Gaining Ground: OER at Three Health Sciences Institutions

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Background: Open Educational Resources (OER) are rising in popularity at higher education institutions to help combat high textbook costs. To date, little research has been published discussing the impact of OER in the health sciences context. This comparative case study seeks to fill this gap.

Experience: The article shares OER programs and advocacy efforts at three institutions, including a brief history of OER work, barriers and failures, current successes, and future directions at each institution.

Discussion: All three institutions are making efforts in OER outreach and advocacy, informed and impacted by their institutional community. Two institutions have an OER grant with increasing submissions from health sciences faculty. OER work is completed by one librarian at two of the institutions, while the third completes the work through a committee of stakeholders from across the institution. All cases include OER advocacy and outreach through library workshops and working to establish faculty partnerships. Barriers at all three institutions include a lack of time and funds to dedicate to finding or developing OER. Unique barriers include a desire to work with for-profit companies, concerns over disadvantaging students on their qualifying exams, and the sustainability of institutional efforts in OER.

Takeaways: Libraries are uniquely situated to support faculty and staff as they incorporate OER into their practices. While health sciences faculty are typically slower to adopt OER, once they do take this step, they become strong advocates for open practices, the librarian, and the library.

Background

Textbooks and ancillary materials are a key component of higher education, providing important content and helping to guide student learning. Yet textbook costs have risen exponentially, often at a rate faster than other industries, including child care, housing, and food.[1] These disproportionately high costs impact students' academic careers, including which courses students take, how well they do in those courses, and which majors they select.[2-4] Open Educational Resources (OER) have emerged as one solution to address the barriers that high-cost textbooks create and enhance student success.

UNESCO defines OER as

> learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others.[5]

An OER can be any type of instructional material that has been openly licensed, including textbooks, videos, images, slide decks, and question banks. Although a few OER publishers have emerged (e.g. OpenStax[6]), most OER are created by faculty as a perfect resource for a class they teach. Sometimes, students become a central part in the creation of OER, a practice known as open pedagogy or OER-enabled pedagogy. Examples of open pedagogy include collaboratively authoring a textbook as a part of a class, editing Wikipedia articles, or generating study guide questions.[7,8]

Studies show that OER can alleviate student financial burdens, reduce barriers to access, and increase learner engagement, with similar or improved learning outcomes compared to their commercial counterparts.[9,10] As such, these resources have gained popularity, especially in high enrollment and general education courses.

To support and encourage this growth, many academic libraries have developed OER initiatives. Libraries are a natural fit to lead textbook affordability initiatives, which are focused on increasing access and student success. This focus is an extension of the library values of universal access and supporting the students, teachers, and researchers of their home institutions. The work is similarly an extension of both long-existing library services, such as instruction support, and emerging services, such as publishing support.[11-13]

Often in partnership with other university units, library OER initiatives educate about, advocate for, and support the adoption, adaptation, and creation of OER. Instructors typically have a low awareness and understanding of OER and their underlying copyright licenses.[14,15] In order to encourage OER usage, library resources and staff work to overcome this barrier, as well as other commonly articulated barriers to adoption, such as difficulty in locating appropriate resources or concerns about quality.[14,16,17]Libraries also often administer grant programs and/or provide access to platforms to enable the creation of resources.[11] Research shows that these initiatives result in a higher adoption of OER resources.[18]

OER in health sciences

Many case studies provide an overview of OER initiatives or analyze the impact of OER in academic courses (e.g., see the Open Education Group bibliography).[19] However, few articles study OER specifically in the health sciences context. Those that do venture into this area may review health science specific resources, like Free Open Access Medical Education (FOAM), a website that shares OER for medical education.[20-22] Additionally, a few case studies explore library OER support in the health sciences, such as Bridgeman's review of the Open and Affordable Textbooks

program at Rutgers Biomedical and Health Sciences, which shares successes such as a student-developed course pack for a psychiatric clerkship program and an open radiology textbook developed in collaboration with students.[23]

It is unclear whether this limited existing literature results from a lack of write-ups, the focus of initiatives on undergraduate courses, or a true lack of OER use in the field. Like their academic peers, students in health sciences feel the burden of the cost of higher education. According to the National Center for Education Statistics, the average loan balances for those who complete medical and health sciences doctoral programs doubled between 1999/2000 and 2015/2016. By that time, nearly 75% of health sciences doctoral students and 81% of medical students were burdened with student loans.[24] While textbooks may seem like a small portion of this debt, the cost of textbooks can have a disproportionate impact on students' higher education experiences. According to a survey of over 700 institutions, most emergency aid for students (e.g. campus vouchers or emergency loans) is between $100-$500.[25] This amount can equal the cost of a student's textbooks. Since faculty can choose which texts to assign, they have the power to remove this stressor and impediment to success, completion, and retention by using OER.

