Boston Science Partnership

Teaching Qualifications & Teaching Assignments: How They Influence Teachers' Professional Development Choices

Center for Science Education
Education Development Center, Inc.

January 27, 2009

Research Question:

What is the relationship between teachers' participation in BSP professional development strategies and teachers' qualifications?

Methodology:

- BPS District data
- Interviews with 47 teachers

Highly Qualified Teachers & Licensure According to MA ESE

- Teachers teaching the core subject areas for more than 20% of their schedule must **hold the appropriate valid MA teaching license for the subject areas in which they are teaching**.
  - Individuals who have received the HQT designation prior to this change will retain their HQT status.

Quotes from teachers' interviews

- *If you can't manage the classroom, then you're not going to be able to get the content across.*
- *I think that two things that make a good a teacher are content and classroom management.*
- *And being a highly-qualified teacher is a package of everything; and the classroom management goes first, and then the content area, and then involving and motivating the students*

Line of Investigation - 1

- Describe BPS science teachers:
  - Number of science teachers
  - Qualifications of science teachers
    - By science discipline
    - By student population

Number of BPS Science Teachers

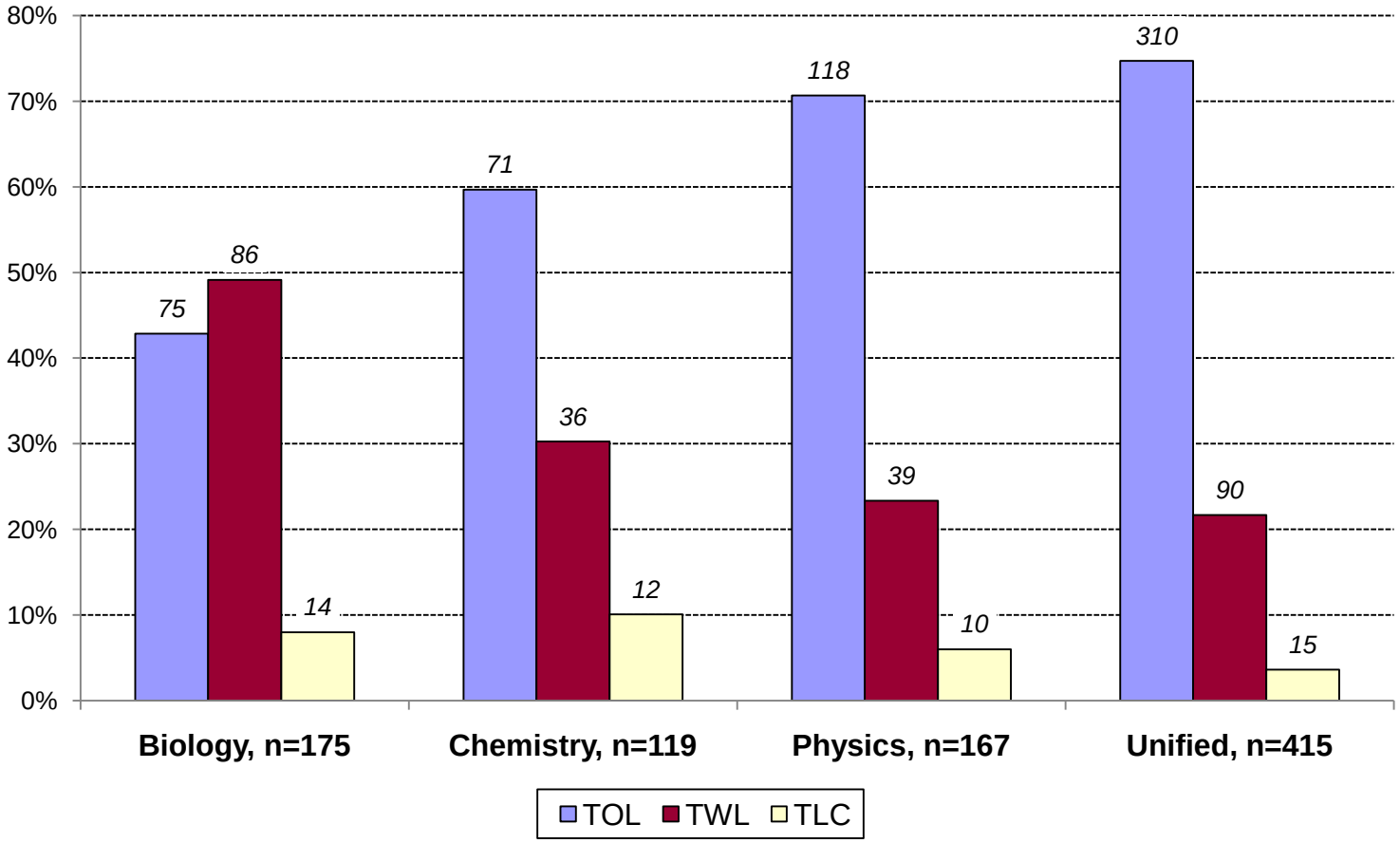
Over school years 05-06, 06-07, and 07-08

- 693 teachers taught in BPS
  - 294 taught for one year (42%)
  - 167 taught for 2 years (24%)
  - 232 taught for all 3 of these school years (33%)

