

# A systematic review and thematic analysis of cinema in medical education

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## ABSTRACT

The use of cinema in medical education has the potential to teach students about a variety of subjects, for instance by illustrating a lecture on communication skills with a clip of Sir Lancelot Spratt (*Doctor In The House*, 1954) demonstrating a paternalistic, doctor-centred approach to medicine or nurturing an ethical discussion around palliative care and dying using the cinematic adaptation of American playwright Margaret Edson's *Wit* (2001). Much has been written about this teaching method across several medical academic disciplines. It is the aim of this review to assimilate the various experiences in order to gain an insight into current expertise. The results are presented by the following headings under which the articles were examined: the source journal, year of publication, article type, theme, content, target, authors, if a clip or the entire film was used, and if any feedback was documented. This is followed by a chronological account of the development of the literature. Such an approach will allow the reader to gather specific information and contextualise it. This review does not critically appraise the quality of the evidence nor does it determine its validity, rather it is hoped that having read the review educators will know where to locate previous accounts of work that will help them develop more engaging pedagogy.

## INTRODUCTION

Since the first published report of the use of cinema in medical education in 1979,<sup>1</sup> the practice has received a consistent, albeit low, level of interest from clinical and specialist journals, which to some extent mirrors the increasing attention being given to the use of the arts within medical education.

In their book *The Arts in Medical Education: A Practical Guide*, Powley and Higson<sup>2</sup> ask “Why use the arts in medical education?” and proceed to discuss how they believe that a teacher by using the arts can facilitate learners in gaining an appreciation of every person's unique experience of illness.

The use of cinema in healthcare education has a theoretical basis. Cinema utilises sight and sound and the process of interacting with audio-visual media, watching and listening, is comparable with much of the practice of medicine where we observe and listen to our patients. Also, the ability of film to engage learners in discussion is a part of the active learning process—part of the constructivist learning theory in which learners actively build concepts or ideas upon pre-existing foundations. Aspects of social learning theory can also be applied when students are exposed to both positive and negative role models. Many other theories are relevant, but an in-depth discussion of them would

be beyond the scope of this article. This review has been prompted by the evolving nature of medical educational practice, the need for greater evidence, and the desire to explore the theoretical frameworks behind learning and how educational interventions influence them. If there is a clear notion of preceding ideas, new concepts can be encouraged with greater success.

## OBJECTIVES OF THE REVIEW

The goal of this review is to provide a comprehensive overview of the literature on the use of cinema in healthcare education. This work will provide a reference to allow further evidenced based work to be carried out. It is not a critical review, in that the quality and applicability of the articles are not rated. It will, however, allow critical review of more focused areas of the literature.

Using thematic analysis, the review also considers the areas examined by the literature and the extent to which they are covered in order to identify topics that have already been investigated and gaps that can be explored in further study.

## REVIEW QUESTION

What is known within the published literature about the use of cinema in medical education?

## METHODS

### Search strategy

Using NHS Evidence, a web based portal utilising Athens and managed by the National Institute for Health and Clinical Excellence, a search of six databases was carried out (AMED, BNI, CINAHL, EMBASE, MEDLINE from PubMed and PsycINFO) in November 2009. Key words used were: cinema, film, movies, Hollywood, cinemeducation and medical education. The search strategy is shown in figure 1.

Further references were found through a Google search, hand searching of references and complete reading of the *Journal of Medicine and Movies*. Articles published after the search was performed were included where possible.

### Inclusion and exclusion criteria

The following criteria were selected to allow the review question to be answered.

#### Inclusion criteria

1. Study participants were medical or related health professionals, trainees or students
2. The study was related to education in the above disciplines
3. The teaching utilised cinema.

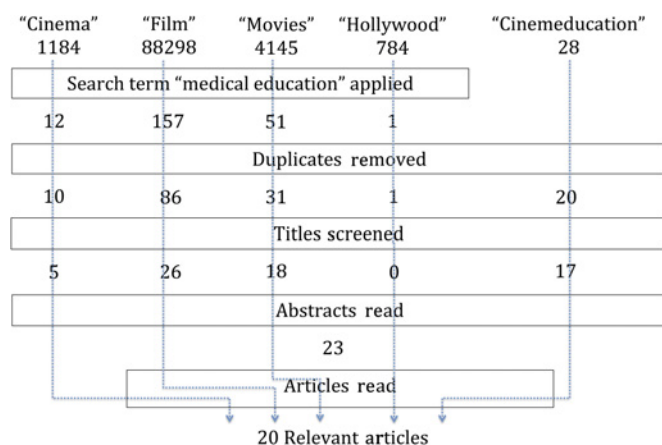


Figure 1 Search strategy.

