

Article

Interprofessional Faculty Development on Health Disparities: Engineering a Crossover “Jigsaw” Journal Club

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Abstract: Medical education acknowledges our need to teach our physicians about “social determinants of health” and “health care disparities”. However, educators often lack actionable training to address this need. We describe a faculty development activity, a health disparities journal club, using the jigsaw strategy with the intent of increasing awareness, encouraging self-directed learning, and inspiring future teaching of the subject to health professional learners. We completed six workshops at six individual hospitals, with 95 total attendees in medicine and numerous other health professions. Our evaluation asked trainees to: report the number of journal articles about health disparities they had read, excluding the assigned journal club articles, in the past 12 months, and to predict future plans for reading about health disparities. In total, 28.9% responded they had “never read” a prior article on health or healthcare disparities, while 54.2% responded “1–5 articles”. Many (60%) reported they would continue to investigate this topic. Our experience has demonstrated the utility and positive impact of a “flipped classroom” jigsaw method, showing it can be used successfully in Inter-Professional (IPE) Faculty Development to increase active exposure and discussion of the content. Additionally, this method promotes individual reflection and enhances continued collective engagement.

Keywords: faculty development; flipped classroom; jigsaw method; journal club; interprofessional



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1. Introduction

In response to the evolving diversity of the workplace, medical education has called for greater diversity across specialties, extending from undergraduate to graduate medical education and into faculty development [1–4]. Notably, the Accreditation Council for Graduate Medical Education (ACGME), Association of American Medical Colleges (AAMC), and other national professional associations emphasize essential topics such as communication, healthcare disparities, and cross-cultural humility. For example, ACGME’s common program requirements state: “Programs must understand the social determinants of health and incorporate them in the design and implementation program curriculum, with the ultimate goal of addressing these needs, and health disparities” [5]. Similarly, the Liaison Committee for Medical Education (LCME) identifies the need to teach our learners this vital part of medical care, and further charges the educators with this task [6,7].

Healthcare disparities encompass differences in access to health services, including consultations, treatments, and primary care, as well as epidemiological variances in disease rates among different demographic groups, which can impact outcomes [1]. In addition to accrediting bodies, numerous medical societies stress the importance of addressing social determinants of health and healthcare disparities as integral components of healthcare professionalism. For instance, two of the five priorities of Healthy People 2030 explicitly

advocate for eliminating health disparities, achieving health equity, and promoting health literacy to enhance overall well-being [8]. Moreover, various organizations, such as the Agency for Healthcare Research and Quality (AHRQ), National Cancer Institute (NCI), and American Dental Education Association (ADEA), emphasize the necessity for healthcare workers to receive training in cultural humility and understand the significance and implications of social determinants of health [9–12]. The consensus among these groups is that healthcare workers must focus on the equitable compassionate care of patients. To meet these directives, it is paramount to include health professions education that explicitly teaches how to address, discuss, and advocate within the context of social determinants of health and healthcare disparities.

Despite this importance and the agreement of healthcare associations and accrediting bodies on the need to educate learners about these topics, a gap remains in faculty development addressing educators' prerequisites to learn and use these skills reliably, and to demonstrate teaching and assessing these topics [6,13,14]. Even after the incorporation of social determinants of health, healthcare disparities, patient-centered communication, and cultural humility into undergraduate and graduate courses, there remains a relative absence of evidence of clear impacts in practice, partially due to the difficulty of linking portions of a curriculum with an individual's clinical practice [15–18].

In order to effectively create and implement curricula for our learners on health disparities, teaching faculty must first have the knowledge and skills to deliver content, and yet the teaching faculty might not fully understand these concepts, or how to teach them effectively [1]. Faculty need more than basic facts of varied cultures and contexts, and a list of disparities. They need a thorough understanding of concepts and an internal motivation to reflect and continue to learn. Maintaining currency in the health quality and disparities literature represents another load for healthcare providers already inundated with increasing information to master. Some posit that learning about healthcare disparities may start with an understanding of implicit bias, both personal and structural, and how that impacts the health and healthcare disparities our patients experience across the entire healthcare continuum. A framework has been published to aid with those developing curricula, including faculty development, to enhance individual learning on implicit bias [15]. This framework can help create the environment for learning these concepts.

In addition to foundational concepts of health and healthcare disparities, faculty must assess learners' individual skills in this area, and may lack the confidence. Many learning programs do not offer robust integrative assessments for assessing learners in this area [13,15]. There is a mismatch between the need to educate our learners about these concepts, and the knowledge, skill, and comfort required for the faculty to do these items. This gap likely compromises teaching and assessment effectiveness. As such, the faculty need a lifelong approach to stay abreast of new requirements, information, and teaching strategies. Many professions urge a common solution: intentional faculty development [3,4,18,19]. Best practices in faculty development for improving teacher effectiveness include the purposeful use of theoretical approaches to promote personal self-directed learning and giving tangible skills for everyday faculty teaching needs [20]. Therefore, any faculty development about patients' disparities and health contexts must be attuned to efficient, interactive, tangible, and purposefully planned education. Despite knowledge of these best practices, there remains a lack of self-reflective and pedagogically sound faculty development in the literature addressing topics such as social determinants of health.

