



Cornell University



Systematic Translational Review

The Impact of 4-H Public Speaking Programs

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Research Question

Do 4-H programs that focus on oral presentations help youth develop academic or workforce-readiness skills such as planning, organization, leadership, and communication?

Bottom Line

Preliminary evidence suggests some possible positive outcomes from youth participation in public speaking programs, but more rigorous research is needed to confirm these findings.

Background

4-H is a nationwide youth development organization that is partnered with the cooperative extension system of land-grant universities. 4-H offers clubs, camps, and programming for youth ages 5-21 in topics such as science, citizenship, and healthy living. One of those programs, Public Presentations, focuses on the skills youth need to research, prepare, and deliver a speech. Activities include demonstrations, illustrated talks, dramatic interpretation, and formal speeches. In addition, preparing and delivering oral presentations is a key component of several other 4-H projects (e.g. Anderson & Karr-Lilienthal, 2011; Bruce, Boyd, & Dooley, 2005; Nash & Sant, 2005). While there is individual and anecdotal evidence supporting the positive effects of participation in public speaking through 4-H programs, this Systematic Translational Review was conducted to identify the research describing positive academic or workforce readiness outcomes for youth participants.

An initial scoping review was conducted in the fall of 2014 to identify the state of evidence available and issues related to the research question. No systematic reviews or meta-analyses specific to outcomes of 4-H public speaking participation were identified, but observational studies in the fields of extension, education, and youth development have explored some youth public speaking outcomes.

The research team also identified fear of public speaking as an important background issue during the scoping review. It is one of the most common social fears in both adolescents and adults (Essau, Conradt, & Petermann, 1999; Wittchen, Stein, & Kessler, 1999). Those entering adolescence are particularly vulnerable to negative peer evaluations due to a heightened stress-response to social evaluation and the greater impact of peers on their lives (Stroud, et al., 2009; van den Bos et al., 2014). However, exposure to public speaking activities has been shown to reduce public speaking anxiety in both community and clinical settings (Botella et al., 2001; Hindo

& Gonzales-Prendes, 2011). While fear of public speaking is not the focus of this review, practitioners who lead youth public speaking programs may want to be aware of this facet of the experience for youth and include measures of public speaking anxiety in future evaluations of these programs.

Outside of 4-H-run programs, academic gains associated with public speaking participation have been documented in several high school settings. In one study using a large (N = 2,614) representative sample of Chicago Public School students, participation in Chicago Debate League (CDL) tournaments was related to a variety of positive academic outcomes (Mezuk, 2009). Compared to youth who had not participated in CDL, those who did participate had higher GPAs in 12th grade. Among debaters, more frequent participation in CDL tournaments was also related to higher GPAs, higher graduation rates, and college readiness, even after controlling for 8th grade academic achievement.

Another study of 678 college undergraduates reported improved writing skills of students who had taken a public speaking course compared with those who had not (Yun, Costantini, & Billingsley, 2012). However, this study did not control for selection bias or sociodemographic characteristics, which might have influenced the results. In the field of mentoring, two small observational studies of youth mentorship programs that emphasize public presentations describe self-reported improvements in self-confidence and speaking skills by youth participants (Davalos & Haensly, 1997; Mutchler, Anderson, Grillo, Mangle, & Grimshaw, 2006).

Methods

As a result of the scoping review, a systematic literature search was conducted in March of 2015. Databases searched included ERIC, Academic Search Premier, Agricola, SocIndex, CAB Abstracts, and Global Health. Search terms were “4-H” AND (“public speaking” OR speech OR “oral reasons” OR “oral demonstration” OR “public

demonstration” OR judging) AND (“academic achievement” OR career OR grades OR “higher education” OR job OR work* OR employ*). Results were limited to peer-reviewed papers published in English between 1990 and 2014 in the United States or Canada. Studies that were selected for inclusion met at least one of the following criteria: examined youth- or parent-reported outcomes in relation to participation in 4-H activities for which preparing for and giving oral presentations is a key feature.