This article aims to fill a gap in the literature by providing three case studies of library support for OER in the health sciences. These experiences will highlight both the library programs and the concerns and interests of the health sciences faculty served. By sharing our stories, the authors hope to provide an understanding of the unique barriers health sciences faculty may face in adopting OER and outline a foundation for other librarians looking to build support for OER in the health sciences.

Experiences

In this article, the authors share their experiences supporting OER in the health sciences at three institutions: Virginia Commonwealth University (VCU), West Virginia University (WVU), and the Medical University of South Carolina (MUSC). Appendix A[26-30] provides an overview of these institutions. In each section, the author's initials are used in place of other pronouns: JK in VCU, JM in WVU, and CA in MUSC.

VCU

Background: OER at VCU

VCU's diverse student body includes a large percentage with backgrounds especially vulnerable to textbook costs, such as underrepresented minorities, Pell Grant recipients, and first-generation students (all approximately 1/3 of incoming freshman classes).[27,31] Because of this student body composition, textbook affordability has been a priority for VCU Libraries (VCUL) since 2016,[32] beginning with a statewide membership with the Open Education Network (OEN) through VIVA, Virginia's Academic Library Consortium, and corresponding open textbook workshops.

In 2017, VCUL launched a grant program, the Affordable Course Content Awards,[33] to

provide financial and project support to those looking to adopt, customize, or create free resources. This program is offered annually, funding 32 projects over six cohorts. VIVA also awards grants for OER adoption and creation, which are open to all faculty in Virginia. VCU faculty typically apply each VIVA grant cycle, with 11 successful applications over 5 cycles.

To support the initiative, VCUL hired a dedicated OER Librarian in 2019. While based on the Monroe Park Campus, the OER Librarian supports the whole VCU community. Since then, VCU's Open and Affordable Course Content Initiative has slowly grown. Starting in early 2022, the initiative began hiring student workers to support faculty OER publishing, primarily via a locally hosted Pressbooks instance.[34] The current initiative focuses on support of textbook affordability through consultations, outreach and education (e.g. workshops), a grant program, and OER creation support. Some hurdles emerged from supporting one initiative across two campuses, such as where to schedule workshops to ensure campus parity. These barriers will not be explored here, as the article focuses specifically on support on the health sciences campus.

Barriers and failures

OER support is equally available to both VCU campuses. However, uptake seems to be slower on the MCV campus. While this difference could be partly due to MCV's smaller size (5 schools vs Monroe Park's 10), it may be more reflective of the priorities and availability of those on the health sciences campus. Many MCV faculty have clinical responsibilities alongside teaching and research requirements, leaving them less time to focus on other projects.

Confusion about OER and the grant program often emerges when discussing OER with MCV faculty. While confusion about OER seems omnipresent in OER advocacy at VCU, the latter seems to be unique to the health sciences campus. For example, some expressions of interest for VCUL's grant program focused on funding the development of new courses (e.g. a complete canvas course shell), rather than new course materials (e.g. a textbook or assignments). While this confusion may result from the language used in marketing, similar questions are not encountered on the academic campus. Further, these projects often focus on non-credit-bearing classes, such as preparation for global residencies, making the projects misaligned with the grant programs. JK has also encountered faculty interest in working with or publishing materials via commercial options, such as partnering with a commercial company to produce an app for diagnostics. While this preference for commercial options is not unique to the health sciences, this hesitation to move to free and open seems more pronounced in the consultations with MCV faculty.

Even when there is interest in OER, finding appropriate resources is often more difficult due to fewer available OER in the health sciences. To overcome this dearth, JK recommends faculty search granularly by specific topics to find short, focused resources, which are easier to create and thus more likely to exist. These resources can then be remixed into a larger resource aligned with class syllabi. JK also gives this recommendation on the academic campus for more niche topics.

