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IMPACT OF POSTERS ON THE TRANSFER OF ACADEMIC KNOWLEDGE

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This article analyzes the impact of social posters on the transfer of academic knowledge. Scientific knowledge is usually gained at conferences through oral presentations, poster presentations and seminars. However, modern literature examining the effectiveness of academic posters is limited. The purpose of this study was to study the perception of an academic poster presentation, as well as its advantages and limitations as an effective mechanism for transferring academic knowledge and contributing to existing academic data. The survey was distributed among 88 respondents. This survey explored participants' attitudes, opinions, and overall experiences with poster presentations. Later, descriptive statistics were written based on the results of the responses. The majority of respondents believe that posters are an effective medium for knowledge dissemination and a legitimate form of academic publication. Visual appeal was called more influential than the content, while survey participants agreed that the images of posters would quickly attract the attention of the viewer. Respondents also emphasized that posters should be accompanied by their authors to effectively communicate the academic content. This pilot study examines the perception of academic posters as a medium for knowledge dissemination. Given that academic posters rely heavily on visual appeal and direct interaction with authors, the public requires more design flexibility to facilitate the effective transfer of knowledge. This article presents the concept of MediaPoster based on information technology to solve the problems raised in the published literature, and the subsequent expansion of the exchange of knowledge in the field of academic medicine.

Keywords: poster, academic poster, survey, knowledge, research

ВЛИЯНИЕ ПЛАКАТОВ НА ПЕРЕДАЧУ АКАДЕМИЧЕСКИХ ЗНАНИЙ

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В данной статье анализируется влияние социальных плакатов на передачу академических знаний. Научные знания на конференциях обычно презентуются посредством устных презентаций, стендовых докладов и семинаров. Однако современная литература, исследующая эффективность академических плакатов, ограничена. Целью этого исследования было изучение восприятия академической стендовой презентации, а также её преимуществ и ограничений как эффективного механизма передачи академических знаний и внесения вклада в имеющиеся академические данные. В опросе приняло участие 88 респондентов. Он был посвящен мнениям респондентов о плакатных презентациях, а также их общему опыту плакатных презентаций. По результатам полученных ответов была проанализирована описательная статистика. Согласно ответам большинства респондентов, плакаты являются хорошей средой для передачи знаний и действительной формой академической публикации. Визуальная привлекательность была названа более влиятельной, чем предметное содержание, участники опроса согласились, что изображения плакатов быстро привлекут внимание зрителя. Респонденты также считали, что плакаты должны сопровождаться их авторами для эффективной передачи академического содержания. Это пилотное исследование является исследованием восприятия академического плаката как средства передачи знаний. Учитывая то, что академические плакаты в значительной степени полагаются на визуальную привлекательность и непосредственное взаимодействие с авторами, общественность требует большей гибкости в дизайне для содействия эффективной передаче знаний. В статье представлена концепция «MediaPoster» на основе информационных технологий для решения проблем, поднятых в опубликованной литературе, и последующего расширения обмена знаниями в области академической медицины.

Ключевые слова: плакат, академический плакат, опрос, знание, исследование.