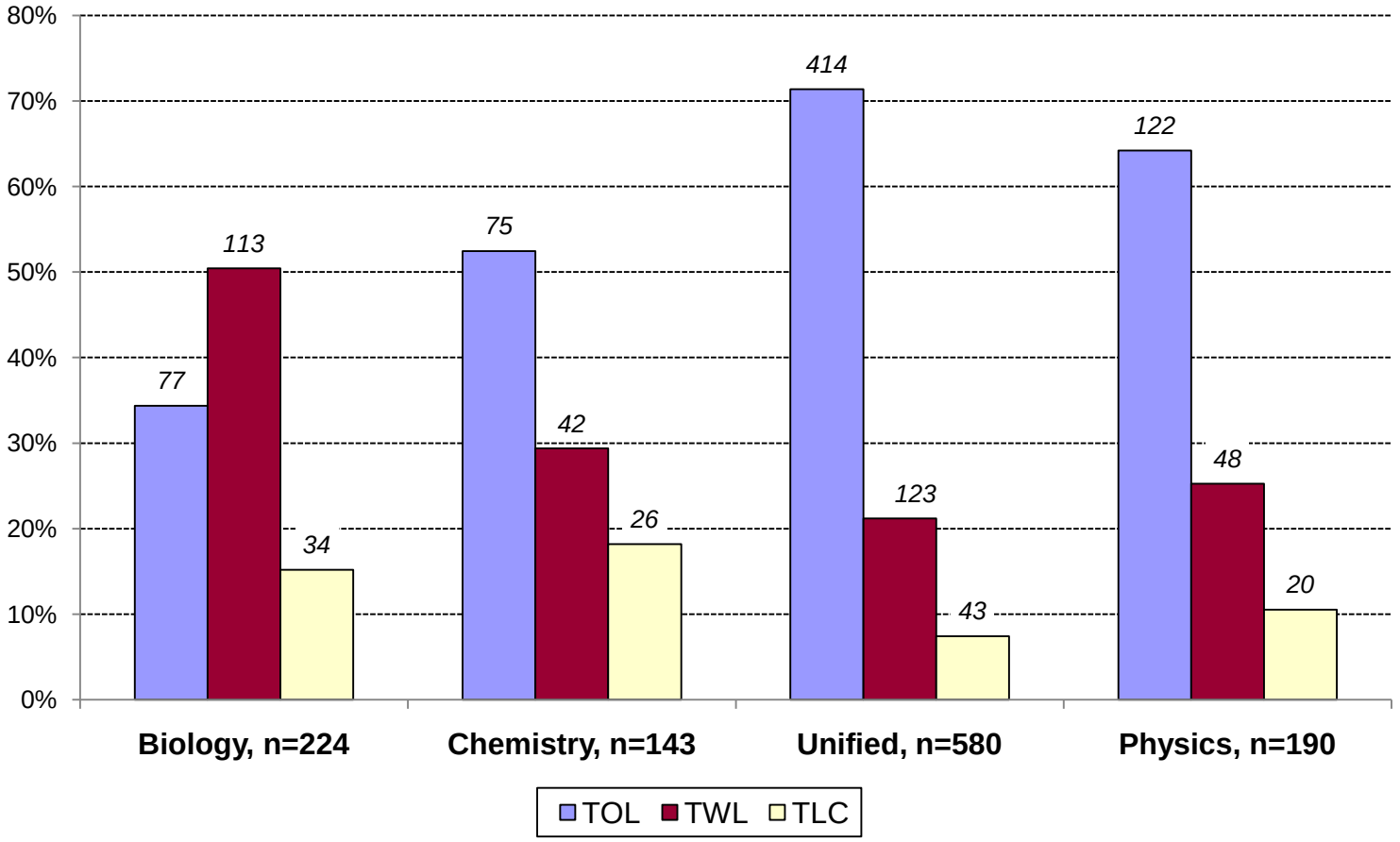
Licensure Status in BPS 05-06, 06-07, 07-08

- TWL (Teaching Within Licensure)
  - **149 teachers (22%)**
- TOL (Teaching Out of Licensure)
  - **414 teachers (60%)**
- TLC (Teaching Licensure Changed)
  - **29 teachers (4%)**
- Combination
  - **101 teachers (15%)**

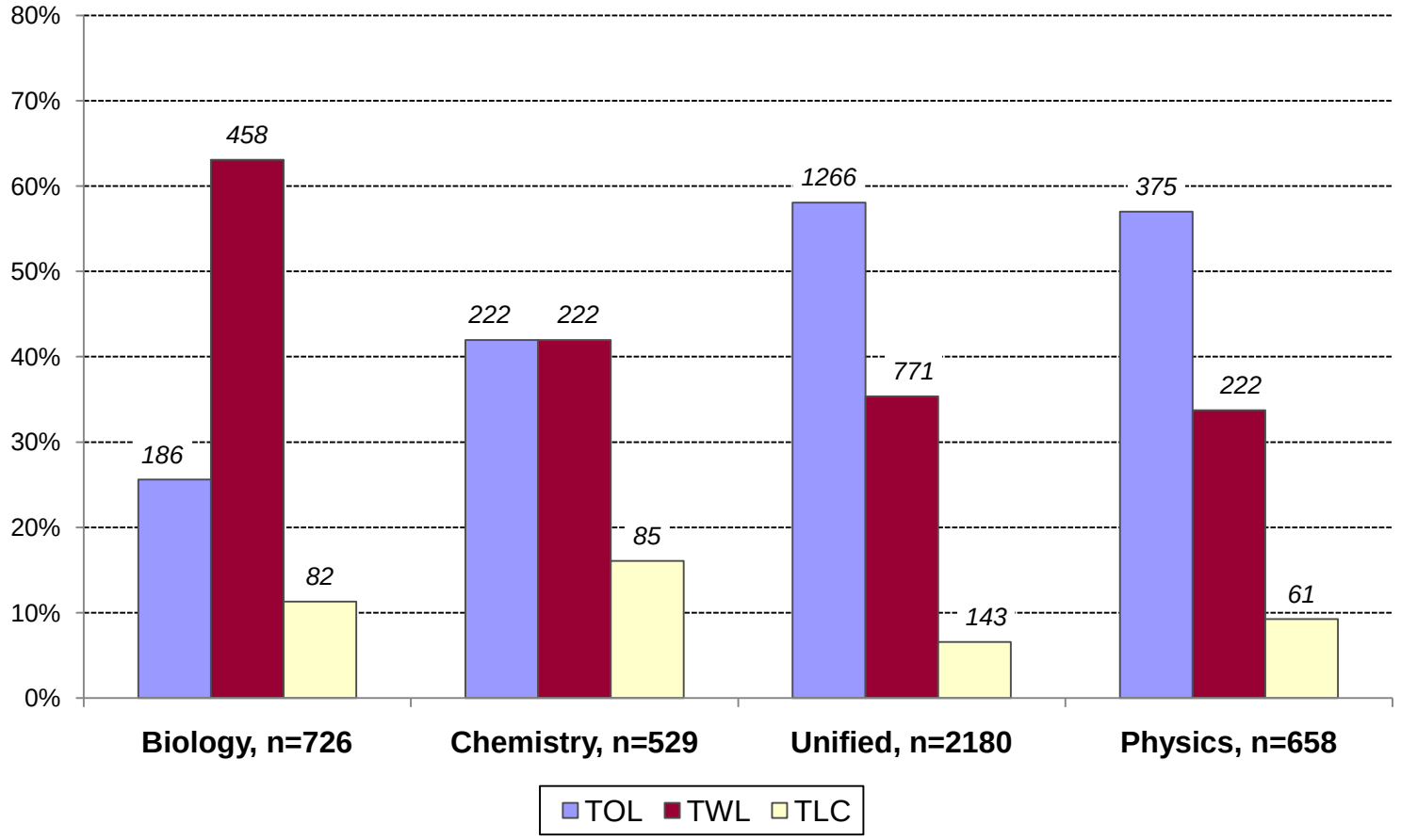
Percent of Teachers by Licensure Status, N=693



