Exploring Beginning Teachers in Alternative Certification Programs in Missouri: Initial Findings from a 3-Year Study

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Meeting the Mathematics and Science Teacher Shortage in Missouri: Research and Practice on Supporting Beginning Teachers
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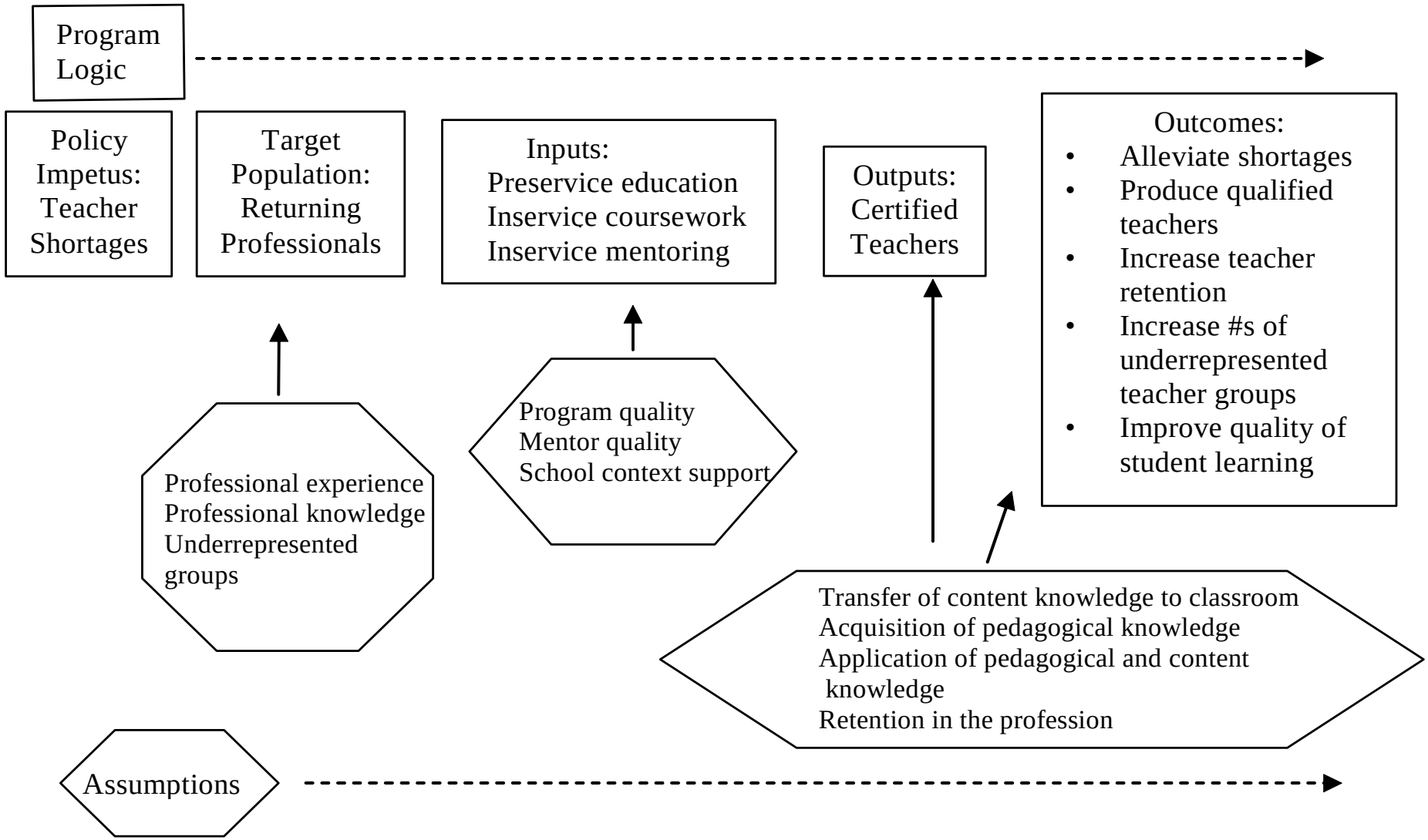
Research Agenda

Evaluation of structures, processes, content, and outcomes of ATCP in Missouri. The following questions will be addressed:

- What logic models guide Missouri ATCPs?
- What are the characteristics of teachers entering formal ATCPs?
- What are the characteristics of secondary mathematics and science teachers participating in Missouri's ATCPs relative to traditionally certified mathematics and science teachers?
- To what extent do ATCP mathematics and science teachers use instructional practices that meet or exceed national teaching standards for those subjects?
- What outcomes are associated with the various routes to alternative certification relative to traditionally certified mathematics and science teachers in Missouri?

