

Assessment of Student Perceptions on a Series of Live Internet-Based Student Journal Clubs Presented Synchronously to Multiple Distance Locations, a Pilot Study

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Abstract

Objective: The purpose of this study was to evaluate the effectiveness, convenience and utility of the novel practice of a student led internet-based journal club which connects students and faculty from different campuses and clinical sites to facilitate discussion of journal articles.

Materials and methods: Journal clubs were presented to live local and distance audiences via Wimba Classroom™ technology. After formal presentations, there was discussion period where questions were posed via different modalities. The presentation was recorded for participants to view at their convenience if unable to attend live presentation. After each session participants were invited by email to complete an anonymous, voluntary, online questionnaire to evaluate their perceptions of the experience.

Results: A total of 47 student surveys were completed. A majority of participants agreed that internet-based journal club met the learning objectives (85.1%) as well as provided enhanced discussion (89.4%). 91.5% believed it provided a unique opportunity to easily attend journal club discussions. 61.7% agreed internet-based experience was superior to conventional journal clubs. 75% of presenters agreed there were a greater variety of questions compared to conventional journal clubs. The most commonly identified barrier was ease of technology use. Discussion/Conclusion: Wimba classroom™ based journal club demonstrated the advantages of increased accessibility and perceived improved breadth and depth of discussion. The novel use of a synchronous internet-based journal club demonstrated its effectiveness, convenience and utility as an alternative, and possibly a replacement, to conventional student led journal clubs in pharmacy school curriculums.

Keywords: Journal club; Internet; Pharmacy education; Distance education

Introduction

Historically, journal clubs have been used by the medical community to enhance an individual's critical literature evaluation skills as well as staying abreast of current medical literature with the assessment of the potential impact on clinical practice. The first journal club is speculated to have occurred at St. Bartholomew's Hospital in London somewhere between 1835 and 1854 [1]. Linzer simply defines a journal club as "a group of individuals who meet regularly to discuss critically the clinical applicability of articles in the current medical journals."¹ For over a century and a half, the medical community has been incorporating journal clubs into the work place in addition to school curriculums. Journal clubs have become widely used in many health professional curriculums including nursing, medical, and pharmacy education [2].

The Accreditation Council for Pharmacy Education (ACPE) highlighted the importance of literature evaluation and research design skills in their accreditation standard and guidelines for doctor of pharmacy degree. The guideline states they believe that the following components are "essential to the development of pharmacists:

- Fundamentals of research design and methodology
- Principles of evaluation of the primary literature
- Practical implications of the primary literature
- Principles of research design and analysis in practicing evidence-based pharmacy
- Levels of clinical evidence" [3]

Furthermore, the Center for the Advancement of Pharmaceutical

Education (CAPE) Educational Outcomes stipulates that students must be able to "integrate evidence from the literature with clinical expertise" [4]. Without contention, journal clubs are a method that assists in the achievement of these objectives.

Journal clubs have proven to be an effective method in enhancing students' and professionals' knowledge base, presentation skills, and ability to critically appraise literature. Honey and Baker conducted a systematic review of articles published on journal clubs between 1999 and 2009. Of the articles examined, 75% reveal an improvement in participants' critical literature appraisal skills through the use of journal clubs [5]. Arif et al. explored the impact of journal club on the perceptions of advanced pharmacy practice experience (APPE) students. This study established that APPE students believed journal club helped improve their understanding of statistics, study design, and relevance to patient care as well as their presentation skills [6,7].

Journal clubs are widely used in doctorate of pharmacy curriculums. Cole et al. explored different constituents of drug information practices

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that are employed in United States colleges of pharmacy, and found that of the ACPE accredited professional pharmacy degree programs surveyed, 90% utilized journal clubs as a means of teaching essential drug information skills [2]. Thus, journal club plays an important role in pharmacy education relative to the practice of evidence-based medicine.

Rationale and Objectives

Conventional journal clubs are presented face-to-face, typically with a limited audience. The small audience is anecdotally a product of the size of the pharmacy department and limited ability for pharmacists to step away from pharmacy responsibilities to attend journal club presentations. These authors feel a small journal club audience is problematic as expertise is limited which results in limited discussion and potentially limits enhancement of evidence based medicine skills for student participants.