ПЛАКАТТАРДЫҢ АКАДЕМИЯЛЫҚ БІЛІМДІ БЕРУДЕГІ РӨЛІ

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Бұл мақалада әлеуметтік плакаттардың академиялық білімді берудегі рөлі жан-жақты талданады. Ғылыми білімді әдетте конференцияларда ауызша баяндамалар, презентациялар мен семинарлар арқылы аламыз. Алайда академиялық плакаттардың тиімділігін зерттейтін қазіргі заманғы әдебиеттер шектеулі. Бұл зерттеудің мақсаты академиялық плакаттың презентациясы, оның артықшылықтары мен шектеулерін академиялық білімді берудің және қолда бар ғылыми деректерге ықпал етудің тиімді тетігі ретінде қабылдауын зерттеу болып табылады. Сауалнама 88 адам арасында жүргізілді. Бұл сауалнама қоғамның көзқарастары мен пікірлеріне, сондай-ақ олардың плакат презентациясындағы жалпы тәжірибелеріне қатысты болды. Кейін жауаптардың нәтижелері бойынша сипаттамалық статистика жазылды. Респонденттердің көпшілігінің жауабы плакаттар білім беру үшін жақсы құрал және академиялық басылманың жарамды түрі деп санайды. Көрнекі тартымдылық мазмұнға қарағанда әсерлі делінді, ал сауалнамаға қатысушылар плакаттардың суреттері көрерменнің назарын тез аударатындығымен келісті. Респонденттер сонымен қатар, академиялық мазмұнды тиімді жеткізу үшін плакаттарды автордың өзі тікелей таныстыра жүруі керек деп санайды. Бұл пилоттық зерттеу – академиялық плакатты білім беру құралы ретінде қарастыру. Академиялық плакаттар визуалды тартымдылыққа және авторлармен тікелей өзара әрекеттесуге көп арқа сүйейтінін ескере отырып, көпшілікке білімнің тиімді берілуін жеңілдету үшін дизайнның икемділігін талап етеді. Бұл мақалада жарияланған әдебиеттерде туындаған мәселелерді шешуге арналған ақпараттық технологияларға негізделген MediaPoster тұжырымдамасы және академиялық медицина саласындағы білім алмасу тәжірибесі деі ұсынылған.

Негізгі сөздер: плакат, академиялық постер, сауалнама, білім, зерттеу.

Introduction

The dissemination of new scientific knowledge or the transfer of knowledge has traditionally been facilitated through oral reports, presentations, and seminars. Oral reports typically consist of detailed information presented in a didactic format. Poster presentations provide viewers with a “snapshot” of a topic of interest [1]. Seminars are increasingly incorporated into conferences to promote active learning of skills and methodologies.

The static nature of poster presentations may not be perceived as conducive to creating an environment that fosters “active learning,” although they still meet a professional need for the regular review of “snapshots.” Active learning itself comprises strategies that encourage learners to engage in activities involving analysis, synthesis, and evaluation of information [2]. Support for this methodology is present in the literature and is closely linked to hands-on teaching methods, commonly employed in medicine and healthcare [3].

A presenter may give a standalone talk or supplement it with a short presentation (lasting less

than five minutes) [1]. Unsupported poster presentations can induce a certain degree of active learning, as the audience must interact with the poster by reading, summarizing, and analyzing the presented information [4]. However, this has limited potential and increases reliance on visual elements to capture the viewer's attention. Combining a short presentation or the author's presence with a poster presentation can facilitate discussion between the presenter and the audience [5]. This process can generally be more engaging and provide an alternative means for the poster presentation to promote active learning.

The “traditional” poster presentation aims to deliver information concisely. In an effort to convey the full depth of information supporting their work, the final result often becomes an overloaded poster, where key messages are either difficult to find or entirely lost [6]. Some posters may exhibit impressive visual appeal but lack substantive content [1]. This has led to the realization that the medium lacks depth and interactivity and, as such, may not achieve the level of academic appreciation it deserves [7].

Since posters are primarily recognized as a

visual medium, “traditional” poster presentations are not well-suited to accommodate alternative learning styles. While the audience may include those who learn best through reading information, a poster must also provide clear navigation in either vertical (top to bottom or vice versa) or horizontal (left to right or vice versa) orientations to ensure logical consistency [8]. Given its passive nature, unless accompanied by a short presentation that facilitates auditory and verbal learning, the content of a “traditional” academic poster may reach only a limited portion of its target audience [9].

The growing body of literature explores the overall effectiveness of knowledge transfer in medicine and healthcare, although relatively little has been published on the study of the poster medium itself [10]. The aim of this study was to explore perceptions of the academic poster presentation and its advantages and disadvantages as a method for conveying academic knowledge.

Materials and research methods

In June 2007 and June 2008, two academic conferences were held at Bournemouth University. These were regional conferences with most participants coming from the United Kingdom (UK). Following programs aimed at unlocking the research and entrepreneurial potential of scholars from a wide range of disciplines, the conference events included several accompanying poster presentations, where delegates sought to disseminate independent work produced during their participation in the program. These meetings were selected as representative of multidisciplinary conferences that utilized poster presentations as part of their structure. Delegates underwent a year-long development program to enhance their potential for research engagement within their academic fields.

At both conferences, delegates participated in three 30-minute sessions to review posters and interact with the respective authors. They also had the opportunity to view posters during lunch breaks.