This search resulted in 19 records. After review and consultation with the research team and 4-H partners, a second search was conducted with additional search terms identified as key outcomes assessed in 4-H studies. The second search used the same criteria and databases listed above, but added “life skills” OR “leadership skills” to the third search line. Reference lists of included studies were also searched.

After accounting for duplicates between the two record searches, 20 unique records from both database searches were screened for eligibility; 14 were eliminated based on subject or abstract; 6 were retrieved for full text evaluation; and 3 studies met inclusion criteria. An additional 25 articles were identified through reference lists and citations of included articles for a total of 28 studies.

Findings

No systematic reviews or meta-analyses were identified. Overall, the strength of the evidence supporting academic and workforce outcomes is low to moderate based on the GRADE rating scale (Guyatt et al., 2008). All studies but one (Kolodinsky et al., 2002) were cross-sectional and most relied on single group designs. The majority of the studies used convenience sampling methods, but six used probability-based methods (Astroth & Haynes, 2002; Boleman et al., 2004; Boleman et al., 2008; Boyd et al., 1992; Goodwin et al., 2005; Goodwin et al., 2007), and therefore increased the likelihood that the results would be generalizable. Five quasi-experimental studies compared the outcomes of 4-H participants with non-4-H participants, however these studies did not specifically measure participation in public speaking activities or account for sample bias due to self-selection of 4-H participants.

Fifteen of the studies were related to 4-H programs that included public demonstrations as a key component (**Table 1**). All 15 of these studies used a non-experimental design, which lowers the overall quality of evidence. Results from 11 of those studies reported positive participation-related outcomes, such as subject knowledge, planning, organization, cooperation, and communication. The development of oral communication skills was ranked in the top two most valuable life skills by former 4-H Council members (Boleman et al., 2008).

The other 13 studies reported outcomes for participation in general 4-H programs, many of which included a public speaking component (**Table 2**). Those studies are included in this review because outcomes included life or communication skills, and the body of evidence for this group was slightly stronger. The quasi-experimental results suggest that compared to adolescents who have not participated in 4-H, 4-H participants report significantly higher leadership skills (Astroth & Haynes, 2002; Boyd et al., 1992; Seevers et al., 2011), life skills (Goodwin et al., 2005; Goodwin et al., 2007), academic performance (Astroth & Haynes, 2002; Goodwin et al., 2007; Seevers et al., 2011), and public speaking skills (Goodwin et al., 2005). While some positive benefits are reported, it is difficult to attribute these effects to the public speaking components of these programs, as opposed to other program features.

Conclusion

These results provide preliminary data to suggest that general 4-H participation involving oral presentations may support some enhanced life skills, however the studies identified for this review were primarily observational, and most outcomes were self-reported. More high-quality evidence is needed to demonstrate that 4-H public speaking programs specifically contribute to academic or workforce success. Future studies could increase the evidence base for this question by using randomized controlled trials or prospective quasi-experiments with appropriately matched controls, expanding measures beyond youth self-reports, and, for observational studies, using probability-based sampling methods with larger samples and adequate response rates.