Technology advances in the area of videoconferencing may serve as a solution to small audiences. The Collaborative Education Institute (CEI) has implemented "Log-In to Learn" which is an online, journal club conducted monthly for pharmacists and their rotational students. Trewet et al. demonstrated that preceptor's knowledge, skills, attitudes, and values improved after participating in online journal club. Moreover, 87.4% of preceptors agreed that the article discussed positively affected their practice and/or patient care [2]. While the study provides support for an internet-based journal club, this study only reported preceptor perspectives, student perspectives were not assessed. Furthermore, journal clubs conducted in this study were not student led.

Building off of these findings in an effort to improve attendance and learning outcomes for student journal clubs, an internet-based classroom was created and utilized for student led journal clubs. This paper will discuss a series of live internet-based student journal clubs presented synchronously to multiple distance locations. Furthermore, we will present perceptions of students evaluated by survey. The evaluation of participants' perceptions may help guide the potential implementation of internet-based journal clubs into pharmacy school curriculums for schools with or without distance locations.

Methods

This pharmacy school has a satellite campus approximately 120 miles away from the main campus. The satellite campus enrolls about 28 PharmD students in each academic year, while the primary campus enrolls approximately 100 students. Third professional year students are enrolled in a longitudinal clinical introductory pharmacy practice experience (IPPE) that provides 160 hours of patient care experiences over 2 semesters. The IPPE runs simultaneously with the capstone therapeutics course, Pharmacotherapy, and a semester long Evidenced Based Medicine course conducted in the spring semester. Students primarily enroll in APPEs throughout the state but are able to select APPEs in various locations throughout the nation and internationally.

APPE students are required to complete a minimum of four journal clubs during the course of their APPE year. There are no requirements on the number of journal clubs that IPPE students are required to complete. The structure of journal club presentations is dependent upon preceptor and facility. The traditional method of presentation is in a small group setting with a combination of APPE students, pharmacy preceptors, and in some instances, pharmacy residents.

Internet-Based Classroom

Wimba Classroom™ is available to our institution as a component of the university's learning management system (LMS) Blackboard Learn™ 9.1. Wimba Classroom™ is a real-time virtual classroom environment designed for distance education and collaboration in a content area within the LMS. It supports audio, video, chat, desktop sharing, and whiteboard application allowing faculty to hold live online classes, office hours, guest lectures, and meetings in the LMS. Additionally, the classroom incorporates a recording function called "archiving" that permits the live session to be viewed at a later time.

A Wimba Classroom™ was created specifically for the purpose of holding live internet-based journal club presentations. Two faculty preceptors and the assigned IPPE and APPE students for these preceptors were enrolled in the classroom.

Journal Club Structure

Over a two-week period of time, four 1-hour journal club sessions were scheduled to be presented. During each session two-to-three journal articles were presented synchronously to a live local audience and live distance audiences via the Wimba Classroom™ technology. After a 10-15 minute presentation of each article, a 10 minute discussion period ensued. Questions and discussion occurred via different modalities including verbally from the live audience, verbally by microphone from distance audiences through the internet, and by type-written chat submitted via the internet classroom chat feature. Additionally, each journal club session was recorded using the "archiving" feature of the internet-based classroom. The recorded session was then made available online within the LMS for those participants who were unable to join live, to view at their convenience.

Participant Survey

Following each internet-based journal club session, participants (presenters and audience members) were invited by e-mail to complete an anonymous and voluntary online questionnaire via Survey Monkey®. Participants who viewed the recorded presentation were also invited to complete the survey. The survey utilized a 5-point Likert-type scale (Strongly Agree – Agree – Neutral – Disagree – Strongly Disagree). Survey questions assessed were the following: (1) accessibility and functionality of technology (2) achievement of learning objectives (Table 1) (3) effect on discussion (4) impact on clinical knowledge and (5) benefits and barriers to successful implementation into curriculum.

The study was deemed exempt by the institutional review board. Microsoft® Excel version 14.2.4 was utilized for analysis of survey results.

Results

There were a total of 47 surveys completed by IPPE and APPE students. There were more APPE student participants than IPPE, 59.5% (28) versus 40.4% (19), respectively. In terms of practice site, the majority of subjects participated from a community hospital (59.5%) and other sites included teaching hospital (34.0%) and ambulatory care clinic (6.4%). Most subjects participated from their clinical practice site (78.7%) followed by home (12.8%) and school (8.5%). It is also noteworthy that 68.1% of subjects had previously used Wimba™ technology in other courses.