An online survey was developed to assess the attitudes, opinions, and experiences of conference delegates regarding academic posters. Responses were measured on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). Additionally, four questions were posed to determine participants' prior observations of academic posters. Participants were asked whether they remembered a specific poster from the conference they attended, whether they had discussed the poster with its author, and whether

any follow-up actions occurred after the discussion. Responses to these questions were recorded as yes, no, or don't remember. Participants were also asked whether they recalled the image or content of the poster. Open-ended questions were provided to allow participants to offer qualitative responses.

A total of 87 posters were presented at the two sessions. Each poster author was emailed and invited to participate in the online survey, which included the aforementioned questions as part of the study. The survey incorporated several features designed to increase response rates, including online delivery through a short questionnaire, offering general survey results, using text-based response categories, providing a submission deadline, and issuing reminders about the survey submission and use of a fresh subject line [11].

Descriptive statistics (mean, standard deviation, and percentages) were calculated for each statement. A modified thematic analysis was used to interpret qualitative responses to open-ended questions [12]. Ethical approval for the study was obtained from the organizers of the respective programs and adhered to institutional IRB policies, including those of Bournemouth University's Research Committee and the School of Health and Social Care Research Committee.

Results and discussion

A total of 34 responses were received, resulting in a response rate of 39%. All respondents were academics who participated in the two research and enterprise development conferences held in consecutive years. The conferences were interdisciplinary, although the professional and academic profiles of participants reflected a focus on specific fields, as seen in the healthcare-related themes of the conferences. The majority of respondents were women (67%), and 72% were aged under 49. Approximately half of the respondents had previously participated in some form of formal training or seminar on developing academic poster presentations.

The attitudes and opinions of respondents toward academic posters are summarized in Table 1. Overall, 62% of participants agreed or strongly agreed with the statement that posters are an effective medium for knowledge dissemination in academic settings. Half of the participants believed that posters are a valid format for academic publication. However, only 32% agreed that the medium allows authors to convey adequate depth of subject information to the audience.

Participants were divided in their opinions

about whether posters enable authors to present the academic debates surrounding their topic. While

41% agreed with this statement, 53% disagreed.

Questions	Mean (SD)	No. (%) strongly disagree	No. (%) disagree	No. (%) neither agree or disagree	No. (%) agree	No. (%) strongly agree
Academic communication						
Academic Conference Posters (Posters) are commonly used with my professional field	3.53 (1.10)	2 (5.9)	4 (11.8)	8 (23.5)	14 (41.2)	6 (17.6)
Posters are a good medium for knowledge transfer	3.68 (0.98)	0 (0)	5 (14.7)	8 (23.5)	14 (41.2)	7 (20.6)
Posters are generally considered a valid means of academic publication	3.09 (1.08)	4 (11.8)	6 (17.6)	7 (20.6)	17 (50)	0 (0)
Posters convey a suitable depth of subject information to the viewer	2.94 (0.85)	0 (0)	13 (38.2)	10 (29.4)	11 (32.4)	0 (0)
Posters allow the author to present a considered academic debate	2.94 (1.07)	0 (0)	18 (52.9)	2 (5.9)	12 (35.3)	2 (5.9)
Communication						
The information provided by Posters is generally sufficient to stand alone	2.59 (0.99)	2 (5.9)	18 (52.9)	8 (23.5)	4 (11.8)	2 (5.9)
Conference delegates often discuss a Posters content with others	3.44 (1.24)	3 (9.4)	6 (18.8)	2 (6.3)	16 (50)	5 (15.6)
Authors are normally attendant to expand upon issues raised within their Posters	3.79 (0.85)	0 (0)	4 (11.8)	4 (11.8)	21 (61.8)	5 (14.7)
Posters effectively convey a lasting message to the viewer	3.50 (0.83)	0 (0)	3 (8.8)	15 (44.1)	12 (35.3)	4 (11.8)
Posters provide benefit to viewers, after conference proceedings have concluded	3.44 (0.96)	1 (2.9)	4 (11.8)	12 (35.3)	13 (38.2)	4 (11.8)
Art versus knowledge transfer						
The visual appeal of Posters is more influential on audience appreciation than text	3.91 (0.62)	0 (0)	1 (2.9)	5 (14.7)	24 (70.6)	4 (11.8)
Catching viewers attention is reliant upon imagery and composition	4.21 (0.54)	0 (0)	0 (0)	2 (5.9)	23 (67.6)	9 (26.5)
Posters alone, represent the authors artistic capability more than their scholarly content	2.68 (1.07)	3 (8.8)	15 (44.1)	8 (23.5)	6 (17.6)	2 (5.9)
Poster compilations accurately reflect the work that has gone into the subject issue	3.06 (0.74)	0 (0)	8 (23.5)	16 (47.1)	10 (29.4)	0 (0)