"Cooperative learning pedagogy" represents a small-group theoretical approach that higher education uses and evaluates. It is often grouped with two other small-group approaches—collaborative learning and problem-based learning. Collaborative learning and problem-based learning differ from cooperative learning in the way the learners interact with the teacher, specifically in that the teacher learns with the learners or guides them with some lectures [21,22]. Key features of the cooperative learning approach include: interdependence of group members (members must rely on one another to learn), accountability of the

individual members, a learning activity that is suitable for the pedagogy, and cooperative spirit amongst the group members [23]. Group members are motivated through social interaction to invest in one another [22]. Of note, the “teacher” works as an activist for learning to ensure objectives are met [22]. The learning activity consists of set content and a deliberate structure, guiding learners towards the objective. Potential teaching methods within the cooperative learning pedagogy include: “think–pair–share”, three-step interviews, and jigsaw methods [22]. With medical students and residents, the “jigsaw methodology” has demonstrated its ability to increase performance on pre- and posttests, improve student perception of learning, and increase the workload of students prior to the teaching sessions, compared to traditional teacher-centered methods [24–26]. Specifically, one internal medicine residency used the jigsaw technique to teach cognitive errors, root cause analysis, and diagnostic errors with an increased post-test score at one year after the instruction in the jigsaw versus traditional teaching [26]. In a study of medical students learning microbiology, not only were retention scores higher in the jigsaw group, but 84% of the students felt this teaching strategy aided in personal responsibility for learning [26]. The crossover design is also described as a structure for cooperative learning, similar to jigsaw [22,27]. As others describe the activity of one type of “jigsaw” as similar to “cross-over”, our manuscript uses the terms interchangeably. To our knowledge, “jigsaw” or “cross-over” use has not been reported as a strategy for faculty development.

We designed and implemented a faculty development workshop to use social learning to prompt faculty to consider their personal teaching of health disparities using cooperative learning as a theoretical approach. This manuscript describes the implementation of a crossover design strategy for a journal club on healthcare disparities, with the intent of increasing awareness, igniting self-directed learning, and encouraging the future teaching of the subject in health professional learners.

2. Methods

Our organization consists of one large school of medicine for undergraduate education, featuring 23 core teaching hospitals, located across 6000 miles and four time zones within the United States. The Uniformed Services University of the Health Sciences is the only medical school in the United States specifically designed to train military officers as physicians. On average, 170 students matriculate annually. Our faculty numbers more than 6000 and is located at the university, at the core teaching hospitals and at smaller medical facilities across the world. Approximately a third of our faculty are civilians and bring the crucial perspective of populations outside of the military. We are tasked with ensuring our students receive a medical education using inclusive language, respecting patients, and recognizing social determinants of health and healthcare disparities. We have the additional task of training officers in the military Services, Public Health Service and Coast Guard who care for our uniformed personnel, who suffer from prolonged family separation, and who may care for other populations outside of the United States.

Our faculty development office is overseen by two physicians, one active-duty Air Force and one retired Air Force, who have both been members of clinical teaching faculty and leaders in graduate medical education in our outlying teaching hospitals, as well as teachers in undergraduate education at the medical school. We have additional trained faculty developers throughout our organization representing multiple medical and dental specialties. We deliver faculty development as single workshops or clusters of workshops that are modular and interrelate with one another. We invite all educators of health professionals to learn educational content and skills together, to promote the value of interprofessional learning. Traditionally, inter-professional means that two or more professions work together to learn and collaborate in patient care. According to the National Center for Interprofessional Practice and Education, “interprofessional” denotes a shared space to learn and practice. Faculty development represents a cultural “space” to foster interprofessional education and enhance the sharing of similarities and differences in our programs and solutions [28].

From November 2020 to May 2021, the Uniformed Services University of the Health Sciences hosted a series of 90 min faculty development workshops on healthcare disparities at outlying teaching hospitals, using a journal club format. Clinical faculty and educators, responsible for instructing medical students and residents within the military health system, actively participated in these journal clubs. These faculty members fulfill diverse teaching roles, ranging from inexperienced junior faculty to seasoned veterans with extensive experience. For these sessions, our senior author selected “cooperative learning pedagogy” as the theoretical basis of these sessions, as it engages varied health professionals in an aspect of teaching that may be new or challenging in an active, mutually understanding environment to propel further self-directed interest, reflection, and learning [22]. This pedagogy would force faculty learners to work together, sharing information to construct new knowledge. We chose a journal club “flipped classroom” pedagogy to raise faculty awareness of the diverse array of literature around health and healthcare disparities [27]. Journal clubs traditionally have varied success in getting participants to read the material beforehand, so we chose our “jigsaw” teaching strategy to facilitate faculty accountability [29,30]. In a systematic review, journal clubs are charged with having a clear overarching goal, and often function best with a leader (even if the leader changes from one journal club to another) [31]. We adhered to some of these principles while not utilizing those more appropriate for recurrent journal clubs.