Successes

Even with these hurdles, JK has encountered OER successes on the MCV campus. Faculty requests for assistance in locating affordable textbooks are consistent, if few in number. One faculty member even expressed interest in developing a structured open pedagogy project, which was the first such consultation JK received across both campuses.

Although few health sciences faculty attended Open Education Week events or Open Textbook Workshops in person, when the latter moved to online and asynchronous in Summer 2022, 7 out of 28 participants (25%) were from the MCV campus, including 4/20 who completed the course (20%). Four of the 7 enrolled MCV faculty had not previously interacted with JK through workshops or consultations, which implies they enrolled out of an interest in textbook affordability.

Additionally, VCUL has seen a number of health sciences grant applications for both the institutional and state grant programs. Out of these, four projects were successfully awarded local grants and one was awarded state funding. These funded projects are some of the most innovative and diverse that VCUL has supported. Examples include an interactive histology atlas,[35] which is one of the few VCU OER to break from replicating the print book to take advantage of the digital environment, and student-created modules reviewing dermatological manifestations of rheumatological diseases with a focus on providing examples from persons of color,[36-38] filling a gap in existing medical education.

These faculty–and students–made creating free and pedagogically advantageous resources a priority. They also became OER advocates, many discussing both OER and the grant program with their colleagues. Faculty development staff at health sciences schools also emerged as key OER advocates, a relationship not replicated on the academic campus. These staff are always willing to promote VCUL programs, which is often more impactful than emails from the library. They also invited JK to give school-specific workshops, which has rarely happened otherwise. JK also delivered department-level presentations, again, a rare occurrence elsewhere.

For those who cannot find an OER and do not wish to create something new, VCUL offers support for unlimited license ebooks. Although not open, these materials offer professors a wider choice of available resources, oftentimes the same that they are already assigning, while still enabling free access for students. Health sciences course materials are often more standardized than those on the academic campus, so ebooks can have a long and meaningful impact when open is not available.

Future directions

VCUL will continue to ensure that the health sciences campus is included in decisions, from scheduling and logistics to communications. VCUL may explore departmental-specific outreach, which has already seen high interest and impact on the MCV campus.

WVU

Background: OER at WVU

The WVU Libraries (WVUL) OER Committee was established in 2016. Over time, the OER Committee became large enough that two subcommittees were formed: the OER Grant Subcommittee and the OER Advocacy and Faculty Development Subcommittee. Most of the committee work is completed through these subcommittees, with both groups occasionally convening to discuss OER at the institution more broadly. Most WVUL locations, the WVU Teaching and Learning Commons (TLC), and the Provost's Office have representation on the committee, with the potential for a representative from the Student Government Association as well.

Library administration is highly supportive of incorporating open practices into all library work. In fact, values of open access were incorporated directly into the 2023 Strategic Roadmap. Goal 2 of the Roadmap is to "be a leader in the creation and dissemination of knowledge,"[39] with an initiative to "pursue alternative research and publishing models to improve access to materials in anticipation of rising collections costs and budgetary restrictions."[39]

Successes

WVUL's OER initiatives and support have grown over the years. Currently, the library has an OER Grant, an Open Textbook Workshop Initiative, the Shining Minds Textbook Program, and an educational workshop series. Because OER work is completed through the OER Committee, it is hard to parse out health sciences specific participation. That said, all opportunities discussed are equally available to the Health Science Center (HSC), and three health sciences librarians serve on the OER Committee.

The OER Grant was born out of a partnership between WVUL and the TLC. The purpose is to "encourage development of alternatives to high cost textbooks, lower the cost of college for students, and support faculty who wish to implement new pedagogical models for classroom instruction."[40] The grant has three available categories: Incorporate, for instructors seeking to replace an existing commercial textbook with a no or low-cost (less than $50) alternative; Innovate, for instructors with plans to remix new or existing openly licensed content for their course; and Create, for instructors with plans to create a new OER to meet the needs of their course. Library support is available for awardees in all three categories, including Creative Commons license education and subject liaison librarian consultations. Submissions for this grant run annually and have grown over time, including some successful submissions from health sciences instructors.