### Exclusion criteria

1. Studies relating to the portrayal of health professionals in cinema, except where used to facilitate training
2. Book reviews
3. Articles focusing solely on patient education films or health student produced films
4. Non-English language articles with no suitable translation available.

All article types, from reports of randomised controlled trials through to letters, were examined. No date exclusion was imposed.

### Data management techniques

Each article was read at least once to determine relevance and then again to gather information pertinent to the review question and including: the source journal, year of publication, article type (eg, letter or article), theme (eg, chronic illness or the doctor–patient relationship), content (eg, a current TV program or evening movie series), target (eg, medical students or family therapists), authors, if a clip or the entire film was used, any film title given and if feedback was documented.

This information was collated and each component thematically analysed. The results of the thematic analysis are presented first and the historical perspective is then discussed.

## RESULTS

### Literature search and selection

Figure 1 shows the number of articles found through a search of the literature. Removal of duplicates left 174 papers for inspection. Article titles were then examined and 29 relevant articles selected. The abstracts of these articles were then read and six articles discarded, leaving 23 articles. These 23 articles were carefully read and three further articles removed. The search therefore yielded 20 relevant articles.

Google searching, hand searching of references and accessing the personal collection of one of the authors yielded a further 43 articles. Up to March 2010 the *Journal of Medicine and Movies* had published 131 articles, 13 of which met the inclusion criteria.

A total of 76 articles were analysed, which are presented in the reference list after the main body of text and as a bibliography arranged alphabetically.

### Books

One of the authors was aware of the 2005 book *Cinemeducation*.<sup>3</sup> Wedding and Boyd's book *Movies and Mental Illness*<sup>4</sup> and the

chapter by Lappin, 'Two thumbs up: a supervisor's guide to the use of film' in *The Reasonably Complete Systemic Supervisor Resource Guide*<sup>5</sup> were found by hand searching of references.

### Methodological quality of the study

The major weakness of the study is that one author performed all article analyses. This allowed for a thorough reading and understanding of the topic but increases the likelihood of misunderstanding of some aspects of the literature.

Meta-analysis of the effectiveness of the teaching sessions was not performed. Differences in methods used by individual authors and the inaccessibility of raw data would have made such an attempt futile and would not have helped answer the study question. In the same way, any educational impact measured by the authors has not been used to rank the quality of the evidence.

### Country

Articles originate from a range of countries with the vast majority from the USA. The *Journal of Medicine and Movies* mainly contains articles from Spain, reflecting the fact that it is published in Salamanca (figures 2 and 3). The reason for this distribution is unclear but several factors are probably important, including the size of the medical and medical education communities. The socio-cultural background of both the country and individual institutions could also play a role, but to our knowledge little work exploring this factor is available.

### Journal

Thirty different journals had published articles on the subject; a dissertation abstract, a poster and a presentation report were also found online. The main types of journal were psychiatry, general medicine and medical education with 20, 16 and 13 articles each, respectively (see figure 4).

### Theme

Four of the 12 articles published up to 1999 focused on mental health related topics.<sup>1–6–8</sup> Other themes were the technical

