

## Science Café as a Gateway for Adult Learning: A Brief Systematic Literature Review

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### Abstract

This paper provided a review of the studies on science cafés with the purpose of drawing attention of higher education practitioners to the importance of cafés in educating adult population.

*Keywords:* adult education, informal learning, science café

### Science Cafés and the Adult Learning Experience

As an informal learning experience for adults, science cafés are valuable in both building new knowledge and replenishing the existing scientific knowledge of participants, thereby increasing learners' comfort level within a culture of science (Childers et al., 2021). Science cafés foster an understanding of science and an appreciation of the opinions of diverse members of a society (Nielsen et al., 2015).

### Methodology

A systematic literature review was chosen as a methodology for this study. Structured literature review (SLR) is defined as a methodology of analyzing scholarly articles by setting inclusionary and exclusionary criteria (Bisogno et al., 2018). To search for literature on informal learning through science cafés, four databases were primarily used: Google Scholar, JSTOR, ERIC, and Web of Science. The inclusion criteria of the articles in this review were as follows: a) empirical studies on science or STEM cafés that are published in English; b) studies that were published in 2009-2021; and c) studies that explicitly highlight the informal adult learning aspects of science cafés. Out of 39 studies selected for the review, only nine met all three criteria and were included in this systematic review. The following research questions were formulated:

1. Within available research on science or STEM cafés, how is informal adult learning discussed?

The nine articles in this review discussed the impact of science cafés for adult participants, highlighting that the cafés contributed to general knowledge and increased the participants' attention to scientific topics. Studies also underscored that science cafés raise critical issues about science's relevance for society and vice versa.

2. Which theoretical framework(s) did the studies use?

Only in two studies (Childers et al., 2021; Nesseth et al., 2021), the authors shared their theoretical perspectives to examine the topic. The majority (seven out of nine) of the articles did not provide any theoretical frameworks that guided their studies. Instead, they provided extensive discussions of relevant literature to establish the theoretical foundations of their respective studies.

3. What methodologies did the studies employ?

Studies (e.g., Ahmed et al., 2014; Ahmed et al., 2017; Kawamoto et al., 2013; Navid & Einsiedel, 2012) that utilized quantitative research methods focused mainly on the impact that science cafés have had on improving the scientific and health literacy of their participants. On the other hand, studies that used qualitative (e.g., Balázs et al., 2020; Childers et al., 2021; Kitzie et al., 2020; Nesseth et al., 2021) or mixed methods (Dijkstra, 2017) approaches highlighted the role of science cafés in building a bridge between society and science.

## Conclusion

This review attempted to provide a brief overview of studies that highlighted the importance of science cafés in improving the science literacy of their participants while contributing to building a bridge between society and science. The findings of this study will help both researchers and practitioners in the field of adult education to examine factors that motivate adults to attend cafés and to develop educational initiatives and programs related to enhancing literacy in STEM.

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