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Exploring Public Speaking Self-Efficacy in the 4-H Presentation Program

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Cover Page Footnote

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Exploring Public Speaking Self-Efficacy in the 4-H Presentation Program

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Abstract. Strong communication skills are important in an individual's personal and professional life; however, research regarding what influences youth's public speaking self-efficacy is limited. To address this gap, we surveyed youth who participated in a statewide presentation event about their self-efficacy and sources of that self-efficacy. Results show mastery experiences have the greatest relationship to youth's public speaking confidence. Extension can strengthen youth's public speaking self-efficacy by increasing the number of presentation opportunities and by removing barriers from participating in existing presentation opportunities.

INTRODUCTION

Personal and professional success requires the ability to communicate ideas clearly and confidently. Employers have rated oral communication skills as amongst the most important qualities in an employee in respect to effective job performance (Brink & Costigan, 2015). Cooperative Extension has a role to play in workforce development by preparing the next generation to be successful communicators.

Public speaking programs have been a cornerstone of the 4-H Youth Development Program since its inception (Wessel & Wessel, 1982). Through a systematic literature review, Paul et al. (2015) suggested that 4-H programs with a public speaking component may support life skills development (e.g., subject matter knowledge, planning, organization, cooperation), but that more evidence was needed to assess contributions to workforce success. Preparing, presenting, and receiving evaluator feedback on an oral speech in a 4-H public speaking event improved self-confidence, knowledge of subject matter, and life skills, as reported by young people in North Carolina (Silliman, 2009). In several studies, alumni of the 4-H program reported 4-H to be more helpful than other youth organizations in developing their communication skills (Maas et.al, 2006; Radhakrishna & Doamekpor, 2009).

The development of public speaking self-efficacy is an important outcome in young people's development of their public speaking skills. Self-efficacy is the individual's belief in

their ability to perform (Bandura, 1997), or "the core belief that one can make a difference by one's actions" (Bandura, 2010, p. 1). Self-efficacy theory has been applied to many domains including academics (Usher & Pajares, 2008), reading (Unrau et al., 2018), and STEM (Moos & Azevedo, 2009). When applied to a public speaking domain, self-efficacy is the belief in one's abilities to present a speech with effective content, structure, and delivery (Warren, 2011). Bandura (1997; 2010) advanced four sources affecting self-efficacy: (a) mastery experiences (i.e., successful/failure public speaking experiences), (b) vicarious (or observing) experiences (i.e., observing others give successful or inferior presentations), (c) social persuasion (i.e., encouragement or discouragement from peers and adults), and (d) affective state (i.e., psychological factors like one's stress and anxiety about public speaking). The four hypothesized sources of self-efficacy have remained prevalent in the scholarly literature since the inception of self-efficacy theory; research suggests that the weight of these sources vary during the course of a lifespan (Phan & Ngu, 2016).

The University of California (UC) 4-H Youth Development Program provides opportunities for youth to deliver prepared talks in 4-H activities. Every 4-H member is encouraged to present a public speech in front of a live audience each year. Annually, youth participate in an organized event at their county, region (multi-county), and state to present their speech and receive feedback from a panel of external raters.

Some outcomes of 4-H public speaking programs are acknowledged; however, little or no research has been conducted to explore the influence of sources of young people's public speaking self-efficacy. The purpose of our study was to establish a baseline for what 4-H youth members (those who participated in the 4-H presentation program) report as their public speaking self-efficacy and the sources of that self-efficacy. A secondary purpose was to determine the relationship between 4-H youth members' public speaking self-efficacy and observations by external raters—evaluators scoring young people's 4-H presentations using a standard rubric.

METHODS

We conducted this study with youth who participated in the virtual 2020 State 4-H Presentation Day ($n=297$) using data gathered from two sources: a self-report survey and the scores awarded by external evaluators. Participants were 9 to 18 years old, with an average age of 12.4 ± 2.4 , and were a 4-H member for a median of 4 years. Fifty-three percent of the youth were first-time participants at the event.

PARTICIPANT SURVEY

We gathered data from youth after the event in a Qualtrics survey sent via email ($n=126$, 42% response rate). The post-event survey consisted of five scales. The first scale consisted of ten items adapted from Warren (2011) and Karnes and Chauvin (2000) to assess public speaking self-efficacy, specifically around speech content, structure, and delivery. The next four scales were adapted from Usher and Pajares (2009) and measured sources of public speaking self-efficacy. There were 12 items, three items for each of the four sources of self-efficacy, including mastery experiences (scale 2, example item: "I have done very well presenting in the past"), vicarious experiences (scale 3, example item: "Hearing youth communicate well makes me feel like I can improve"), social persuasions (scale 4, example item: "an adult leader has told me that I am a good presenter"), and affective states (scale 5, negative item example like "I start to feel anxious as soon as I begin preparing for my presentation"). All data analyses were conducted using SPSS Version 25. Descriptive statistics were used to calculate means and standard deviations for participants' age, years in 4-H, and public speaking self-efficacy scales. Cronbach's alpha was utilized to measure internal consistency reliability of the five scales (scale 1 $\alpha = 0.87$; scale 2 $\alpha = 0.51$; scale 3 $\alpha = 0.58$; scale 4 $\alpha = 0.74$; scale 5 $\alpha = 0.69$). High internal consistency reliability means high pairwise correlation between the items to ensure that they measured the same source of self-efficacy. Even with a less robust internal consistency reliability than desired for some scales, we proceeded with creating composite variables for each scale using the mean of all items; missing data from items were dropped and the remainder of the items averaged.

