Closing the Transactional Distance in an Online Graduate Course through the Practice of Embedded Librarianship

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Using the practice of embedded librarianship, a professor from the Graduate School of Education and the Education Librarian at Rutgers, The State University of New Jersey collaborated to investigate its impact on the inherent transactional distance that exists in an online graduate course. Using Michael G. Moore's three relational distances existing in the online environment—"teacher-student," "student-student," "student-course content"—the authors added two areas—"instructor-librarian" and "student-librarian"—that can close the transactional distance in online courses. Through course activities, structure, and access to the embedded librarian and specific library resources, students had increased opportunities for engagement, thereby reducing transactional distance.

Background

In this fully online graduate course in Education, students represent a broad spectrum of educational backgrounds. Many are teachers who vary by the subject and grade level they teach as well as by their years of experience. Additionally, some students might serve in various educational capacities besides a teacher (that is, school administrator, school psychologist, learning disabilities-teacher consultant, or school counselor). Some are practicing educators outside the state of New Jersey or work outside the field of Education, such as nurses. A variety of interests and perspectives in either curriculum or instruction are represented. To take advantage of this diversity and, more importantly, with the intent of making the course personally relevant and engaging, one of the main goals of the course is to give greater latitude to students in choosing the context of their assignments, enabling them to go beyond the objectives delineated in the course description.

The instructor had taught this course on 15 consecutive occasions with success as indicated by standard course evaluations. However, some challenges persisted. One main challenge in achieving greater student latitude that the instructor wanted to explore was, *How do you efficiently and effectively connect students with the resources needed to complete an assignment that would address their diverse range of interests?*

Further, the university's library system offers vast and multifaceted resources that students could explore in researching their topic. But the instructor wondered, *How do you make these seemingly boundless resources available to the student when the course is presented online*? Moreover, *How do you bring the apparently bottomless resource potential available in an online library to the online student*? The instructor sought out the Education Librarian to discuss these challenges.

During brainstorming sessions between the instructor and the Education Librarian, the course was looked at through the lens of Transactional Distance (TD) theory. Michael G. Moore describes transactional distance (TD) as a psychological and communication space or disconnectedness that students experience in an online "classroom." He highlights the need for pedagogy that provides intentional interaction among all participants in this online space. Course structure and its provisions for student interaction with course content, among themselves, and the instructor can mitigate TD.[1]

One consideration by the authors to close this distance presented is the inclusion of opportunities to interact with an information specialist, an embedded librarian, who works in close collaboration with the instructor, facilitating a connection with the vast online library materials and services available. In this model, the "instructor-librarian" and "student-librarian" interactions serve to encourage student engagement in the online environment. The concept of the embedded librarian is integrated into the pedagogical approach to support the scholarly conversations of students in this fully online graduate education course titled "Curriculum and Instruction."

Refinement of the original questions postulated by the instructor became: *Can the connection between the students and the librarian be more direct and personal*? Or, *Can the practice of embedded librarianship mitigate TD in this online graduate course*? These latter questions became the focus of the investigation. Key questions to facilitate this study revolved around the course design/structure and included:

- What platforms would best facilitate communication and interaction so that student ideas could be presented, perspectives shared, thoughts exchanged, and individual feedback and counseling provided by the instructor and the librarian back to the students?
- How would media of communication be effectively integrated into the course?
- What assignment would offer greater latitude for students to explore areas of their own interest in the fields of Curriculum and/or Instruction?
- What standards and expectations for class participation and assignment completion would be established and communicated?

It was determined that the answers to these questions were in the design of the course and in the selection of activities. Although Curriculum and Instruction are two distinct but related areas in the field of Education, the course structure and activities are designed to provide students with autonomy to explore topics of interest and relevance to their own particular area of specialty, while still providing professional guidance. The addition of the embedded librarian and a specific set of activities—chiefly, an annotated bibliography assignment with its clear outline of expectations, a detailed rubric, allowance for greater learner latitude, and inclusion of formative and summative assessment—could serve to mitigate the TD in this course.

A closer look at the existing course design and structure highlighted technologies and capabilities of the Course Management System (CMS) that could be leveraged to increase opportunities for student engagement and interaction among themselves, with the course content, with the instructor, and with the librarian. The new approach to mitigate TD involved

a combination of existing course content and the addition of an annotated bibliography assignment with the integration of the embedded librarian. This assignment and its accompanying activities would also help to achieve the objective of encouraging latitude in student research by increasing opportunities for their engagement with various course participants as outlined above.

The authors began to explore this possibility in 2015. The librarian would be embedded in the CMS and given a role as a Teaching Assistant, thereby providing students with direct access to a librarian who specializes in conducting educational research. The instructor and librarian collaborated for five consecutive semesters and continued to revise the course content in response to student feedback from each end-of-semester survey deployed by the institution. For example, specific changes were made to the annotated bibliography rubric and to the wording of the assignment that would make expectations more explicit for students. Anecdotally, student feedback about working with the embedded librarian was favorable. In the fall 2017 semester, the authors decided to survey the students specifically on TD and their experience with the embedded librarian. This would be a separate survey from the official course feedback provided by the institution.

Literature Review

Transactional Distance (TD) is defined by Michael G. Moore as the concept of psychological and communication space that exists in an online setting. He further expands this conceptual framework by naming three relational distances, between "teacher-student," "student-student," and "student-course content." Variables related to teaching, learning, and the interaction of these are described this way: Dialogue, Structure, and Learner Autonomy.

- "A *dialogue* is purposeful, constructive and valued by each party."[2]
- "*Structure* expresses the rigidity or flexibility of the programme's educational objectives, teaching strategies, and evaluation methods."[3]
- "*Learner Autonomy* is the extent to which in the teaching/learning relationship it is the learner rather than the teacher who determines the goals, the learning experiences and the evaluation decisions of the learning programme."[4] *Learner Autonomy* suggests that students who are more self-directed can cope with TD.

