



Research Article

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“Lights, Camera, Learning”: Assessment of Pharmacy Students’ Perceptions on Incorporating Blockbusters for Teaching Pharmacotherapy in Infectious Diseases

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Abstract

Pharmacy education has been revolutionized by recent advancements in pedagogical approaches.

The study aimed to gauge the students’ perceptions of the movie-based learning experience. This cross-sectional survey was conducted among undergraduate pharmacy students using a self-administered questionnaire. Most students (86.5%) positively perceived the assignment, 89% rated it as useful, and 95.7% recommended it to future students. While the movie-review assignment was a new concept for the pharmacy students, it proved to be a success, providing a dynamic and thought-provoking learning experience for the students.

Keywords: Infectious Diseases; Movie Review; Science Fiction Movies; Technology-Enhanced Learning; Pharmacy Education

Introduction

The study of pharmacotherapy for infectious diseases is crucial in preparing future medical and pharmacy professionals to effectively manage patients affected by such conditions [1,2]. This course aims to equip students with a solid foundation of knowledge regarding pharmaceutical care for infectious diseases, including the interpretation of laboratory results and patient management principles. Through hands-on learning experiences, such as the objective structured public health examination (OSPHE), and comprehensive training through tutorials and lectures, students will gain the necessary skills and knowledge to tackle the challenges posed by infectious diseases. However, the breadth of information covered in this course can prove to be a challenge for students, especially in terms of retaining the material and effectively applying it in real-world patient care scenarios. For instance, in a survey

completed by nearly 600 pharmacy students representing 12 United States (US) pharmacy schools, 94% of respondents believed that strong antimicrobial knowledge is important for a pharmacy career. And yet, on an 11-question knowledge assessment, the mean score was barely more than 50% [3].

Traditionally, pharmacy education has relied on lectures and direct instruction to impart theoretical knowledge to students [4]. However, this method can be challenging for students as the content is often extensive and requires significant memorization. Consequently, the students may struggle to understand the clinical relevance of the material and fail to fully appreciate the importance of what they are learning [5]. In addition, traditional assessment methods, such as assignments, can also be a source of stress for students. They may find these tasks boring and time-consuming,

leading to high-stress levels [6-8]. This is particularly concerning, as research has shown that pharmacy students experience higher stress levels than other health professionals [9].

The COVID-19 pandemic has added to the challenges faced by university students, including those in pharmacy education. In light of these challenges, finding ways to enhance pharmacy education and make it more engaging and effective for students is crucial. This will not only help students better retain and understand the material but also reduce stress levels and promote a positive learning experience. Interestingly, the shift to technology-enhanced learning (TEL) using online platforms has not significantly increased stress levels among pharmacy students. In fact, TEL, which incorporates both digital and traditional educational methods, has been positively received by students and has been shown not to affect student-perceived stress [6,10]. TEL has provided an engaging learning experience for pharmacy students [5,11].

The use of movies as a teaching tool has been widely explored and found to be effective in various educational settings. For instance, the incorporation of movie clips into reading and listening activities has been shown to improve memory and recall [12]. Additionally, animated movies have enhanced students' thinking skills and motivation to learn science [13]. Furthermore, incorporating science fiction movies into the classroom curriculum has been proven to positively affect student performance and creativity. For example, seventh-grade students have been shown to perform better when presented with creative ideas using science fiction movies [14]. Additionally, preservice science teachers, when given a science fiction story writing assignment at a public university, were able to accurately incorporate scientific concepts and details about scientific realities into their stories [15].

Movies can also play a meaningful role in learning by activating prior knowledge [16]. In higher education, science fiction movies have been used to understand the inquiry process of science [17]. In teaching microbiology, virology, and biochemistry, movies such as *Outbreak* and *Dark Breed*, and television series like *Space:1999*, provide a practical, safe, and engaging learning environment for students (Glassy, 2001). Additionally, movies that pose questions and have a problem-solving theme have been found to be more engaging and increase students' conceptual knowledge [18]. Besides, the COVID-19 pandemic has caused a shift in perspective regarding pandemic movies, as films that were once considered "fantasy" and "fiction" are now seen in a new light as realistic depictions of widespread diseases, viruses, and plagues.