General Logic Model of ATCPs



Demographic Data

- Our base population
  - 223 eligible teachers from 13 Missouri universities
  - 109 teachers are included in study
  - After first year, effective sample of 78 teachers participating in data collection

Experience and Diversity of Alternatively Certified Teachers

- The logic model of ATCP programs highlights the potential for changing the teaching pool.
  - ATCP teachers are potentially more experienced and more diverse than regularly certified teachers.
  - Do the first year results support these claims?
  - The following slides compare ATCP teachers to 2003 DESE data for first-year Mathematics and Science teachers.

Teacher Gender

	All Subjects	
	ATCP Study Teachers	DESE New Teachers
Women	61.5	63.9
Men	38.5	36.1
Total	100.0	100.0
Number of Teachers	78	532
	Mathematics	
	ATCP Study Teachers	DESE New Teachers
Women	63.4	63.6
Men	36.6	36.4
Total	100.0	100.0
Number of Teachers	41	275
	Science	
	ATCP Study Teachers	DESE New Teachers
Women	56.8	64.2
Men	43.2	35.8
Total	100.0	100.0
Number of Teachers	37	257

A larger percentage of Science teachers are men, compared to 2003 DESE “new teacher” data.

Teacher Ethnicity

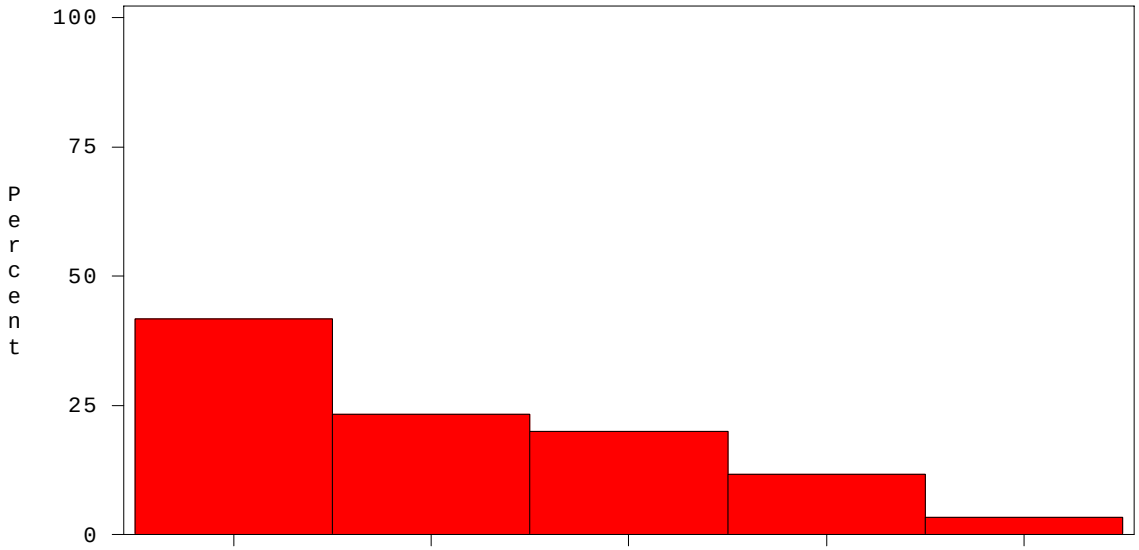
All Subjects

	ATCP Study Teachers	DESE New Teachers
Asian	2.6	0.9
Hispanic	1.3	0.2
African American	5.3	12.0
White	88.2	86.1
Other	2.6	0.8
Total	100.0	100.0
Number of Teachers	78	532