Percent of Courses by Licensure Status, N=693



Percent of Sections by Licensure Status, N=693



BPS Licensure & Student Population 06-07 & 07-08

Student Pop.	*Licensure Status*	*# Teachers*	*# Sections (sections/tchr)*
Regular	TWL	188	1047 (6)
	TOL	181	623 (3)
SPED Teacher	TWL	10	21 (2)
	TOL	146	509 (4)
SPED Aide	TWL	1	2 (2)
	TOL	42	110 (3)
ESL	TWL	23	92 (4)
	TOL	28	108 (4)

Description of Interview Sample, N=47

- Qualifications
  - Licensure status: TOL, TWL
  - Single, multiple, or no license
  - Experience
- Science subjects assigned

Licensure & Experience for the Sample

	TWL	TOL	Total
Low exp	8	5	13
Med exp	5	4	11
High exp	12	13	25
Total	25	22	47

Licensure Status

- No license – 3
  - 2 are actively working towards one or more licenses
- Single license – 29
  - 11 are actively working towards one or more additional licenses
- Multiple licenses – 15
  - 5 are actively working towards one or more additional licenses

Science Subjects Assigned

Subject	# of Teachers	TWL	TOL
Biology	19	12	7
Chemistry	15	7	8
Physics	11	3	8
General Science	9	8	1

Line of Investigation - 2

- Fluctuations in teaching assignments

Shifts in Teaching Assignments in BPS 06-07 to 07-08

Type of Science Topic Shift	Number of teachers	%
No change	**249**	**.79**
Shift	**66**	**.21**
Dropped & added the same #	22	.07
Only dropped	18	.06
Only added	16	.05
Added more than dropped	7	.02
Dropped more than added	3	.01
Total	**315**	**100**

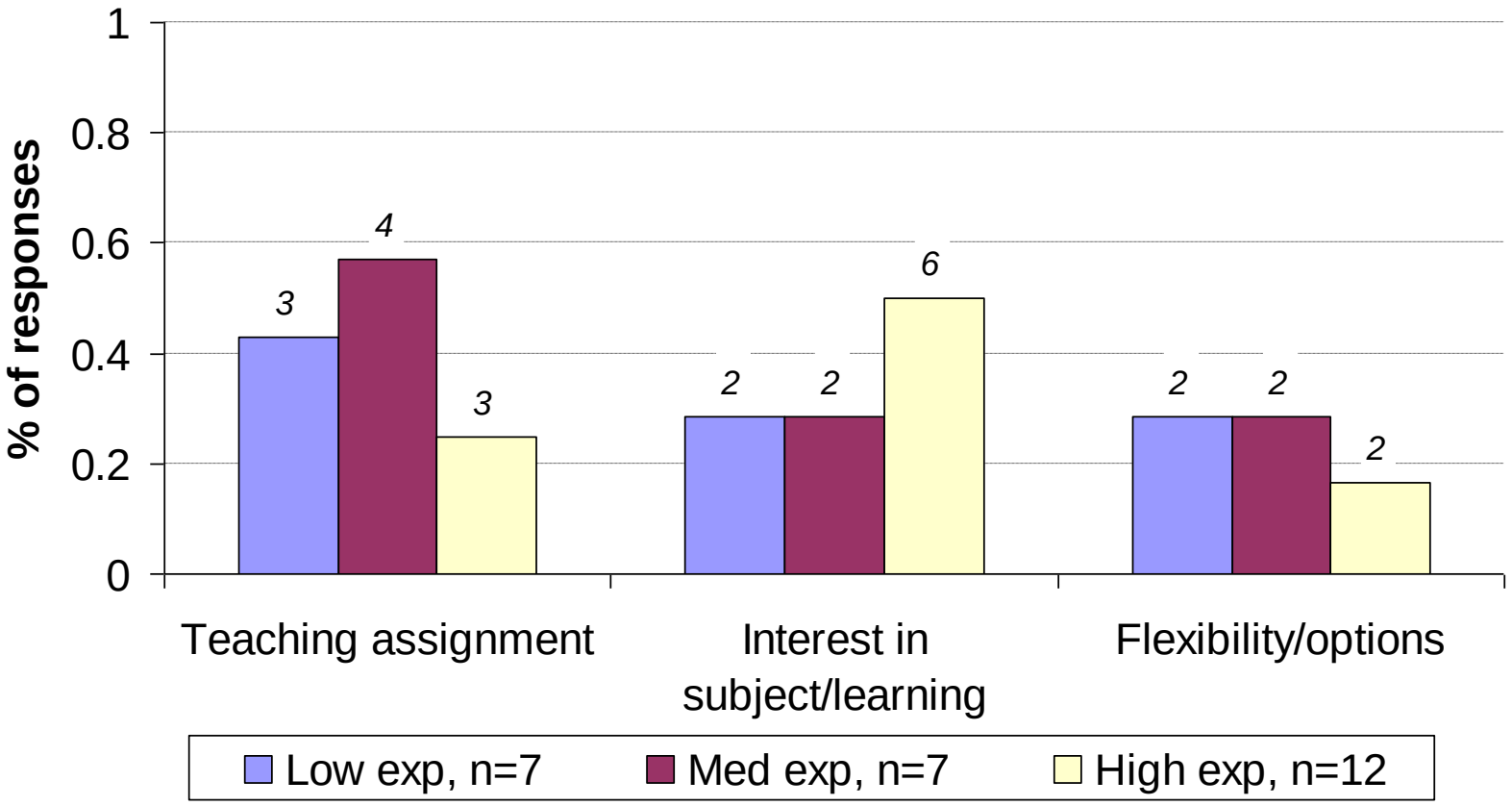
Shifts in Teaching Assignments in BPS 05-06, 06-07, 07-08

