



Psychological Safety

Assessment of Psychological Safety and Team member Effectiveness

Psychological safety is defined as the ability to share your ideas to the team without fear of negative consequences. Our research was focused on finding the correlation between psychological safety and other teamwork outcomes such as conflict and cohesion. We tested this using extra sets of questions added to our peer evaluation survey concerning the topics.

After testing the relationship of psychological safety with the perception of students from team outcomes (conflict and cohesiveness) between both individuals and teams, we can conclude that there is significant evidence that psychological safety questions can explain the conflict and cohesion in teams.

How Psychological Safety

Affects Classrooms

Instructors would like to facilitate teams and find dysfunctional teams. Instructors need to identify dysfunctional teams which might have a conflict or do not have enough cohesion. Then guide the teams to address the issue *as early as possible*

In the CATME research team, we conducted two studies about psychological safety, cohesion, satisfaction, and conflict. The first study proved how much asking psychological safety question is useful for engineering instructors to find problems in teams.

Based on our findings from the second study, if teams have problem in at least two sets of questions, there is a problem in a team. We are suggesting asking four sets of questions (Psychological safety, cohesion, conflict, and, satisfaction). However, if instructors just want to ask one set of questions psychological safety is a useful question to ask.

Using this strategy and analysis heuristics potentially offers instructors using teams, a way to focus more of their limited time and energy on teams with problems that can potentially be addressed in the academic team. This can produce benefits for both the students' teamwork learning and for the quality of the project results.

PROBLEM TEAMS	Number of team Members	Rater Variance >70%	Target Variance	Psychological Safety ≤ 4.7	Satisfaction < 4.0	Conflict > 1.6	Cohesiveness < 4.0
1	5	30.8	30.8	4.71	4.47		4.09
2	3	No SRM	No SRM	5.19	4.44		4.63
3	6	0	0	4.76	4.11		3.91
4	4	71.4	14.3	5.18	4.25		4.28
5	3	No SRM	No SRM	5	3.78		3.63
6	6	75	0	5	4.72		4.39
7	4	75	0	5.18	4.42		4.44
8	3	No SRM	No SRM	5.24	4.67		4.44
9	4	0	0	5.29	4.42		4.39
10	5	100	0	4.71	4.13		4.09
11	4	44.4	0	5.18	4.75		4.36
12	4	83.3	0	5.18	4.33		4.03
13	4	72.7	9.1	5.07	4.58		4.33
14	3	No SRM	No SRM	5.38	4.56		4.33
15	3	No SRM	No SRM	5.24	4.78	1.41	
16	6	No SRM	No SRM	4.86	4.44	1.15	
17	3	No SRM	No SRM	5.43	4.44	1.67	
18	3	No SRM	No SRM	5	4.56	1.26	
19	3	No SRM	No SRM	5.1	4.56	1.37	
20	4	0	0	4.75	4.17	1.61	
21	5	0	0	4.91	3.53	1.27	
22	6	57	19.8	4.83	4.06	1.61	
23	3	No SRM	No SRM	4.48	4.33	1.48	
24	5	76.9	0	5.37	4.6	1.2	
25	6	0	0	4.48	4.17	1.28	
26	6	55	10	4.36	3.5	1.69	
27	5	82.4	0	4.46	4.07	1.6	
mean	4.30			4.98	4.33	1.43	4.24
std dev				0.30	0.34	0.19	0.26

In individuals losing 1 point in the psychological safety means decreasing of perception of students about cohesion and increasing in the perception of conflict

In teams adding 1 point to the average psychological safety of teams means increasing the cohesion and decreasing the conflict in teams

This material is based upon work by:

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350-383.

Beigpourian, B., Luchini, F., Ferguson, D. M., Ohland, M. W. (2019). Psychological safety as an effective measurement in engineering classrooms. In *ASEE Annual Conference & Exposition*

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