Movies such as *Contagion* (2011) accurately portrayed a future pandemic, including the breakdown of global health systems, panic buying, and a global disease outbreak. Moreover, to ensure authenticity, Hollywood production houses often enlist the services of academic researchers as scientific advisors. Hence, using science fiction movies as a pedagogical tool presents a unique opportunity for creating a practical and authentic virtual learning environment that is safe and engaging for students. Given that movies are already a common aspect of students' daily routines, incorporating films into classroom instruction would be a smooth and effortless integration.

Intending to enhance the didactic approach to teaching and address the challenges faced in pharmacotherapy education, a movie-review assignment in the module "Pharmacotherapy for Infectious Diseases" was introduced to second-year undergraduate pharmacy students. The assignment was designed to make the subject more appealing and relatable by connecting it to real-life issues like the pandemic. In this study, we aim to gather the pharmacy students' perceptions towards the movie-review assignment in pharmacotherapy education. The task assigned to the students involved watching a pandemic-themed movie, analyzing its scientific accuracy, and evaluating scenes where inaccuracies were identified. An evaluation of the impact of this assignment was conducted to address the following research questions:

1. What are the pharmacy students' perceptions of the movie-review assignment in their pharmacotherapy learning?
2. What aspects of the movie review were found to be easiest or hardest by the students?
3. How can the movie-review assignment be improved to better support the teaching and learning of pharmacotherapy?

Methodology

A movie-based assignment was designed to assess students' ability to identify content related to the course in the movie scenes. The impact of the assessment was measured through a combination of keen lecturers' observations and student surveys. 47 second-year pharmacy undergraduate students participated voluntarily in the study, divided into 12 groups of 4 members (with one group consisting of 3 members).

Selection of movies

The selection of movies was carefully considered to ensure that the themes and content fit within the course on infectious diseases syllabus. Two movies were selected for the assignment: "*Contagion*" (2011) and "*Outbreak*" (1995). "*Contagion*" provided valuable insights into the various factors that contribute to the uncontrolled spread of a virus, the mechanisms behind virus infection and its pathogenesis, and the critical role of healthcare professionals in responding to a virus outbreak. On the other hand, "*Outbreak*" portrayed the challenges faced by army doctors as they worked to find a cure for an imported virus that had originated from an African monkey. This movie effectively demonstrated the urgency and importance of finding a solution to contain the spread of infectious diseases, making it a valuable addition to the assignment.

Students' tasks and activities

The assignment required the students to watch both "*Contagion*" and "*Outbreak*" and critically analyses the scenes involving infectious diseases. They were asked to evaluate these scenes in terms of their accuracy and depiction of key concepts related to infectious diseases, such as disease management and containment, viruses, pathogenicity, and vaccination. The students were also encouraged to identify any "science gone wrong" or inaccuracies in the movies and to share their perspectives on the correlation of the movie content with the current COVID-19 pandemic.

At the end of the semester, each group was responsible for submitting a pre-recorded presentation that incorporated voice-overs and was assessed using a specific rubric. The researchers monitored the students' performance and evaluated their presentations throughout the assignment. After several discussion sessions, all participants completed the assignment and submitted their pre-recorded presentations. At the end of the semester, an online survey was distributed to the participants to gauge their perceptions and experiences. The survey included closed and open-ended questions, and the participants were assured that their responses would be anonymous. All participants were willing to participate and provide feedback about the movie review assignment.

Data analysis

Descriptive statistics were used to analyse the data and presented using pie charts. The responses to the open-ended questions were analyzed using thematic analysis (Braun & Clarke, 2012). Codes were assigned to the data to describe the content, and themes were generated, reviewed, and named after coding. Finally, the data were triangulated using observations, researchers' journal notes and reflections on the implementation.

Results

Students' perception of the Movie Review Assignment in the Pharmacotherapy learning

Enjoyable and interesting

The results of the study showed that most students had a positive perception of the movie review assignment. Many participants found the assignment enjoyable, fun, and interesting, as it challenged their knowledge and understanding of infectious diseases (Table 1). The lecturers observed the students' reactions during the briefing session, and most of the students were responsive and excited about the assignment. However, some students initially felt stressed and unsure about the assignment, as it was their first experience with a movie-based task. Nevertheless, through discussions and the support of the lecturers, the students could overcome their concerns and complete the assignment.

