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SCIENTIFIC STORYTELLING IN ACADEMIC CONFERENCES: ENHANCING HIGH - IMPACT POSTER AND ORAL PRESENTATIONS – A NARRATIVE REVIEW

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ABSTRACT

Effective dissemination of scientific research is essential for advancing knowledge, influencing clinical practice, and promoting interdisciplinary collaboration. Academic conferences provide important opportunities for researchers to communicate findings through poster and oral presentations. However, many conference presentations fail to achieve meaningful audience engagement due to excessive textual content, poor organization and ineffective communication strategies. Scientific storytelling has emerged as a valuable approach that integrates narrative structure with scientific rigor to improve clarity, audience engagement and knowledge translation. This narrative review explores the concept, principles and applications of scientific storytelling in academic conference presentations, particularly within nursing and health sciences education. Literature related to science communication, storytelling, data visualization, poster design and oral presentation strategies was reviewed from databases and scholarly resources. Evidence suggests that storytelling-based presentations improve comprehension, information retention, audience interaction and perceived research relevance. Integrating scientific storytelling into academic and professional training may strengthen research dissemination and evidence-based practice. Future directions include digital storytelling, multimedia integration, and formal communication training programs for healthcare professionals.

KEYWORDS

Scientific storytelling, Conference presentations, Academic posters, Oral presentations, Research communication, Knowledge translation and Nursing education.

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INTRODUCTION

Effective communication of scientific research is a fundamental responsibility of researchers, educators, and healthcare professionals. In academic conferences, poster and oral presentations serve as major platforms for disseminating research findings, exchanging professional ideas, and fostering scholarly collaboration. Despite the importance of

these presentations, many fail to communicate their intended message effectively due to information overload, excessive use of technical language and lack of audience engagement.

Traditional scientific presentations frequently emphasize extensive data reporting rather than meaningful communication. As a result, audiences may experience cognitive overload, limited comprehension, and reduced retention of important findings. In recent years, scientific storytelling has emerged as an innovative communication strategy capable of improving the effectiveness of academic presentations. By organizing scientific information into a coherent and engaging narrative, storytelling helps presenters communicate complex concepts in a more understandable and memorable manner.

Scientific storytelling combines evidence-based communication with narrative elements such as context, conflict, progression, and resolution. This approach does not compromise scientific integrity; instead, it enhances clarity and relevance. Within nursing and health sciences, storytelling aligns closely with clinical reasoning, patient-centered care and experiential learning. Consequently, storytelling-based presentations may significantly improve knowledge dissemination and professional engagement.

This narrative review examines the principles of scientific storytelling and explores its application in creating high-impact poster and oral presentations in academic conferences.

METHODOLOGY

A narrative review of literature was conducted to explore the role of scientific storytelling in conference presentations. Relevant literature was identified through electronic databases including PubMed, Google Scholar, Scopus and educational websites related to science communication and presentation design.

The search included keywords such as:

“Scientific storytelling”

“Conference presentations”

“Poster presentation”

“Oral presentation”

“Science communication”

“Knowledge translation”

“Academic communication”

Peer-reviewed journal articles, books, conference communication guidelines, and educational resources published primarily between 2007 and 2025 were reviewed. Literature focusing on storytelling principles, visual communication, data presentation, and audience engagement was synthesized narratively.

CONCEPT OF SCIENTIFIC STORYTELLING

Scientific storytelling refers to the strategic integration of narrative techniques into scientific communication while maintaining accuracy, objectivity and evidence-based presentation. Unlike fictional storytelling, scientific storytelling is grounded in research evidence and aims to improve audience understanding and engagement.

Storytelling in science communication involves presenting research in a structured sequence that guides audiences through:

The background or context of the problem

The gap or challenge addressed by the research

The methods and findings

The implications and significance of the results

This structure enables audiences to understand not only what was studied, but also why the study matters.

CORE PRINCIPLES OF SCIENTIFIC STORYTELLING

Several principles contribute to effective scientific storytelling:

Logical Narrative Flow

Research content should progress systematically from problem identification to findings and implications. A clear sequence helps audiences follow complex information more effectively.

Audience-Centered Communication

Presentations should be designed according to audience needs, knowledge levels and professional backgrounds. Simplified explanations and relevant examples enhance accessibility.

Emphasis on Key Messages

Effective storytelling focuses on central findings rather than excessive details. Highlighting major outcomes improves information retention.

Emotional and Practical Relevance

Connecting research findings to real-world clinical practice or societal impact enhances audience interest and perceived value.

Visual Simplicity

Visual elements such as graphs, flowcharts, icons and infographics should support the narrative without overwhelming the audience.

IMPORTANCE OF SCIENTIFIC STORYTELLING IN ACADEMIC CONFERENCES

Academic conferences provide opportunities for researchers to disseminate findings and establish professional networks. However, limited presentation time and audience attention require presenters to communicate efficiently and effectively.

Scientific storytelling enhances conference presentations by transforming passive information delivery into meaningful communication. Research indicates that audiences are more likely to engage with presentations that follow a coherent narrative structure. Storytelling improves comprehension by helping audiences understand the rationale, progression and significance of research findings.

In nursing and health sciences, storytelling is particularly beneficial because it aligns with patient-centered approaches and clinical reasoning processes. Story-driven presentations facilitate interdisciplinary communication and support evidence-based decision-making.