Jigsaw Journal Club

Faculty pre-registered into the university’s faculty development site, allowing the deliberate creation of groups with a diverse set of medical specialties and healthcare professionals. Three days prior to the course, each faculty registrant received an electronic mail message, which identified and included a specific article assignment. It also included an explanation that the three articles would not be reviewed by the teacher—but would facilitate the participants’ discussion.

During the session, the teacher spoke for several minutes, defining key terms, including “social determinants of health”, “health disparities”, and “healthcare disparities”. The faculty created “expert” groups, assigning the same article to all group members, with specific assessment questions to answer regarding article content and the short- and long-term effects on patient care. The “expert” groups discussed and established answers to be shared in the next part of the jigsaw. After a short period of time, our faculty re-formed groups into “home” groups, with members representing each “expert” group. In “home” groups, experts gave answers to the same assessment questions for all three articles. Additional questions were given to the “home” groups to foster synthesis of all articles and reflection on personal behavior regarding teaching these topics (Figure 1).

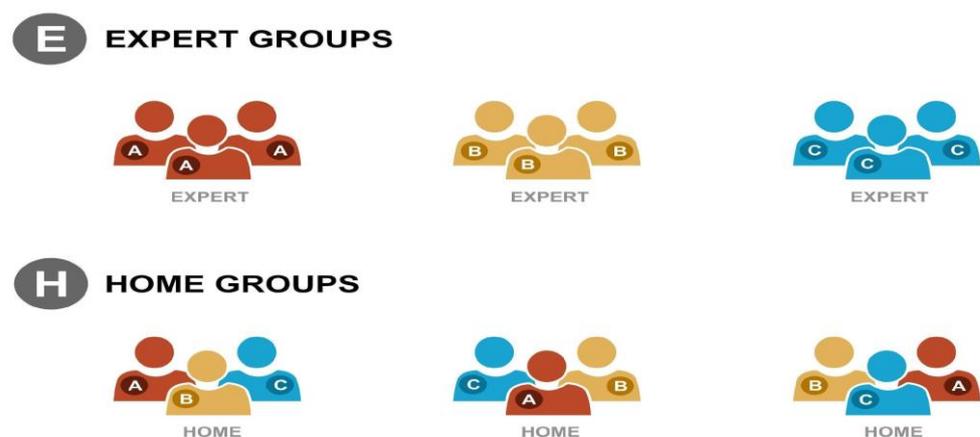


Figure 1. (E) Original grouping of “Expert” groups—1 article per group. (H) Grouping of “Home” groups (jigsaw groups), where someone from each article teaches other members, so all members debrief all three articles.

As this was an educational workshop, we evaluated the session using Kirkpatrick’s levels to assess training. We used voluntary anonymous surveys for data collection, a common method to assess training [32] (p. 86–117). There were two distinct surveys. One survey was a paper evaluation administered immediately after training on the opinion of the workshop. These anonymous written surveys were collected, and the data were collated afterwards. A second survey was conducted after the journal club discussion. It was a pulse check electronic set of questions using “polleverywhere”^c to assess attitudes and potential future behavior changes. These anonymous responses were downloaded after each session. All results are reported with descriptive statistics. We prospectively sent our study for IRB review as part of a larger program evaluation. Our educational study was recognized as exempt from full review. The number they assigned to our study, and under which it was approved, was IRB study: LDBS.2022.371.

3. Results

We convened six sessions at six different teaching hospitals. There were ninety-five faculty attendees, representing seven health professions and including 34 different physician specialties. See Table 1 for details of attendees by workshop, and Table 2 for the breakdown of professions.

Table 1. Demographics of each of the six groups participating in the workshop.

Group	Total Number of Participants	Location (All in United States)	Different Numbers of Specialties and Professions Represented
1	25	Portsmouth, Virginia	17
2	15	Dayton, Ohio	13
3	19	San Antonio, Texas	14
4	11	San Diego, California	7
5	10	Bethesda, Maryland	8
6	15	Seattle, Washington	10
Total	95	—	34 medical specialties, 7 professions

Table 2. Specialties and professions of attendees.

