

Keeping safety on track:

Factors affecting perceptions of safety training quality in U.S. railroads

Samantha Lacey (MS), Julia Leone (PhD), Janet Barnes-Farrell (PhD)

INTRODUCTION

- In a series of annual reviews, “safety training quality” was identified by the Short Line Safety Institute (SLSI) as a top opportunity for improvement in the U.S. short line & regional railroads it serves
- Because safety & safety culture are top priorities in the rail industry, it makes sense to further explore & identify factors that affect employee perceptions of safety training quality to better understand & address this opportunity for improvement

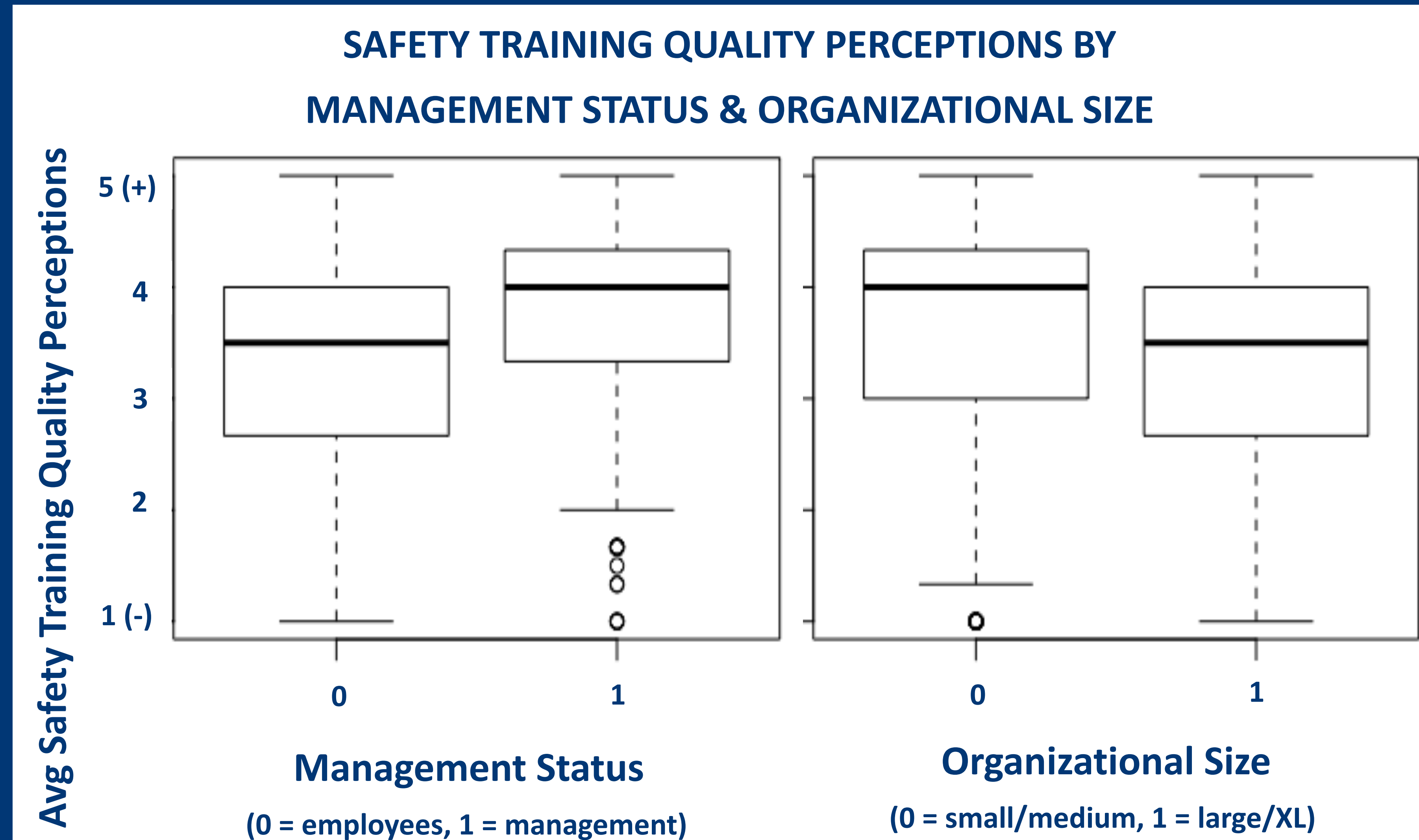
METHOD

- Participants:** Utilized archival survey data from 1,939 individuals ($N_{\text{employees}} = 1288$, $N_{\text{managers}} = 651$) from 41 railroads ($N_{\text{small/medium}} = 29$, $N_{\text{large/XL}} = 12$) who participated in the SLSI Safety Culture Survey between 2016 & 2019
- Measures:** safety training quality perceptions (averaged responses from 2 items scored using a 5pt agreement scale; open-ended comments); management status (manager, craft employee); organizational size (small/medium = 25-100 employees; large/extra large = 101-250+)
- Analyses:**
 - A series of hierarchical linear models were used to assess the impact of management status & organizational size on individual perceptions of safety training quality
 - Organized open-ended safety training quality comments ($N = 36$) into themes & conducted a content analysis to extract additional insights



**Disconnect between managers & employees:
Managers perceived their railroad’s safety training quality more positively than employees did.**

**Difference between smaller & larger railroads:
Employees from smaller railroads perceived their railroad’s safety training quality more positively than employees from larger railroads did.**



Safety training quality perceptions may be reflective of how workers perceive their railroad’s safety values.

@samantha.lacey@uconn.edu

QUANTITATIVE & QUALITATIVE FINDINGS

- In the final, best-fitting model, management status & organizational size significantly predicted individual perceptions of safety training quality:
 - Positive, direct effect of management status:* Managers had higher, more positive perceptions of safety training quality ($M = 3.80$, $SD = 0.85$) than employees ($M = 3.38$, $SD = 1.03$)
 - Negative, direct effect of organizational size:* Those from smaller organizations had higher, more positive perceptions of safety training quality ($M = 3.72$, $SD = 0.93$) than those from larger organizations ($M = 3.39$, $SD = 1.01$)

FINAL MODEL RESULTS			
FIXED EFFECTS	Coeff	SE	t
Intercept	3.59	0.07	52.38
Management Status	0.42	0.07	6.51
Organizational Size	-0.26	0.10	-2.57
RANDOM EFFECTS	Var	SD	
Intercept	0.11	0.33	—
Management Status	0.07	0.26	—
Organizational Size	0.82	0.90	—

- Top theme extracted from 36 open-ended comments that referenced safety training quality:

SAFETY VALUES	FREQ
Defined as the attitudes and values expressed in words and actions by leadership regarding safety reflect a commitment to safety at the top levels of the railroad	13

IMPLICATIONS

- Managers & larger railroads may want to pay particularly close attention to how employees perceive safety training quality
- When addressing safety training quality, railroads should keep in mind that perceptions of safety training quality may be driven by or reflective of how employees more generally perceive their organization’s safety values or commitment to safety