



Network for Information and Digital Access

The impact of Science Literacy delivery methods - what works?

Bibliography

Books | Group 3. Traditional publishing and journalism - print and broadcast

Ver. 1.00

Date: November 2018

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	

Attribution 4.0 International (CC BY 4.0)

Impact Assessment

- Afonso, Ana Sofia, and John K. Gilbert. "The Role of 'Popular' Books in Informal Chemical Education." *International Journal of Science Education, Part B* 3, no. 1 (March 2013): 77–99. <https://doi.org/10.1080/21548455.2012.733439>.
- Amresh, Ashish, Madhumita Sinha, Rebecca Birr, and Rahul Salla. "Interactive Cause and Effect Comic-Book Storytelling for Improving Nutrition Outcomes in Children." In *Proceedings of the 5th International Conference on Digital Health 2015*, 9–14. DH '15. New York, NY, USA: ACM, 2015. <https://doi.org/10.1145/2750511.2750533>.
- Cheng, Ming-Chang, Pei-I Chou, Ya-Ting Wang, and Chih-Ho Lin. "Learning Effects of a Science Textbook Designed with Adapted Cognitive Process Principles on Grade 5 Students." *International Journal of Science and Mathematics Education* 13, no. 3 (June 2015): 467–88. <https://doi.org/10.1007/s10763-013-9471-3>.
- Fang, Zhihui, and Youhua Wei. "Improving Middle School Students' Science Literacy Through Reading Infusion." *The Journal of Educational Research* 103, no. 4 (April 15, 2010): 262–73. <https://doi.org/10.1080/00220670903383051>.
- Kelemen, Deborah, Natalie A. Emmons, Rebecca Seston Schillaci, and Patricia A. Ganea. "Young Children Can Be Taught Basic Natural Selection Using a Picture-Storybook Intervention." *Psychological Science* 25, no. 4 (April 2014): 893–902. <https://doi.org/10.1177/0956797613516009>.
- Nsangi, Allen, Daniel Semakula, Andrew D Oxman, Astrid Austvoll-Dahlgren, Matt Oxman, Sarah Rosenbaum, Angela Morelli, et al. "Effects of the Informed Health Choices Primary School Intervention on the Ability of Children in Uganda to Assess the Reliability of Claims about Treatment Effects: A Cluster-Randomised Controlled Trial." *The Lancet* 390, no. 10092 (July 2017): 374–88. [https://doi.org/10.1016/S0140-6736\(17\)31226-6](https://doi.org/10.1016/S0140-6736(17)31226-6).
- Schroeder, Meadow, Anne Mckeough, Susan Graham, Hayli Stock, and Gay Bisanz. "The Contribution of Trade Books to Early Science Literacy: In and Out of School." *Research in Science Education* 39, no. 2 (2009): 231–50. <https://doi.org/10.1007/s11165-008-9082-0>.
- Zakiya, Hanifah, Parlindungan Sinaga, and Ida Hamidah. "The Effectiveness of Multi Modal Representation Text Books to Improve Student's Scientific Literacy of Senior High School Students," 050001, 2017. <https://doi.org/10.1063/1.4983957>.

Descriptive Resources

- Calado, Florbela, Franz-Josef Scharfenberg, and Franz Bogner. "To What Extent Do Biology Textbooks Contribute to Scientific Literacy? Criteria for Analysing Science-Technology-Society-Environment Issues." *Education Sciences* 5, no. 4 (October 20, 2015): 255–80. <https://doi.org/10.3390/educsci5040255>.
- Chiappetta, Eugene L., Godrej H. Sethna, and David A. Fillman. "Do Middle School Life Science Textbooks Provide a Balance of Scientific Literacy Themes?" *Journal of Research in Science Teaching* 30, no. 7 (September 1993): 787–97. <https://doi.org/10.1002/tea.3660300714>.
- Davis, V. "Does Electronic versus Paper Book Experience Result in Differences in Level of Emergent Literacy Development Inyoung Children?," 2012. https://www.uwo.ca/fhs/lwm/teaching/EBP/2011_12/Davis.pdf.
- Pappas, Christine C. "The Information Book Genre: Its Role in Integrated Science Literacy Research and Practice." *Reading Research Quarterly* 41, no. 2 (April 6, 2006): 226–50. <https://doi.org/10.1598/RRQ.41.2.4>.

- Park, T.D., and E. Osborne. "Content Area Reading Strategies and Textbook Use in Agricultural Education." *Journal of Agricultural Education* 47, no. 4 (2006): 14.
https://www.researchgate.net/profile/Ed_Osborne/publication/255593449_Content_Area_Reading_Strategies_and_Textbook_Use_in_Agricultural_Education/links/5804e32608aef87fbf3ba440/Content-Area-Reading-Strategies-and-Textbook-Use-in-Agricultural-Education.pdf.
- Plasman, Kelly. Lynn. "Students' Preference of Science Trade Books." Master's thesis, The University of Toledo, 2011. <http://utdr.utoledo.edu/cgi/viewcontent.cgi?article=1698&context=theses-dissertations>.
- Ragusa, Gisele. "STEM Literacy and Textbook Biases in K-12," 1317–22. IEEE, 2013.
<https://doi.org/10.1109/FIE.2013.6685047>.