Participants

In this study, all subjects who partook in the study and completed

the survey were classified as participants and answered the preset questions. The vast majority of participants agreed that internet-based journal club met the learning objectives (85.1%) as well as allowed for enhanced discussion (89.4%). When participants compared their journal club experiences, 61.7% agreed their internet-based experience was superior to their conventional journal club experiences with 74.5% responding the internet-based journal club should be incorporated at all rotation sites. Finally, 91.5% of all participants agreed upon the importance of staying up to date with current research and that internet-based journal club gave them the unique opportunity to easily attend these discussions. Figures 1 and 2 illustrate participants' responses.

Presenters

There were a total of eight students who presented during the study

period. Six of the presenters agreed there were a greater variety of questions posed during internet-based journal clubs than in previous conventional journal club experiences. Additionally, 75% of presenters felt the typed questions submitted via chat modality were interpretable and understandable, demonstrating the technology did not limit the utility of internet-based journal club. Finally, 100% of presenters enjoyed the ability to receive feedback from multiple preceptors. Figures 3 and 4 illustrate presenter responses.

Audience

An audience member was defined as a student who observed the journal club presentation and participated in the discussion. The majority of questions answered by audience members regarded their

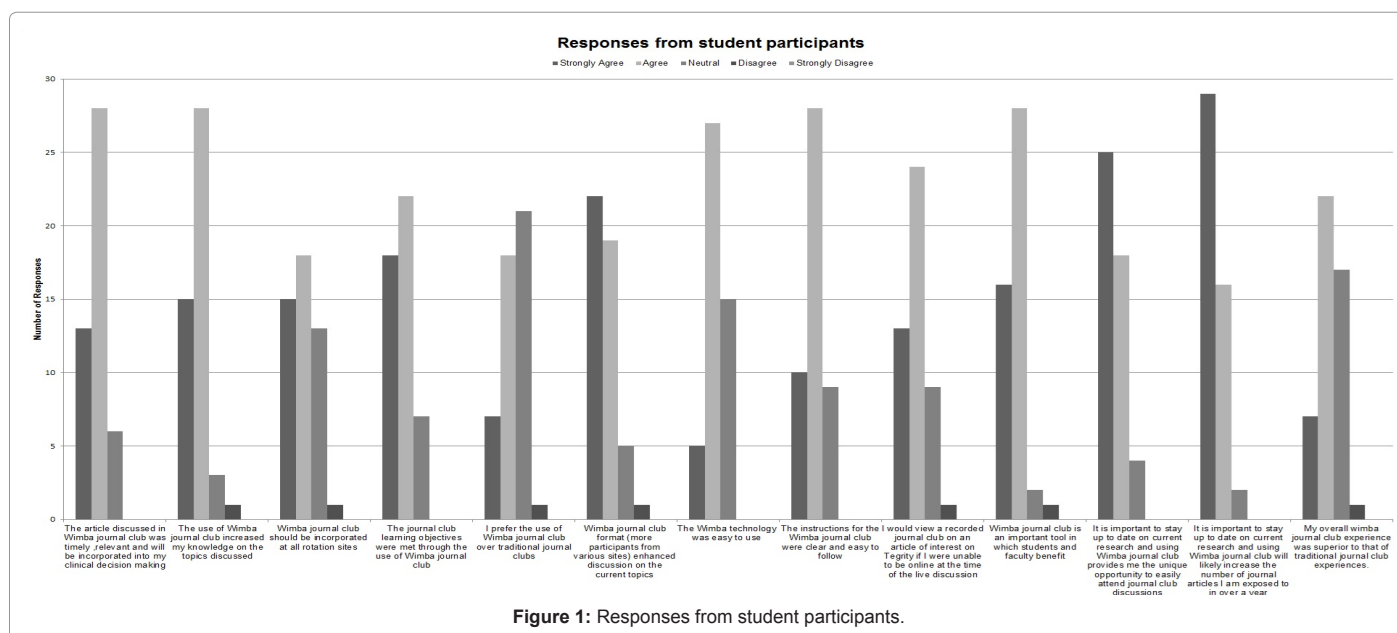


Figure 1: Responses from student participants.