A fourth dimension of TD, "student-course interface,"[5] is raised by Hillman, Willis, and Gunawardena. This concept is further defined by Chen as "the degree of user friendliness/difficulty that learners perceive when they use the delivery systems." Chen finds correlations among all four dimensions, resulting in the conclusion that "transactional distance is not simple, but complex…. Four factors–learner-instructor, learner-learner, learner-content, learner-interface characterize transactional distance in the environment"[6] and suggests that instructors implement strategies to facilitate interaction in distance education classes.

TD theory has generated several studies, by Chen,[7] Huang et al.,[8] and Kassandrinou et al.[9] There is agreement that Learner Autonomy must be further solidified in the literature. Garrison sees difficulty "with its definitional problems (psychological or educational…)" and expresses the need for more research on the interaction of Moore's variables.[10] Vasiloudis et al. found no relation between autonomy and TD.[11] Farquhar describes the theory itself as "a scale, upon which the variables…might be weighed."[12] Gorsky and Caspi state that the theory "may be reduced to a single proposition (as the amount of dialogue increases, transactional distance decreases) and that this relationship may be construed as a tautology, not a theory."[13]

Huang et al. investigated environmental and learner demographic factors on TD. Findings "supported an inverse relationship between high dialogue, high structure and high learner autonomy and lower perceived TD."[14] This finding supports Moore's view that more autonomous learners would be more comfortable with high TD.

In *Transactional Distance among Open University Students: How Does It Affect the Learning Process?* Kassandrinou et al. looked at perceived TD and its impact on student learning with a focus on "learner-learner" interaction. Findings show students value interaction with peers on coursework and for emotional support. Perceived low TD was equated with meaningful interaction with fellow learners.[15]

Transactional distance has application to librarians as they seek to provide online services to students and faculty in distance education programs. For example, in its 2016 *Standards for Distance Learning Library Services*, the Association of College and Research Libraries (ACRL) expresses the need for "ensuring the delivery of equivalent library services and information sources to college and university students, faculty, and other personnel in remote settings."[16] Embedded librarianship is essentially a point of need service as noted by Becker[17] and Heathcock.[18] This service is provided by a librarian to users in a variety of selected settings. Through a survey with more than 50 responses from academic librarians at the City University of New York (CUNY), Almeida and Pollack have found that embedded librarianship is considered "outside of the geographic boundaries of the library" and that it includes "pedagogical partnerships."[19] Furthermore, Kesselman and Watstein explain that, "with the dramatic increase in electronic resources and technological capabilities, bringing the library and the librarian to the user, wherever they are—office, laboratory, home, or even on their mobile device—is at the forefront of what it means to be *embedded*.[20]

In the online environment, embedded librarianship occurs when the librarian is integrated into the course management system (CMS) or learning management system (LMS).[21] *Library Technology Reports* explains:

Embedded librarians connect with faculty, who add the librarians to their LMS course…. The librarian then adds links to library resources, screencasts on using databases or working through the steps of research, citation guidance, and more. The librarian becomes a member of the course…[22]

Further, "it is imperative that the design of the embedded library content, including instructional materials and interactions, be tied to the needs of the learners and the course."[23] Raish provides guidelines on creating an embedded librarian program using the Canvas LMS. Recommendations are made for a SWOT analysis and an effort to determine what embeddedness means for a specific library and institution. The piece ends with a salient point, "… if you are going to add librarians to a course, it is going to be because they bring a level of expertise and support that cannot be accomplished through tutorials and written modules."[24]

Online embedded librarianship is a fairly recent area of practice. This is reflected in the literature that covers undergraduate[25] and graduate students.[26] Notably, the literature highlights the need to look at the role of the librarian in online courses, how students interact with librarians, and assessment of this practice in various contexts.[27] Alverson et al. focus on the need for authentic assessment of student work to determine the impact of embedded librarianship on student learning.[28] Further, the need to look at this practice "particularly examining the student interactions with content (instructional materials), librarian, and fellow students for their information literacy needs" was raised by Heathcock.[29]

To reduce TD, the literature encourages the instructor to consider four types of interaction: "student-student," "student-content," "student-instructor," "student-interface (course structure)." The authors endeavored to identify and explore other relationships that might be considered in ameliorating TD in an online class. In this study, the framework of embedded librarianship will be used to investigate possible interactions not identified by Moore.

The initial and revised questions articulated previously were reconciled to become the following research questions driving the investigation:

- Are there other interactions that can mitigate TD beyond those identified by Moore?
- Does the presence of an embedded librarian in an online course decrease TD experienced by students?

Specifically, it was determined that the students would be connected with the boundless resources in the library through the assignment and through a series of interactions with the embedded librarian. The authors now needed to implement intentional strategies aligned with "student-librarian" and "instructor-librarian" interactions to discover whether these new activities would reduce the disconnectedness (TD) in the online course.

Course Design and Activities

The annotated bibliography assignment, which was scaffolded as outlined below, allowed students the opportunity to select an area of interest to explore in Curriculum and/or Instruction. Timelines for completing each stage were provided. Students had access to assistance, feedback, or counseling from the instructor or librarian (if needed). Additionally, a rubric outlining expectations for successful assignment completion was made available.

TABLE 1 Annotated Bibliography Assignment Rubric			
Skills Sets	**Developing 1–11 Points**	**Accomplished 12–14 Points**	**Exemplary 15–16 Points**
Annotations	There is limited evidence of evaluation of the usefulness of the work as it relates to the information need/topic under research.	There is some evidence of evaluation and critical thinking on the usefulness of the work as it relates to the information need/topic under research.	Evidence of thorough description and high degree of analysis/evaluation of material making clear linkage to topic under research.
Citation Mechanics	There is limited evidence of citation mechanics specific to selected citation style: punctuation, capitalization, indentations, etc. as appropriate.	Some evidence of citation mechanics specific to selected citation style: punctuation, capitalization, indentations, etc. as appropriate.	Evidence of all necessary citation mechanics specific to selected citation style: punctuation, capitalization, indentations, etc. as appropriate.
Assignment Criteria	Little evidence of coverage of the assignment criteria in annotations.	Most criteria for the assignment have been addressed in annotations.	All of the assignment criteria have been addressed in each annotation.
Adherence to Timeline	More than two timelines were missed.	Most timelines have been followed.	All four timelines have been met.