EXTERNAL EVALUATIONS

We gathered data from external evaluators who scored youth presentations using a standard rubric ($n=290$; rubrics may be found in *California 4-H Presentation Manual* at <https://ucanr.edu/sites/UC4-H/files/2193.pdf>), which was matched with youth post-event survey responses ($n=126$). For each participant, we averaged the scores from three evaluators' rubrics for a final raw score average. The 4-H presentation event allowed youth to choose one of ten presentation formats that best fit their presentation topic, including a demonstration, interpretive reading, informative prepared speech, or impromptu speech. Each format had its own respective rubric, resulting in varying total possible scores; thus, we standardized the final raw score averages in order to compare between different presentation formats. The standardization technique we employed was *percent of maximum possible* (POMP; Fischer & Milfont, 2010), which takes the raw score minus the minimum score divided by the total possible score. For example, a final raw score for a demonstration of 35 (from a range of 0 minimum to 41 maximum) would result in a POMP of 85%.

FINDINGS

PUBLIC SPEAKING SELF-EFFICACY AND THE SOURCES OF SELF-EFFICACY

Overall, participants reported high levels of self-efficacy when speaking in front of an audience (mean = 4.6 ± 0.41 standard deviation [SD]; $n=126$). Table 1 displays how youth rated their public speaking self-efficacy as well as the four sources: mastery experience, vicarious experience, social persuasions, and affective state. We calculated correlations for, but did not find, statistically significant relationships between public speaking self-efficacy and the member's age, their number of years in 4-H, nor the number of years they had presented at the State 4-H Presentation Day.

RELATIONSHIPS BETWEEN PUBLIC SPEAKING SELF-EFFICACY AND THE SOURCES OF SELF-EFFICACY

A regression calculation demonstrated that successful presentation (mastery) experiences ($\beta=0.435$, $p<0.001$) as well as affective state ($\beta=-0.160$, $p=0.047$) had a statistically significant relationship with young people's public speaking self-efficacy (adjusted $R^2=0.31$; $p<0.001$). The influence of mastery experiences was high, while the relative importance of affective state was minimum (i.e., the small coefficient). Vicarious (social) experiences and social persuasions did not have a statistically significant relationship. Table 2 displays the linear regression estimates of sources of youth's public speaking self-efficacy.

PUBLIC SPEAKING SELF-EFFICACY AND EVALUATOR SCORES

We calculated the average POMP scores from external evaluators' ratings across youth participants. The average POMP

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Table 1. Public Speaking Self-Efficacy and Sources of Self-Efficacy Composite Variables (on a 5-point scale) (n=126)

Scale Variables	Mean (SD) ^a
Public Speaking Self-Efficacy	4.58 (0.41)
Mastery Experience	4.60 (0.46)
Vicarious Experiences	4.07 (0.74)
Social Persuasions	4.54 (0.61)
Affective State ^b	3.13 (1.03)

Note. ^aMean and Standard Deviation (SD) were calculated on 1- to 5-point rating scales. ^bAffective state was a reverse scale wherein higher values were negatively associated with public speaking self-efficacy.

Table 2. Linear Regression Estimates of Public Speaking Self-Efficacy Relevant to Sources (n=125, adjusted R-Square=0.31)

	Standardized Regression Coefficient ^a	p value
Mastery Experiences	0.435	<0.001
Vicarious Experiences	0.146	0.068
Social Persuasions	0.066	0.479
Affective States	- 0.160	0.047

Note. ^aPositive value indicates positive correlation between youth self-reported public speaking self-efficacy and reported experiences on 1–5 scales. Negative value means the opposite.

was 92% (\pm 7% SD; min=59%, max=100%; n=300). Overall POMP scores indicated high ratings by external evaluators on these young people's presentations at the State 4-H Presentation Day.

Five presentation categories were the most prevalent: 89% of youth elected to give an illustrated talk (n=115, average POMP=92%), demonstration (n=60, average POMP=93%), interpretive reading (n=38, average POMP=93%), educational display (n=30, average POMP=90%), or informative prepared speech (n=24, average POMP=93%), while only 33 total youth chose the other five presentation formats. Evaluator-averaged POMP scores were similar across all five categories, as demonstrated with an independent t-test between the lowest average POMP [educational display] and the highest average POMP [interpretive reading]; $p=0.06$.