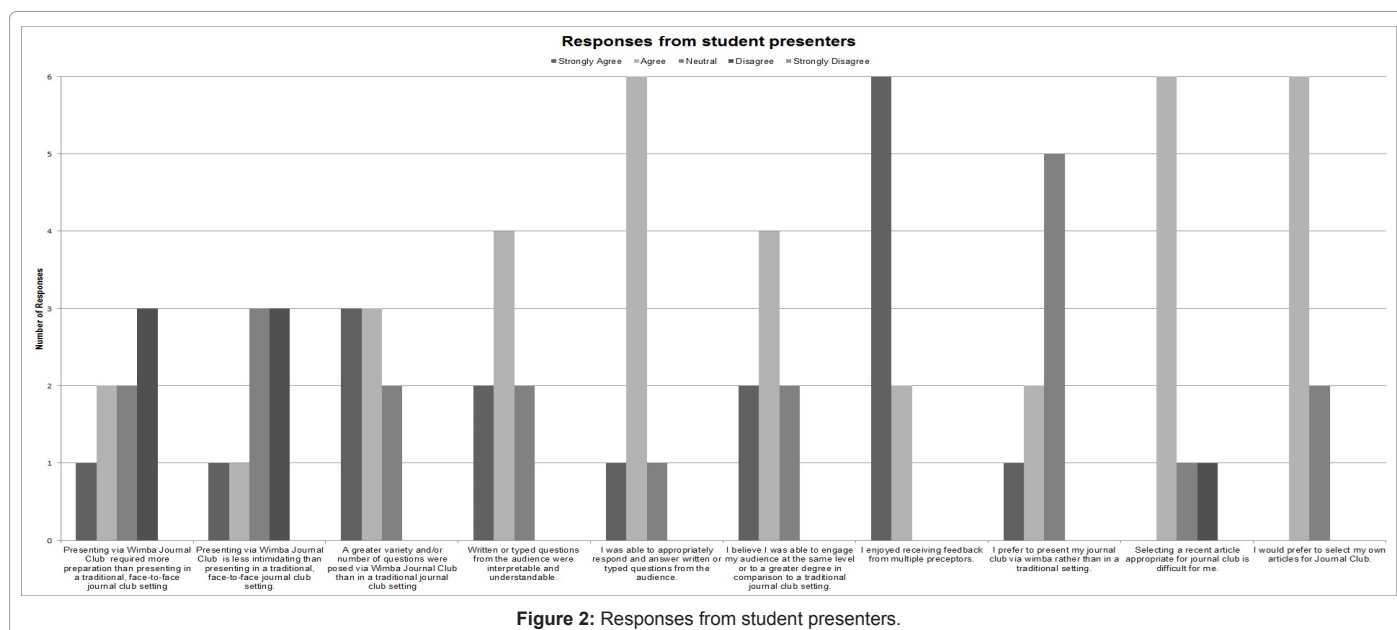