Profession	Number of Participants
Dentist	8
Nurse	1
Pharmacist	2
Physician	80 Specialties: Allergy, Anesthesiology, Dermatology, Emergency Medicine, Family Medicine (General, Obstetrics, Sports Medicine), Internal Medicine (General, Cardiology, Gastroenterology, Hematology, Infectious Disease, Pulmonology), Obstetrics and Gynecology (General, Gynecology Oncology, Maternal Fetal Medicine, Reproductive Endocrinology, Urogynecology), Orthopedics, Otolaryngology, Pathology, Pediatrics (General, Developmental, Endocrinology, Gastroenterology, Pulmonology), Preventive Medicine, Psychiatry, Radiology, Surgery (General, Bariatric, Pediatric, Trauma, Vascular)
Physician Assistant	1
Podiatrist	1
Scientist	2

Seventy-two (75.8%) paper surveys were submitted immediately after training; 100% of the respondents enjoyed the sessions, felt it was “very organized” and would “use the information frequently”. Further, 100% of the respondents evaluated the presenter as “excellent” (the highest rating). There were many written comments (listed in Table 3) with no specific suggestions for improving the session.

Table 3. These statements reflect “free text” responses to the open-ended question: “What did you gain from today?”, as well as open-ended responses reported at post-evaluation.

Faculty Responses	
	“Health care disparity exists in every system.”
	“Need for more research”
	“Be intentional in teaching”
What did you gain from today?	“Importance of applying critical thinking in clinical decision making, & addressing disparities”
	“Continue to read, teach, and learn more about disparities and bias in our population”
	“I don’t really teach this like I should”
	“Just because I don’t have solutions doesn’t mean I shouldn’t talk about it”
	“This was a tough topic to realize our bias/disparities and confront them”
	“Interesting new way of running Journal Club. Really appreciated the discussions re: health disparities. Really great discussion on health disparities.”
	“This was great. I really liked switching groups-it provided more opinions/perspectives.”
Free text comments post-evaluation	“This was one of the better journal clubs I have participated in and liked the cross over method for doing this as it allowed multiple articles to be discussed and highlighted an overall”
	“Really liked how review of 3 articles & small group discussion served as springboard for deeper discussions -> reflection.”
	“Interesting approach to discuss the topic—I liked it. I enjoyed interacting with the other attendees, and then coming back to review it as a group.”

There were a variable number of responses on the “polleverywhere”^c pulse check survey during the workshop. The first question asked faculty to reflect on how many journal articles about health disparities each of them had read (excluding the articles for the session) in the past 12 months. Of 83 responses, 24 (28.9%) responded “None”, 45 (54.2%) responded “1–5”, with the remaining 16.9% reporting “more than 10”. The second question asked faculty to reflect: how often each of them personally taught about health disparities. Of the 83 responses, 15 (18.1%) responded “Never”, 45.8% responded “Rarely”, and 20.5% responded “Once a month”, with the remaining 15.6% stating “Once a week” or “Daily”. After the reflective questions, the third question asked faculty to predict future action by asking how likely it is that each of them will read more articles about health disparities. Only 35 members of faculty responded, of which 28.8% stated “I plan to—but unsure how much”, 60.0% stated “I will look into this topic more”, and the remainder were “uncertain” about future reading.

Table 3 summarizes examples of comments from the question “What did you gain from today?” from the “polleverywhere”^c questions and related comments from the learners’ paper post-evaluations.

4. Discussion

We described a novel teaching strategy in faculty development to address a critical gap in medical education and knowledge, and the application of health and healthcare disparities in patient care. Our review of the literature in this area highlights the existing hole in faculty development that refers to educators’ needs to effectively integrate teaching and assess these essential topics. For faculty to increase their confidence in this area, they need to possess a thorough understanding of social aspects of healthcare, beyond basic definitions and epidemiology. The challenge is intensified with a common set of opposing views. First, the multitude of demands placed on academic faculty—including clinical work, teaching, research, and administrative tasks—often leaves little time for professional development. Conversely, increasing academic demands, the growing requirements of healthcare professionals’ skills, and expanding accreditation requirements necessitate faculty attend faculty development to learn new information and refine prior skillsets [33]. Our workshop was intentionally designed with a known educational strategy used in other levels of education to promote self-directed learning and equip faculty with tangible skills for everyday teaching needs, and to be as efficient as possible.

We evaluated the workshop utilizing Kirkpatrick’s levels to evaluate educational programs [32,34]. Kirkpatrick’s outcomes are described in four levels: level 1 is the learner’s reaction, level 2 is learning and is subdivided (2a is change in attitude and 2b is change in skills), level 3 is behavior change subdivided into a self-assessment (3a) and what is observable by others (3b), and level 4 is a change in the organization [32] (p. 9–66). Our faculty participants enjoyed the session, finding the content organized and tangible, and the speaker effective (Kirkpatrick’s level 1). They also demonstrated a change in attitude about the importance of teaching about health disparities (level 2) and predictions of potential future behavior (level 3a). Specifically, faculty reported on the value of multiple perspectives in the jigsaw method. Many commented on their new awareness of how they are, or are not, teaching these topics.