Effectiveness of the movie review assignment

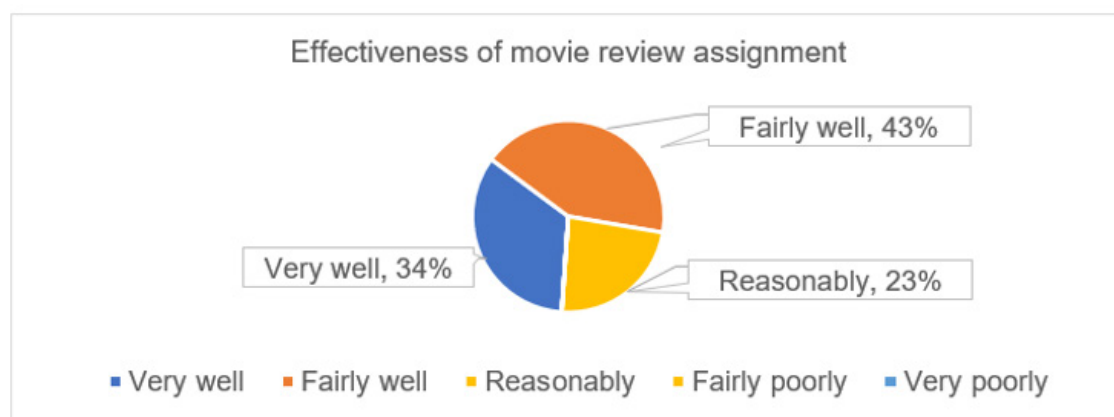


Figure 1: Students' perception on the effectiveness of movie review assignment.

Resources, tools or support used in planning and developing the presentation

The use of technology in this movie review assignment was a key factor in engaging students. Most of the 47 second-year pharmacy undergraduate students used software such as Canva, Google Slides, and Microsoft PowerPoint to design their presentations. They used Google Docs to edit the document and various group communication tools, such as Microsoft Teams, Telegram, and WhatsApp, for group discussions. ActivPresenter and Screencast-O-Matic were used for video recording, while Filmora, Jian Ying Pro, and VN Video Editor were utilized for video editing. Some students also took advantage of online resources, such as websites, YouTube, and TikTok, to generate ideas and create video presentations.

Additionally, a small percentage of students (6.6%) appreciated the opportunity to communicate and collaborate with their peers during this e-learning period. The use of technology tools, such as the ones mentioned above, allowed for an interactive and engaging experience for the students, enhancing their overall participation in the assignment.

Increased understanding

The students perceived that they had improved their knowledge of the course content and that this new approach was a good experience that emphasized the development of important skills such as communication and critical thinking. This was demonstrated through the high assessment scores. The average score among the 12 video presentations was 74.5% (37.25 out of 50 marks), with a maximum of 84%, a minimum of 64%, and a median score of 72.24%.

Furthermore, the students' collaboration and teamwork also played a significant role in their development. As they worked in teams, they were required to present and defend their ideas, further honing their communication skills. Additionally, the students had to delve into the intricacies of scientific processes and present the information clearly and concisely in their video presentations, further improving their critical thinking abilities.

The students' perceptions of the success of the movie review assignment align with the outstanding achievement scores observed. As depicted in (Figure 1), a substantial 43% of the students considered the effectiveness of the assignment to be "fairly well," while 34% of them believed it was "very well," and an additional 23% believed it was "reasonable." Notably, not a single student found the assignment to be ineffective. The high level of student engagement and satisfaction with the movie review assignment supports its inclusion as a crucial component of the course.

The usefulness of the movie review assignment

As shown in (Figure 2), most students held positive opinions of the assignment, with 49% stating that it was "very useful" and an additional 40% considering it "fairly useful." However, only a small minority of 11% had a neutral stance, stating that they were "okay" with the assignment. Notably, not a single respondent believed that the assignment was not useful in supporting its continued use in future course iterations.