Type of Science Topic Shift	# Teachers	%
No change (3 years)	**230**	**.33**
No change (2 years; left science)	54	.08
Left science after 1 year	189	.27
Taught only in 07-08	105	.15
Combination shifts/leaves	62	.09
Added topic	34	.05
Dropped topic	19	.03
Total	**693**	**100**

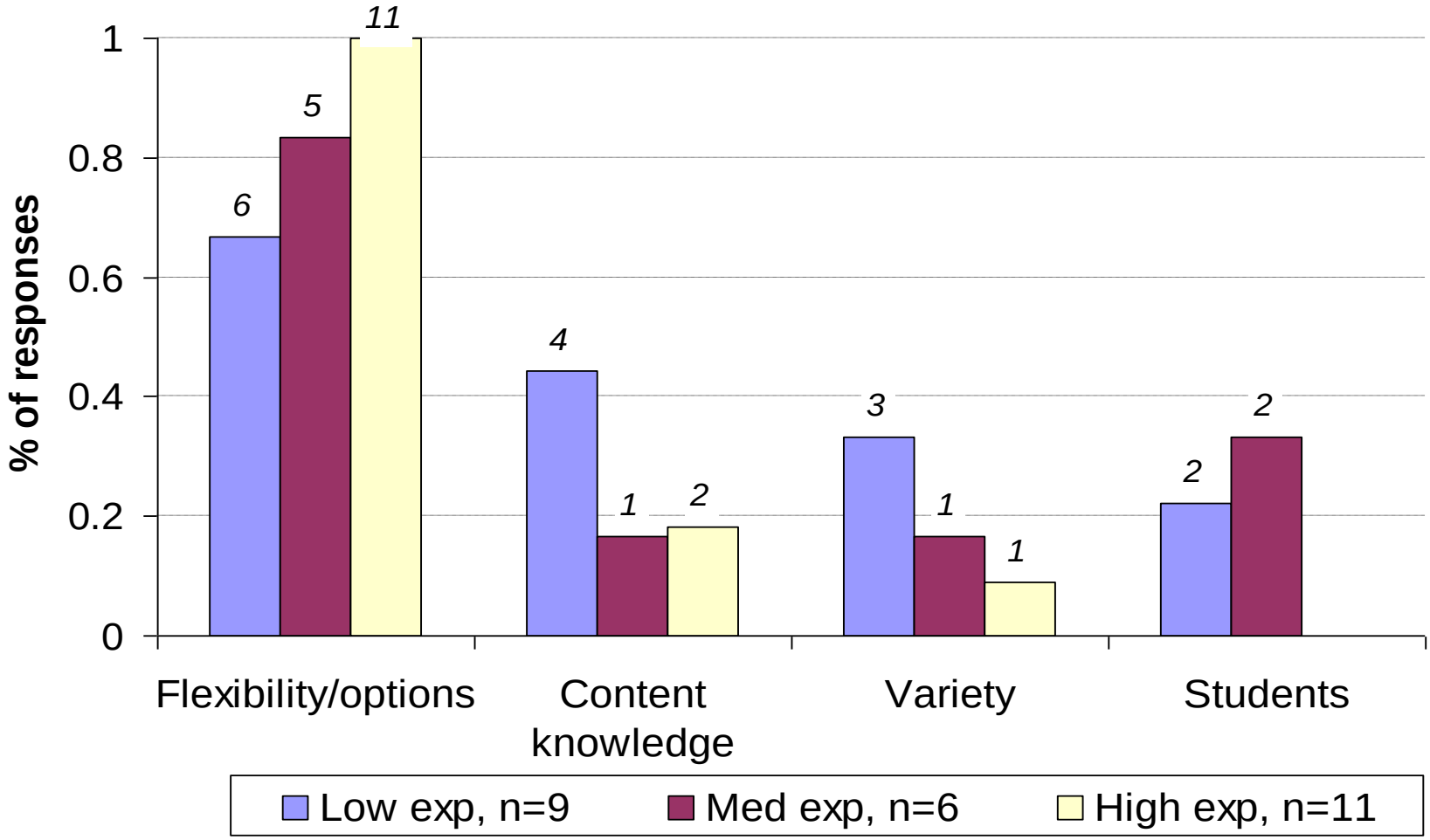
Line of Investigation - 3

- Why teachers get one or more licenses
- Benefits and costs of multiple licenses

