The impact of Science Literacy delivery methods - what works?

Summarised Strengths and Weakness

GROUP 1. Events, meetings, performances

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NOTES
n.d. = no data provided

GROUP 1. Events, meetings, performances			
Mechanism	**Strengths**	**Weaknesses**	**Reference**
1. Exhibitions	- may be more approachable to different audiences and reaching groups that may feel alienated from traditional health settings (Christensen et al. 2015) - may be more sensitive to the complexities and dynamics of everyday life (Christensen et al. 2015)	- learning may be determined by the teacher or science-communication venues staff, not by the student. Visits that are too strictly controlled can be counterproductive for learning by restricting students' learning-related behaviour (Hauan and Kolstø 2014) - although students enjoy free exploration, it can create frustration and little learning-related behaviour (Hauan and Kolstø 2014)	**Museums and science centres for health: from scientific literacy to health promotion** Christensen et al. 2015 **Exhibitions as learning environments: a review of empirical research on students' science learning at Natural History Museums, Science Museums and Science Centres** Hauan and Kolstø 2014
2. Expo			**NO REVIEWS**
3. Festivals	- combined science with fun and entertainment in informal settings - enable communication and connection with different audiences - provide the general population with a wide range of activities in a variety of formats - give the opportunity for direct engagement with scientists	- the interception of audiences depends on the location of the venue, time of the year and duration of the festival - requires intensive volunteer participation by scientists, universities, technologists and engineers	http://www.nida-net.org/en-gb/activities/connectwithscience/research/reports-and-bibliographies/festivals/
4. Movies			**Group 1 Composite report** **The Effect of CSI Movies on Students' Chemistry Achievement and Attitude towards Chemistry** Pastor and Fajardo 2017
5. Picnics			**NO REVIEWS**

6. Science Fairs	- can provide opportunities for learners to experience self-directed inquiry, collaboration and applications of science - can foster connections between students, teachers, researchers, academics and practising scientists - can facilitate across a wide range of cultural contexts - can be relevant to the engagement and achievement of minority groups	- time constraints - time-management - need adequate preparation and guidance, independent scientific exploration, analysis and presentation - requires organisational abilities and volunteer time, especially from teachers - can trigger anxiety among students - there might be communication barriers (e.g. for deaf students) - materials and resources required for scientific experimentation can be expensive and may aggravate economic discrepancies between schools and individual students	http://www.nida-net.org/en-gb/activities/connectwithscience/research/reports-and-bibliographies/science-fairs/
7. Seminars			**NO REVIEWS**
8. Talks			**n.d.**
9. TED Talks			**Group 1 Composite report** **Scientists Popularizing Science: Characteristics and Impact of TED Talk Presenters** Sugimoto et al. 2013
10. Theatre	- creative processes that stimulate imagination and thinking and encourage curiosity - reduce the gap between cognitive and creative learning - communication is based on emotions - theatrical performances could be introduced into traditional STEM (Science, Technology, Engineering and Maths) education to become STEAM (STEM + Art) - can be low-cost activities (e.g. puppet shows)	- potential misinterpretation of the performance resulting from artistic or aesthetic objectives - isolated performances might work better if embedded within programmes	http://www.nida-net.org/en-gb/activities/connectwithscience/research/reports-and-bibliographies/theatre/
11. Workshops	- can provide training opportunities and platforms for discussion - can include practical and hands-on learning activities (e.g. experiments) - when relying on visual and verbal communication, workshops can be more interactive, which might be useful in low literacy settings	- contents, materials and jargon needs to be tailored to the audience - the ability of triggering changes might require the use of other empowerment approaches - time for implementation of contents might be a concern - can be resource-demanding, especially for attendees	http://www.nida-net.org/en-gb/activities/connectwithscience/research/reports-and-bibliographies/workshops/

Bibliography

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