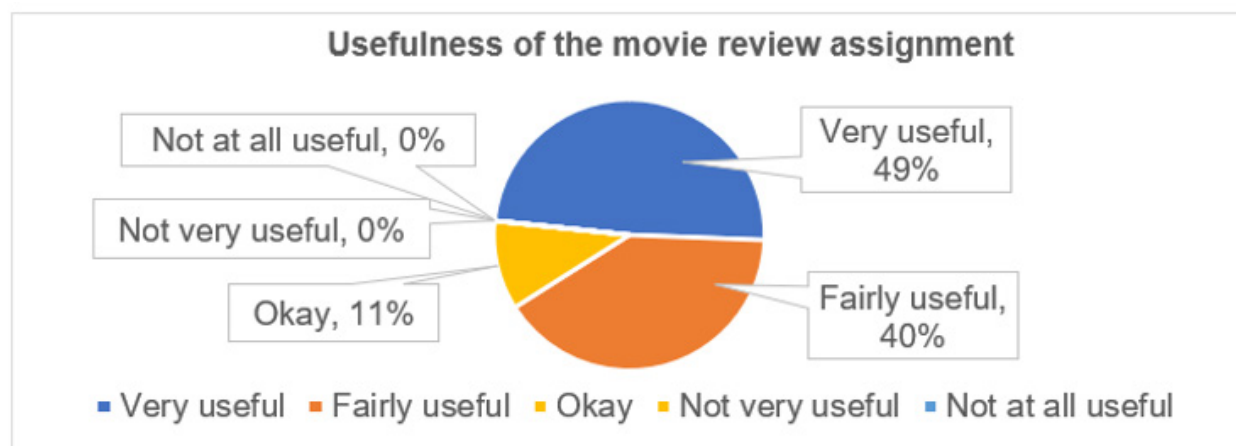


Figure 2: Students' perception on the usefulness of the movie review assignment.

Students' opinions on the productivity and the useful aspects of this movie review assignment

Most students reported that the movie review assignment was a productive and engaging learning method, as shown in (Table 2). They highlighted that the assignment allowed them to learn about infectious diseases through the content of the movies. In addition, 4 students even claimed that they were able to increase their understanding of the course material through additional literature searches. However, some students found the assignment unproductive despite its many useful aspects. Nine students

claimed that the assignment was time-consuming and not adapted to their needs, leading to a less in-depth understanding of the material. As shown in (Table 1), these negative perceptions may be attributed to the stress of completing program requirements, as previously reported by Portoghesi et al. (2019). Additionally, one student stated that they would prefer not to complete the assignment again. While the majority of students found the movie review assignment productive, it is important to acknowledge the negative perceptions and find ways to address these challenges. By doing so, the assignment can be improved to meet all students' needs better and enhance their learning experience.

Table 1: Students' overall perception of the movie review assignment (n=47).

Themes	^b n	%	Sample comments
Positive perception			
Enjoyable, fun and interesting	27	33.80%	"It's enjoyable as it triggers us to know more information regarding the movies."
Improve students' understanding / knowledge on the course content	11	13.80%	"I learnt a lot of new things like management, vaccine pathophysiology and relating it to the current pandemic."
Meaningful and relevant learning	10	12.50%	"It was a good experience as the movies showed the situation of how infectious disease outbreaks happen."
New approach	9	11.30%	"I have never tried to criticise scenes in movies."
Develop critical thinking and team-work skills	7	8.80%	"I learnt more about how to communicate with the groupmates." "It was mentally stimulating and required students to synthesise their own thoughts and ideas when criticising the movie."

Self-improvement on the current scenario	5	6.30%	"It made me reflect on my actions during this current COVID-19 pandemic."
Negative perception			
Extensive task	4	5.00%	"A lot of tasks since we need to watch 2 movies and make a video presentation about those movies."
Difficulty of task	3	3.80%	"It was quite hard because we don't want to miss out on important points."
Time-consuming	2	2.50%	"It was time-consuming when we needed to screenshot the scene of the movie in our slides."
Stress	1	1.30%	"I felt stressed because of the task distribution, and my opinions were not being heard. "
Would rather not do such an assignment again	1	1.30%	"It's a new experience since this is my first-time movie review, but I would prefer not to experience this again."

^aN = Total number of respondents; ^bn = occurrence

Table 2: Students' opinions on the useful aspects of this movie review assignment (^aN=47).

Themes	^b n	%	Sample comments
Answering the questions	20	42.60%	"The question regarding science wrong and human research ethical issues."
Background of the movies	23	48.90%	"The background of the movies enabled us to correlate the knowledge we have gained in this course."
Literature searching	4	8.50%	"When I research and read articles regarding viruses, I am able to understand the virulent nature of the virus and how difficult it is to handle the outbreak."

^aN = Total number of respondents; ^bn = occurrence

Students' opinion on the easiest and the hardest part of reviewing the movies

According to the findings presented in (Table 3), the majority of students found the easiest part of the movie review assignment to be searching, watching, and understanding the movies. This was followed by gathering information and addressing the questions. (Table 4) shows that the most challenging aspect of the assignment, as reported by most students, was the time limit

for the video presentation. To overcome this challenge, students frequently engaged in more discussions to select the most suitable and rational answers to include in the 10-minute video. Other difficulties included answering the questions, understanding the movies, teamwork, a heavy workload, time-consuming preparation and video recording, and poor prior knowledge. Despite these challenges, all students overcame these difficulties and submitted their video presentations before the deadline.