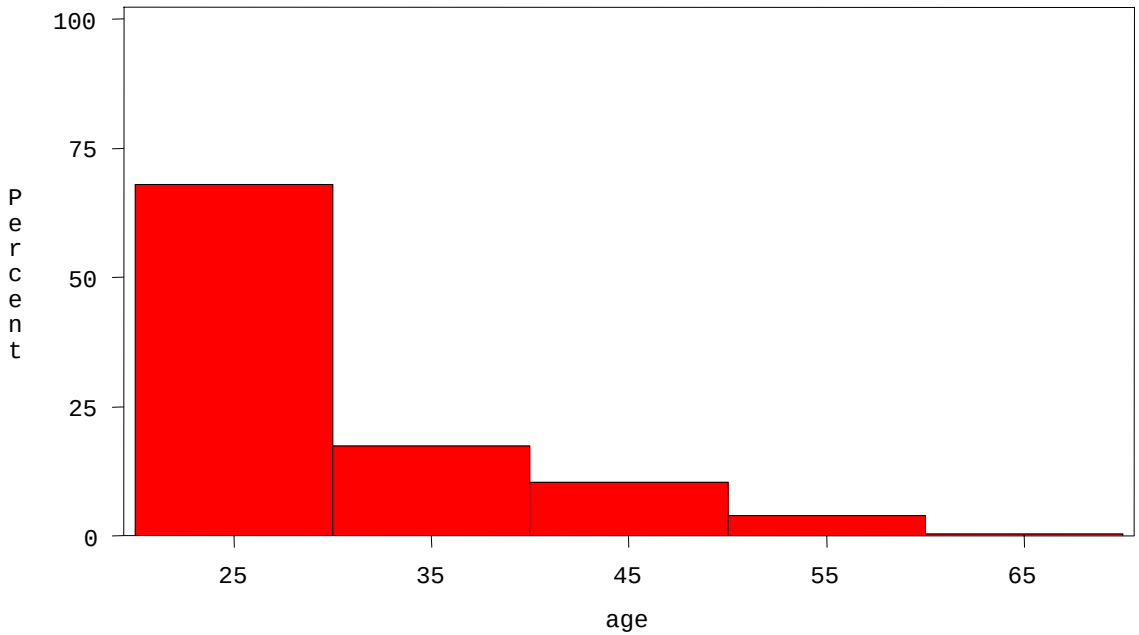
Smaller percentage of minority science teachers in ATCP sample. Smaller percentage of African American teachers.

	Mathematics		Science	
	ATCP Study Teachers	DESE New Teachers	ATCP Study Teachers	DESE New Teachers
Asian	2.4	1.1	5.7	0.8
Hispanic	0.0	0.0	2.9	0.4
African American	9.8	16.4	0.0	7.4
White	82.9	82.2	91.4	90.3
Other	4.9	0.4	0.0	1.2
Total	100.0	100.0	100.0	100.0
Number of Teachers	41	275	37	257

