Original research

# The effectiveness of virtual journal clubs on evidence-based practices application

# A eficácia dos clubes de revista virtuais na aplicação de práticas baseadas em evidências

**Beth Elenko**

New York Institute of Technology (New York). New York, United States of America. belenko@nyit.edu

**ABSTRACT | INTRODUCTION:** This study examines the effectiveness of a virtual journal club (VJC) in enhancing students' understanding of evidence-based practice (EBP) and its application in occupational therapy (OT). Entry-level Master of Science (MS) and clinical Occupational Therapy Doctorate (OTD) students participated in a VJC over two semesters. The objective of the VJC is to foster group discussions in a non-threatening environment, preparing students for their future fieldwork and articulating evidence-based interventions in practice. **OBJECTIVES:** The purpose of this study was to examine the effectiveness of this VJC on the understanding and application of evidence-based practice. **METHODS AND MATERIALS:** Twenty-four entry-level MS and OTD students voluntarily took part in this study, completing pre- and post-tests using the OT-KACE survey. The OT-KACE is adapted from the Evidence Based Practice (EVP) Knowledge, Attitudes, Access, and Confidence Evaluation (KACE) developed by William Hendricson, School of Dentistry, The University of Texas Health Science Center at San Antonio. All students participated in the VJC as part of their research course sequence. **RESULTS AND CONCLUSIONS:** Significant improvements in understanding EBP were observed from pre to post OT-KACE assessments. EBP integration is a cornerstone of entry-level healthcare curricula. Engaging students in VJCs provides them with opportunities to explore and apply learned skills independently and collaboratively, aligning with contemporary learning preferences.

**KEYWORDS:** Virtual journal clubs. Evidence Based. Health Professions. Occupational Therapy.

**RESUMO | INTRODUÇÃO:** Este estudo examina a eficácia de um clube de revista virtual (VJC) em melhorar a compreensão dos alunos sobre a prática baseada em evidências (PBE) e sua aplicação na terapia ocupacional (TO). Alunos de nível básico de Mestrado em Ciências (MS) e Doutorado em Terapia Ocupacional Clínica (OTD) participaram de um VJC durante dois semestres. O objetivo do VJC é promover discussões em grupo em um ambiente não ameaçador, preparando os alunos para seu futuro trabalho de campo e articulando na prática intervenções baseadas em evidências. **OBJETIVOS:** O objetivo deste estudo foi examinar a eficácia deste VJC na compreensão e aplicação da prática baseada em evidências. **MÉTODOS E MATERIAIS:** Vinte e quatro estudantes iniciantes de MS e OTD participaram voluntariamente deste estudo, completando pré e pós-testes usando a pesquisa OT-KACE. O OT-KACE é adaptado da Avaliação de Conhecimento, Atitudes, Acesso e Confiança (EVP) da Prática Baseada em Evidências (KACE) desenvolvida por William Hendricson, Faculdade de Odontologia, Centro de Ciências da Saúde da Universidade do Texas em San Antonio. Todos os alunos participaram no VJC como parte da sequência do curso de pesquisa. **RESULTADOS E CONCLUSÕES:** Melhorias significativas na compreensão da PBE foram observadas antes e depois das avaliações OT-KACE. A integração da PBE é uma pedra angular dos currículos de saúde de nível inicial. Envolver os alunos em VJCs proporciona-lhes oportunidades de explorar e aplicar as competências aprendidas de forma independente e colaborativa, alinhando-se com as preferências de aprendizagem contemporâneas.

**PALAVRAS-CHAVE:** Clubes de revistas virtuais. Baseados em Evidências. Profissões de Saúde. Terapia Ocupacional.

Submitted Mar. 13th, 2024, Accepted July. 26th, 2024,
Published Sept. 6th, 2024
Inter. J. Educ. Health, Salvador, 2024;8:e5667
http://dx.doi.org/10.17267/2594-7907ijeh.2024.e5667 | ISSN: 2594-7907
Assigned editors: Iêda Aleluia, Ana Cláudia Carneiro

*How to cite this article:* Elenko B. The effectiveness of virtual journal clubs on evidence-based practices application. Inter J Educ Health. 2024;8:e5667. http://dx.doi.org/10.17267/2594-7907ijeh.2024.e5667

