The impact of Science Literacy delivery methods - what works?

Bibliography

Podcasts | Group 5. **Online interactions**

Ver. 2.00

Date: May 2019

Introduction

This thematic bibliography is the result of research to survey existing literature available on Science Literacy delivery methods.

The search was carried out by retrieving documents and articles from a wide range of sources, including research databases, Google Scholar, ResearchGate, subject databases, open access repositories etc. using keyword combinations.

The results of the resource discovery are divided into two groups: one containing impact assessments using qualitative, quantitative or mixed method (both qualitative and quantitative) approaches to data collection and a second including descriptive resources, which encompass, for example, reviews, guides, handbooks, reports and project reports.

This bibliography is work in progress and is not designed to be fully exhaustive or complete. We will be pleased to receive suggestions and recommendations for additions that can contribute to the understanding of science, its applications and, to the promotion of science literacy.

Groups and methods list

During the first part of the Desk Research phase of this project (i.e. Task 1), the team identified 42 single-mechanism approaches, 2 composite approaches and 1 related approach that were relevant to the delivery and dissemination of scientific information. The list of single mechanisms was further organised into 7 thematic groups, as presented in the following Table.

Single mechanism approach	Group
Exhibitions, Expo, Festivals, Movies, Picnics, Science fairs, Seminars, Talks, TED Talks, Theatre, Workshops	1. Events, meetings, performances
Colloquia, Courses, Curricula, E-learning, Webinars	2. Education and training – including online
Animations, Books, Brochures, Cartoons, Comics, Games, Graphics, Posters, Publications, Radio, Reports, TV, Videos	3. Traditional publishing and journalism – print and broadcast
Competitions, Experiments, Makerspaces, Mobile classrooms, Mobile laboratories	4. Activities and services
Blogs, E-books, E-zines, Mobile Apps, Podcasts, Social media, Websites, Wikis	5. Online interactions
Composite approaches	
Multiliteracies	
Multimodalities	
Related approach	
Citizen Science	

Impact Assessment

Abt, Grant, and Tim Barry. 2007. "The Quantitative Effect of Students Using Podcasts in a First Year Undergraduate Exercise Physiology Module." *Bioscience Education* 10 (1): 1–9. https://doi.org/10.3108/beej.10.8.

Aguiar, Cristina, Ana Amélia Carvalho, and Carla Joana Carvalho. 2009. "Use of Short Podcasts to Reinforce Learning Outcomes in Biology." *Biochemistry and Molecular Biology Education* 37 (5): 287–89. https://doi.org/10.1002/bmb.20319.

Allen, Kenneth L., and Ralph V. Katz. 2011. "Comparative Use of Podcasts vs. Lecture Transcripts as Learning Aids for Dental Students." *Journal of Dental Education* 75 (6): 817–22. https://www.ncbi.nlm.nih.gov/pubmed/21642528.

Bell, T., A. Cockburn, A. Wingkvist, and R. Green. 2007. "Podcasts as a Supplement in Tertiary Education: An Experiment with Two Computer Science Courses." In , 8. New Zealand: Massey University. http://www.massey.ac.nz/massey/fms/Molta/Bell.pdf.

Carvalho, Ana A., and Cristina Aguiar. 2009. "Impact of Podcasts in Teacher Education: From Consumers to Producers." In *Proceedings of SITE 2009--Society for Information Technology & Teacher Education International Conference*, 2473–80. Charleston, SC, USA: Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/31004/.

Carvalho, Ana A., Cristina Aguiar, Henrique Santos, Lia Oliveira, Aldina Marques, and Romana Maciel. 2009. "Podcasts in Higher Education: Students' and Lecturers' Perspectives." In *Education and Technology for a Better World*, 302:417–26. Berlin, Heidelberg: Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-03115-1_44.

Copley, Jonathan. 2007. "Audio and Video Podcasts of Lectures for Campus-based Students: Production and Evaluation of Student Use." *Innovations in Education and Teaching International* 44 (4): 387–99. https://doi.org/10.1080/14703290701602805.