Age Distribution, ATCP Study Teachers



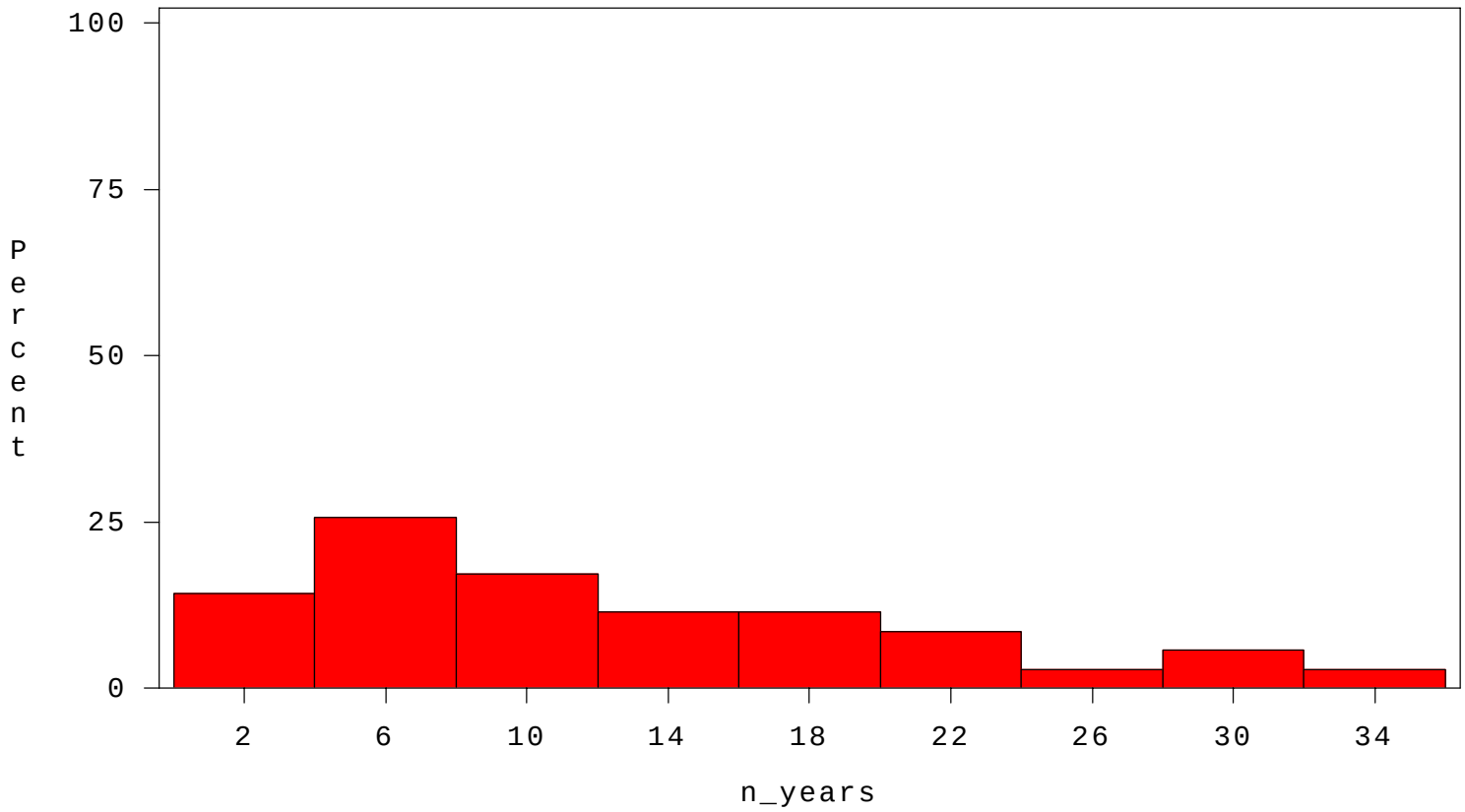
Age Distribution, DESE New Teachers



Years of Teacher Experience

- ATCP programs are also grounded in the assumption that participating teachers have extensive work experience.
- The following slide shows the distribution of years of post-baccalaureate job experience for the set of ATCP Study Teachers.