## 1. Introduction

Journal clubs have long been used in various healthcare education and clinical settings for health providers. With the evolution of technology, education is increasingly embracing virtual environments, prompting educators to devise innovative methodologies to engage students effectively.[1-11] Evidence-based practice (EBP) is integral to health professions (OT) entry-level education, spanning the curriculum through diverse methods.[3,6,8,9] The importance of embracing these new strategies to engage students virtually is new to many educators. Five recommended steps to engage in EBP include: (1) formulating a PICO (population, intervention, comparison, outcome) or PPARE (person, population, action, results, and evidence) question regarding treatment considerations, (2) conducting a literature search to support the question, (3) evaluating the evidence for relevance and value, (4) using the evidence for clinical decision-making and client-centered applications, and (5) assessing the intervention's alignment with the client's needs.[9] Research courses in healthcare education incorporate these steps in various ways, integrated into full curricula. These steps are vital for developing critical appraisal skills among entry-level healthcare education students, enabling them to engage in research and apply evidence in clinical practice. Whether in person or virtual, journal club formats are an engaging way to promote effective evidence base practices for students.[1-11]

Measuring the effectiveness of occupational therapy (OT) educational programs is crucial to ensure that students are gaining the necessary knowledge, skills, and attitudes required for their professional development. One robust framework for such an assessment is Kirkpatrick's Model[12,13], particularly its second level, entitled "Learning". This level is especially pertinent for assessing students' comprehension of the instruction they receive. Historically, Kirkpatrick's Model has been used to evaluate the intended knowledge, skills, and attitudes that students acquire following educational innovations.

Applying Kirkpatrick's Model to journal clubs can provide valuable insights into how well students can apply the knowledge they have been taught. Journal clubs, where students discuss and critique research articles, are a common educational tool in OT programs. By evaluating how well students can understand and integrate the content discussed in these clubs into their broader learning, educators can gauge the effectiveness of their educational programs. This approach ensures that the program is not only teaching students theoretical knowledge but also equipping them with the practical skills to apply this knowledge in real-world situations. For example, during journal club sessions, students might be assessed on their ability to critically appraise research, discuss the implications of study findings for clinical practice, and demonstrate an understanding of research methodologies. By using Kirkpatrick's second level of evaluation, educators can systematically measure these competencies, providing a clear picture of how well students are learning and applying the taught material.

Incorporating such assessments into the curriculum aligns with the broader goals of accurately evaluating educational programs. It allows educators to identify areas where students may need additional support or instruction and to make informed decisions about curriculum adjustments. Ultimately, this leads to a more effective educational program that better prepares students for their future careers in occupational therapy.

Many healthcare accreditors emphasize the integration of evidence-based learning strategies into core curricula. The Accreditation Council for Occupational Therapy Education (ACOTE) mandates OT educators to incorporate EBP philosophies into entry-level programs.[14] These expectations include applying, analyzing, and evaluating scientific evidence, understanding technology use in practice (including virtual environments), and integrating research methods, statistics, and evidence into clinical practice. However, educators lack consistent methodologies to integrate these expectations into entry-level programs, hindering assessment of students' integration and application of these concepts.[2-6] While various activities may address these standards across the OT curriculum, a virtual journal club (VJC) presents an innovative approach to integrate these teaching practices.

A VJC not only allows students to explore and apply skills independently but also fosters collaborative engagement. It provides students with the opportunity to research, reflect, and discuss relevant issues, promoting critical thinking and evidence-based practice in OT education.[3,6-8] Thus, the implementation of a VJC aims to present an effective approach for OT students to integrate EBP principles and demonstrate their application in OT practice, both at the entry-level Master's and Doctoral levels. This study examines the effect of participation in a VJC on the understanding and application of evidence-based practice. It is hypothesized that students who engage in VJC will demonstrate improved understanding and application of evidence-based practice.

## 2. Description of the Virtual Journal Club

A Virtual Journal Club (VJC) is incorporated as part of the research course sequences in both the entry-level Master of Science (MS) and Occupational Therapy Doctorate (OTD) programs at New York Institute of Technology, requiring two journal club submissions. The first submission occurs early in the research course, where students explore research topics, formulate questions, conduct literature reviews, and learn proper formatting. In VJC #1, each student selects and listens to podcasts from the American Occupational Therapy Association (AOTA)'s Everyday Evidence series. After listening to their selection, they are required to locate evidence in the literature for the podcast topic to either support or negate the topic, posting citations and responses to basic research questions. Students then engage in a week-long virtual dialogue, responding to classmates' initial posts.

In the second research course, VJC #2, students review AOTA's "Choose Wisely" recommendations and select one to explore further. They search for evidence in the literature to support or refute the recommendation, posting their findings and responses to research questions. Similar to VJC #1, a week-long virtual discussion ensues, with the instructor facilitating connections observed among students' contributions. The objective is to foster group discussions in a non-threatening environment, preparing students for their future fieldwork and articulating evidence-based interventions in practice.