Academic discourse was facilitated and encouraged through the provision of channels for sharing perspectives on scholarly materials. Specifically, discussion forums were dedicated for student postings on their topic of interest and the types of scholarly materials that they were exploring. This format facilitated communication among peers, instructor, and librarian, which was paramount. Therefore, the investigators established five lines of communication that were deemed critical to the success of this activity: "student-student," "student-instructor," "student-librarian," "student-course content," and "instructor-librarian."

Student-Student: One already existing (prior to fall 2015) means of communication in the CMS was a "Water Cooler" discussion thread. In this optional forum, students could informally discuss any general interest topics that were not specifically related to the course activities or assignments. This forum allowed students to feel connected and engaged and, therefore, build relationships. Students avidly used it to share ideas and practices.

A second, more formal, line of communication, for student-student interaction was, the "Annotated Bibliography Peer Sharing" thread that was used at different stages of the assignment. First, students used it to share their topics of interest. A posting was to include an explanation of topic selection, how it related to Curriculum and/or Instruction, and the appropriateness of the scholarly resources they were exploring for said topic. At this point, students could comment on their classmates' topics. Next, students were to upload a draft of their annotated bibliography to a Dropbox in the CMS. Individual feedback and guidance from the instructor and/or librarian were provided confidentially via email to each student. Students could respond to the feedback by email if needed. They were then to use the feedback to finalize their report. The last stage required students to share the final version of their annotated bibliography on the peer-sharing thread. Using these two lines of communication to facilitate "student- student" interaction aligns with Dzakiria's findings that effective learning will occur in an online environment supporting participation, response, and feedback.[30]

Student-Instructor: Besides the two lines of communication outlined above, students could connect with the instructor using the already existing (prior to fall 2015) "Housekeeping" discussion thread, email or during "Virtual Office Hours." The "Housekeeping" thread allowed class members to discuss things that impacted the running of the course: deadlines, readings, resources, assignment guidelines, and other such aspects. In general, this space mimicked the first five minutes of a face-to-face class. Students could also arrange a telephone conversation with the instructor.

Student-Librarian: Communication between student and librarian was introduced as a means to mitigate TD and occurred at various stages during the "Annotated Bibliography Peer Sharing" threaded discussion. The librarian and students discussed their research topics and specific scholarly materials. This communication enabled an exchange of ideas and allowed students to gain further insight and latitude in their areas of interest. Additionally, the librarian prepared a Libguide that was integrated into the CMS. This offered a research tutorial, an annotated bibliography tips sheet with examples, and other resources that students could consult to determine the appropriate research and evaluative strategies for successfully completing the assignment. An email option was also available for direct communication. The learning outcomes aligned with the annotated bibliography activity were: to evaluate the appropriateness of a scholarly work for a specific research need; to use citations to find other relevant sources of information; and to use appropriate citation formats.

Further, the librarian and instructor used a rubric to provide formative assessment/ feedback to students on their annotated bibliography drafts. Both librarian and instructor would agree on the summative assessment of the final version of the assignment. Thus, there were multiple opportunities for student-librarian interaction related to the assignment for the duration of the course.

Student-Course Content: In addition to using email, the "Housekeeping" thread, and "Virtual Office Hours" (in place prior to fall 2015), offering multiple avenues for user-friendly access to the content was important. Voice threads, PowerPoints, videos, and documents offered direct access to course content. The inclusion of the Libguide with the tutorial on how to use the ERIC database effectively and other research tools complemented the course content. Moreover, providing detailed instructions and a rubric for completing the annotated bibliography activity was also critical. This practice was in keeping with Huang et al., who state that "a flexible, yet formal structure would allow equifinality by providing opportunities for the learner to learn in multiple ways, indicating a higher level of learner control of his or her own learning as compared to a rigid structure that only allows linear progression and learning."[31]

Instructor-Librarian: Just as it is important in a face-to-face course for the students to discern that the Instructor and a Teaching Assistant (Librarian) are in sync, it is even more essential to communicate a unified front because of the nature of an online course. Therefore, the instructor detailed the role of the librarian, including highlighting her significant role in the evaluation of the assignment that was worth 16 percent of the final grade. Additionally, "instructor-librarian" communication was evident to students in the coordinated comments made to student postings on the "Annotated Bibliography Peer Sharing" thread. Also, the instructor's weekly course updates reiterated this role. Finally, the instructor and librarian communicated with each other either through email, by phone, or in person as needed. Periodic assessment of the course content and activities along with end-of-course meetings with instructor and librarian were critical to the success of this collaboration and achievement of course goals.

The authors received IRB approval from the institution to conduct the study of the impact of embedded librarianship (specifically in closing the TD) on graduate students enrolled in the online Curriculum and Instruction course in the fall 2017 semester. At the beginning of the semester, students were informed about the opportunity to participate in the study through a recruitment email. The 13-question survey was deployed after the students had submitted their final project (see appendix). These questions were developed to align with and further explore Moore's variables of Dialogue, Structure, and Learner Autonomy. They also sought to illuminate the research questions outlined above. There were no incentives to participate and students had the choice of opting out. The survey had multiple choice and open-ended questions. It remained open for three weeks with three reminders: one per week.

Results and Discussion

A total of 18 students were enrolled in this course, making the sample size inherently small. More than three-quarters (77%, n = 14) of students began the survey, but 72 percent (n = 13) completed it. Of the 14 respondents, 35 percent (n = 5) had not taken a fully online graduate course at Rutgers University or elsewhere, so this was their first experience with TD. Nearly two-thirds (64%, n = 9) had taken at least one online course: 3 had taken 1 to 3 online courses, 2 had taken 4 to 6, and 4 had taken more than 6 (see figure 1). Further, 77 percent (n = 10 of 13)

had never interacted with an embedded librarian or an Education Librarian in a fully online graduate course at Rutgers University or elsewhere. Therefore, the majority of the students enrolled in this Curriculum and Instruction course would have experienced TD without the intervention of an embedded librarian. In fact, when asked if they had any expectations regarding interaction with an embedded librarian 23 percent (n = 3 of 13) selected "Maybe" and 54 percent (n = 7 of 13) selected "No."

