

Building a community in the first-year chemistry laboratory

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this paper

- Reports on the findings of a survey performed to probe:
 - What students expected from their interactions with lab demonstrators
 - How students experienced their interactions with lab demonstrators
 - How student expectations and experiences changed after an intervention
- Proposes a framework for demonstrator (teaching assistant, TA) participation in undergraduate labs

context

- One 3 hour Chemistry practical per week
- Students learn:
 - 3 labs X 60 per lab
- Demonstrators facilitate learning:
 - 4 + 1 per lab
 - Senior undergrads + post-grads
 - Total cohort ca. 20 but varies
- Academic supervises learning

research instrument

STOP/START/CONTINUE format:

- What should your demonstrator STOP doing?
- What should your demonstrator START doing?
- What should your demonstrator CONTINUE doing?

stop/start/continue

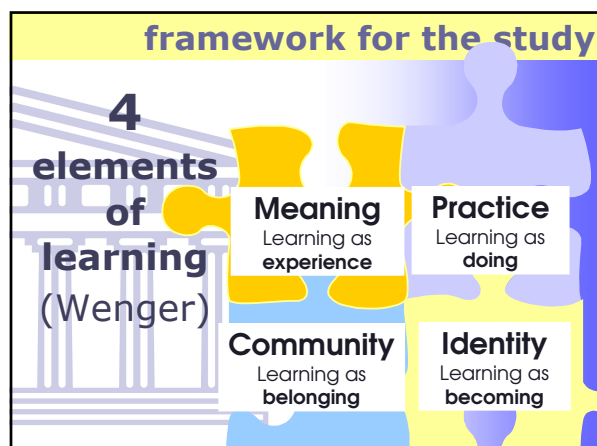
- CONTINUE reflect **+ive experiences**
- STOP reflect **-ive experiences**
- Frequency with which a specific issue was mentioned across all STOP/START/CONTINUE responses represents **expectations**

framework for the study

Social learning theory:

Competent practice **emerges** as one **participates** with others in **relevant** activities; practical knowledge requires participation.

Bowen, G. M. (2005). *Essential Similarities & Differences between Classroom and Scientific Communities in RK Yerick, W-M Roth (Eds). Lawrence Erlbaum Assoc: New Jersey*



what students said in 2005 (N = 155)

	Number of mentions	Experienced	Experienced the opposite
Category: Demonstrator as person	140		
Supportive, helpful, approachable, available	71	59%	3%
Friendly, kind, sweet, nice, smiling, fun	21	76%	5%
Polite, respectful, humble, unselfish	20	10%	80%
Patient, understanding, trusting, empathic	28	25%	50%
Category: Demonstrator as teacher	188		
Creating a learning atmosphere	13	46%	15%
Clear, concise communication	61	21%	30%
Teaching skills	58	17%	17%
Affective attributes	56	16%	45%
Category: Demonstrator as employee	143		
Prepared, punctual, present, proactive	115	3%	43%
Hard-working, thorough, dedicated, enthusiastic	15	87%	0%
Focussed	13	0%	77%

intervention

Demonstrator training program

- Training session at start of academic year
- Demonstrator manual
 - Role, duties
 - "How to" sections
- Weekly briefings
- Written material about each prac

Recognition for leadership role

what students said in 2008 (N = 190)

	Number of mentions	Experienced	Experienced the opposite
Category: Demonstrator as person	177		
Supportive, helpful, approachable, available	102	84%	2%
Friendly, kind, sweet, nice, smiling, fun	49	92%	2%
Polite, respectful, humble, unselfish	4	50%	25%
Patient, understanding, trusting, empathic	22	55%	27%
Category: Demonstrator as teacher	166		
Creating a learning atmosphere	17	47%	24%
Clear, concise communication	30	43%	27%
Teaching skills	59	53%	12%
Affective attributes	60	18%	28%
Category: Demonstrator as employee	86		
Prepared, punctual, present, proactive	54	11%	52%
Hard-working, thorough, dedicated, enthusiastic	25	84%	0%
Focussed	7	0%	86%

2005 vs 2008

	2005 (N = 155)			2008 (N = 190)		
	No. of mentions	Exp	Exp the opposite	No. of mentions	Exp	Exp the opposite
Category: Demonstrator as person	140			177		
Supportive, helpful, approachable, available	71	59%	3%	102	84%	2%
Friendly, kind, sweet, nice, smiling, fun	21	76%	5%	49	92%	2%
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Prepared, punctual, present, proactive	115	3%	43%	54	11%	52%
Hard-working, thorough, dedicated, enthusiastic	15	87%	0%	25	84%	0%
Focussed	13	0%	77%	7	0%	86%

findings

- Nature of discontent pre intervention:
 - Students were mainly unhappy about demonstrators' attitudes towards them and their jobs

"...for them to be able to stop doing something they would have to do something in the first place."

"...a few of the demonstrators in my lab actually did not know what to do in the prac which made me (feel) very **lost** and **confused**."
- Disparities between expectations and experiences significantly less after intervention

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