Distribution of Years of Experience

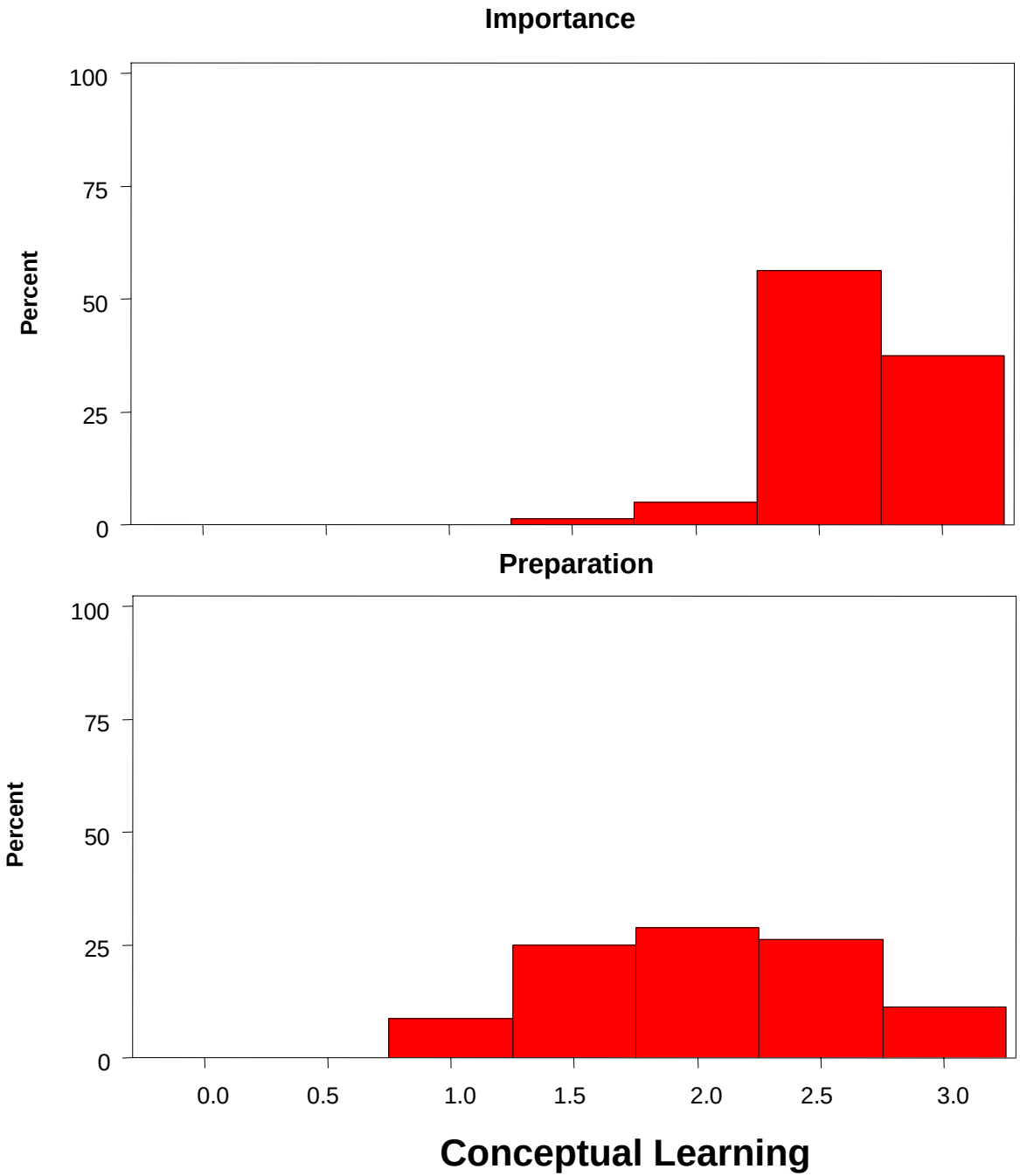


Teacher Opinions of the Importance of Instructional Practices and Their Preparation to Teach

- The ATCP Teacher Survey asked teachers to rate the importance of three general domains of instructional practice:
  - Conceptual Learning,
  - Inquiry-based Learning,
  - Multidisciplinary Learning.
- Teachers were asked to rate the importance of several items related to these domains of practice and whether they felt prepared to teach in these ways.

The Items

- **Conceptual Learning**
  - Provide concrete experience before abstract concepts.
  - Develop students conceptual understanding of math/science.
  - Take students prior understanding into account when planning lessons.
- **Inquiry Learning**
  - Have students work in cooperative learning groups.
  - Have students participate in appropriate hands-on activities.
  - Engage students in inquiry-oriented activities.
- **Multidisciplinary Learning**
  - Make connections between math/science and other disciplines.
  - Engage students in applications of math/science in a variety of contexts.
- **All were coded on a scale of "0" to "3", with "3" representing the positive extreme (e.g., "Very Well Prepared")**