FIGURE 1
How many fully online graduate classes (at Rutgers University or elsewhere) have you taken before this class?
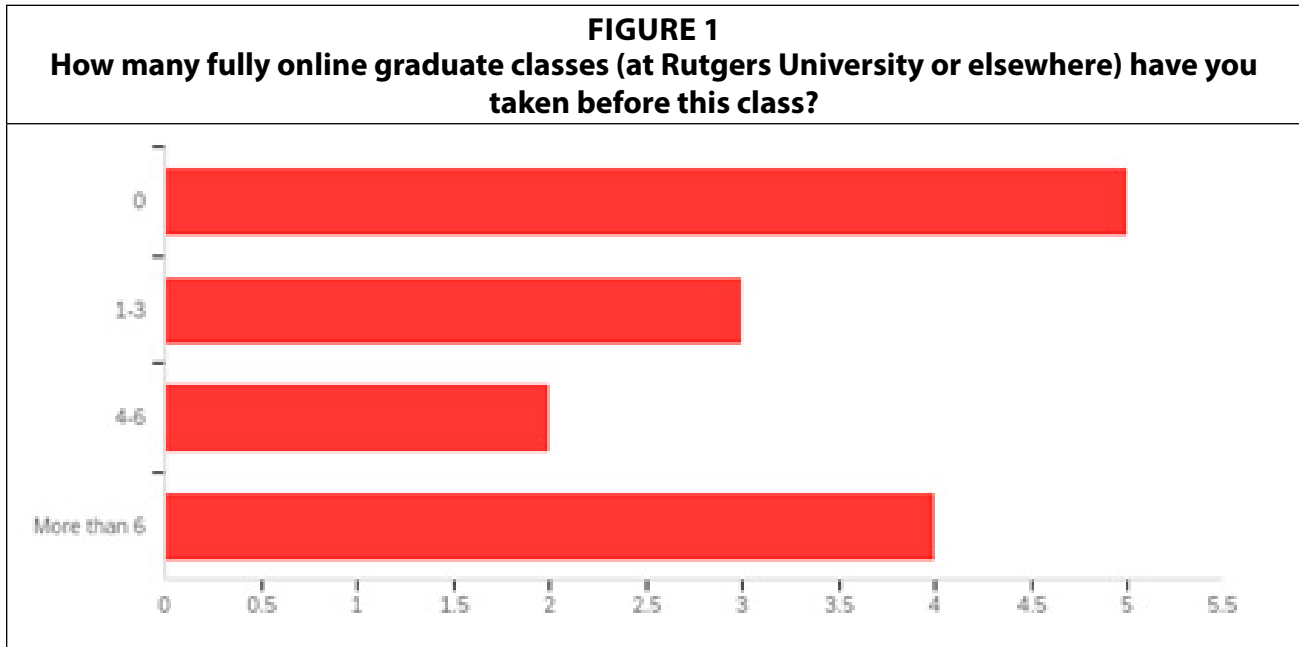
Selecting easily accessible platforms for communication was central for personalization and for reducing the TD. Emphasis was placed on selecting means of communication designed to serve as mediums to increase student engagement. When asked which aspects of the course structure heightened their sense of community in the online environment (select all that apply), 77 percent (n = 10) students selected "Direct Email to the Instructor," 77 percent (n = 10) selected "Discussion

FIGURE 2
Aspects of the Course That Heightened Your Sense of Community (Select all that apply)
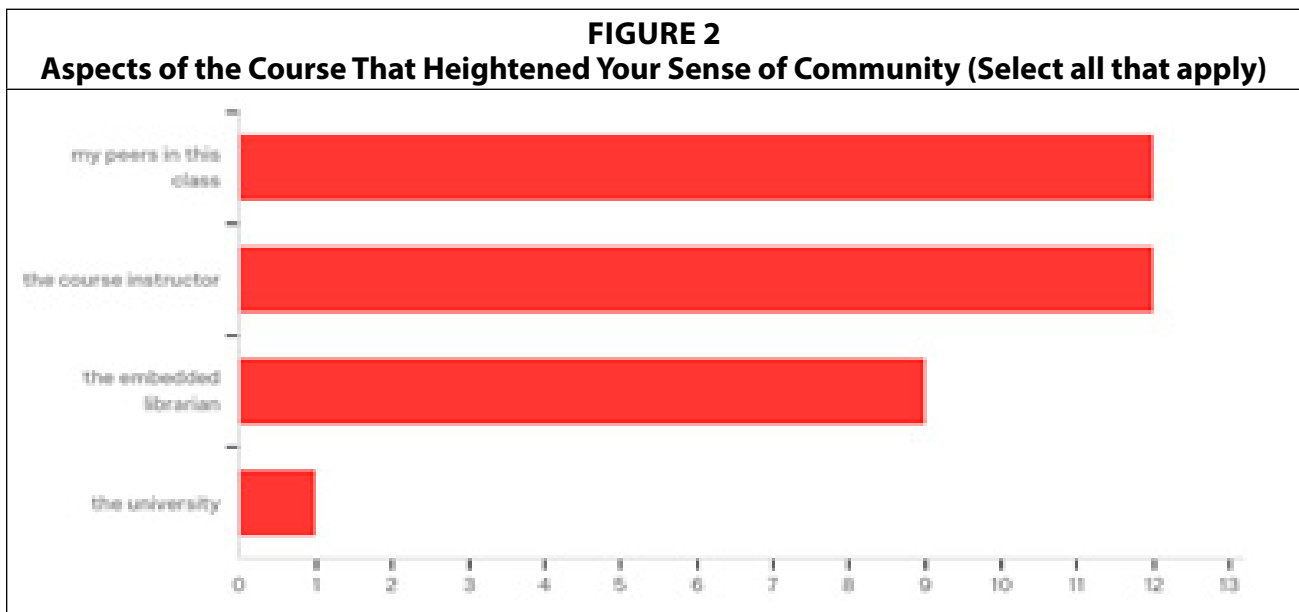
Thread on Annotated Bibliography Assignment," 54 percent (n = 7) selected "Communication with the Librarian," 23 percent (n = 3) selected the "Water Cooler Conversation." Notably, all the course participants were involved in the "Discussion Thread on Annotated Bibliography Assignment," including instructor and librarian, which suggests that the communication platforms served to reduce TD. Only one respondent selected "None of These" (see figure 2).