Fernandez, Vicenc, Pep Simo, and Jose M. Sallan. 2009. "Podcasting: A New Technological Tool to Facilitate Good Practice in Higher Education." *Computers & Education* 53 (2): 385–92. https://doi.org/10.1016/j.compedu.2009.02.014.

Hill, Jennifer L., and Amanda Nelson. 2011. "New Technology, New Pedagogy? Employing Video Podcasts in Learning and Teaching about Exotic Ecosystems." *Environmental Education Research* 17 (3): 393–408. https://doi.org/10.1080/13504622.2010.545873.

Kay, Robin, and Ilona Kletskin. 2012. "Evaluating the Use of Problem-Based Video Podcasts to Teach Mathematics in Higher Education." *Computers & Education* 59 (2): 619–27. https://doi.org/10.1016/j.compedu.2012.03.007.

Kemp, Justine, Antony Mellor, Richard Kotter, and Jan W. Oosthoek. 2012. "Student-Produced Podcasts as an Assessment Tool: An Example from Geomorphology." *Journal of Geography in Higher Education* 36 (1): 117–30. https://doi.org/10.1080/03098265.2011.576754.

Khechine, Hager, Sawsen Lakhal, and Daniel Pascot. 2013. "University Students' Perception of the Pedagogical Use of Podcasts: A Case Study of an Online Information System Course." *Journal of Education and Training Studies* 1 (2). https://doi.org/10.11114/jets.v1i2.139.

Lee, Mark J. W., Catherine McLoughlin, and Anthony Chan. 2008. "Talk the Talk: Learner-Generated Podcasts as Catalysts for Knowledge Creation." *British Journal of Educational Technology* 39 (3): 501–21. https://doi.org/10.1111/j.1467-8535.2007.00746.x.

Longnecker, Nancy, and Emma Bartle. 2010. "Can Creating Podcasts Be a Useful Assignment in a Large Undergraduate Chemistry Class?" *Proceedings of The Australian Conference on Science and Mathematics Education (Formerly UniServe Science Conference)*, 104–7. https://openjournals.library.sydney.edu.au/index.php/IISME/article/view/4670/5470.

O'Bannon, Blanche W., Jennifer K. Lubke, Jeffrey L. Beard, and Virginia G. Britt. 2011. "Using Podcasts to Replace Lecture: Effects on Student Achievement." *Computers & Education* 57 (3): 1885–92. https://doi.org/10.1016/j.compedu.2011.04.001.

Pegrum, Mark, Emma Bartle, and Nancy Longnecker. 2015. "Can Creative Podcasting Promote Deep Learning? The Use of Podcasting for Learning Content in an Undergraduate Science Unit: Creative Podcasting." *British Journal of Educational Technology* 46 (1): 142–52. https://doi.org/10.1111/bjet.12133.

Prakash, S.S., N. Muthuraman, and R. Anand. 2017. "Short-Duration Podcasts as a Supplementary Learning Tool: Perceptions of Medical Students and Impact on Assessment Performance." *BMC Medical Education* 17 (1). https://doi.org/10.1186/s12909-017-1001-5.

Putman, S. Michael, and Tara Kingsley. 2009. "The Atoms Family: Using Podcasts to Enhance the Development of Science Vocabulary." *The Reading Teacher* 63 (2): 100–108. https://doi.org/10.1598/RT.63.2.1.

Ribchester, Chris, Derek France, and Anne Wheeler. 2007. "Podcasting: A Tool for Enhancing Assessment Feedback." *University of Salford*, 131--139. http://hdl.handle.net/10034/15074.

Semakula, Daniel, Allen Nsangi, Andrew D Oxman, Matt Oxman, Astrid Austvoll-Dahlgren, Sarah Rosenbaum, Angela Morelli, et al. 2017. "Effects of the Informed Health Choices Podcast on the Ability of Parents of Primary School Children in Uganda to Assess Claims about Treatment Effects: A Randomised Controlled Trial." *The Lancet* 390 (10092): 389–98. https://doi.org/10.1016/S0140-6736(17)31225-4.