Table 3: Students' opinion on the easiest part of reviewing the movies (^aN=43).

Themes	^b n	%	Sample comments
Searching, watching and understanding the movies	26	60.50%	"The movies were easy to find, and we were provided with the links, which made it even easier." "The easiest part of the assignment is watching the movie while learning and gaining knowledge." "The easiest part of reviewing the movie is understanding the storyline of the movie."
Gathering the information and addressing the questions	13	30.20%	"The easiest part is gathering and collecting information with all members." "Finding the proof or doing the summary of the movie." "The easiest part of reviewing the movies is discussing the answer to each question."
Technicality	3	7.00%	"The easiest part of reviewing this assignment is creating the slideshow." "Editing the videos as I get to try a new method of editing it."
No easy part	1	2.30%	"There was no easy part."

^aN = Total number of respondents; ^bn = occurrence

Table 4: Students' opinion on the hardest part of this assignment and the method to overcome the challenges (^aN=47).

Themes	^b n	%	Sample comments
Time limit	24	46.20%	"The time restriction for the presentation. Eventually, we decided to pick the most suitable and rational answers to be included in the video presentation."
Answering the questions	10	19.20%	"Identifying the incorrect science facts in the movie. We overcame this problem by watching the movie multiple times and checking the facts presented with the real one."

Understanding the movies	4	7.70%	"The hardest part of this assignment is to understand and extract the content from the movies. I watched the movies multiple times to understand the movies."
Others	2	26.90%	"Heavy workload for a group of only 4 students. We spend a lot of time in discussion and preparation for the video." "I took quite a long time to design and finish the slides, although I had already done the content a long time ago. I'm grateful to have supportive groupmates." "We had problems recording the presentation since we will have 2 presenters but managed to overcome it." "We have limited knowledge on the management of the infectious disease. We discussed the doubts and tried to figure it out by using Google."

^aN = Total number of respondents; ^bn = occurrence

The students' experiences with the movie review assignment highlight both its strengths and weaknesses. While the process of searching, watching, and understanding the movies was considered relatively straightforward, the time constraint for the video presentation posed a significant challenge for many students. Nevertheless, the students were able to work together and overcome these difficulties, demonstrating their perseverance and adaptability in the face of challenges.

Students' suggestions for improvement

The students provided several recommendations for enhancing the movie review assignment, as reflected in (Table 5). The

majority of students recommended extending the time limit for the video presentation and altering the format of the assignment. Other suggestions included reducing the workload, extending the deadline, offering a variety of related movies, and providing direct links to the movies. These recommendations highlight the areas where students believe the assignment could be improved and provide valuable insights for educators on making future assessments more effective and engaging. By offering a variety of related movies, students would have the opportunity to choose a movie that aligns with their interests and knowledge, which would likely enhance their motivation and engagement in the assignment.

Table 5: Suggestions for improvement (aN=37).

Themes	^b n	%	Sample comments
Extend the time limit	26	70.30%	"It would be better to have a longer time limit because there were too many points to be discussed."
Change the format of the assignment	4	10.80%	"Since there are many points to be covered, I suggest that this assignment should be a written report assignment."
Others	7	18.90%	"Increase the number of members per group to decrease workload." "More preparation time." "Having choices of related movies, so that students can choose one or two from them to give variety in it." "It is better if the chosen movies are given directly to the students instead of them searching for them individually."

^aN = Total number of respondents; ^bn = occurrence

Students' opinion on the recommendation of this assignment for future students

A significant majority of the students, totaling 45 (95.7%) would highly recommend the movie review assignment to future students, as reflected in (Table 6). This recommendation is based on their perception that the assignment was enjoyable and engaging and provided a welcome change from traditional writing assignments. Furthermore, the collaboration and interaction between students during the assignment was also seen as a significant positive aspect, as it helped to develop and improve their soft skills, such

as communication and teamwork. However, a small minority of 2 students (4.3%) did not recommend the assignment due to their belief that it was time-consuming. Despite these negative perceptions, most students saw the assignment as a valuable and enriching learning experience that would benefit future students. These findings demonstrate the significance of incorporating alternative assessment methods into the educational curriculum, as they can provide students with a fun and engaging way to develop and improve their skills while still effectively assessing their knowledge and understanding of the course content.