The Open Textbook Workshop Initiative is a combination training program and open textbook review. Attendees participate in a two-hour session on discovering open textbooks in their field, then write a short review of an open textbook. After attending both the session and writing their review, instructors are eligible to receive a $200 stipend for their efforts.[41]

The Shining Minds Textbook Program was established in 2021. When students own textbooks published within the last 10 years that they no longer need, they can donate them to the library. These textbooks are then cataloged and shelved together within the library, and students can check out a book for the semester.[42] While not OER, this program increases access to some textbooks for students, with Health Science Library's (HSL) Shining Minds Textbook Collection continuing to grow.

In addition to these programs, members of the WVUL OER Committee hosted a workshop series titled *Exploring Open Education: Concepts and Applications* during Open Education Week 2022. Faculty, staff, and graduate students attended sessions on OER, open pedagogy, and Creative Commons; how to find OER; popular platforms for publishing OER; and an information session about applying for the WVU OER Grant.[43] The committee received positive feedback. Attendance was higher than anticipated, with a core group of people attending multiple sessions throughout the week.

Barriers and failures

At WVU, faculty in the health sciences are hesitant to adopt OER. A common barrier is the perceived time investment given competing responsibilities and priorities. Some faculty in the HSC have teaching responsibilities, but other faculty spend most of their time in clinics and/or teaching medical residents at the point of care. WVUL has struggled to make inroads with this latter group. Similarly, given WVU's R1 status, the institution places emphasis on research activities, leaving faculty little time to explore ways to incorporate OER into their teaching responsibilities.

Anecdotally, another reason health sciences faculty hesitate to incorporate OER is the fear of inadvertently hindering students' success on their qualifying exams. JM has suggested to faculty that they could incorporate open pedagogy into program design, specifically through creating study material for board exams as students progress through the program. While this idea works in theory, it remains untested at the time of this writing.

Future directions

There are several projects or initiatives on the horizon. Several stem from WV House Bill 2853, which mandates the expansion of OER for public colleges and universities in West Virginia.[44] This mandate will require a course marking system as well as annual reporting to the state on the number of OER courses offered, the amount of students taking these courses, costs savings per student, and aggregated savings for all students. Tracking this data will also be useful for WVUL in measuring the culture of OER at the institution over time.

The OER Advocacy and Faculty Development Subcommittee is piloting an Affordable Syllabus Review Service. This on-demand service is available to WVU faculty and graduate student instructors looking to reduce the cost of course materials. Instructors will work with a librarian to review their syllabus for affordable, free, and/or openly licensed alternatives to current commercial course content. The service is also able to

help instructors identify course materials that represent perspectives and content from/about historically marginalized populations and scholars, introducing representative and recognitive justice[45] principles into consultations. At this time, the pilot has stalled due to staffing turnover.

WVUL also aims to create a health sciences specific OER guide, with strategies for finding, implementing, and creating open resources in the health sciences, and revise the OER Grant application. Many new open services and programs are likely to follow given the immense support of library administration for incorporating open practices into library work.

MUSC

Background: OER at MUSC

MUSC Libraries (MUSCL) is in the preliminary stages of developing an OER program and does not currently have formal affordable learning initiatives in place. Early efforts focused on promoting library-subscribed resources and investigating institutional purchasing options for all requested materials to alleviate student costs. Recognizing MUSCL's role in leading affordable learning initiatives at our institution, library administration encouraged CA to earn a Certificate in OER Librarianship from the OEN in 2022, to lead the investigation to identify best practices for OER initiatives in health sciences education and implement them at MUSC.[46] With support from the Provost's Office and the Office of Institutional Effectiveness, reducing student costs has become a priority across campus, opening the door for OER efforts to begin.

Successes

As an institution in the early stages of launching an OER initiative, MUSC is still in the initial phase of outreach and communication but is well-positioned to make great strides during the 23-24 academic year. CA was selected as one of MUSC's inaugural Education Innovation Advocates (EIA), a pilot program encouraging faculty to "think big" and reimagine the teaching and learning experience. This created an opportunity to bring OER to the attention of senior leadership and garner their invaluable support,[47] and provided a contact with a direct line of communication to each college. This role also provides the library with unique opportunities to connect with faculty, including an OER poster presentation at an institutional teaching and learning conference and a corresponding video story to raise awareness about OER on campus. Additionally, CA is a designated member of MUSC's Education Committee, whose membership includes key stakeholders in the instructional/educational technology departments across campus, again providing the library with a valuable opportunity to communicate OER efforts directly to individuals who support teaching faculty. Building relationships and opening lines of communication has been our biggest success to date.