Additionally, because the course structure encouraged "student-student" dialogue, they were able to broaden their understanding of a topic, discover tangentially relevant connections to their interests, and solidify theories, concepts, and approaches in their personal areas of study and practice. Students began to review posts made by their classmates in the peer-sharing thread and started to use this medium to ask questions seeking more details of the content posted. In fact, 92 percent (n = 12) students indicated that the discussion thread served to help them feel more connected to their peers in the course (see figure 3). Therefore, these students, through these connections, experienced low TD. This enabled the expansion of their horizons in curriculum and instruction areas not of their original choice, which is in direct alignment with the instructor's intent of giving greater latitude to students, enabling them to go beyond the objectives delineated in the course description. Thus, one of the objectives of the course to go beyond the syllabus was achieved.

Further, the scaffolding of the annotated bibliography assignment with formative and summative assessments as well as its integration into the Annotated Bibliography Peer Sharing discussion thread developed an online learning community where student, instructor, and librarian were able to interact asynchronously around a common goal. Konieczny refers to this as "an unforeseen benefit of the (embedded) librarian in the discussion board."[32] This was also achieved through the "water cooler" communication channel where students discussed professional and, in some cases, personal concerns. Thus, there was significant student engagement: "student-course content," "student-student," "student-instructor," "student-librarian."

FIGURE 3
Course Structure and Activities Served to Help Me Feel More Connected to…
(Select all that apply)
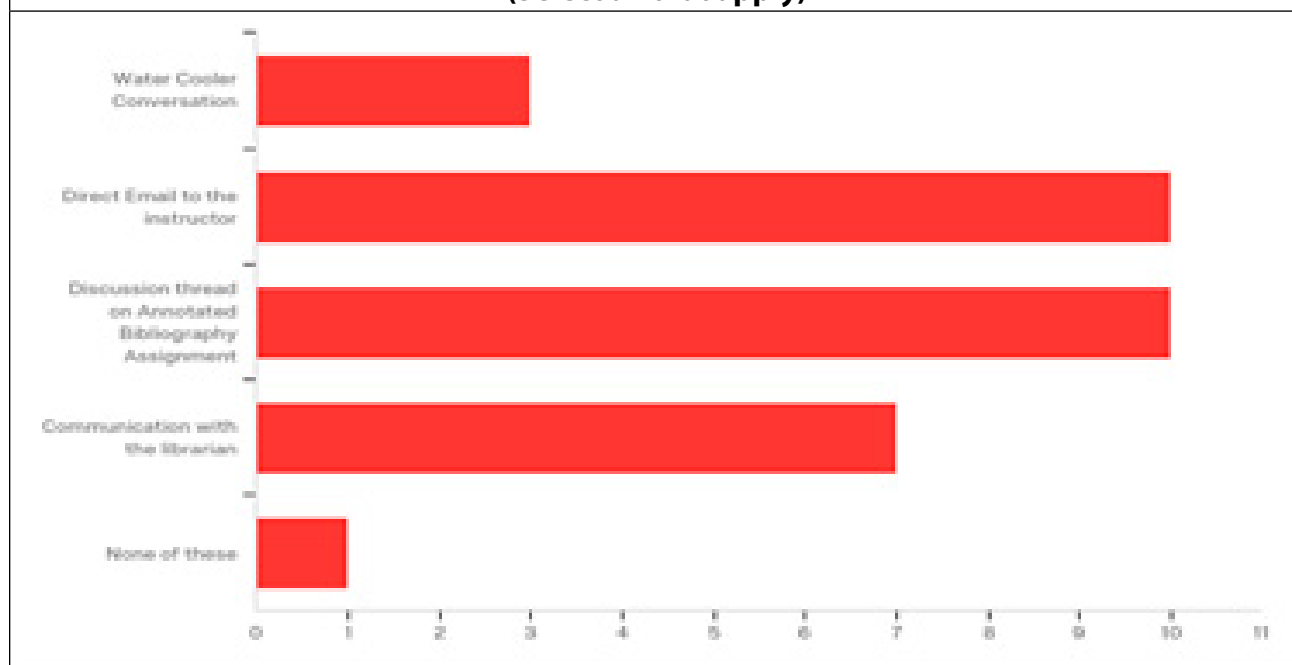
In the "instructor-librarian" dynamic, assessment was critical. Following the first pilot, as mentioned earlier, there were meetings on how the collaboration could be enhanced. It was noted that more clarification was needed on the annotated bibliography assignments and related activities. Changes were made to the rubric, and a timeline was added. More explicit instructions were given regarding the expectations of discussion board participation and uploading the draft annotated bibliography.

In the "student-librarian" dynamic, TD was shown to be mitigated as student comments expressed the appreciation for, and the importance of, direct contact with an embedded librarian. One comment was, "This option has never been available to me in my other online courses; just knowing that there was someone there was a huge relief, especially considering the independent nature of the way Rutgers University's online courses are set up." Some indicated that initially they were intimidated by the vast array of resources, but the presence of the librarian was helpful in wading through the materials. One student said, "Having an embedded librarian gave an extra level of support to the online class. Having never taken an online course before, I was concerned that I would be left to figure everything out by myself with no one to consult should I get stuck. [The librarian] had a clear webpage with useful resources that assisted me…and was always an email away if I needed more direct assistance. Her feedback on the annotated bibliography was helpful and constructive."