* The elements were evaluated using a 5-point Likert scale, where 1 = strongly disagree, 3 = neutral (neither agree nor disagree), and 5 = strongly agree.

Most participants believed that the visual aspects of academic posters were more appealing to viewers than the text and thematic content. Nearly all participants (94%) agreed that the poster's imagery and composition (e.g., colors, illustrations) were the primary factors capturing viewers' attention. However, more than half of the respondents did not believe that the author's artistic skills overshadowed the scientific content presented on the poster (53%).

Participants agreed that the information provided by posters should be supplemented with an oral presentation or the author's presence to enhance the transmission of content. Approximately two-thirds of the participants believed that conference delegates discussed poster presentations during the events, with 76% asserting that authors should be present alongside their posters. Opinions were divided on whether posters effectively conveyed a lasting message to the audience: 47% agreed or strongly agreed with this

statement, while 44% disagreed. A similar trend was observed when evaluating the long-term impact of knowledge transfer after the conference.

Participants were also asked about their own experiences in creating and presenting their posters at conferences, with most responses aligning with their earlier views on various topics (Table 2). Half of the participants considered their poster an effective means of knowledge transfer, while 59% believed it sufficiently attracted the attention of conference delegates. Nearly half of the respondents (47%) acknowledged having received some formal training in academic poster design, and a majority (70%) found it easy to create a poster with a balanced mix of text and graphics. Despite 59% of participants stating that knowledge transfer is not achieved when posters are "stand-alone," half of the respondents believed their poster would work as an independent presentation at a recent conference.

Questions	Mean (SD)	No. (%) strongly disagree	No. (%) disagree	No. (%) neither agree or disagree	No. (%) agree	No. (%) strongly agree
My poster conveyed all the detail needed for viewers to understand the issues involved	3.21 (1.11)	2 (5.9)	9 (26.5)	6 (17.6)	14 (41.2)	3 (8.8)
My poster attracted the attention of a range of other delegates	3.44 (1.16)	3 (8.8)	4 (11.8)	7 (20.6)	15 (44.1)	5 (14.7)
My poster was an effective medium of knowledge transfer	3.38 (1.05)	2 (5.9)	4 (11.8)	11 (32.4)	13 (38.2)	4 (11.8)
I found it easy to balance words & imagery within my Poster	3.59 (0.99)	0 (0)	8 (23.5)	2 (5.9)	20 (58.8)	4 (11.8)
I think my poster provided a fair representation of my work	3.68 (0.88)	0 (0)	5 (14.7)	5 (14.7)	20 (58.8)	4 (11.8)
My poster would have worked as a stand-alone presentation	3.29 (1.29)	3 (8.8)	8 (23.5)	6 (17.6)	10 (29.4)	7 (20.6)

The elements were assessed using a 5-point Likert scale, where 1 = strongly disagree, 3 = neutral (neither agree nor disagree), and 5 = strongly agree.

Several open-ended questions elicited qualitative responses from participants. A total of 88% of participants recalled a specific poster from the event they attended. *"Posters are a very useful way to include more (academic content) in a conference. New researchers, in particular, can showcase their work to a broader audience before giving paper presentations later in their academic careers."*

More than two-thirds of participants (73%) remembered the images of the poster rather than its academic content. *"Posters attract me with their visual aspects, but there are too many factors, both technical and behavioral, that limit their value. They are a very efficient use of our time at external events, serving as an icebreaker to initiate discussions and establish connections with colleagues."*

Although 73% of respondents discussed the poster with the author, fewer than one-third (30%) continued the discussion after the event. From an author's perspective: *"The poster medium is an excellent discipline to solidify your thoughts on a topic. However, if you don't have the opportunity to discuss the poster with other delegates, it can feel like you are having a conversation with yourself."*