The comments reflect a range of perspectives on the topic of teaching healthcare disparities. Faculty participants acknowledge the existence of healthcare disparities in every system and emphasize the importance of being intentional in teaching about them, and of the significance of applying critical thinking to address disparities. Some participants express a commitment to continuous learning about disparities and bias in the population. There is an acknowledgment of the challenges in teaching this topic effectively. However, the sentiment is that even if solutions are not readily available, discussing and raising awareness about healthcare disparities is crucial. The comments also highlight the positive aspects of a journal club discussion on health disparities. Participants appreciate the interesting approach, the use of small group discussions, and the crossover method for discussing multiple articles. The varied perspectives in group interactions are valued, and the overall sentiment is positive, with faculty finding the experience enriching and reflective.

Our educational innovation had several limitations as well as strengths. One strength is our attention to best practices in faculty development [21,22]. It is recommended that faculty development uses strategies that actively give rise to experiential learning opportunities and reflection and allow for peer learning in an efficient manner [21,22]. Other published calls for effective faculty development emphasize strategies such as flipped classroom and creating communities as strong elements to promote engagement [35]. A flipped classroom approach allows for a variety of active learning activities during a short time, which could have a more efficacious outcome [36]. A potential problem we considered is that self-determination theory underpins flipped classroom, requiring the learner, in our case the faculty, to engage in the pre-work materials to improve learning. The intrinsic motivation

would come from a desire to be competent in the material while having autonomy in one's own learning. There is also an extrinsic motivation along the continuum; Ref. [37] specifically introjected regulation, where the learner may experience internal rewards or punishments. In our context of the journal club, peers relying on you and the potential embarrassment resulting from not doing the pre-work could be an internal punishment. We intentionally utilized these faculty development tenets, hoping to foster self-determination, mainly via intrinsic motivation, and to potentially improve the individual teacher's desire to remain current on these concepts over time.

A second strength is our attention to overarching educational principles. Since we chose an active learning teaching strategy, we worked to adhere to best practices to mitigate resistance to active learning [38]. For the explanation of specific strategies, we sent a preparatory message several days prior, emphasized the goals of the jigsaw strategy, and related the activity to their tangible daily work. For the facilitation-specific strategies, we encouraged the participants to ask questions, fostered group discussion and feedback, and walked around the room inviting questions throughout [38]. Adding to these methods, we use the jigsaw strategy to create communities, which is recommended for effective faculty development [21]. Since we were specifically teaching about health disparities, we used the framework published to aid clinicians in weaving bias into other content areas [15]. We spent significant time trying to create a safe and non-threatening learning environment, also noted to be important in faculty development [39]. We did this through the personal vulnerability of the person facilitating the workshop and acknowledging all participants were learning. We attempted to align how individual implicit bias could affect patient outcomes with the three articles that were chosen. We chose three articles from three different areas in medicine to demonstrate that implicit bias influences healthcare disparities across all specialties. Toward the end of the session, we moved beyond awareness of how a faculty member's individual biases may affect healthcare disparities into how awareness of their biases and the literature on healthcare disparities could potentially influence their learners, at both the undergraduate and graduate levels. As such, our short workshop connected to four of the six areas in the framework recommended [15].

A third strength is the diversity of our faculty attendees, which spanned multiple hospitals, professions, and specialties. We attempted to maximize the sharing of the learned content of different professions by intentionally organizing the members of each group. As an example of how this can be used in patient care, if a patient experiences difficulties adhering to a treatment plan, the views of the prescribing provider can be augmented by considering the perspectives of the nurse, pharmacist, social work, and other healthcare professionals.

A unique challenge, and a limitation to our innovation, is the fact that our faculty learners work in a universal healthcare system. As such, many of our educators do not recognize any healthcare disparities, and some frankly denied these would exist in universal healthcare. Research does demonstrate a decreased amount of racial healthcare disparities in the military health system regarding operative and trauma care [40]. However, the system still has numerous racial disparities in the treatment of diabetes, women's health, and opioid usage [40]. There also are unique disparities related to military rank, which is not experienced in other healthcare systems [41]. A second limitation is that we here only report on one organization, despite citing numerous hospitals. A third limitation is the potential selection bias of participants who voluntarily attended the workshop.

A final limitation is the challenge of accurately assessing the impact of the workshop. We acknowledge as a limitation that even though we captured feedback data during and immediately following the journal club, we did not follow up to see if the activity changed teaching practices. However, our intent when developing the workshop was to raise awareness of the number and types of articles on the topic, and cause faculty reflection on their current skills in this area. We were not naïve in thinking a single session could educate faculty on all possible healthcare disparities. Thus, our goal was three-fold: increase the appreciation of health disparities literature amongst the faculty, increase potential personal

reflection and reading on the subject, and increase the success of teaching our students and residents for the future. We attempted to encapsulate future performance in our program evaluation questions by asking the attendees to predict personal future action. Future research could explore the long-term impacts of such faculty development initiatives on teaching effectiveness and, ultimately, on the integration of health disparities concepts into medical education curricula.