Table 6: Students' opinion on the recommendation of this assignment for future students (aN=47).

This assignment is recommended for future students	^b n	%	Sample comments
Yes	45	95.70%	"It's very interesting and relieves the hassle of assignments and tests." "It is quite a different assignment as compared to those up to thousand words of written assignment." "They can enhance their relationships with each other while doing this group work." "They'll be able to use the knowledge they've learnt in managing the current pandemic."
No	2	4.30%	"Doing this assignment is time-consuming. However, since the allocated marks are quite big, we tried our best to do it based on the rubrics."

^aN = Total number of respondents; ^bn = occurrence

Discussion

To the best of our knowledge, this is the first time we have introduced this type of assignment whereby incorporating science fiction movies in the teaching and learning of pharmacotherapy for infectious diseases among pharmacy students. The present report aims to provide insight into students' perceptions and satisfaction with the movie-based learning experience and the usefulness of the assessment. Consistent with previous research on TEL and the impact of movies on pharmacy education [19,20], our findings demonstrate that our students perceived the movie review assignment as enjoyable and engaging.

Previous research suggests that the demanding course load of pharmacy students is overwhelming and stressful [9]. Notably, traditional approaches resulted in high-stress levels among students who spend more time on course requirements (Attarabeen et al., 2021; Gallagher et al., 2014; Opoku-Acheampong et al., 2017). In light of this, considering exciting teaching elements like movies could help increase student engagement behaviorally and cognitively and positively affect student learning and achievement. Movies have been used in the fields of medicine to portray professionalism, provide instruction on clinical topics, and as an effective alternative to experiential learning (Miller & Lundquist, 2020). In addition, movies provide a visual aid for understanding concepts and engaging learners [18,21,22].

The results of the movie review assignment indicate a generally positive perception among students. This is reflected in the fact that many students found the assignment enjoyable, fun and interesting, as it allowed them to draw on their knowledge of the movies they watched. During the briefing session, the lecturers observed the students' reactions to the assignment and found that most students were responsive and excited to learn more about it. For students, learning through films was indeed a boon. One valuable feedback from the students was that watching the movies to answer questions gave them a firmer grasp of the course material. However, it should be noted that some students experienced stress and difficulties adapting to the assignment at first, likely due to it being their first experience with a movie-based assignment. This highlights the importance of clear and effective communication from lecturers to ease students' concerns and address any challenges that may arise.

The use of technology tools and online resources has the potential to enhance students' engagement and learning experience during e-learning periods. The results of this study highlight the importance of providing students with the necessary resources and tools to complete assignments effectively and to foster communication among students. Students utilized various software and online resources, such as Canva, Google Slides, Microsoft PowerPoint, Google Docs, Microsoft Teams, Telegram, WhatsApp, ActivPresenter, Screencast-O-Matic, Filmora, Jian Ying Pro, and VN video editor to complete the task. Additionally, students leveraged online websites, YouTube, and TikTok app for generating ideas for their presentations. A small number of students appreciated the opportunity to communicate and cooperate with their peers during this e-learning period. Through group discussions, students were able to generate more ideas, exchange knowledge about the topic,

and learn from each other. This finding is consistent with prior research by McCarthy [23] and Fleming [24], who emphasized the role of online discussion in improving teamwork, communication skills, and collaborative learning among students.

Many students felt that they had improved their knowledge of the course content and that the experience had helped them develop new skills, such as communication and critical thinking. This was reflected in the high assessment scores, with a mean score of 74.5% and a median score of 72.24%. The nature of the assignment, which required students to work in teams and present their ideas, was seen to have contributed to the development of critical thinking skills. Students had to critically analyse the scientific processes and present the content accurately in the video presentations, which required both critical thinking and creativity. This finding is consistent with a study by DeWitt and Koh [25] that showed that presentation and learner-generated content could improve critical thinking skills.

A plurality of students positively perceived the effectiveness of the movie review assignment. Furthermore, it is noteworthy that none of the students considered the assignment to be ineffective. This piece of evidence highlights the potential of movie review assignments as a means of improving student engagement and enhancing student learning. This approach can provide students with an opportunity to apply their knowledge and develop their critical thinking skills, which can contribute to better learning outcomes.