Table 1. Studies of 4-H programs that include a public speaking component

Reference	Sample	Program	Design	Improvements
Allen & Elmore, 2012	Current 4-H	Wildlife Habitat Evaluation Program	Cross-sectional, single-group, self-report survey	Decision-making Life skills Oral communication skills Teamwork
Anderson & Karr-Lilienthal, 2011	Current 4-H	Horse Project	Cross-sectional, single-group, self-report survey	Future college plans Horse knowledge Life skills
Boleman et al., 2004	Current 4-H parents	Beef Project	Cross-sectional, single-group survey of parent perceptions of youth gains	Life skills Livestock industry knowledge
Boleman et al., 2008	4-H alumni	State 4-H Council	Cross-sectional, single-group, self-report survey	Leadership skills Life skills Oral communication skills Career goals
Bruce et al., 2004	Current and former 4-H Council members	State 4-H Council	Cross-sectional, qualitative study of youth perceptions of gains	Leadership skills
Clarke et al., 2010	Current and former 4-H	Animal Science	Cross-sectional, qualitative, self-report	Communication skills Science process skills
Gamon & Dehegedus-Hetzel, 1994	Current 4-H	Swine Project	Two cross-sectional, single-group, self-report surveys	Life skills Swine knowledge
Karr et al., 2001	4-H alumni	State 4-H Council	Cross-sectional, single-group, self-report survey	Decision to attend college Career success
Kleon & Rinehart, 1998	4-H alumni	Teen Community Leadership College	Cross-sectional, single-group, self-report survey	Leadership skills
Kolodinsky et al., 2002	Current 4-H	Teens Teaching Internet Skills	Cross-sectional, mixed-methods, self-report	Leadership skills Life skills Public speaking skills Teaching skills
Nadeau et al., 2004	Current 4-H	Horse Project	Cross-sectional, single-group, self-report survey	Horse knowledge
Nash & Sant, 2005	4-H alumni	Animal Judging	Cross-sectional, single-group, self-report survey	Animal industry knowledge Life skills Workforce skills
Rusk et al., 2002	4-H alumni	Livestock Judging	Cross-sectional, single-group, self-report survey	Animal industry knowledge Oral communication skills
Shurson & Lattner, 1991	Current 4-H	Swine Project	Cross-sectional, single-group, self-report survey	Communication skills Knowledge of ag. careers Public speaking skills Teamwork
Zanolini et al., 2013	Current 4-H	Livestock Ambassador Program	Cross-sectional, single-group, self-report survey	Leadership skills Perceptions of ag. careers Perceptions of higher ed.

Table 2. Studies of general 4-H programs

Reference	Sample	Design	Improvements
Astroth & Haynes, 2002	Current 4-H	Cross-sectional, single-group, self-report survey	Life skills Decision-making Oral communication skills Teamwork
Barrett, 2013	Current 4-H and parents	Cross-sectional, single-group, self-report survey	Life skills Future college plans Horse knowledge
Boyd et al., 1992	Current 4-H	Cross-sectional, single-group survey of parent perceptions of youth gains	Life skills Livestock industry knowledge
Fitzpatrick et al., 2005	4-H alumni	Cross-sectional, single-group, self-report survey	Career goals Leadership skills Life skills Oral communication skills
Flynn et al., 2010	4-H alumni	Cross-sectional, qualitative study of youth perceptions of gains	Leadership skills
Fox et al., 2003	4-H alumni	Cross-sectional, qualitative, self-report	Communication skills Science process skills
Garton et al., 2007	Current 4-H	Two cross-sectional, single-group, self-report surveys	Life skills Swine knowledge
Goodwin et al., 2005	Current 4-H	Cross-sectional, single-group, self-report survey	Career success Decision to attend college
Goodwin et al., 2007	Current 4-H	Cross-sectional, single-group, self-report survey	Leadership skills
Riggs et al., 2006	Current 4-H	Cross-sectional, mixed-methods, self-report	Leadership skills Life skills Public speaking skills Teaching skills
Rusk & Machtimes, 2002	Current 4-H	Cross-sectional, single-group, self-report survey	Horse knowledge
Seevers et al., 2011	Current 4-H	Cross-sectional, single-group, self-report survey	Life skills Workforce skills Animal industry knowledge
Ward, 1996	4-H alumni	Cross-sectional, single-group, self-report survey	Animal industry knowledge Oral communication skills

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- A full bibliography is available online at: <https://www.bctr.cornell.edu/wp-content/uploads/2015/11/Systemic-Translational-Review-public-speaking-bibliography.pdf>

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