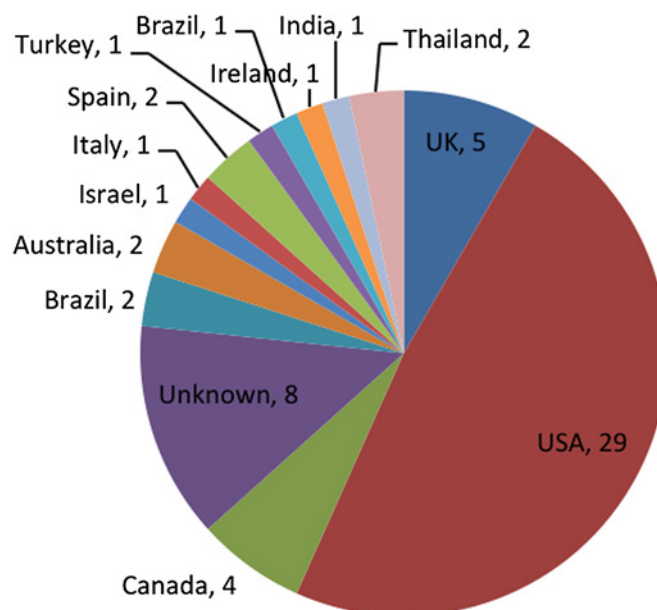
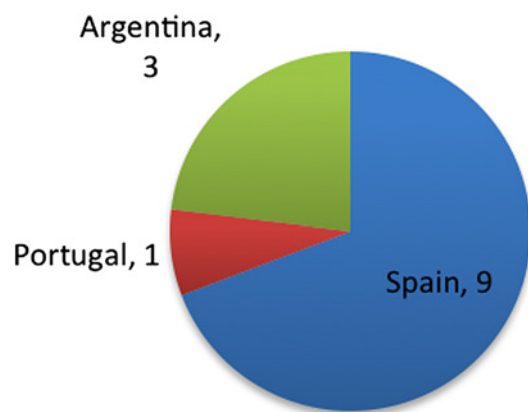


Figure 2 Country of origin of articles excluding the *Journal of Medicine and Movies*.



**Figure 3** Country of origin of articles published in the *Journal of Medicine and Movies*.

aspects of using cinema for teaching,<sup>9</sup> human sexuality,<sup>10</sup> clinical pharmacology,<sup>11</sup> paediatrics,<sup>12</sup> general medicine,<sup>13</sup> AIDS<sup>14</sup> and group counselling.<sup>15</sup>

From 2000 onwards as the number of publications increased, themes mainly focused on a small range of subjects, although a limited number of articles explored an expanding repertoire. Clinical pharmacology again featured<sup>16</sup> but perhaps unsurprisingly, given the number of articles published in psychiatric journals, mental health topics dominated. Areas examined including adolescent psychiatry,<sup>17–19</sup> biopsychosocial formulation and the Mental State Examination,<sup>20–22</sup> family and marriage counselling,<sup>23 24</sup> personality disorders,<sup>25</sup> psychiatry and the media,<sup>26</sup> and schizophrenia.<sup>27</sup>

Some of the social determinants of health, namely alcohol<sup>28 29</sup> and poverty,<sup>30</sup> were explored along with domestic violence.<sup>31 32</sup> Topics around professionalism such as ethics,<sup>33</sup> the end of life,<sup>34</sup> bereavement,<sup>35 36</sup> the doctor–patient relationship,<sup>37</sup> and empathy and altruism<sup>38 39</sup> were investigated by some authors.

The more general topics of using cinema for instruction<sup>40–46</sup> and medical humanities and narrative medicine<sup>47–52</sup> received considerable attention during the 10-year period from 2000.

Examination of the themes of articles published by the *Journal of Medicine and Movies* showed an equally diverse selection of topics (see box 1).



**Figure 4** Published articles by journal type.

### Box 1 Themes derived from articles published in the *Journal of Medicine and Movies*

#### Theme

- ▶ Medical microbiology<sup>52 53</sup>
- ▶ Social aspects of biology<sup>54 55</sup>
- ▶ Virology<sup>56</sup>
- ▶ Addiction<sup>57</sup>
- ▶ Doctor–patient relationship<sup>58</sup>
- ▶ Palliative care and ethics<sup>59 60</sup>
- ▶ Education theory<sup>61</sup>
- ▶ Research theory<sup>62</sup>

#### Content

The vast majority of articles offer a narrative view from an author who has used cinema in healthcare education. Thirty-three of the articles were in this format and varied from a brief mention of the technique in a letter to a long discussion of the author's experience.

Similar, but distinct from this, are those articles best described as 'how to' guides,<sup>9 13–15 43 53 64</sup> which allow the reader to copy the author's technique. These differ from the larger group of narrative descriptions in that while it may be possible for the reader to extrapolate and deliver the session as described, that is not the stated aim of the article.