89% of students either rated the assignment as "very useful" or "fairly useful." This suggests that the assignment effectively helped students in their learning process. On the other hand, only 11% of students were "okay" with the assignment. While this is a minority, it is still important to understand why some students did not find the assignment as useful as others. Further analysis or feedback from these students could help to improve the assignment and increase its effectiveness in the future. The results indicate that the movie review assignment was considered useful for learning by the majority of students and could serve as a model for similar assignments in the future.

Many students reported that they were able to increase their understanding of the course material through the movies' content and by conducting a literature search. This finding further suggests that the assignment was able to engage students effectively and enhance their learning outcomes. However, a small portion of students had negative perceptions of the assignment and found it to be challenging and time-consuming. One student even expressed a preference not to do it again. These negative perceptions could be due to the stress of meeting program requirements, as suggested by Portoghese et al. (2019).

The movie review assignment was both challenging and beneficial for the students. The majority of students found the easiest part of the movie review assignment to be searching, watching, and understanding the movies. This indicates that the students were able to engage effectively with the movie material and extract information from it. The second easiest part of the assignment, according to the students, was gathering information

and addressing the questions, suggesting that the assignment was well designed in terms of guiding the students towards what information to look for and what questions to answer. On the other hand, the hardest part of the assignment for the students was the time limit for the video presentation. The time constraint seemed to be the biggest challenge for the students. To overcome this, the students reported that they had more discussions to select the most suitable and rational answers to be included in the video presentation. This shows that the students were able to work together effectively and find solutions to overcome their challenges.

The students' suggestions provide valuable insights for improving future iterations of the movie review assignment. It is worth noting that students' suggestions indicate a need for balance between the challenge and difficulty of the assignment and the students' abilities and workload. Extending the time limit and reducing the workload could help students overcome some of the challenges they faced in completing the assignment. On the other hand, providing choices of related movies and having the movies' links directly available could enhance students' learning experience and engagement with the assignment. Educators should consider these suggestions and make adjustments to ensure that students have a positive and productive learning experience while improving their comprehension of the course material.

The students' responses to the question concerning recommendations indicate that the students received the movie-based assignment well, with 95.7% of students recommending it to future students. The students appreciated the excitement of learning through movies, as well as the opportunity to develop and improve their soft skills through communication and interaction with their batchmates. However, a small percentage of students did not recommend the assignment due to its time-consuming nature. These results suggest that while most students found the movie review assignment to be a fun and productive alternative assessment, some students might have struggled with the assignments' demands. Nevertheless, the findings highlight the value of incorporating engaging and interactive assignments as a means of improving students' understanding of course content and developing important skills. Some responded that they learned valuable soft skills like leadership and teamwork skills that the textbooks do not provide during the discussions and development of the video, making it an excellent innovative strategy for an enhanced student experience.

The limitations of this study should be considered when interpreting the results. The data was obtained from a single cohort of pharmacy students and may not be representative of the views of other student populations. Moreover, the exploratory nature of the study means that future research with a controlled experimental design may be needed to determine the effectiveness of the movie review assignment in developing practical skills and engaging learners. It is important to acknowledge that while the majority of students had positive perceptions of the movie review assignment, it may not be suitable or feasible for all students and may present challenges for some. Educators should be mindful of these limitations and consider alternative assessment methods that may better accommodate the needs of diverse learners. Additionally, the

study did not evaluate the impact of the assignment on students' stress levels. Further research should consider incorporating stress tests to measure students' stress levels before and after the assignment. Another potential avenue for future studies is to explore the impact of reviewing a greater variety of movies, which may promote creativity and enhance the learning experience. Additionally, exploring lecturers' perceptions of integrating movies into teaching through qualitative research may provide valuable insights and alternative viewpoints.

Conclusion

Our study has shown that it was a unique and effective way of learning for the students in pharmacy education. The majority of students reported that they found the assignment to be enjoyable and beneficial in improving their comprehension of infectious diseases. The use of movies as a teaching tool proved to be valuable in providing students with an interactive and engaging learning experience, which helped foster their critical thinking and collaboration skills. However, despite its benefits, the movie review assignment was not without its challenges, particularly in terms of time management. In light of these findings, it may be useful to consider incorporating structured preview sessions and clear guidelines for organization and presentation in future iterations of this assignment to enhance its effectiveness further.

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Ethics approval

This study was approved by the University Malaya Research Ethics Committee (UMREC) with the ethics code UM. TNC2/UMREC_1260.

Conflict of Interest

No Conflict of Interest.

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