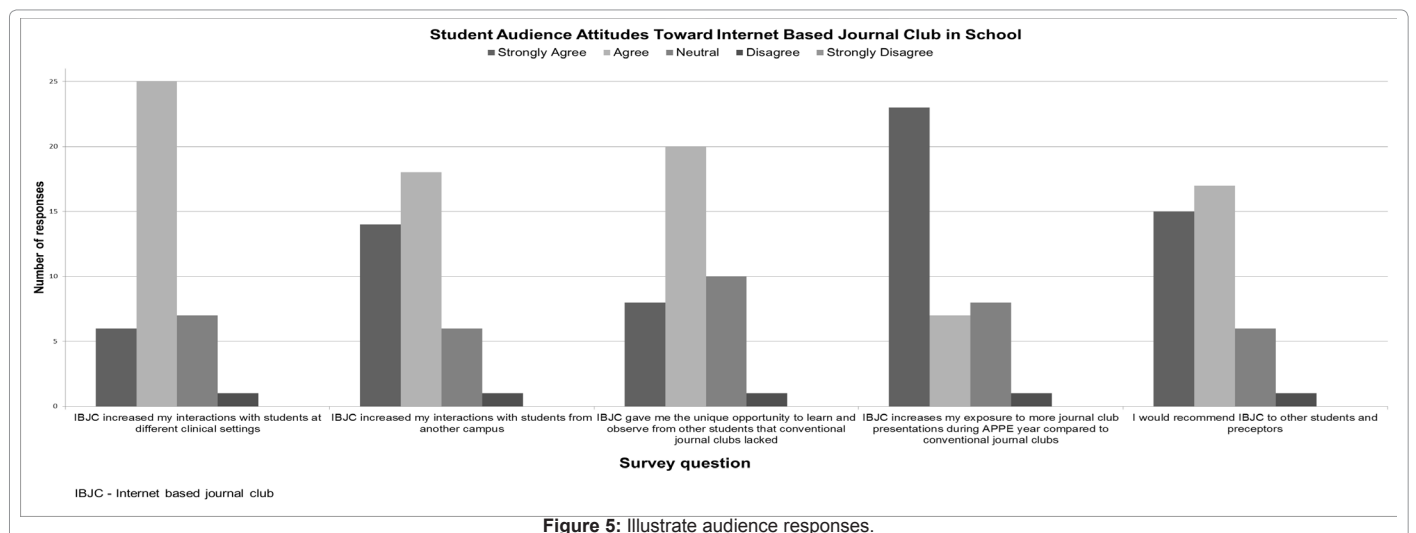
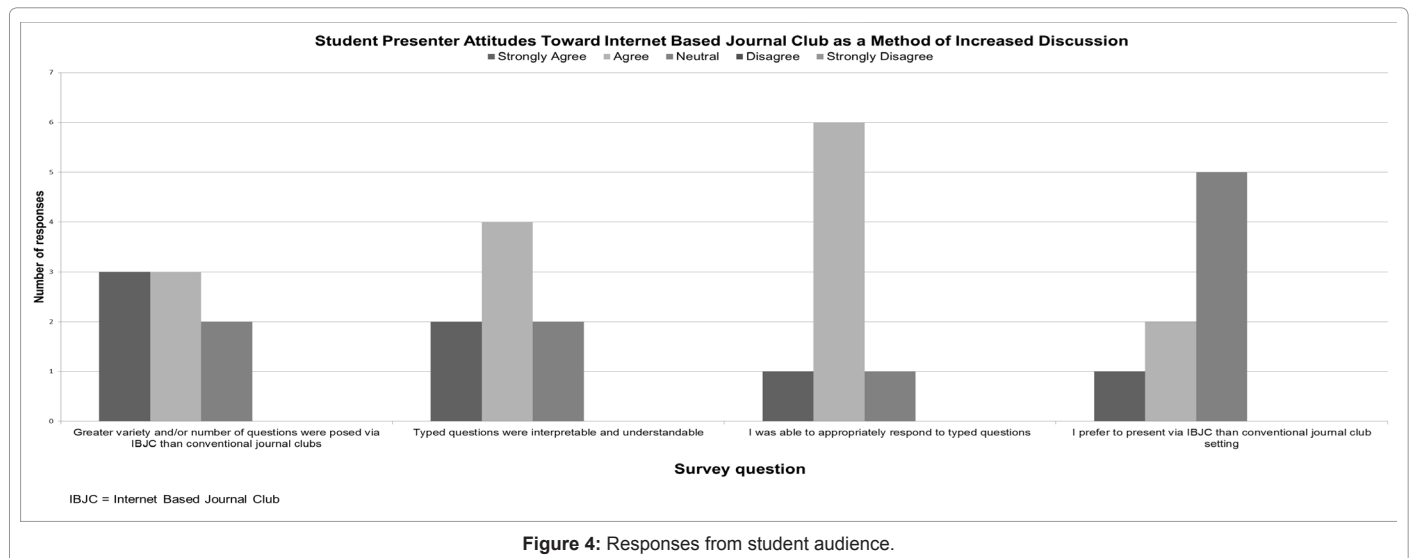