Many of the articles described sessions involving cinema as part of a wider programme. Some such descriptions were brief<sup>17 48 49</sup> while others, including programmes on intimate partner violence<sup>32</sup> and an anti-stigma campaign,<sup>65</sup> provided more thorough descriptions. Alexander *et al* describe in some detail how they use cinema to teach curriculum competencies to family medicine trainees in California.<sup>45</sup> An even more comprehensive version of the report was obtained from the authors and provides greater depth for the interested reader.<sup>64</sup>

Shapiro and Rucker present a conceptual model entitled 'The Don Quixote' effect to explain why physicians may feel more emotionally moved by a cinematic depiction of a clinical scenario than by their own experience of a similar event.<sup>38</sup> In a commentary on the above article, Coulehan discusses how the model can explain how strong, positive role models, including characters from film and literature, can impact on medical students.<sup>67</sup>

One article explains how film can be viewed and analysed as part of an assignment by paediatric nursing students.<sup>12</sup> A poster presented at an international symposium describes the use of general film studies to help students adopt adult learning skills.<sup>51</sup>

#### Target groups

Some articles were specific to particular healthcare students and as such were aimed at their educators. Medical students featured very heavily<sup>7 10 11 13 25 29 31 33 47 49 51 53 57 58 63 65 68–70</sup> along with psychiatry residents.<sup>8 18–20 22 24 26 30 71</sup> Other targeted groups included clinical teachers,<sup>34 40 42</sup> nursing students,<sup>12 43</sup> medical<sup>13 72</sup> and family medicine residents,<sup>45 66</sup> counselling students<sup>23</sup> and broader allied health undergraduates.<sup>39</sup>

#### Clip or feature

It is not surprising that only a minority of articles describe the use of an entire feature film within a teaching session as this practice has obvious time constraints.<sup>6 11 12 18–20 27 47 54–56 71 73</sup>

## Feedback

Determining the efficacy of educational interventions is not easy. However, many of the authors of articles assessed in this review evaluated their work.

Mandel compared the knowledge and attitude of students before and after a workshop on human sexuality and found that using explicit films had little impact.<sup>10</sup>

At the University of Rome, Tarsitani and colleagues devised a session using cinema clips to present psychiatric cases as part of a residency training programme,<sup>22</sup> which received good feedback from students. In a later issue of the same journal, Bhagar shared his experiences from Indiana University. Again presenting psychiatric cases but this time to second year medical students, the author analysed how well students thought the session met its objective, comparing a year where cinema was not used with the subsequent year in which it was. Although students comments favoured the use of cinema clips, there was no statistically significant difference between the Likert scores of both years.<sup>69</sup>

Other articles that discuss evaluation by students include a 1-day course on addiction,<sup>58</sup> a lecture putting biology in context to biology undergraduates<sup>56</sup> and an elective course on microbiology,<sup>54</sup> all of which received mostly positive feedback.

McNeilly and Wengel demonstrated an improvement in a number of measures of knowledge and attitudes using a pre and post seminar questionnaire evaluating their session designed to teach psychotherapeutic techniques to medical students.<sup>25</sup> Interestingly, there was also a difference between male and female participants.

When analysing his session on intoxication and withdrawal for second year medical students, Welsh found that 90% of 89 respondents believed that the movie clips would help them recognise patients with overdose or alcohol withdrawal and also gave them an insight into potential severity.<sup>29</sup>

## Titles used

Over 200 different films were used by the authors of the articles covered in this review. *Cinemeducation*<sup>3</sup> contains details of 125 titles and is an excellent source of inspiration for interested readers.

*The Doctor* (1991) starring William Hurt is used by many authors to explore issues including the doctor–patient relationship,<sup>37</sup> communication skills,<sup>41</sup> grief and bereavement,<sup>36</sup> and cross-cultural issues in medicine.<sup>41</sup> *Patch Adams* (1998) is based on a true story and is cited as being useful in teaching about professional ideals,<sup>33 47</sup> bioethics and palliative care.<sup>60</sup>

Other films that seem to have penetrated into medical education circles and are repeatedly referenced include *What's Eating Gilbert Grape?*<sup>18 70</sup> (1993), *Trainspotting*<sup>29 36 58 59</sup> (1996) and *Awakenings*<sup>35 56</sup> (1990).