Our faculty development journal club was designed with a novel use of cooperative learning, which not only engaged the faculty, but also promoted reflection regarding how often faculty personally educate themselves on the “effects of social determinants of health”, as well as teaching to their learners. It intentionally used the active learning strategy of crossover groups (jigsaw method), not previously reported in faculty development, with deliberately combinations of varied specialties and professions in the groups. As one of our goals of this workshop was to inspire future teaching, we examined faculty requests for new workshops on healthcare disparities and social determinants of health, specifically aiding teachers to improve teaching skills. We never intended to repeat this session a second year, as journal clubs are not traditionally repeated with the same audience given that the subject of the learning session is the article’s content. During our “end of year” program evaluation for the overall faculty development program, we reviewed suggestions for new content from over a thousand attendees regarding the faculty development programming. Our participants made multiple requests for the upcoming academic year to build on this journal club. In response to these requests, we added two sessions to the faculty development offerings in the 2021–2022 academic year: “Teaching Diversity” and “Step-Up: Commit to Health Care Disparities”, which we provided 24 times to an additional 338 learners. We suggest that the requests for and attendance at these subsequent sessions should be interpreted as evidence of the educational program’s impact on the faculty. These two sessions have been continued in the 2022–2023 academic year per continued request.

An implementation challenge we experienced was faculty preparation. Both getting faculty to attend and be actively engaged in faculty development [35] and completing prework for the journal club [30] represent well-addressed difficulties. In this case, we attempted to improve these challenges proactively with an attention-grabbing content area and peer reliance on learning to motivate the faculty. Despite these steps, we experienced several faculty members not reading the articles in advance. However, once the facilitator described the jigsaw strategy that would be used, and the faculty realized their peers relied on their knowledge, our teaching faculty rapidly focused, working together in their “expert” groups. Sending the articles 48 to 72 h in advance seemed best in order to enhance reading without being forgotten.

5. Conclusions

In conclusion, we describe an innovative use of the “jigsaw” strategy for faculty development. We used this attempt to fill the gap in educators’ learning about healthcare and health disparities, helping to teach and assess the next generations of healthcare professionals. The use of cooperative learning pedagogy, specifically the “jigsaw” strategy, provides a practical approach to increase the active discussion of content within the faculty, and potentially enhance reflection on future action. Our workshop served as a “springboard” for requests for additional faculty development regarding healthcare disparities. In the future, we plan to use journal clubs in this format again to ignite other necessary interprofessional conversations.

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Institutional Review Board Statement: We prospectively sent our study for IRB review as part of a larger program evaluation. Our educational study was recognized as exempt from full review. The number they assigned to our study, and under which it was approved, was IRB study: LDBS.2022.371.

Informed Consent Statement: Patient consent was waived due to lack of identifiable information in our educational study.

Data Availability Statement: Data is available upon request to the corresponding author.

Conflicts of Interest: The views expressed in this article are those of the authors and do not represent the views or official policy of the Uniformed Services University of the Health Sciences, the United States Air Force, the Department of Defense or U.S. Government.