NARRATIVE FRAMEWORK FOR SCIENTIFIC PRESENTATIONS

A widely used storytelling structure in scientific communication consists of three major components:

Context

The context introduces the background and significance of the problem being studied. It establishes the importance of the research question and creates audience interest.

Example:

“Hospital-acquired infections continue to increase morbidity and healthcare costs globally.”

Conflict or Gap

This section identifies existing limitations, unanswered questions, or gaps in knowledge that necessitated the study.

Example:

“Despite infection control protocols, compliance among healthcare professionals remains inconsistent.”

Resolution

The resolution presents the methodology, findings, and implications as solutions to the identified problem.

Example:

“The present study demonstrated that targeted educational interventions significantly improved compliance rates among nurses.”

This narrative approach closely aligns with the traditional IMRAD (Introduction, Methods, Results, and Discussion) format used in scientific writing.

SCIENTIFIC STORYTELLING IN POSTER PRESENTATIONS

Poster presentations are concise visual summaries of research findings. Due to limited viewing time during conferences, posters must communicate information rapidly and clearly.

Storytelling-based posters emphasize one central message and guide viewers through the research logically. Instead of dense paragraphs, effective posters use:

Short headings

Bullet points

Graphical illustrations

Infographics

Flowcharts

High-quality visuals

CHARACTERISTICS OF EFFECTIVE STORYTELLING POSTERS

Clear and concise title

Minimal text

Strong visual hierarchy

Focused key findings

Readable font and layout
Practical implications highlighted prominently
Well-designed storytelling posters encourage interaction between presenters and conference attendees and facilitate rapid knowledge exchange.

SCIENTIFIC STORYTELLING IN ORAL PRESENTATIONS

Oral presentations benefit substantially from storytelling techniques. Narrative structures improve audience engagement and presentation coherence.

Effective storytelling strategies in oral presentations

Engaging Opening

Beginning with a compelling clinical scenario, question, statistic, or problem statement captures audience attention.

Structured Flow

Presentations should transition smoothly from background to methodology, findings, and implications.

Simplified Data Presentation

Presenters should emphasize key findings instead of presenting excessive numerical data.

Vocal and Nonverbal Communication

Voice modulation, eye contact, gestures, and confidence contribute significantly to audience engagement.

Memorable Conclusion

A strong concluding statement reinforces the major message and clinical significance of the study.

Story-driven oral presentations improve audience retention, speaker confidence, and overall presentation quality.

ROLE OF DATA VISUALIZATION IN SCIENTIFIC STORYTELLING

Data visualization is a central component of storytelling-based presentations. Visual elements help simplify complex information and enhance audience comprehension.

Effective visual tools include:

- Bar graphs
- Pie charts
- Infographics

Timelines

Concept maps

Clinical algorithms

According to storytelling principles, visuals should support interpretation rather than merely display data. Excessive or poorly designed visuals may reduce clarity and distract audiences.

CHALLENGES IN ADOPTING SCIENTIFIC STORYTELLING

Despite its benefits, several barriers limit the use of storytelling in academic presentations.

Fear of Oversimplification

Researchers may worry that storytelling could reduce scientific accuracy or credibility.

Limited Communication Training

Many academic programs emphasize research methodology but provide limited training in communication and presentation skills.

Time Constraints

Conference presentation durations often restrict detailed narrative development.

Traditional Academic Culture

Some academic environments continue to favor data-heavy presentations over audience-centered communication approaches.

Balancing Emotion and Evidence

Presenters must ensure that narrative elements support scientific evidence without introducing bias or exaggeration.

Addressing these challenges requires institutional support, mentorship and communication-focused training initiatives.

IMPLICATIONS FOR NURSING AND HEALTH SCIENCES EDUCATION

Scientific storytelling has important implications for nursing and healthcare education. Integrating storytelling techniques into academic curricula may strengthen communication competencies among students and professionals.

Training programs on:

- Poster design
- Oral presentation strategies
- Data visualization
- Science communication

Digital storytelling can improve research dissemination skills and professional confidence. Storytelling also supports leadership development, patient advocacy, interdisciplinary collaboration and evidence-based practice among healthcare professionals.

FUTURE DIRECTIONS

Future research should focus on evaluating the effectiveness of storytelling-based presentations through experimental and mixed-method studies. Comparative studies between traditional and narrative-driven presentations may provide stronger evidence regarding audience engagement and knowledge retention.

Emerging areas include:

Digital storytelling

Multimedia presentations

Artificial intelligence-assisted presentation design

Virtual conference communication strategies

Interactive infographic posters

These innovations may further transform scientific communication in academic and healthcare settings.

CONCLUSION

Scientific storytelling is an innovative and effective approach to academic communication that enhances the impact of poster and oral presentations. By integrating narrative structure with scientific rigor, storytelling improves audience engagement, clarity, information retention and knowledge translation.

In nursing and health sciences, storytelling-based communication aligns with patient-centered care, clinical reasoning and interdisciplinary collaboration. Incorporating scientific storytelling into academic training and professional development programs may strengthen research dissemination and support evidence-based healthcare practice.

Continued research and institutional support are essential to advance storytelling as a core competency in scientific communication.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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