Students also wished that they had access to an embedded librarian earlier in their graduate school career. They appreciated the feedback they received on the types of scholarly sources they were using to construct the annotated bibliography. Thus, they experienced less TD through interaction with the librarian. There was one student who expressed that, although the comments of the embedded librarian were helpful in completing the assignment, the assistance was not necessarily required at this point in his/her academic journey. This statement indicates that this student may have experienced low TD in this course to begin with, which could be due to the number of online courses already taken and/or because this learner had already attained Moore's learner autonomy.[33]

Notably, the supporting tools such as the video tutorial on how to use the ERIC database and other research tips provided by the librarian proved valuable to the students. For example, one student stated, "The online tutorial and specific feedback on my draft were the two things I liked the most. The online tutorial helped me to know where and how to get started with my annotated bibliography, and the feedback on my bibliography helped me to narrow my focus on my topic." Another stated, "It was super helpful! Using all of the databases that Rutgers offers can be overwhelming, but the tutorial broke it down step by step." Further, 61 percent (n = 8) students "agreed" or "strongly agreed" that the video tutorial on research tips was needed to help them complete the annotated bibliography assignment. These comments suggest that the provision of such tools can assist in addressing the challenges originally defined by the instructor on *"How to efficiently and effectively connect students with the resources needed to address the diverse range of interests" and "How do you reduce the TD that exists between the student and the apparently bottomless resource potential?"*

Students were provided feedback from the instructor and embedded librarian at various stages while they worked on the annotated bibliography assignment: topic selection, article selection, and annotated bibliography draft. Seventy percent (n = 7) of respondents ranked "feedback on the annotated bibliography draft" as most valuable, 20 percent (n = 2) ranked the "feedback on topic selection in the discussion forum" second, and 10 percent (n = 1) selected

"feedback on article selection in the discussion forum" as third in order of value. None of the students selected "The feedback provided was not beneficial for me."

In response to what they would change about working with the embedded librarian, one response was, "I wish she made a video every week, related to finding resources on that week's topic specifically!" Eight respondents wouldn't make any changes to working with the embedded librarian, with one comment stating, "the embedded librarian was clear, direct, and was a resource that worked to our advantage."

Moreover, 77 percent (n = 10) of students selected a score ranging from 7 to 10 (10 being the most) in response to how much access to the embedded librarian increased their awareness of/engagement with educational resources specific to their discipline. Of those, three students selected 8, three selected 9, and three selected 10 (see figure 4).

FIGURE 4	
On a scale of 1 to 10 (1 being least and 10 being most), how did access to the embedded librarian/Education Librarian in the discussion thread increase your engagement with/ awareness of the educational resources specific to your discipline?	
Scale Rating (0–10)	**Number of Students**
0	0
1	0
2	1
3	1
4	0
5	1
6	0
7	1
8	3
9	3
10	3

Having completed the course, 70 percent (n = 10) of students expressed confidence in successfully constructing an annotated bibliography. Thirty-eight percent (n = 5) felt confidence in navigating the library website, while 15 percent (n = 2) were confident that they could follow appropriate citation formats. This finding suggests that, although the video tutorial on using the ERIC database was helpful in completing the assignment (61%), another general tutorial should be created to help students in navigating the library website. This would be a further step needed in reducing the TD in the vast library resources. Other potential tutorial topics could be citation mechanics or other related information literacy skills.

Using the rubric to provide formative and summative assessment of the annotated bibliographies revealed that students achieved the learning outcomes of evaluating the appropriateness of a scholarly work for a specific research need, using citations to find other relevant sources of information as well as using appropriate citation formats. However, the fact that students indicated that they were not confident in the latter, as indicated above, leads the authors to conclude that more avenues for instructing students in citation formats should be sought and implemented in the course tools.

Of interest, student responses illuminate a theme of connection that they experienced in the online environment, which is a clear indication of low TD. Some of these comments were:

- "…feedback (which) helped me to narrow my focus on my topic."
- "…guidance and feedback…"
- "Quick, timely, personalized feedback."
- "…personable and individualized responses…making it engaging…"
- "…an extra level of support…always an email away if I needed more direct assistance."

Thus, opportunities for communication that were integrated into the annotated bibliography assignment and in the course structure clearly reduced TD, which was the goal of this endeavor.

The majority of students expressed an increase in their level of competence in selecting academic resources specific to Curriculum and Instruction. Seventy-one percent (n = 10) selected "strongly agree" (n = 4) or "agree" (n = 6). Only one student selected "disagree." Thus, the learning objectives of the course were met and the integration of the embedded librarian in the class along with the course layout and resources, with opportunities for constant interaction served to reduce TD in this course. Notably, such expressions of confidence illuminate increased learner autonomy, another variable in TD. According to Moore, an increase in learner autonomy demonstrates low TD.[34]

Conclusion

Collaboration with a librarian is a strong means of supporting students in the online environment to reduce TD. Constructing an assignment that clearly outlines expectations, allows student autonomy to widen their scope of vision, supports and encourages various methods of communication, provides formative assessment, and allows sustained contact with a librarian is critical to encourage student engagement. This illuminates an important interaction, "instructor-librarian," not identified by Moore. Students were able to make a concrete connection with an information professional. This connection, initially facilitated by the instructor in a course, can be sustained on the part of students for the duration of their graduate education. This type of interaction is applicable to undergraduate online classes. Indeed, the earlier online students are able to interact with and feel comfortable with an embedded librarian (thereby experiencing low TD), the more equipped they will be for online graduate work.

The practice of embedded librarianship enables "student-librarian" and "instructor-librarian" interaction and is in direct alignment with Moore's TD theory. Specifically, the variable of Dialogue "is purposeful, constructive and valued by each party… the term 'dialogue' is reserved for positive interactions…The direction of dialogue in an educational relationship is towards the improved understanding of the student."[35] The structure of the online course must include Dialogue as one of its underpinnings, as evidenced by the provision of the five lines of communication presented in this model. Thus, the inherent disconnectedness in the online environment can be reduced.