References

- Brottman, M.R.; Char, D.M.; Hattori, R.A.; Heeb, R.; Taff, S.D. Toward Cultural Competency in Health Care: A Scoping Review of the Diversity and Inclusion Education Literature. *Acad. Med.* **2020**, *95*, 803–813. [CrossRef] [PubMed]
- Sorensen, J.; Jervelund, S.S.; Norredam, M.; Kristiansen, M.; Krasnik, A. Cultural competence in medical education: A questionnaire study of Danish medical teachers' perceptions of and preparedness to teach cultural competence. *Scand. J. Public Health* **2017**, *45*, 153–160. [CrossRef] [PubMed]
- Marino, R.; Ghanim, A.; Morgan, M.; Barrow, S. Cultural competency and communication skills of dental students: Clinical supervisors' perceptions. *Eur. J. Dent. Educ.* **2017**, *21*, e101–e108. [CrossRef] [PubMed]
- Lu, P.Y.; Tsai, J.C.; Tseng, S.Y. Clinical teachers' perspectives on cultural competence in medical education. *Med. Educ.* **2014**, *48*, 204–214. [CrossRef] [PubMed]
- ACGME Common Program Requirements (Residency) 2023. Available online: https://www.acgme.org/globalassets/pfassets/programrequirements/cprresidency_2023.pdf (accessed on 1 September 2023).
- AAMC. Advancing Diversity, Equity, and Inclusion in Medical Education. Available online: <https://www.aamc.org/about-us/equity-diversity-inclusion/advancing-diversity-equity-and-inclusion-medical-education> (accessed on 5 October 2023).
- Song, A.; Americo, L.; Myers, H.; DeBenedictis, C.; Slanetz, P.J.; Sarkany, D. Addressing the ACGME Mandate for Healthcare Disparities Education in Residency Programs: A Needs Assessment. *Acad. Radiol.* **2021**, *28*, 930–937. [CrossRef] [PubMed]
- Healthy People 2030 Framework. Available online: <https://health.gov/healthypeople/about/healthy-people-2030-framework> (accessed on 12 November 2022).
- AHRQ Social Determinants of Health Data Challenge. Content Last Reviewed December 2018. Agency for Healthcare Research and Quality, Rockville, MD. Available online: <https://www.ahrq.gov/sdoh/data-analytics/sdoh-data.html> (accessed on 20 October 2023).
- Cancer Disparities Progress Report.org. Philadelphia: American Association for Cancer Research. 2022. Available online: <http://www.CancerDisparitiesProgressReport.org/> (accessed on 5 October 2023).
- ADEA Policy Statement on Health Care Reform: Oral Health Care: Essential to Health Care Reform. Available online: https://www.adea.org/policy_advocacy/federal_legislative_regulatory_resources/Pages/ADEAPolicyStatementonHealthCareReform.aspx (accessed on 5 May 2023).
- Health Equity and Dentistry. Available online: <https://www.ada.org/publications/ada-news/2021/may/health-equity-and-dentistry> (accessed on 20 October 2023).
- Dogra, N.; Giordano, J.; France, N. Cultural diversity teaching and issues of uncertainty: The findings of a qualitative study. *BMC Med. Educ.* **2007**, *7*, 8. [CrossRef] [PubMed]
- ACGME Equity Matters®. Available online: <https://www.acgme.org/what-we-do/diversity-equity-and-inclusion/ACGME-Equity-Matters/> (accessed on 5 October 2023).
- Sukhera, J.; Watling, C. A framework for integrating implicit bias recognition into health professions education. *Acad. Med.* **2018**, *93*, 35–40. [CrossRef] [PubMed]
- Maldonado, M.E.; Fried, E.D.; DuBose, T.D.; Nelson, C.; Breida, M. The role that graduate medical education must play in ensuring health equity and eliminating health care disparities. *Ann. Am. Thorac. Soc.* **2014**, *11*, 603–607. [CrossRef] [PubMed]
- Behar-Horenstein, L.S.; Warren, C.; Virginia, J.; Dodd, F.; Catalanotto, A. Addressing Oral Health Disparities Via Educational Foci on Cultural Competence. *Am. J. Public Health* **2017**, *107*, S18–S23. [CrossRef] [PubMed]
- Drame, I.; Gibson, C.M.; Nonyel, N.P.; Addo-Atuah, J.; Butler, L.; Riley, A.; Borja-Hart, N. Strategies for incorporating health disparities and cultural competency training into the pharmacy curriculum and co-curriculum. *Am. J. Pharm. Educ.* **2022**, *86*, 8631. [CrossRef] [PubMed]
- Allen, J.; Brown, L.; Duff, C.; Nesbitt, P.; Hepner, A. Development and evaluation of a teaching and learning approach in cross-cultural care and antidiscrimination in university nursing students. *Nurse Educ. Today* **2013**, *33*, 1592–1598. [CrossRef] [PubMed]
- Steinert, Y.; Mann, K.; Anderson, B.; Barnett, B.M.; Centeno, A.; Naismith, L.; Prideaux, D.; Spencer, J.; Tullo, E.; Viggiano, T.; et al. A systematic review of faculty development initiatives designed to enhance teaching effectiveness: A 10-year update: BEME Guide No. 40. *Med. Teach.* **2016**, *38*, 769–786. [CrossRef] [PubMed]