With youth who also responded to the self-efficacy survey, surveyors used a Pearson's correlation to determine if youth public speaking self-efficacy had a relationship to the scores of the external evaluators. The analysis showed there was a small, although statistically significant positive, relationship ($\rho =0.191$; n=126; $p=0.034$) between youth self-re-

ported public speaking efficacy and external evaluator scores. The positive correlation indicated that youth who reported higher levels of public speaking self-efficacy also received higher scores on their presentation from a panel of evaluators.

DISCUSSION AND IMPLICATIONS

Our findings indicated that youth who participated in a state 4-H public speaking competition reported high levels of self-efficacy in their public speaking abilities, which correlated with high ratings by external evaluators on the youth's presentations.

Previous studies suggest that the 4-H program contributed to youth's development of public speaking and other life skills (Maas et.al, 2006; Radhakrishna & Doamekpor, 2009); however, those studies did not delve into how the different sources of experience influence youth's public speaking skill development. Our study contributes to the discussion by attending to the sources of self-efficacy and relationship to skill development. In summary, our findings demonstrate that for those who participated in the 2020 California state 4-H public speaking event: (a) positive previous mastery experiences have the greatest correlation with high levels of public speaking self-efficacy in comparison with other sources; and (b) youth perceptions of their abilities generally align with external evaluator assessments of their public speaking skill. These findings extend previous research of public speaking self-efficacy from higher education settings into a youth development setting (Tucker & McCarthy, 2001; Warren, 2011).

This study explored four sources of public speaking self-efficacy in relation to youth participation in the 4-H program. Successful public speaking experiences (mastery experiences) as well as lower feelings of anxiety while speaking (affective state) had statistically significant relationships with public speaking self-efficacy; the relative importance of mastery experiences was high, while that of affective state was low. The other two sources—observing others (vicarious experiences) and receiving positive feedback from others (social persuasion)—did not have significant relationships. These findings are consistent with previous research on self-efficacy, primarily that mastery experiences have the largest influence on one's self-efficacy (Bandura, 1997; 2010). Self-efficacy theory posits that successful presentation experiences increase self-efficacy beliefs while negative experiences lower them (Tucker & McCarthy, 2001; Warren, 2011). Furthermore, youth who were scored higher by evaluators during the public speaking event were also generally highly confident in their public speaking abilities. In fact, on average, the higher the evaluator's score, the higher the young person rated their public speaking self-efficacy.

The University of California (UC) 4-H Youth Development Program encourages 4-H members to give presenta-

tions (public speeches) in multiple venues: project meetings, club meetings, community projects, and formal presentation days. There are multiple opportunities for youth to experience positive mastery experiences and build their public speaking self-efficacy. The more time youth spend in 4-H, the more opportunities they receive to have mastery experiences, which may indicate that 4-H provides youth with the opportunities to grow their public speaking skills more the longer they are in the program. Additionally, considering that successful mastery experiences and higher evaluator scores have the greatest relationship with youth's public speaking self-efficacy, we recommend broadening opportunities for youth to present and participate in 4-H presentation events. While individuals with high presentation self-efficacy may seek out opportunities to present and continue to develop their skills, those with low presentation self-efficacy may avoid giving presentations and therefore are less likely to build their presentation skills (Tucker & McCarthy, 2001). Youth development professionals may want to reflect upon the number of presentation opportunities available for youth and the barriers that may prevent youth from participating in presentation opportunities, such as requirements to achieve a specific score or rank to participate in the next opportunity.

There are several limitations to this study. First, participants received their presentation scores before completing the survey, since it was sent via Qualtrics as a post-event follow-up message. Youth's knowledge of their presentation scores may have impacted how they perceived their public speaking self-efficacy. This presents an opportunity for future research that could control for this aspect when designing the study. Second, this study only considers youth in one state and type of public speaking event that may not be generalizable to all public speaking events or places. Third, youth who participated in this study were those who qualified for a state level public speaking event. Therefore, the youth were more likely to have high public speaking self-efficacy as they self-selected to participate in the event and had to present several times in order to qualify for the state level event. Fourth, there were ceiling effects observed in the data where data bunched at the high-end of the scale. This ceiling effect constrained data variance, and thus limited the robustness in exploring participants' self-efficacy and evaluator scores.

We encourage future researchers to explore what it is about mastery experiences that influence public speaking self-efficacy. Identifying specific factors involved with mastery experiences has the potential to inform 4-H and other youth presentation programs about higher leverage points to best support youth in building their public speaking self-efficacy. Better understanding what programmatic activities influence the development of public speaking self-efficacy will allow 4-H professionals to improve program quality and lead to stronger youth outcomes.

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