Semakula, Daniel, Allen Nsangi, Matt Oxman, Astrid Austvoll-Dahlgren, Sarah Rosenbaum, Margaret Kaseje, Laetitia Nyirazinyoye, et al. 2017. "Can an Educational Podcast Improve the Ability of Parents of Primary School Children to Assess the Reliability of Claims Made about the Benefits and Harms of Treatments: Study Protocol for a Randomised Controlled Trial." *Trials* 18 (1). https://doi.org/10.1186/s13063-016-1745-y.

Williams, Caroline. 2016. "Enhancing Scientific Comprehension Through Content Acquisition Podcasts." Bachelor thesis, Provo, Utah: Brigham Young University. http://hdl.lib.byu.edu/1877/etd8922.

Yorganci, Serpil. 2017. "The Effects of Podcasting on Vocational School Students' Critical Thinking Dispositions for a Mathematics Course." In , 16. Houston, Texas, USA. https://eric.ed.gov/?id=ED583511.

Descriptive Resources

Austria, Joy L. 2007. "Developing Evaluation Criteria for Podcasts." *Libri* 57 (4). https://doi.org/10.1515/LIBR.2007.179.

Bolliger, Doris U., Supawan Supanakorn, and Christine Boggs. 2010. "Impact of Podcasting on Student Motivation in the Online Learning Environment." *Computers & Education* 55 (2): 714–22. https://doi.org/10.1016/j.compedu.2010.03.004.

Boulos, Maged N Kamel, Inocencio Maramba, and Steve Wheeler. 2006. "Wikis, Blogs and Podcasts: A New Generation of Web-Based Tools for Virtual Collaborative Clinical Practice and Education." *BMC Medical Education* 6 (1): 8. https://doi.org/10.1186/1472-6920-6-41.

Brantley, A. J. 2017. "An Engaging Tool for Teaching Media Literacy: The Podcast." *Medium* (blog). August 12, 2017. https://medium.com/@ajbrantl/an-engaging-tool-for-teaching-media-literacy-the-podcast-9684e1fec065.

Carvalho, Ana A., Cristina Aguiar, Carla J. Carvalho, and Rosa Cabecinhas. 2008. "Influence of Podcasts Characteristics on Higher Students' Acceptance." In , 3625–33. Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/30190/.

Chung, Mun-Young, and Hyang-Sook Kim. 2015. "College Students' Motivations for Using Podcasts." *Journal of Media Literacy Education* 7 (3): 13–18. https://eric.ed.gov/?id=EJ1088575.

Cole, Rick, and Beth Kramer. 2017. "Podcasts and the Twenty-First Century College Classroom | IMPACT." Boston University - Center for Interdisciplinary Teaching & Learning. 2017. http://sites.bu.edu/impact/previous-issues/impact-summer-2017/podcasts-and-the-twenty-first-century-college-classroom/.

Deal, Ashley R. 2007. "A Teaching with Technology White Paper." White Paper. Pittsburgh, Pennsylvania, USA. https://www.cmu.edu/teaching/technology/whitepapers/Podcasting_Jun07.pdf.

Donnelly, Roisin, and Bob Lawlor. 2010. "Using Podcasts to Support Communication Skills Development: A Case Study for Content Format Preferences among Postgraduate Research Students." *Computers & Education* 54 (4): 962–71. https://doi.org/10.1016/j.compedu.2009.09.031.

Evans, Chris. 2008. "The Effectiveness of M-Learning in the Form of Podcast Revision Lectures in Higher Education." *Computers & Education* 50 (2): 491–98. https://doi.org/10.1016/j.compedu.2007.09.016.

Gnaur, Dorina, and Hans Huttel. 2016. "Podcasting for Teaching and Learning in Higher Education." *Higher Education Practices Series,* 2: 31. http://vbn.aau.dk/files/252862026/Podcasting_online.pdf.

Guertin, Laura. 2018. "Student-Generated Earth Science Podcasts for a Community Partner." Teach The Earth. April 2018. https://serc.carleton.edu/NAGTWorkshops/servicelearning/activities/127457.html.

Harris, Howard, and Sungmin Park. 2008. "Educational Usages of Podcasting." *British Journal of Educational Technology* 39 (3): 548–51. https://doi.org/10.1111/j.1467-8535.2007.00788.x.