This pilot study is the first to assess perceptions of academic posters as a medium for knowledge dissemination. Much of the existing literature on this topic has primarily focused on discussing the advantages and disadvantages of posters as teaching tools and general aspects of poster design. The findings of this experimental study reveal that academic posters are perceived as an effective medium for knowledge transfer and as a valid form of academic publication. It was also found that the visual appeal of posters is more influential than their subject matter, with poster

imagery being the feature most likely to capture and retain the viewer's attention. Furthermore, it is evident that traditional academic posters need to be accompanied by their authors to effectively convey the details of the subject matter.

Challenges and Opportunities in Traditional Posters. Paradoxically, the characteristics that aim to promote knowledge transfer in "traditional" poster presentations can also limit their effectiveness. As seen in this study and supported by others, viewers may focus more on "first impressions" and elements like presentation style rather than scientific merit, succinct messaging, and originality [13]. Posters are designed to visually present an issue that first attracts attention and then conveys the intended message. Thus, much of a poster's success as an educational tool depends on its design. Layout elements, including color schemes, information structuring, and readability, significantly impact how effectively the key information is communicated to the reader, sometimes at the expense of the overall scientific message [14].

Beyond Traditional Paper Posters. Efforts to address the limitations of traditional posters have led to innovations such as **Digital Interactive Poster Presentations (DIPP)**. First implemented at the 14th meeting of the European Association for Cardiothoracic Surgery in 2001, this system aimed to foster broader discussions between the audience and presenters [9]. DIPP allowed speakers to project their posters on a large screen, zoom into specific sections, and provide a two-minute summary of their content. While this enhanced the presentation's interactivity and allowed for detailed illustrations, it did not surpass the scientific content already displayed on the poster. Evaluations of DIPP demonstrated support from both the audience and presenters for more interactive poster

presentation systems [15].

Introducing the MediaPoster. The "MediaPoster" concept was developed to evolve the DIPP model while retaining the traditional poster's aesthetic appeal. MediaPoster integrates information technology with the conventional poster format, preserving the static image while unlocking the medium's interactive potential [16]. It is displayed on interactive LCD screens, whiteboards, or even standard interactive computer screens. Each section of the digital poster can embed links to supplementary and supporting information, enabling viewers to select areas of interest and access a full range of related documents and visuals. These open in a designated side-viewing area on the screen.

The primary image of the poster remains unchanged and visible for all. Supporting documents are "live" and provide open access to tables, PDFs, and other formats, opening in expanded views for readability. Authors can determine how much supplementary data to make accessible, thereby tailoring the academic depth of their poster. The limitations are primarily tied to the technological capabilities of the hardware used [17].

This evolution from traditional to digital interactive posters offers new ways to balance visual appeal, scientific depth, and engagement, paving the way for more dynamic knowledge-sharing platforms.

Conclusion

Limitations of the Pilot Study. This pilot study has notable limitations. Despite using established methods to increase response rates for the electronic survey, the response rate was 39%. Future surveys aim to incorporate additional measures, such as personalized invitations, follow-up emails, and incentives, to improve response rates [18, 19]. Moreover, the low response frequency limits the generalizability of the findings. The study reflects the attitudes and experiences of a selected group of scholars, which may restrict the broader applicability of its conclusions.

However, given that this is the first study focused on exploring the perceptions, attitudes, and experiences of academic authors regarding poster presentations, the experimental data provide a solid foundation for developing a more comprehensive survey tool. This tool is expected to be distributed at several upcoming conferences across various academic and medical disciplines.

Future Directions and Potential. Poster presentations are a valid medium for academic

knowledge dissemination. However, greater flexibility is needed in their design and distribution. The "MediaPoster" concept offers an opportunity to deliver authentic depth of information, adaptable to a wide range of academic, professional, and commercial disciplines.

Further research is essential to optimize this medium. Currently, an intervention study is being developed to evaluate the effectiveness of the "MediaPoster" in real-world academic settings. This research will aim to refine its interactive capabilities, assess its impact on engagement, and explore its applicability across diverse fields. By addressing these challenges, the MediaPoster could evolve into a transformative tool for academic knowledge-sharing.

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