A further key component of the interaction is assessment: formative assessment/feedback as students explore their areas of research and summative assessment as instructor and librarian consider results and make changes to enhance student engagement in future courses. With regard to libraries and the increasing need to demonstrate impact on student learning, "instructor-librarian" collaborations can glean novel ways to record and convey the value of and results of embedded librarianship activities.

The approach discussed here aligns with Moore's variable of Learner Autonomy. Students in this course are striving to become educational leaders who will need to become familiar with a wide range of instructional areas. Allowing students latitude in defining their own research agenda and making changes as they learn from each other was critical. Feedback from the librarian allowed them to go beyond their areas of experience, interests, and expertise. In addition, their own practice was enriched as they became familiar with other areas in the field of Education.

A limitation of this work is the small sample size, its being an enrollment of 18 students in this online graduate course. A further limitation is the absence of a comparative or controlled group that did not have access to the embedded librarian. This would be a recommendation for further study.

Notably, this study is generalizable in that it can be applied to other disciplines as well as undergraduate online courses (as mentioned earlier). It allows for the comparison of future cohorts over time, thereby facilitating possible longitudinal studies. With increased focus on remote instruction in higher education, librarians can focus on ways for more sustained interactions with students, chiefly via embedded librarianship. Indeed, achieving low TD in the online environment will also serve to help students to feel more connected with the institution. A further consideration for research could be whether such collaborations as outlined in this work can impact retention.

ASSIGNMENT

Annotated Bibliography Assignment

Purpose: The purpose of this assignment is to expand and/or enrich the readings, discussions, and written reports undertaken during this course. It is also intended to help develop your ability to read, think, and write critically about the significance of the content and to determine the relevancy, accuracy, and quality of the sources you selected to review. These skills will be essential as you endeavor to develop well-founded beliefs and perspectives in various aspects of Curriculum and Instruction.

Background: An annotated bibliography is an organized list of sources (may be any variety of materials: books, book chapter, documents, videos, articles, websites, and the like) with an accompanying paragraph that describes, explains, and/or evaluates each entry in terms of quality, authority, and relevance. The annotation that accompanies each entry is a brief (usually about 150 to 200 words) descriptive and evaluative paragraph. Its purpose is to inform the reader of the relevance, accuracy, and quality of the source cited. Thus, the annotation is descriptive and analytical/critical.

Instructions: For this assignment, you are to complete two (2) annotations. One of these annotations **must** be on an article. Since the length of each annotation should range between 150 to 200 words, it is essential that you strive to be concise, succinct, direct, and focused in completing each entry. Use the following list of items to guide the development of each annotation. Every annotation does not have to address all the statements listed below, but the **items in bold red must be included** in all responses:

- **identify the main focus or purpose of the work**
- **describe and evaluate the usefulness of the work as it relates to your topic or topics encountered during our course**
    - discuss strengths or weaknesses of the author's argument and supporting thesis
    - identify/discuss any limitations that the work may have (grade level, scope, timeliness, or any other limitations)
    - provide the background and state the credibility of the author
    - identify special features of the work that were unique or helpful
- discuss conclusions reached by the author
- **discuss conclusions reached by you (your reaction)**
- **provide complete bibliographic citation (in APA, MLA, or another style guide)**
- identify author's method of obtaining data or doing research (in other words, qualitative or quantitative)
- identify author's bias or assumptions underlying the rationale or basis of work
- identify distinctive or appended materials (that is, charts, surveys, photos, and so on)

Each annotation will be evaluated based on the "Annotated Bibliography" rubric provided in the "Grading Policy" portion of our course—particular emphasis will be placed on how well the above criterion is addressed. The annotated bibliography assignment is worth 16 percent of the final grade for this course.

IMPORTANT: We are very fortunate to <u>have Leslin Charles, an Instructional Design/Education Librarian</u>, who specializes in educational research, as our "embedded librarian" for the entire time of our course! So, for assistance at all stages in completing this assignment or any assignment, you can email her or post questions to her using the "Annotated Bibliography Peer Sharing" threaded discussion listed under the "Course Home" portion of our course. Also, for assistance in completing this assignment, our "embedded librarian" has prepared an "Annotated Tips and Examples" presentation, and a "Library Resource" option you can consult to determine the appropriate research and evaluative strategies for successfully completing this assignment and to select the most valuable resources focusing on your topic. It is highly recommended that you explore this site before starting to complete this assignment. You can access this site by clicking here.

Important: a sample annotated bibliography that includes the correct format to be followed when completing this assignment can be accessed here.

APPENDIX. Impact of Embedded Librarianship

Survey Questions

Q1 How many **fully online graduate classes** (at Rutgers University or elsewhere) have you taken **before** this class?

- □ 0
- □ 1–3
- □ 4–6
- □ More than 6

Q2 Having completed this course, I have become more competent in selecting academic resources specific to Curriculum and Instruction.

- □ Strongly Agree
- □ Agree
- □ Neutral
- □ Disagree
- □ Strongly Disagree

Comments

Q3 Which aspects of the course structure heightened your sense of a community in this online environment? Select all that apply.

- □ Water cooler conversation
- □ Direct email to the instructor
- □ Discussion thread on annotated bibliography assignment
- □ Communication with the librarian
- □ None of these

Comments

Q4 The course structure and activities: discussion thread, selection of topics, access to the course instructor, provision of feedback served to help me feel more connected to… (Select all that apply)

- □ my peers in this class
- □ the course instructor
- □ the embedded librarian
- □ the university

Comments

Q5 Feedback was provided to you at several intervals during this course. Select all that were beneficial for you to complete the annotated bibliography assignment. Rank in order of value.