Heilesen, Simon B. 2010. "What Is the Academic Efficacy of Podcasting?" *Computers & Education* 55 (3): 1063–68. https://doi.org/10.1016/j.compedu.2010.05.002.

Hu, Jane C. 2016. "Scientists Ride the Podcasting Wave." Science | AAAS. November 4, 2016. https://www.sciencemag.org/careers/2016/11/scientists-ride-podcasting-wave.

i-teach. 2010. "Using Podcasts in the Classroom." http://www.belb.org.uk/Downloads/i_epd_using_podcsts_in_the_classroom.pdf.

Kemp, Justine, Richard Kotter, Antony Mellor, and Jan Oosthoek. 2009. "Podcasting in Geography and the Social Sciences: A Guide to Podcasting with Audacity." Guide. The Higher Education Academy: Geography, Earth and Environmental Sciences (GEES). https://www.heacademy.ac.uk/system/files/1guide_podcasting_audacity.pdf.

Lazzari, Marco. 2009. "Creative Use of Podcasting in Higher Education and Its Effect on Competitive Agency." *Computers & Education* 52 (1): 27–34. https://doi.org/10.1016/j.compedu.2008.06.002.

Lin, Michelle, Brent Thoma, N Seth Trueger, Felix Ankel, Jonathan Sherbino, and Teresa Chan. 2015. "Quality Indicators for Blogs and Podcasts Used in Medical Education: Modified Delphi Consensus Recommendations by an International Cohort of Health Professions Educators." *Postgraduate Medical Journal* 91 (1080): 546–50. https://doi.org/10.1136/postgradmedj-2014-133230.

MacKenzie, Lewis E. 2018. "Science Podcasts: Analysis of Global Production and Output from 2004 to 2018:" *BioRxiv*, April, 23. https://doi.org/10.1101/298356.

Madiope, Maria, and Masabata Ranko-Ramaili. 2013. "'Facts or Fantasy', Implementing Podcast Based Supplemental Instruction in An Open Distance Learning Context: The Case of The Univerisity of South Africa (Unisa)." *The Online Journal of Distance Education and E-Learning* 1 (1). http://idealonline.com.tr/IdealOnline/makale/paper/14093.

Mammina, Alix. 2017. "Teaching the Art of Listening: How to Use Podcasts in the Classroom." *Education Week - Teaching Now* (blog). September 14, 2017. http://blogs.edweek.org/teachers/teaching_now/2017/09/teaching_the_art_of_listening_how_to_use_podcasts_in_the_classroom.html?cmp=SOC-SHR-FB.

Mustaro, Pollyana Notargiacomo. 2010. "Proposal of Educational Podcast for Scientific Literacy Classes in Engineering and Computer Science Courses." In *2010 IEEE Frontiers in Education Conference (FIE)*, S3D-1-S3D-5. Arlington, VA, USA: IEEE. https://doi.org/10.1109/FIE.2010.5673604.

Nelson, David R., and William V. Faux Ii. 2016. "Evaluating Podcast Compositions: Assessing Credibility, Challenges, and Innovation." *The Journal of Social Media in Society* 5 (1): 38–64. http://thejsms.org/index.php/TSMRI/article/view/81.

Newsome, Ben. 2017. "How to Create a Student Science Podcast." Science Shows and Workshops. *Fizzics Education* (blog). October 8, 2017. https://www.fizzicseducation.com.au/Blog/x_post/How-to-create-a-student-science-podcast-00118.html.

Nwosu, Amara Callistus, Daniel Monnery, Victoria Louise Reid, and Laura Chapman. 2017. "Use of Podcast Technology to Facilitate Education, Communication and Dissemination in Palliative Care: The Development of the AmiPal Podcast." *BMJ Supportive & Palliative Care* 7 (2): 212–17. https://doi.org/10.1136/bmjspcare-2016-001140.

Oloo, Gwendo John, and Omwenga Elijah. 2015. "Methods of Investigating the Use of Podcasting in Higher Education: A Review of Recent Studies." *International Journal of Computer Applications* 116 (9): 5. https://pdfs.semanticscholar.org/5436/e42b4c53e06f470caffe89120f10daa86e4b.pdf.