## 3. Evaluation Methodology

This was a Quasi Experimental design using a convenience sample of current OT students. Students in both the MS and OTD programs were provided the option to participate in the research study, although all students participated in the VJC as part of their course requirements. Those who opted to participate in the study completed the OT-KACE survey (Appendix A), adapted from William Hendricson's EVP Knowledge, Attitudes, Access, and Confidence Evaluation (KACE). The survey comprised four sections: Knowledge of Critical Appraisal, Attitudes about Evidence-Based Practice (EBP), Confidence in Critical Appraisal Skills, and Evidence Accessing. The OT-KACE was modified to include OT based evidence that was part of the VJC, but it was not validated. This study was approved by New York Institute of Technology IRB, BHS-1667. This survey was administered as pre- and post, before and after the two research courses. Analysis using descriptive statistics compared scores in each content area.

## 4. Results

Twenty-four students (9 MS, 15 OTD) participated in both pre- and post-tests. 9 were master's level and fifteen were doctoral level OT students at New York Institute of Technology out of a total of forty students in the entire cohort. This was a convenience sample based on which students were registered for their research courses during the semester of the study. Each category of the OT-KACE survey provides a score, Attitudes (A), Confidence (C) and Evidence-Based (E). Students completed the OT-KACE through an anonymous Qualtrics link posted on the course LMS (Learning Management System) for those who participated with specific dates to complete the survey. The data was exported from Qualtrics to Excel for data analysis. Since the sample size was small, descriptive statistics were completed to show improvements across all content areas comparing the pre and post test scores of the A-C-E content areas in the OT KACE and are presented in Table 1. In each content area +8.34 differences in scores were noted 26.54 ± 8.34 in pretest and 34.88 ± 8.34 in post-test. Students in both cohorts showed improvement in all content areas of the OT-KACE even in this small

participant pool in both master's and doctoral level OT students. Knowledge (K) which was ten multiple test options where more than one choice could have been made. This was analyzed by response changes. These were analyzed by frequencies as follows: 50% of all the students changed their responses from pre to posttest which was interesting to note. They did not necessarily choose the correct response in every case. This indicated they may have a new set of understanding of the material, but not necessarily a true understanding of the concept's application. Some of the responses had more than one correct response which challenged the analysis. In terms of response changes, 20% of the doctoral students showed changes to correct answers more than the master's students thus indicating differences in the research course material and understanding of learning the concepts. More often, the responses were the same pre to post test in knowledge content area. Since this occurred over two semesters, it may also indicate the level students were at during this period in their OT curriculum and their emerging knowledge. Differences in response changes between MS and OTD students suggested variations in course material comprehension. Overall, the study demonstrated significant improvements in learning and satisfaction post-VJC implementation.

**Table 1.** Below shows the descriptive statistic differences between pre- and post- tests in each Attitudes (A)- Confidence (C)- Evidence (E) content areas

| OT-KACE pre and post-test statistics (N=24) | | |
|---|---|---|
| | *Pretest (Mean ± SD)* | *Post-test (Mean ± SD* |
| Attitudes (A) | 26.54 ± 8.34 | 34.88 ± 8.34 |
| Confidence (C) | 26.54 ± 8.34 | 34.88 ± 8.34 |
| Evidence (E) | 26.54 ± 8.34 | 34.88 ± 8.34 |

Source: the author (2024).

## 5. Discussion

This study had several limitations. Firstly, although students were required to participate in the virtual classroom, their participation in the study itself was voluntary and anonymous. Additionally, the number of participants relative to the total number of students in the class posed a limitation. Another limitation was that some questions allowed for more than one response, which could complicate the analysis. Furthermore, students may have been influenced by prior knowledge or experiences, introducing potential biases into the program's evaluation. Another limitation was the adaptation of the OT-KACE survey. While it was originally validated for use in a School of Dentistry context, the OT-KACE was not independently validated for this study, which could affect the reliability of the findings.

The findings of this study demonstrate that the participating students showed improved learning in evidence-based practice for OT and its application in clinical settings. This confirms the importance of integrating evidence-based knowledge throughout the educational curriculum, allowing students to progressively build their ability to apply concepts from one course to the next. Utilizing a virtual platform aligns with contemporary student pedagogy and offers a sustainable method for continuing education once students transition from the classroom to the clinical environment.

These results highlight the significance of Kirkpatrick's Model in evaluating learning and its application to real-world situations, which students will encounter during the clinical component of their education. This model effectively underscores the value of evidence-based practice in OT education and ensures that students are well-prepared for their professional roles.

## 6. Conclusion

The study, despite its limitations, provides valuable insights into the effectiveness of integrating evidence-based practice into OT education through virtual platforms. It demonstrates the potential benefits of such integration in enhancing students' learning and application of EBP principles. The findings also highlight the utility of Kirkpatrick's Model in evaluating educational outcomes, ensuring that students are well-prepared for the challenges of clinical practice.