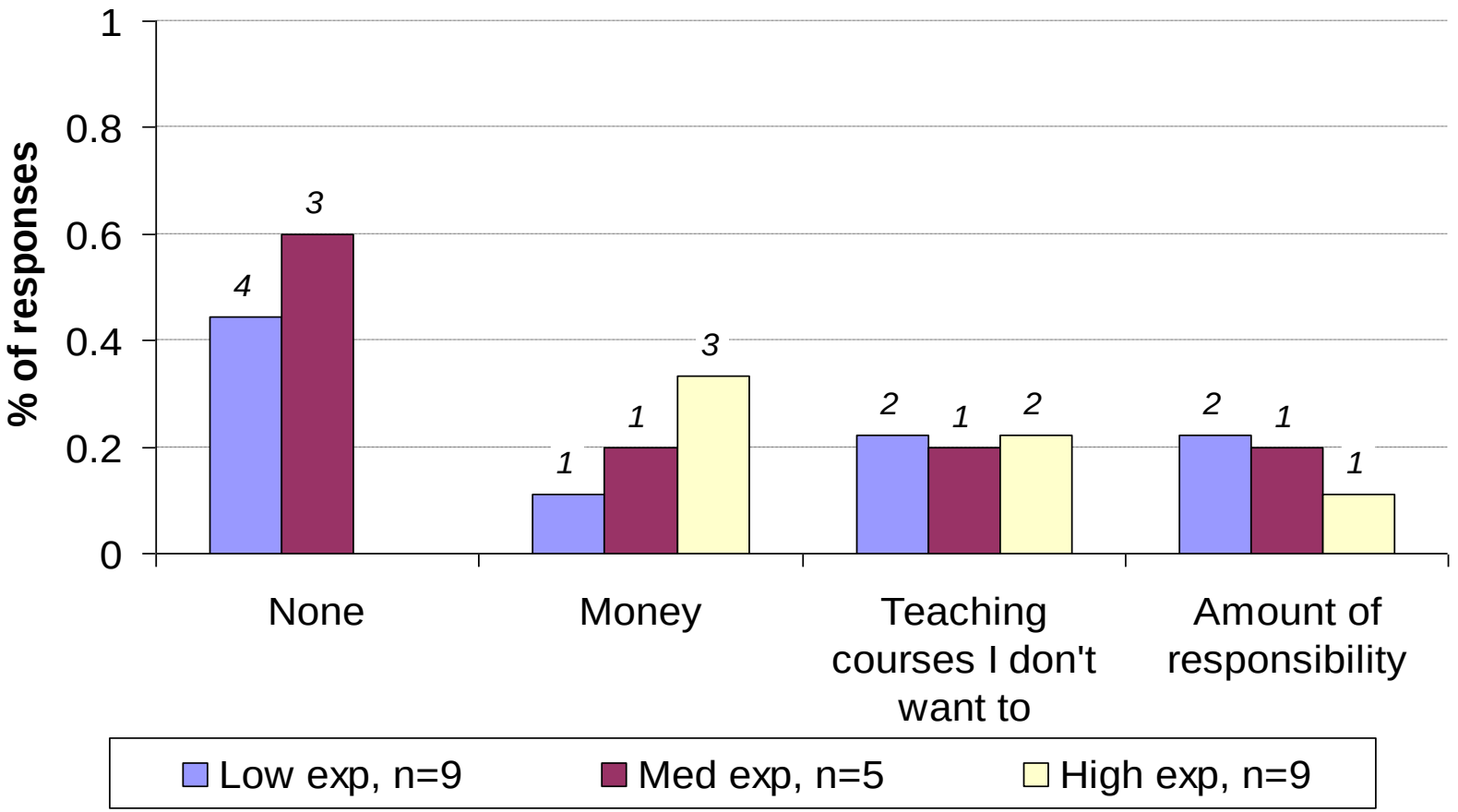
Reasons for Getting Multiple Licenses by Teaching Experience, n=26



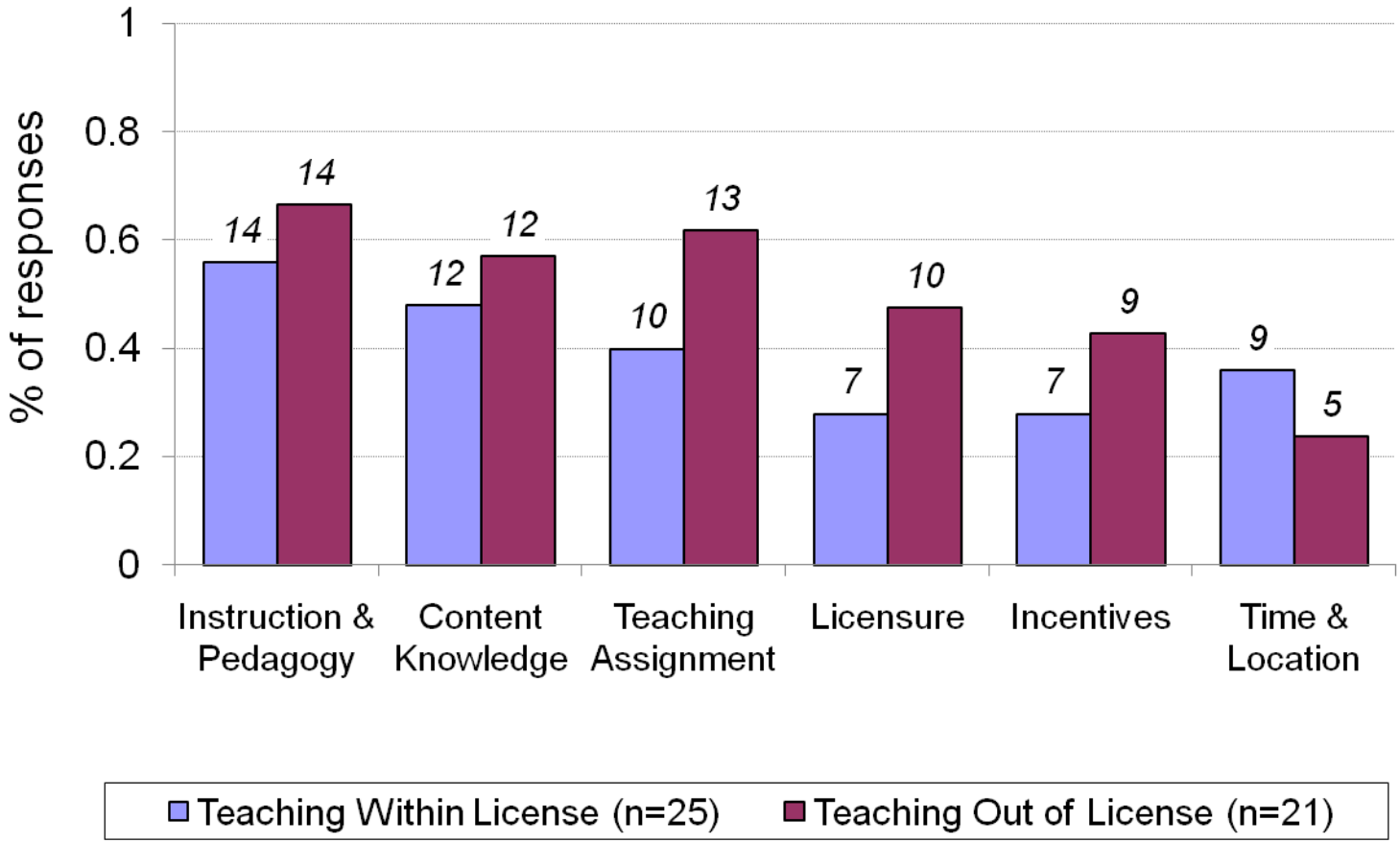
Benefits of Multiple Licenses by Teaching Experience, n=26