Pi, Zhongling, and Jianzhong Hong. 2016. "Learning Process and Learning Outcomes of Video Podcasts Including the Instructor and PPT Slides: A Chinese Case." *Innovations in Education and Teaching International* 53 (2): 135–44. https://doi.org/10.1080/14703297.2015.1060133.

Pignato, Stephanie. 2010. "The Benefits of Podcasting in the Literacy Classroom." Master's thesis, Rochester, NY: St. John Fisher College. https://fisherpub.sjfc.edu/cgi/viewcontent.cgi?article=1016&context=education_ETD_masters.

Popova, Anguelina, and Palitha Edirisingha. 2010. "How Can Podcasts Support Engaging Students in Learning Activities?" *Procedia - Social and Behavioral Sciences* 2 (2): 5034–38. https://doi.org/10.1016/j.sbspro.2010.03.816.

Roberts, Regina Lee. 2007. "Podcasting for Information Literacy." In *Information Literacy Section w/ Academic and Research Libraries Section. Conduits for Transformation: Incorporating Multimodal Instruction and Learning into Information Literacy.*, 21. Durban, South Africa. https://archive.ifla.org/IV/ifla73/papers/133-LeeRoberts-en.pdf.

Schmidt, Harvey E. 2016. "Scientific, Technical, and Medical Podcasting in Korea." *Science Editing* 3 (1): 43–48. https://doi.org/10.6087/kcse.62.

Scott, Nick. 2008. "An Evaluation of Enhanced Student Support (Including Podcasting) on Assessed Course Work Achievement and Student Satisfaction." *Learning and Teaching in Action* 7 (1): 7. http://www.celt.mmu.ac.uk/ltia/issue15/scott.pdf.

Stoltenkamp, Juliet, Yoliswa Khumalo, Jephias Mapuva, and Carolynne Kies. 2011. "Rolling out Podcasting to Enhance Teaching and Learning: A Case of the University of the Western Cape." *International Journal of Instructional Technology & Distance Learning* 8 (1): 1–21. http://repository.uwc.ac.za/xmlui/handle/10566/1069.

Sutton-Brady, Catherine, Karen M. Scott, Lucy Taylor, Giuseppe Carabetta, and Steve Clark. 2009. "The Value of Using Short-Format Podcasts to Enhance Learning and Teaching." *ALT-J* 17 (3): 219–32. https://doi.org/10.1080/09687760903247609.

Tarirayi, Mukabeta. 2014. "Using Activity Theory to Analyse the Use of Podcasts to Facilitate Scaffolding in a Higher Education Setting." *Journal of Emerging Trends in Computing and Information Sciences* 5 (2). http://www.cisjournal.org/journalofcomputing/archive/vol5no2/vol5no2_7.pdf.

Trujillo Torres, Juan Manuel. 2011. "The Use of Podcasts in Higher Education: Communication, Innovation, Education and Knowledge Management." *RUSC. Universities and Knowledge Society Journal* 8 (2): 61. https://doi.org/10.7238/rusc.v8i2.1047.

Tsagkias, M., M. Larson, W. Weerkamp, and M. de Rijke. 2008. "PodCred: A Framework for Analyzing Podcast Preference." *Proceedings of the 2nd ACM Workshop on Information Credibility on the Web*, 67–74. http://hdl.handle.net/11245/1.296628.

"Uses of Podcasting." 2018. In *Wikipedia*. https://en.wikipedia.org/w/index.php?title=Uses_of_podcasting&oldid=861159146.

Williams, Jessica. 2015. "How Could an Effective Podcast about Alcohol Use Be Designed and Evaluated? A Review of the Literature." Master's thesis, Eugene, Oregon, USA: University of Oregon. http://d-scholarship.pitt.edu/24562/1/williamsjk_etd2015.pdf.

Wooten, R. 2012. "The Learning 'Podsibilites': Podcasting in the Elementary Classroom." In *Meeting of the Fort Bend Independent School District, An Action Research*, 39. Fort Bend, IN. https://www.fortbendisd.com/cms/lib09/TX01917858/Centricity/Domain/71/Action%20Research/Learning%20podsibility_podcasting%20in%20the%20elementary%20classroom.pdf.