21. Holdren, S.; Iwai, Y.; Lenze, N.R.; Weil, A.B.; Randolph, A.M. A Novel Narrative Medicine Approach to DEI Training for Medical School Faculty. *Teach. Learn. Med.* **2023**, *35*, 457–466. [[CrossRef](#)] [[PubMed](#)]
22. Davidson, N.; Major, C.H. Boundary crossings: Cooperative learning, collaborative learning, and problem-based learning. *J. Excell. Coll. Teach.* **2014**, *25*, 7–55.
23. Slavin, R.E. Research on co-operative learning and achievement: What we know and what we need to know. *Contemp. Educ. Psychol.* **1996**, *21*, 43–69. [[CrossRef](#)]
24. Sim, S.M.; Foong, C.C.; Tan, C.H.; Lai, P.S.; Chua, S.S.; Mohazmi, M. The use of “jigsaw learning technique” in teaching medical students prescribing skills. *Med. Teach.* **2014**, *36*, 182. [[CrossRef](#)] [[PubMed](#)]
25. Goolsarran, N.; Hamo, C.E.; Lu, W.H. Using the “jigsaw technique” to teach patient safety. *Med. Educ. Online* **2020**, *25*, 1710325. [[CrossRef](#)] [[PubMed](#)]
26. Kumar, C.; Kalasuramath, S.; Patil, S.; Raghu Kumar, K.G.; Shama Taj, K.R.; Jayasimha, V.L.; Basavarajappa, K.G.; Shashikala, P.; Kukkamalla, A.; Chacko, T. Effect of Jigsaw Co-Operative Learning Method in Improving Cognitive Skills among Medical Students. *Int. J. Curr. Microbiol. Appl. Sci.* **2017**, *6*, 164–173. [[CrossRef](#)]
27. Williams, C.; Perlis, S.; Gaughan, J.; Phadtare, S. Creation and implementation of a flipped jigsaw activity to stimulate interest in biochemistry among medical students. *Biochem. Mol. Biol. Educ.* **2018**, *46*, 343–353. [[CrossRef](#)]
28. About Interprofessional Practice and Education. Available online: <https://nexusipe.org/informing/about-ipe> (accessed on 20 October 2023).
29. Roberts, N. Small Group Teaching: Methods & Techniques. Learning Hub. 2016. Available online: <https://www.cardiff.ac.uk/learning-hub/view/small-group-teaching-methods-and-techniques> (accessed on 23 August 2022).
30. Persky, A.M.; McLaughlin, J.E. The Flipped Classroom—From Theory to Practice in Health Professional Education. *Am. J. Pharmacol. Educ.* **2017**, *81*, 118. [[CrossRef](#)] [[PubMed](#)]
31. Deenadayalan, Y.; Grimmer-Somers, K.; Prior, M.; Kumar, S. How to run an effective journal club: A systematic review. *J. Eval. Clin. Pract.* **2008**, *14*, 898–911. [[CrossRef](#)] [[PubMed](#)]
32. Kirkpatrick, J.D.; Kirkpatrick, W.K. *Kirkpatrick's Four Levels of Training Evaluation*; ATD Press: Alexandria, VA, USA, 2016; pp. 9–66+86–117.
33. Dyrbye, L.; Bergene, A.; Hunderfund, L.; Billings, H. Reimagining Faculty Development Deployment: A Multipronged, Pragmatic Approach to Improve Engagement. *Acad. Med.* **2022**, *97*, 1322–1330. [[CrossRef](#)] [[PubMed](#)]
34. Alsalamah, A.; Callinan, C. Adaptation of Kirkpatrick's Four-Level Model of Training Criteria to Evaluate Training Programmes for Head Teachers. *Educ. Sci.* **2021**, *11*, 116. [[CrossRef](#)]
35. Donnelly, J.; Ray, A.; Lo, M.C.; Wardrop, R.M., 3rd; Ficalora, R.; Amin, A. Common Cause and Common Purpose: Strategies to Increase Engagement in Faculty Development Activities. *Am. J. Med.* **2021**, *134*, 691–698. [[CrossRef](#)] [[PubMed](#)]
36. McLaughlin, J.E.; Roth, M.T.; Mumper, R.J. The Flipped Classroom: Freeing up Class Time for Strategic Active Learning. In *How-to Guide for Active Learning*; IAMSE, Manuals; Fornari, A., Poznanski, A., Eds.; Springer: Cham, Switzerland, 2021. [[CrossRef](#)]
37. Ryan, R.M.; Deci, E.L. Self-determination theory and the facilitation of intrinsic motivation, social development and well-being. *Am. Psychol.* **2000**, *55*, 68–78. [[CrossRef](#)] [[PubMed](#)]
38. Tharayil, S.; Borrego, M.; Prince, M.; Nguyen, K.; Shekhar, P.; Finelli, C.J.; Waters, C. Strategies to mitigate student resistance to active learning. *Int. J. STEM Educ.* **2018**, *5*, 7. [[CrossRef](#)] [[PubMed](#)]
39. Servey, J.T.; Bunin, J.L.; McFate, T. Conceptualizing the Learning Climate in Faculty Development: An Exploratory Study of One Organization. *J. Fac. Dev.* **2022**, *36*, 11–18.
40. Koehlmoos, T.P.; Korona-Bailey, J.; Janvrin, M.L.; Madsen, C. Racial Disparities in the Military Health System: A Framework Synthesis. *Mil. Med.* **2022**, *187*, e1114–e1121. [[CrossRef](#)] [[PubMed](#)]
41. Norton, J.M.; Grunwald, L.; Banaag, A.; Olsen, C.; Narva, A.S.; Marks, E.; Koehlmoos, T.P. Racial and Socioeconomic Disparities in CKD in the Context of Universal Health Care Provided by the Military Health System. *Kidney Med.* **2021**, *4*, 100381. [[CrossRef](#)] [[PubMed](#)]

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