Costs of Multiple Licenses by Teaching Experience, n=23



Factors Influencing PD Choices by Licensure Status, n=46



Line of Investigation - 4

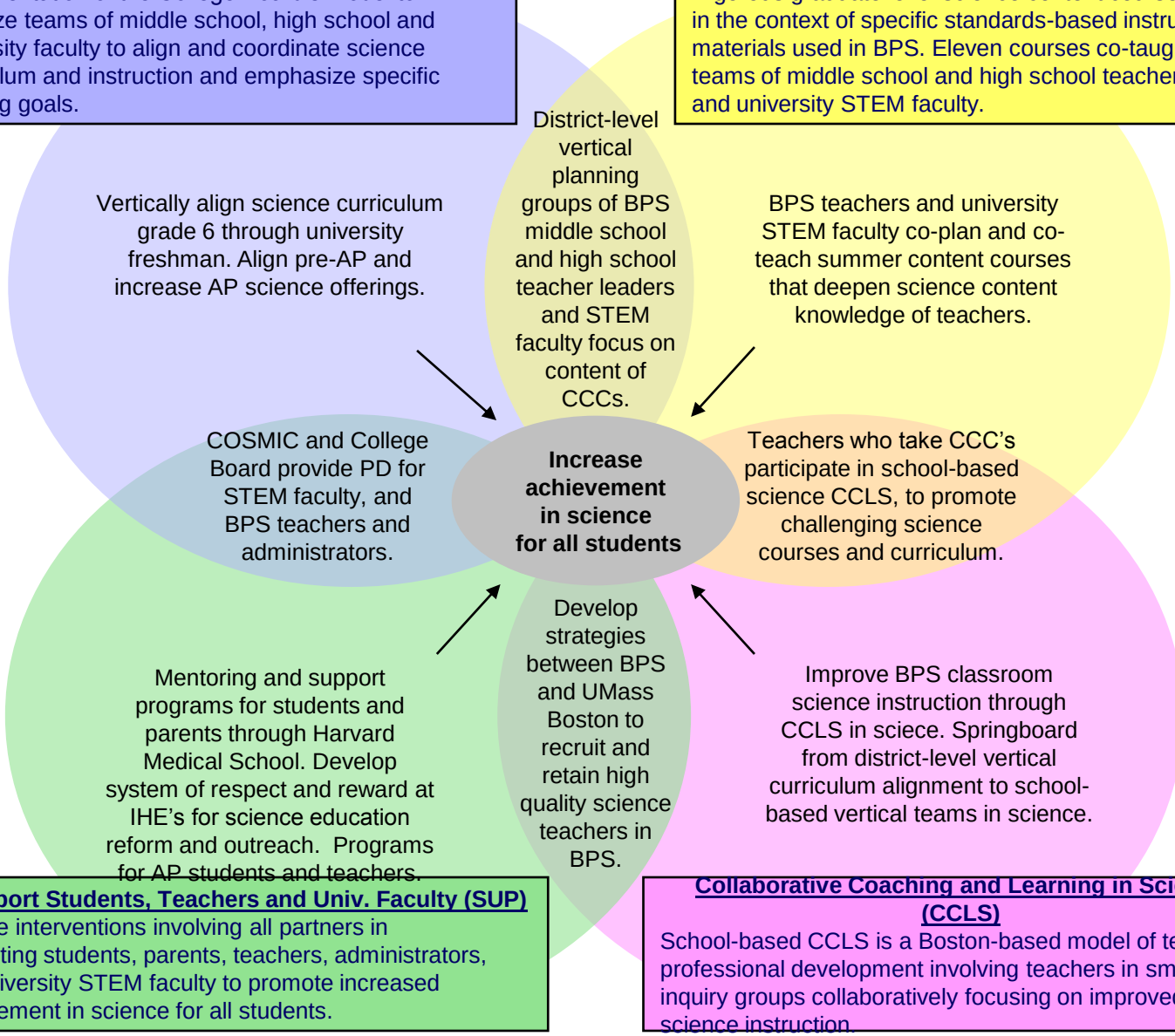
- Patterns of participation in BSP Professional Development (PD)
- 2005-06, 2006-07, 2007-08
  - District-wide
  - Sample of 47

District participation in BSP PD

Participants	#
BPS Teachers	456 (66%)
Participation data	320
Others	608 (33%)
Total	1,064

Vertical Teaming (VT)
Implementation of the College Board's model to organize teams of middle school, high school and university faculty to align and coordinate science curriculum and instruction and emphasize specific learning goals.

Contextualized Content Courses (CCC)
Rigorous graduate level science content courses taught in the context of specific standards-based instructional materials used in BPS. Eleven courses co-taught by teams of middle school and high school teacher leaders and university STEM faculty.



Support Students, Teachers and Univ. Faculty (SUP)
Multiple interventions involving all partners in supporting students, parents, teachers, administrators, and university STEM faculty to promote increased achievement in science for all students.