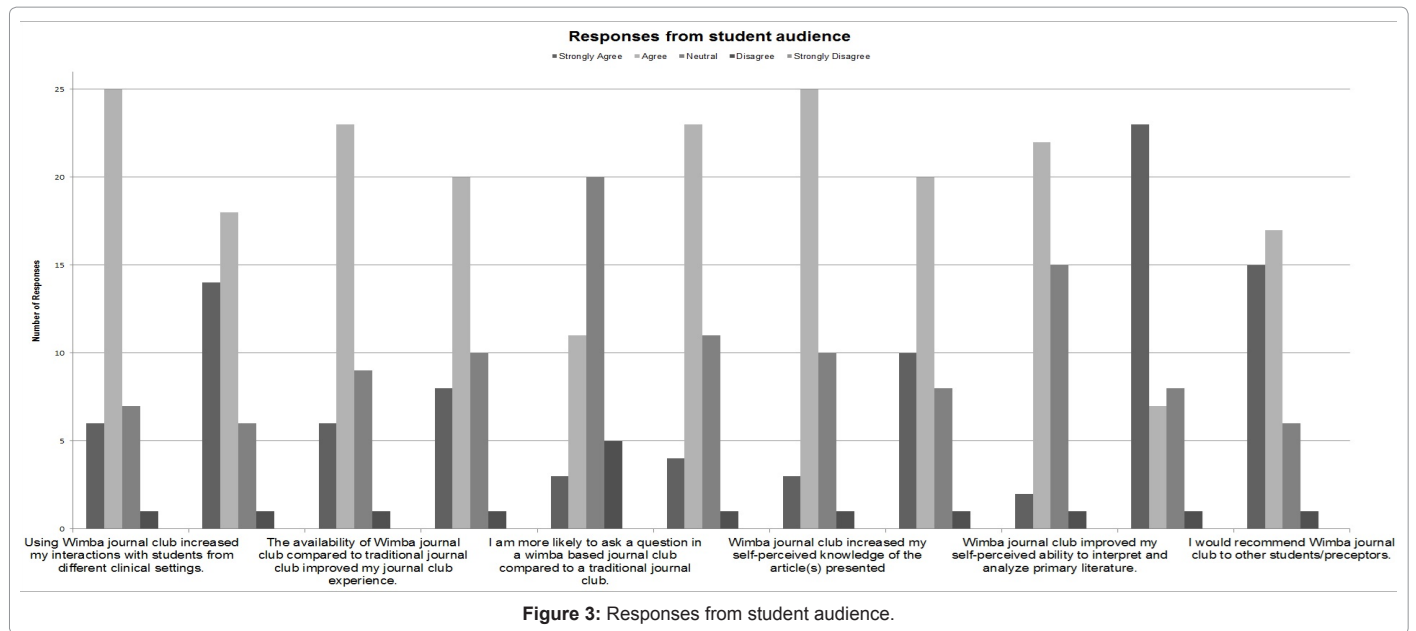