Future studies should address the noted limitations - such as validating adapted surveys for specific contexts and ensuring broader and more representative participation - to strengthen the reliability and applicability of the results. Implementing evidence-based practice (EBP) learning opportunities in entry-level health education presents challenges for educators. Virtual Journal Clubs (VJCs) offer an innovative solution, mirroring real-world experiences and showing promise in increasing student engagement and enhancing critical thinking skills, as indicated by initial studies. However, optimizing VJC effectiveness requires adjustments in timing and curriculum integration.

To successfully engage students in today's world, educators must integrate EBP and critical appraisal skills into innovative pedagogies. Students need to grasp the practical application of EBP while honing their critical evaluation skills. Infusing EBP learning throughout the entire curriculum is paramount, underscoring the need for further research to assess curriculum efficacy and maintain educational standards. Future research endeavors should explore broader implementation strategies and investigate the long-term impacts of VJCs on student learning outcomes. By addressing these considerations, educators can better equip students for professional life while advancing the field through evidence-based education practices.

### Conflicts of interest

No financial, legal, or political conflicts involving third parties (government, private corporations and foundations, etc.) have been declared for any aspect of the submitted work (including, but not limited to, grants and financing, advisory board participation, study design, preparation manuscript, statistical analysis, etc.).

### Indexers

The International Journal of Education and Health is indexed in DOAJ and EBSCO.

## References

1. Hendricson WA, Rugh JD, Hatch JP, Stark DL, Deahl T, Wallmann ER. Validation of an instrument to assess evidence-based practice knowledge, attitudes, access, and confidence in the dental environment. J Dent Edu. 2011;75(2):131-144. https://dx.doi.org/10.1002/j.0022-0337.2011.75.2.tb05031.x

2. Daly MM, DeAngelis TM. Teaching evidence-based practice across curricula—An overview of a professional development course for occupational therapy educators. Occup Ther Health Care. 2017;31(1):102-109. https://doi.org/10.1080/07380577.2016.1227892

3. Ellington A, Janes WE. Online journal clubs to enhance fieldwork educator competency in support of student experiential learning. Am J Occup Ther. 2020;74(3):1-9. https://doi.org/10.5014/ajot.2020.035733

4. Eusuf D, Sheldon C. Establishing and sustaining an effective journal club. BJA Education. 2021;22(2):40-42. https://doi.org/10.1016/j.bjae.2021.11.001

5. Ilic D, de Voogt A, Oldroyd J. The use of journal clubs to teach evidence-based medicine to health professionals: A systematic review and meta-analysis. Journal of Evidence-Based Medicine. 2020;13(1):42-56. https://doi.org/10.1111/jebm.12370

6. Mark I, Sonbol M, Abbasian C. Running a journal club in 2020: reflections and challenges. Br J Psychiatry. 2021;45(6):339-0,42. https://doi.org/10.1192/bjb.2020.121

7. McGlacken-Byrne SM, O'Rahelly M, Cantillon P, Allen N. Journal club: old tricks and fresh approaches. Archives Disability Childhood Education Practice. 2020;105:236-41. http://dx.doi.org/10.1136/archdischild-2019-317374

8. Szucs KA, Benson JD, Haneman B. Using a guided journal club as a teaching strategy to enhance learning skills for evidence-based practice. Occup Ther Health Care. 2020;31(2):143-149. https://doi.org/10.1080/07380577.2016.1278296

9. Wenke RJ, Thomas R, Hughes I, Mickan S. The effectiveness and feasibility of TREAT (Tailoring Research Evidence and Theory) journal clubs in allied health: A randomised controlled trial. BMC medical education. 2018;18(104):1-14. https://doi.org/10.1186/s12909-018-1198-y

10. Beck M, Simonÿ C, Bergenholtz H, Hwiid Klausen S. Professional consciousness and pride facilitate evidence-based practice—The meaning of participating in a journal club based on clinical practice reflection. Nursing Open. 2020;7(3):690-9. https://doi.org/10.1002/nop2.440

11. Thomas A, Saroyan A, Snider LM. Evidence-based practice behaviours: A comparison amongst occupational therapy students and clinicians. Can J Occup Ther. 2012;79(2):96-107. https://doi.org/10.2182/cjot.2012.79.2.5

12. Kirkpatrick DL. Evaluating training programs. Virginia: ASTD; 1975.

13. Kirkpatrick Partners. What Is The Kirkpatrick Model? [Internet]. 2024. Available from: https://www.kirkpatrickpartners.com/the-kirkpatrick-model/ Accessed January 22,2024.

14. Accreditation Council for Occupational Therapy Education (ACOTE). 2018 Accreditation Council for Occupational Therapy Education (ACOTE) Standards and Interpretive Guide: August 2020 Interpretive Guide Version. 2020. Available from: https://acoteonline.org/wp-content/uploads/2020/10/2018-ACOTE-Standards.pdf