_____ Topic Selection Shared in the Discussion Forum
_____ Article Selection Shared in the Discussion Forum
_____ Annotated Bibliography Draft
_____ The feedback provided was not beneficial for me

Comments

Q6 Have you ever interacted with an embedded librarian/Education Librarian in your **fully online graduate class** (at Rutgers University or elsewhere)?

☐ Yes
☐ No

Q7 Did you have any expectations regarding interaction with the embedded librarian/Education Librarian?

☐ Yes
☐ Maybe
☐ No

Comments

Q8 The video tutorial on research tips was needed to help me complete the annotated bibliography assignment.

☐ Strongly agree
☐ Agree
☐ Neutral
☐ Disagree
☐ Strongly disagree

Comments

Q9 Having completed this course, I am confident that I can successfully…

	Construct an annotated bibliography	Navigate the Rutgers Library webpage	Utilize the ERIC database	Follow appropriate citation formats	Chase citations
Strongly Agree					
Agree					
Neutral					
Disagree					
Strongly Disagree					

Comments

Q10 On a scale of 1–10 (1 being least and 10 being most), how did access to the embedded librarian/Education Librarian in the discussion thread increase your engagement with/awareness of the educational resources specific to your discipline?

- □   0
- □   1
- □   2
- □   3
- □   4
- □   5
- □   6
- □   7
- □   8
- □   9
- □   10

Comments

Q11 What have you liked MOST about working with the embedded librarian/Education Librarian in this course? Please Explain

Q12 Is there anything you would want to CHANGE about working with the embedded librarian? Please explain.

Q13 Please share any other thoughts/experiences/opinions on the involvement of the embedded librarian/Education Librarian in your online experience in this class.

Notes

1. Michael G. Moore, "Theory of Transactional Distance," in *Theoretical Principles of Distance Education*, ed. D. Keegan, *ERIC*, EBSCO*host* (1993): 22–38.

2. Moore, "Theory of Transactional Distance," 24.

3. Moore, "Theory of Transactional Distance," 26.

4. Moore, "Theory of Transactional Distance," 31.

5. Daniel C.A. Hillman, Deborah J. Willis, and Charlotte N. Gunawardena, "Learner-Interface Interaction in Distance Education: An Extension of Contemporary Models and Strategies for Practitioners," *American Journal of Distance Education* 8, no. 2 (1994): 30–42, http://doi.org/10.1080/08923649409526853.

6. Yau-Jane Chen, "Dimensions of Transactional Distance in the World Wide Web Learning Environment: A Factor Analysis," *British Journal of Educational Technology* 32, no. 4 (2001): 459–70.

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8. Xiaoxia Huang et al., "Understanding Transactional Distance in Web-based Learning Environments: An Empirical Study," *British Journal of Educational Technology* 47, no. 4 (2016): 734–47, http://doi.org/10.1111/bjet.12263

9. Amanda Kassandrinou et al., "Transactional Distance among Open University Students: How Does It Affect the Learning Process?" *European Journal of Open, Distance and e-Learning* 17, no. 1 (2014): 26–42.

10. Randy Garrison, "Theoretical Challenges for Distance Education in the 21st Century: A Shift from Structural to Transactional Issues," *International Review of Research in Open and Distributed Learning* 1, no. 1 (2000), https://doaj.org/article/075f7db4d0cd4ffbaece44eff0b627c5.

11. G. Vasiloudis et al., "Transactional Distance and Autonomy in a Distance Learning Environment," *European Journal of Open, Distance and E-Learning* 18, no. 1 (2015): 114–22.

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14. Huang et al., "Understanding Transactional Distance in Web-based Learning Environments."

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16. "Standards for Distance Learning Library Services," *Association of College and Research Libraries*, www.ala.org/acrl/standards/guidelinesdistancelearning [accessed 6 January 2020].

17. Bernd W. Becker, "Embedded Librarianship: A Point-of-Need Service," *Behavioral & Social Sciences Librarian* 29, no. 3 (2010): 237–40, http://doi.org/10.1080/01639269.2010.498763.

18. Kristin Heathcock, "Embedded Librarians: Just-in-Time or Just-in-Case? A Research Study," *Journal of Library & Information Services in Distance Learning* 9 (2015): 1–16, http://doi.org/10.1080/1533290X.2014.945877.

19. Nora Almeida and Julia Pollack, "In Bed with the Library: A Critical Exploration of Embedded Librarianship at the City University of New York," *Communications in Information Literacy* 11, no. 1 (2017): 122–46, http://search.proquest.com/docview/1927092992/.

20. Martin A. Kesselman and Sarah B. Watstein, "Creating Opportunities: Embedded Librarians," *Journal of Library Administration* 49, no. 4 (2009): 383–400, http://doi.org/10.1080/01930820902832538.

21. Becker, "Embedded Librarianship"; Jennifer Easter, Sharon Bailey, and Gregory Klages, "Faculty and Librarians Unite! How Two Librarians and One Faculty Member Developed an Information Literacy Strategy for Distance Education Students," *Journal of Library & Information Services in Distance Learning* 8, no. 3/4 (2014): 242–62, http://doi.org/10.1080/1533290X.2014.945867; Heathcock, "Embedded Librarians"; Alison Konieczny, "Experiences as an Embedded Librarian in Online Courses," *Medical Reference Services Quarterly* 29, no. 1 (2010): 47–57, http://doi.org/10.1080/02763860903485084; Victoria Raish, "Librarian Role and Embedded Librarianship," *Library Technology Reports* 54, no. 5 (July 1, 2018): 24; A.C. York and J.M. Vance, "Taking Library Instruction into the Online Classroom: Best Practices for Embedded Librarians," *Journal of Library Administration* 49, no. 1/2 (2009): 197–209, http://doi.org/10.1080/01930820802312995.

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23. Mary E. Edwards and Erik W. Black, "Contemporary Instructor-Librarian Collaboration: A Case Study of an Online Embedded Librarian Implementation," *Journal of Library & Information Services in Distance Learning* 6 (2012): 284–311.

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34. Moore, "Theory of Transactional Distance," 31.

35. Moore, "Theory of Transactional Distance," 24.