## DISCUSSION

### Historical perspective

In 1979 Fritz and Poe published an article in *The American Journal of Psychiatry* entitled 'The role of a cinema seminar in psychiatric education'. This is the first such report identified in the literature search in which the authors discuss their use of "thoughtful viewing of contemporary films with serious discussion of them in a film discussion group" to facilitate a residency training programme. They found the method useful and through the article sought to share their idea with colleagues.<sup>1</sup>

The 1980s present two articles. The first is a discussion of Open University audio visual techniques which included technical advice for those wishing to show films as part of teaching

sessions.<sup>9</sup> An article from 1983 by Mandel discusses the use of film clips to facilitate tutorials around human sexuality and examines changes in student attitudes before and after tutorials with and without the use of explicit film. No difference between groups was apparent.<sup>11</sup> A referenced article uses non-cinematic material in a similar study.<sup>74</sup>

An article from 1990 describes a course running since 1979 for American college students of psychology focusing on the DSM-III categories of diagnosis and psychology from a historical perspective.<sup>6</sup>

The next publication was in *Clinical Pharmacology and Therapeutics* in 1993<sup>11</sup> in which Koren describes a course using the film *Awakenings* to teach the principles of clinical pharmacology to medical students.

In 1994 Alexander (along with Hall and Pettice) described the use of cinema to teach psychosocial aspects of medicine to family medicine residents.<sup>41</sup> The article title contains the word 'cinemeducation', the first appearance of this now commonly used term. This is also the first article by one of the authors of the book entitled *Cinemeducation*<sup>3</sup> which was published in 2005. In 1994 an article appeared describing the use of a computer program containing clips of *Taxi Driver* to facilitate learning about the Mental State Examination.<sup>7</sup>

A letter in *Academic Medicine* from 1995 briefly describes a range of elective programmes for medical students utilising cinema to facilitate discussion.<sup>13</sup> Three more articles were published in the 1990s. The first in 1997 is concerned with teaching paediatric nursing students about developmental standards and critical thinking skills,<sup>12</sup> while 1998 brought articles about teaching group counselling<sup>15</sup> and about AIDS.<sup>14</sup> In 1999 Miller discussed using a specific film for teaching psychodynamic psychotherapy in adolescents to psychiatry residents.<sup>8</sup>

Only 12 articles directly related to the use of cinema in medical education were published up to 1999, indicating that this was a niche area. From 2000 to 2004, however, 24 articles were published at a fairly consistent rate. Over the next 5 years another 25 articles were produced with five or six annually from 2005 to 2007, only one in 2008, and eight in 2009. This represents a more than a fourfold increase in the 10 years after 2000 compared to the 20 years before or an eightfold increase in the average number of publications per year from 0.6 from 1979 to 1999 to five from 2000 to 2009. These numbers do not include articles published in the *Journal of Medicine and Movies*, which is discussed separately so as not to skew the publication rates of more general journals.

The *Journal of Medicine and Movies* published their first issue in 2005 in Spanish and English and explores many topics including medical education. Many articles could easily be applied to an educational context but only those with this specific aim are included here. Of the 131 articles published so far in the *Journal of Medicine and Movies*, 13 have focused on using cinema in healthcare education.

A recent survey of a sample of senior clinicians in the UK demonstrated that while only a minority of doctors had any experience of cinemeducation, their experiences were in the main positive.<sup>75</sup> This survey found that generating discussion, supporting a specific point and maintaining audience attention were the main reasons for using cinema clips. This reflects the themes found in this review.

### Current perspective

With a great deal of work having already been done in this field, it is interesting to speculate where might we go next. In settings where technology is freely available it is quite feasible to imagine

a situation where a clinical teacher could get out their tablet PC and stream a clip from their hard drive at home or in the office to demonstrate a point, or generate a debate, about a case they have just been discussing. Medical education is facing, as it always is, new and evolving challenges and it is imperative for educators, while practising in an evidence based manner, not to be afraid to experiment, as it is through innovation that the profession can continue to move forward. Technology is not 'the answer', but it may be a helpful tool when used correctly.

## CONCLUSION

Considerable experience in using cinema in healthcare education has been documented in the literature and likely represents only a proportion of the actual use of this tool. If a sound evidence base is to be developed for this approach, it is imperative that educators continue to share their experiences, but a move to more descriptive accounts of pedagogy is needed. If teaching resources were also shared, educators could run and analyse sessions in different settings. Examining why something works in one situation but not in another will allow us to build on this technique and develop healthcare education as a professional and academic field.

The ever-growing library of cinematic depictions of disease and healthcare professionals is a valuable resource for those involved in the education of nurses, doctors and allied healthcare professionals.

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**Contributors** DD performed the search, analysed the data and wrote the manuscript. PB reviewed the manuscript and acts as guarantor.

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