Barriers and failures

Barriers to OER adoption at an academic health sciences center are not significantly

different than at a multidisciplinary university. Barriers include a lack of awareness about the existence of OER and its benefits and where to find high-quality OER. MUSC's health sciences faculty consider content, design, usability, engagement, and readability when assessing quality for OER adoption. Competing priorities are also a challenge for MUSC faculty who do not have the time or energy to find and appraise OER to redesign their courses around. Conversations with MUSC faculty identified additional barriers such as the lack of funding or awards to encourage OER adoption/creation and uncertainty about the long-term sustainability of institutional OER initiatives.

Future directions

The future landscape of OER initiatives is uncertain as MUSC explores uncharted territory, but first steps include expanding outreach and education efforts with an OER LibGuide and workshop offerings. The Partnership Among South Carolina Academic Libraries (PASCAL) launched South Carolina Affordable Learning (SCALE) in 2020, an initiative seeking to reduce the cost of higher education by promoting the use of high-quality, low-cost/no-cost learning materials. MUSCL plans to apply for the next cycle of the SCALE Affordable Learning Grants, which aim to support member libraries in increasing institutional awareness of affordable learning initiatives and create programs that encourage the adoption, revision, or development of OER.[48]

With support from MUSC leadership, CA hopes to form an interdisciplinary OER committee. This group of key stakeholders would be charged with planning major OER and OA initiatives, including grant funding, an author fund, publishing support, faculty awards, bootcamps, and microcredentials for faculty who demonstrate mastery with affordable learning educational innovations.

Discussion

Each of the presented OER programs varies in its development, growth, successes, and failures. See Appendix B for a side by side comparison of the institutions. While each institution's story is reflective of its individual context and populations, reviewing them in tandem can begin to shed light on the state of OER at health sciences supporting institutions.

OER initiatives

These three institutions follow the common trend of strong library support and advocacy for developing, growing, and sustaining their campus's OER initiatives. Despite this common support, the three institutions vary in the current state of their initiatives. While both VCU's and WVU's efforts began around 2016, MUSC is in the early stages of initiative development. This gap may be reflective of the differing focuses of the institutions. VCU and WVU both include academic departments, which align with the original focus of many OER efforts, introductory and general education courses, as exemplified by OpenStax's core textbook offerings.[6] Meanwhile, MUSC is solely focused on health sciences, disciplines that have traditionally been slower to turn to open education. The health sciences focus may also be tied to MUSC's worry about

the long-term sustainability of their institutional OER efforts. While the other institutions may have questions about the future directions of their initiatives, they do not share MUSC's uncertainty about initiative sustainability. This worry could alternately be tied to its early stage, while the other two initiatives studied here have a proven record.

In another difference, WVU is the sole case where a majority of OER work is completed at the committee level. The inclusion of important stakeholders from across the institution helps demonstrate OER as an institutional priority and keeps the library informed of other OER-related initiatives and ideas across the organization. Although not yet successful, both VCU and MUSC have expressed interest in replicating this model for exactly the reasons WVU has chosen to adopt it. Even though MUSC is just starting OER work, their efforts already seem to be gaining interest on the institutional level. The inclusion of the librarian in the EIA program and on the Education Committee will be excellent opportunities for OER outreach and advocacy efforts, as well as an excellent place to find future collaborators.

In our discussions, the authors also learned that both VCU and WVU have numerous initiatives in the realm of open access more broadly, and MUSC also has interest in expanding into open access more generally. Many of these open access efforts have seen wide success in the health sciences, likely due to those disciplines' focus on research and health sciences funding mandates for open access publications.[49,50] Further discussion of other open efforts is outside the scope of this article.

Faculty engagement

Despite WVU's and VCU's successful OER initiatives, both case studies reflect that health sciences faculty are slower to engage with OER than those in other disciplines. However, this slow engagement does not correspond to a lack of interest. MUSC's celebration of their nascent exploration into OER shows how the concept resonates with health sciences faculty and administration. VCU's and WVU's initiatives continually see interest from health sciences faculty in workshops and grants, emphasizing that these faculty often share the same dedication to teaching evidenced by those in other disciplines.