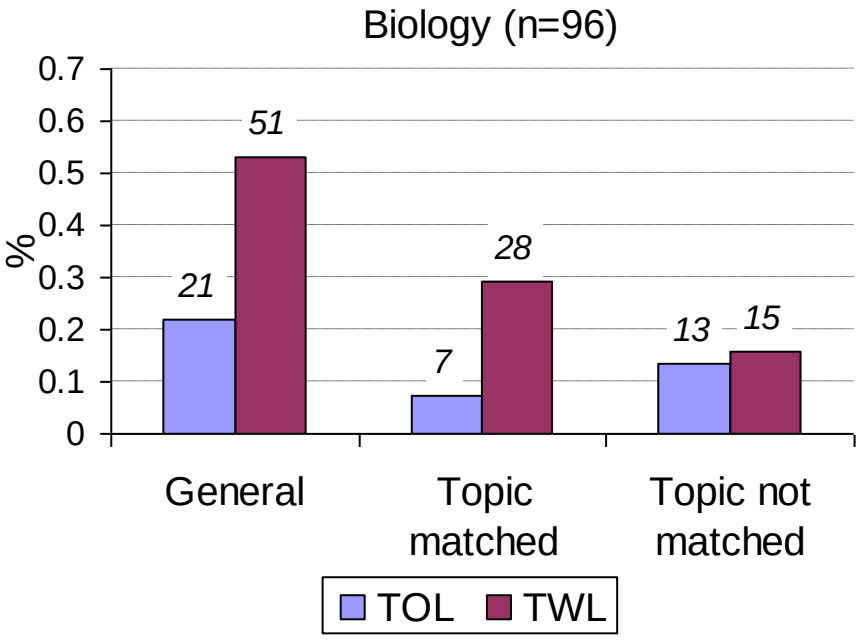
Collaborative Coaching and Learning in Science (CCLS)
School-based CCLS is a Boston-based model of teacher professional development involving teachers in small inquiry groups collaboratively focusing on improved science instruction.

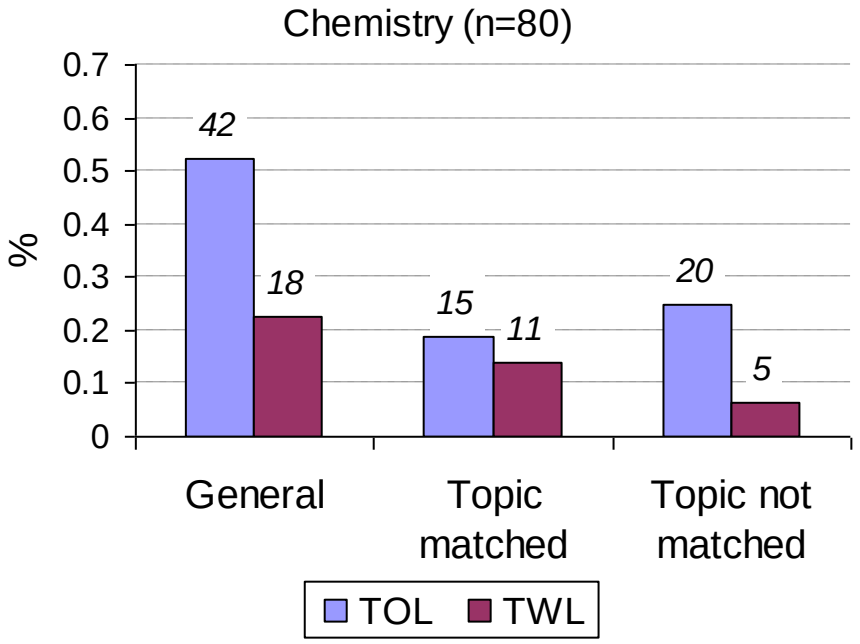
EDC Center for Science Education

Teacher Participation in BSP PD by Licensure Status & PD Type, n=320

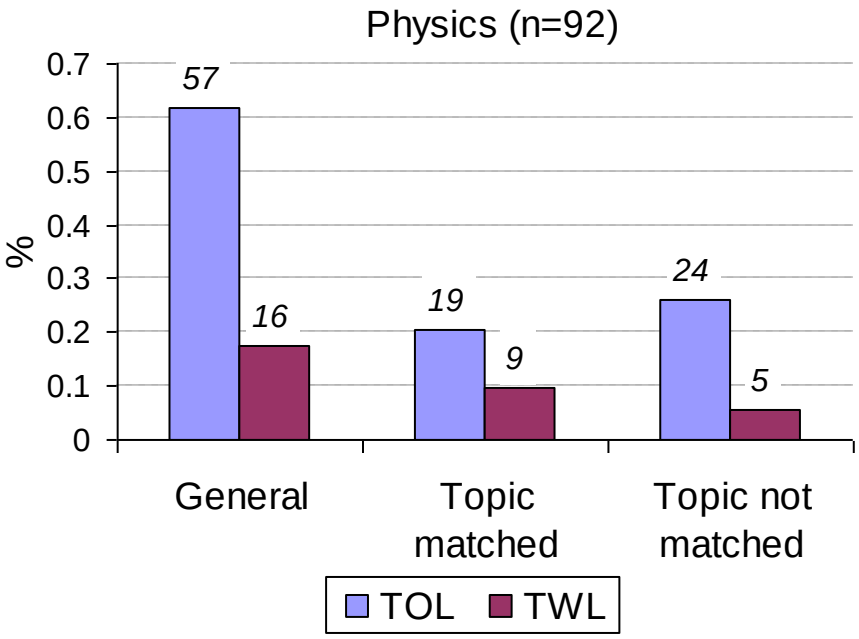
	# (%) of Teacher Attendees			
	PD type			
Licensure Status	Topic Matched	General	Topic not Matched	*Total*
TWL	53 (.34)	130 (.84)	60 (.39)	*154*
TOL	49 (.25)	162 (.84)	88 (.46)	*193*
TLC	17 (.53)	26 (.81)	16 (.50)	*32*
Total	*119 (.31)*	*318 (.84)*	*164 (.43)*	*379*

