Count

Theme	Strategies Employed by Moderators	Student Performance and Discussion Quality	Performance of Moderators	Role Assignment	Qualities, Skills, or Experiences of Moderators	Training of Moderators or Learning to Moderate	Comparing Instructor Moderation to Peer Moderation	Learning Outcomes or Knowledge Construction	Leadership or Teaching Presence
Strategies Employed by Moderators		16		7				1	
Student Performance and Discussion Quality	16		3	7	1		3	1	1
Performance of Moderators		3		2		1	1		
Role Assignment	7	7	2					1	
Qualities, Skills, or Experiences of Moderators		1				1			
Training of Moderators or Learning to Moderate			1		1				
Comparing Instructor Moderation to Peer Moderation		3	1						
Learning Outcomes or Knowledge Construction	1	1		1	1				
Leadership or Teaching Presence		1							

Note. Themes with no overlap (n = 3) are not included in this table.

Appendix B

Table of Included Paper Citations, Arranged by Decade

1970s	1980s	1990s	2000s	2010s
	1. (Mason, 1989)	2. (Tagg, 1994) 3. (Tagg & Dickinson, 1995) 4. (Murphy et al., 1996)	5. (Poole, 2000) 6. (Creanor, 2002) 7. (Rourke & Anderson, 2002) 8. (Lim & Cheah, 2003) 9. (Durrington & Yu, 2004) 10. (Vlachopoulos & Mcaleese, 2004) 11. (Gray, 2004) 12. (Schellens et al., 2005) 13. (Lu & Jeng, 2006) 14. (De Wever et al., 2007) 15. (Guldberg & Pilkington, 2007) 16. (Hylton, 2007) 17. (Kienle & Ritterskamp, 2007) 18. (Schellens et al., 2007) 19. (De Smet et al., 2008) 20. (De Wever et al., 2008) 21. (Vlachopoulos, 2008) 22. (De Smet et al., 2009) 23. (Russell et al., 2009) 24. (Baran & Correia, 2009) 25. (De Wever et al., 2009)	26. (Anshu et al., 2010) 27. (De Smet et al., 2010b) 28. (De Smet et al., 2010a) 29. (De Wever et al., 2010a) 30. (De Wever et al., 2010b) 31. (Vlachopoulos & Cowan, 2010b) 32. (Vlachopoulos & Cowan, 2010a) 33. (Gairín-Sallán et al., 2010) 34. (Hew & Cheung, 2011a) 35. (Hew & Cheung, 2011b) 36. (Xie & Ke, 2011) 37. (Liu & Yang, 2012) 38. (Nandi et al., 2012) 39. (Wise et al., 2012) 40. (Vlachopoulos & Cowan, 2014) 41. (Xie et al., 2014) 42. (Szabo, 2015) 43. (Ghadirian et al., 2016) 44. (Evans et al., 2017) 45. (Ghadirian & Ayub, 2017) 46. (Ouyang & Scharber, 2017) 47. (Sun et al., 2017) 48. (Xie et al., 2017) 49. (Ghadirian, Fauzi Mohd Ayub, et al., 2018) 50. (Ghadirian, Salehi, et al., 2018) 51. (Sansone et al., 2018) 52. (Xie et al., 2018)