While there is no clear reason for the lack of high health sciences faculty engagement with OER, a couple of possibilities emerge from the case studies. First, all three narratives emphasize that health sciences faculty face many competing responsibilities. In addition to teaching and a focus on research, many health sciences faculty have clinical responsibilities, which often take priority. This addition to their workload makes it challenging to find time to find, implement, or create OER.

Additionally, the challenge of finding high-quality, relevant OER presents a strong barrier to adoption. This issue has been encountered by all three institutions, although not explicitly discussed in WVU's case study. While difficulty finding appropriate resources is a general barrier to OER adoption,[14,17] it is a lower hurdle for those in general education due to the emergence of resources like OpenStax.[6] Conversely, the authors found that health sciences instructors must often search OER databases and

the web for appropriate and quality resources that are aligned with their courses, a further strain on their busy schedules. Few to no existing resources on a topic means that faculty are not able to remix OER into a new, customized resource for their class. Instead, they must create new content, an even larger ask amidst their competing priorities. Both WVU and VCU sought to work around the issue by focusing on providing free access to current textbooks to students, whether through library-licensed ebooks or a dedicated collection of print textbooks.

With this lack of bandwidth and available resources, it is perhaps no surprise that the case studies also mention a general lack of awareness and understanding of the concept of OER and its benefits. Without clear examples to point to or colleagues to learn from, the concept may seem less relevant to health sciences faculty. Conversely, VCU mentions beginning to gain traction through faculty advocates who previously worked with their initiative, which implies that once inroads have been made they quickly prove fruitful.

Unique health sciences concerns

Through these case studies, some health science specific OER concerns come to light. For example, VCU encountered a misalignment with grant programs when faculty wished to create courses rather than materials. This issue may be linked to health sciences schools' pre-professional focus and connection to hospitals, which can include post-doctoral instruction for residents and fellows. In other words, their teaching expands beyond credit-bearing courses to continuing education for practitioners. While advocates of open education promote its applicability to lifelong learning, this application is often a positive side effect rather than a focus of many institutional OER programs.

Additionally, many health sciences curriculums focus on preparing students for their qualifying exams (e.g. NCLEX for Nursing, PANCE for Physicians Assistants, etc.), which a potential practitioner must pass before they can legally practice. Similar requirements also exist in a few other disciplines, such as teacher licensure exams. WVU's case study shared the common perception by their faculty that incorporating OER into the curriculum will disadvantage students on their qualifying exams, and this concern is echoed across the authors' institutions. The exams and their preparatory materials are often copyrighted, making it difficult to generate OER to prepare students for this proprietary exam. To our knowledge, this concern has not been discussed, and the authors suggest it as a good area for further research.

Takeaways

The uptake of open education by health sciences faculty is often slower due to competing demands for their time and limited relevant OER. Although these barriers are not unique, they seem to be more entrenched in health sciences than in other disciplines.

Despite these hurdles, an increasing number of health sciences faculty are interested in incorporating OER into their instruction. Based on our case studies, the authors

recommend supporting OER in the health sciences by:

- Growing library support. Already a trusted support system, librarians can build on existing connections and expertise to educate about and advocate for faculty adoption of open educational practices.
- Identifying avenues for institutional support to strengthen the impact of OER initiatives.
- Establishing relationships with health sciences faculty. They can become strong advocates for OER, the library, and the librarian as an essential component of student education, and peer-to-peer advocacy can often have a stronger impact than librarian advocacy alone.

By continued outreach, advocacy, and support for OER, librarians and other OER advocates can make inroads for textbook affordability on health sciences campuses. Additional research into OER in the health sciences is needed, including exploring ways to better support opening up proprietary yet required qualifying exams. The authors hope our experiences provide a foundation for how librarians can serve as advocates for open practices and grow support for OER in the health sciences.

Credit Statement
Jessica Kirschner: Conceptualization, Methodology, Writing - Original Draft, Writing - Review & Editing, Visualization **Jenn Monnin**: Conceptualization, Methodology, Writing - Original Draft, Writing - Review & Editing **Christine Andresen**: Writing - Original Draft, Writing - Review & Editing.

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