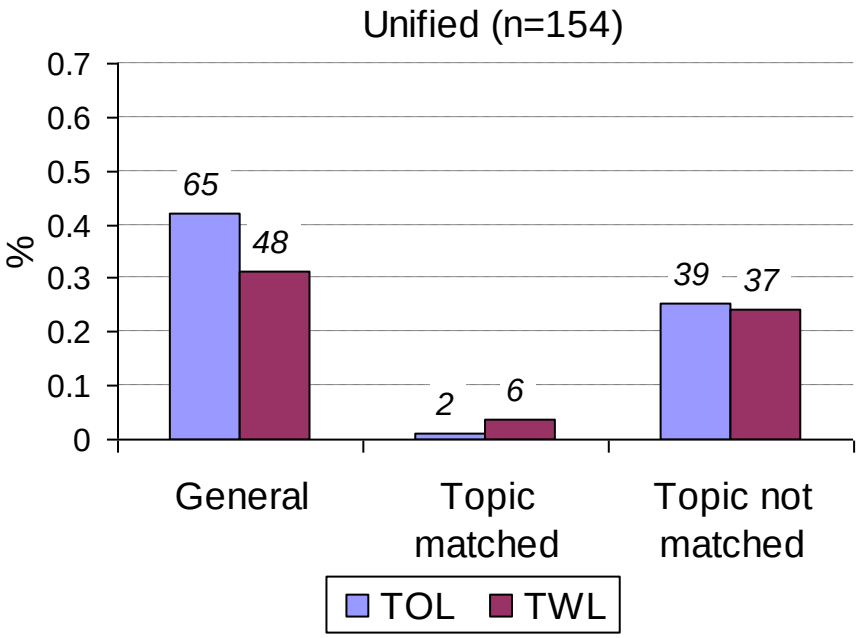
Teacher Participation in BSP PD by Licensure Status & PD Type, n=320



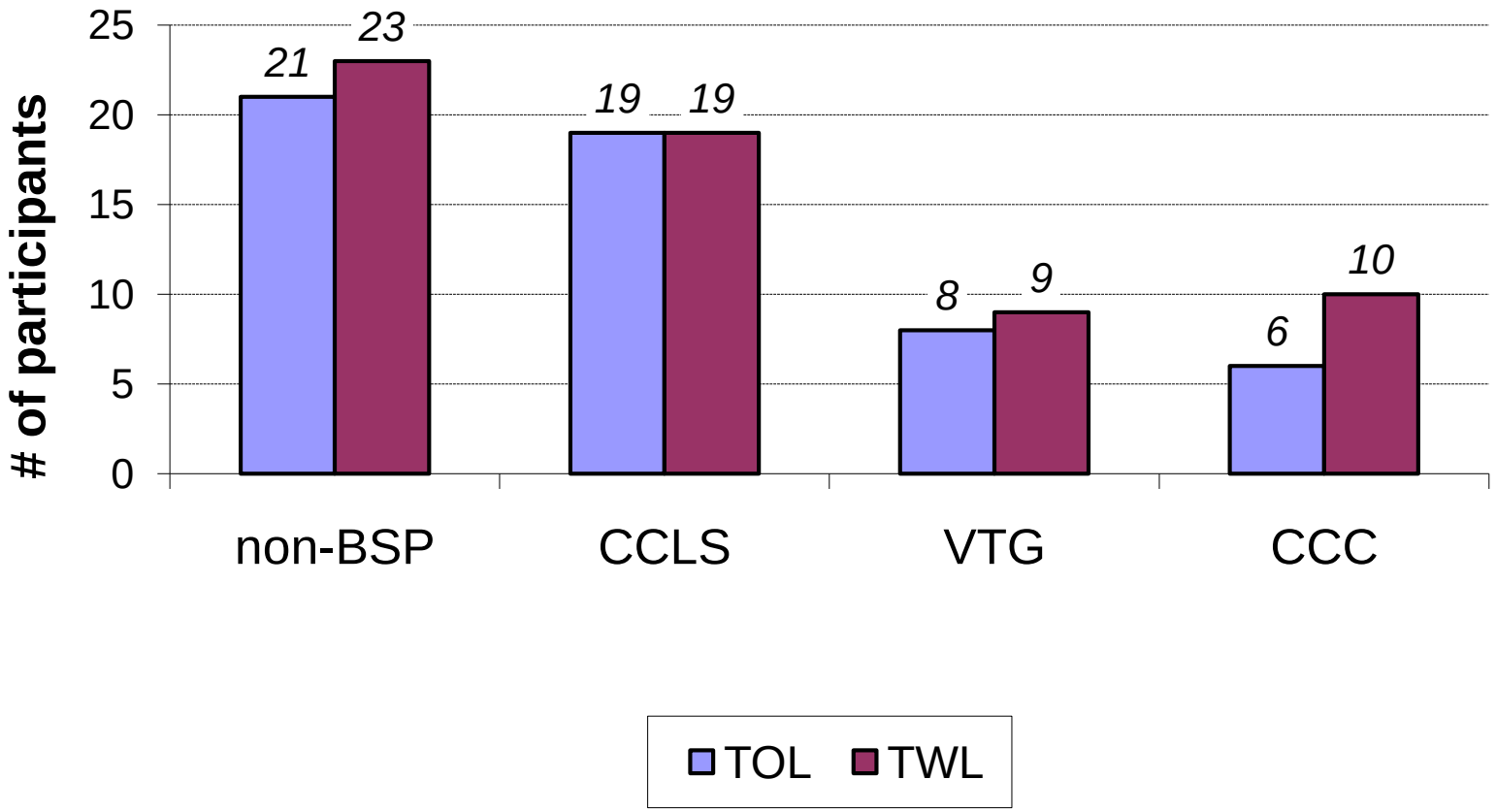


Teacher Participation in BSP PD by Licensure Status & PD Type, n=320





Study Sample Participation in BSP PD by Licensure Status &PD Type, n=47



Reasons for Impact

- CCLS
  - Work with colleagues
  - Relevance to course teaching
  - Pedagogy
- CCC
  - Relevance to course teaching
  - Pedagogy
  - Better understanding of science content

Questions

- What trends in PD participation have you seen among under-qualified teachers?
- How can we think about differentiated PD for teachers with varying needs?
- Is there a role for MSPs in addressing the problem of under-qualified teachers?