Figure 2: Responses from student presenters.



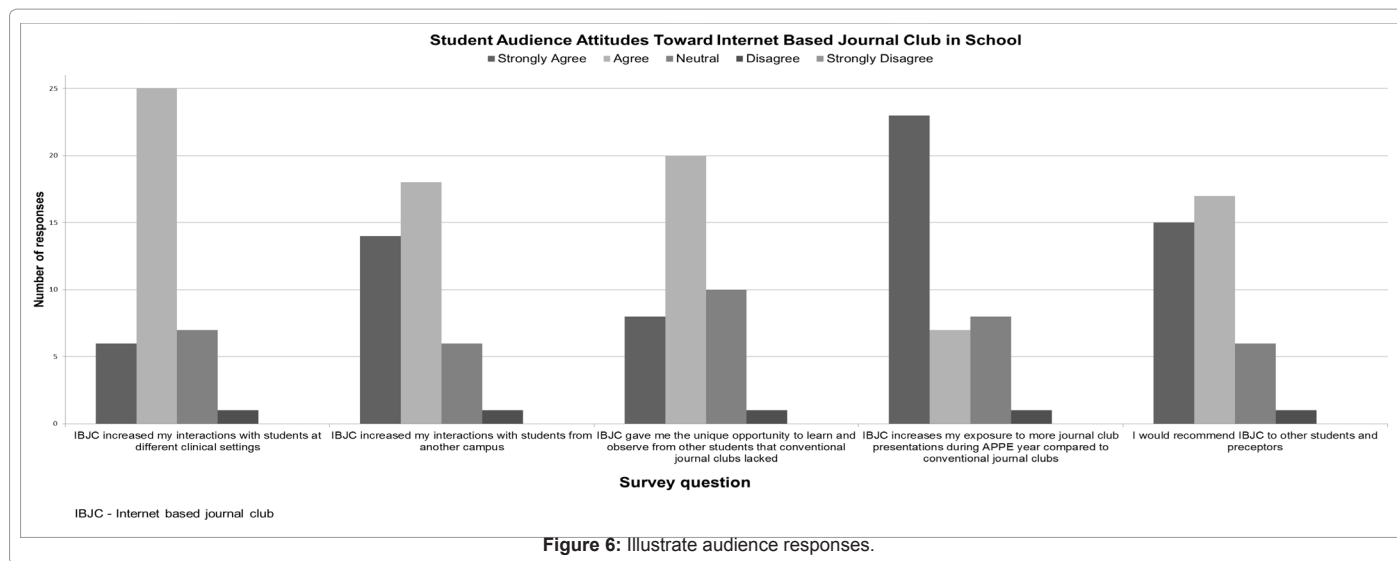


Figure 6: Illustrate audience responses.

Online Journal Club Learning Objectives

1. Describe newly published medical literature
2. Apply newly published medical literature findings to clinical practice
3. Utilize evidence-based medicine evaluation skills to critique and appraise research
4. Demonstrate continued pharmacy education
5. Stimulate interest in research

Table 1: Online Journal Club Learning Objectives.

interactions with students from different campuses. Specifically, 82.1% agreed their interactions with students from other campuses were increased. Additionally, 71.8% agreed they had a greater opportunity to observe and learn from other students than in conventional journal clubs. More importantly, 74.4% of audience members believed that internet-based journal club had improved their journal club experience. Finally, 82.1% of audience members would recommend internet-based journal club to other students and preceptors. Figures 5 and 6 illustrate audience responses.

Discussion

The survey responses demonstrate that a series of internet-based student journal clubs presented synchronously to multiple distance locations achieved the same objectives as conventional journal clubs but overcame the barriers associated with conventional journal clubs which led to an enhanced journal club experience for all participants. Participants demonstrated this by acknowledging the achievement of learning objectives as well as the advantage of enhanced discussion. This was reinforced by the student presenters agreeing that with the use of internet-based journal club a greater variety or number of questions was posed. Moreover, all participants believed the internet classroom provided the unique opportunity to easily attend journal club discussions. This is an important consideration as traditional journal clubs limit participation to those physically present at the site of the presentation. Therefore, not only does internet-based journal club increase access to journal club participation, but it also allows for increased clinical perspectives relative to new medical literature due to the increase in access.

The two pharmacy faculty participants reported that internet-based journal club was an effective way of evaluating student critical literature evaluation skills. Moreover, faculty members responded favorably to

the ability to interact with students and faculty from distance locations that conventional journal clubs do not allow. Student audience members agreed that internet-based journal club increased their interactions with fellow students. Likewise, students enjoyed having the opportunity to watch and learn from other students. This advantage was also specifically seen for IPPE students who were exposed earlier to the journal club format, aiding their understanding the purpose and requirements of journal clubs.

The most common cited barrier to the successful implementation of internet-based journal club was use of the technology. Despite the majority of participants having used Wimba™ technology previously, many participants noted that they had difficulty logging in the first time as well as asking questions. However, after the first session the problems with technology dissipated suggesting that increased use improved familiarity and understanding of the technology.

Another common barrier was the time of the journal club, 11:00 AM, which limited the participation of some students as inpatient rounding was still occurring at times. This is a problem of both internet-based and conventional journal clubs; however, our study helped minimize this barrier by recording the journal club and allowing the participants to watch it at a later time.

The most prominent advantage noted by participants were the greater number of participants in the audience leading to a more diverse and comprehensive discussion. Furthermore, participants from different clinical settings and institutions provided a broader array of questions posed to presenters for the group to consider. Another benefit observed was the early exposure of IPPE students to journal club presentations. Lastly, the ability to interact with other students and preceptors was cited as a major advantage of internet-based journal club by participants.

Despite the mentioned limitations, we were able to demonstrate that internet-based, student led journal clubs presented synchronously to local and distance audiences is an effective means of achieving the learning objectives of conventional journal clubs while achieving increased attendance and enhanced discussion. These initial findings support further and wide application of the software with the involvement of more subjects to provide more robust evidence. With

favorable perceptions from students and faculty, internet-based journal clubs are a viable alternative, if not replacement to conventional journal clubs in experiential education.

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