Importance
Percent
100
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50
25
0
Preparation
Percent
100
75
50
25
0
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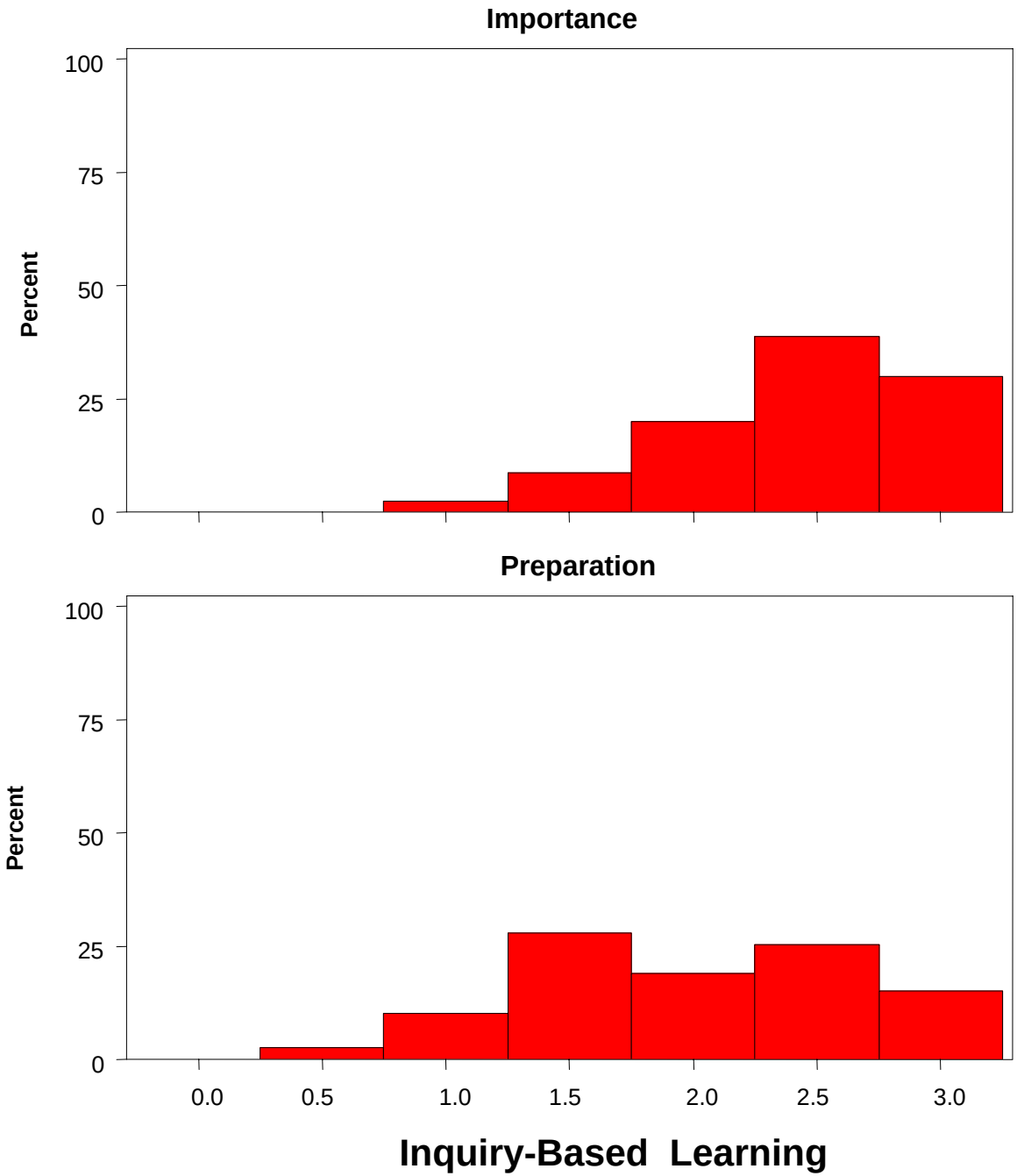
0.5
1.0
1.5
2.0
2.5
3.0
Conceptual Learning


Importance
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Preparation
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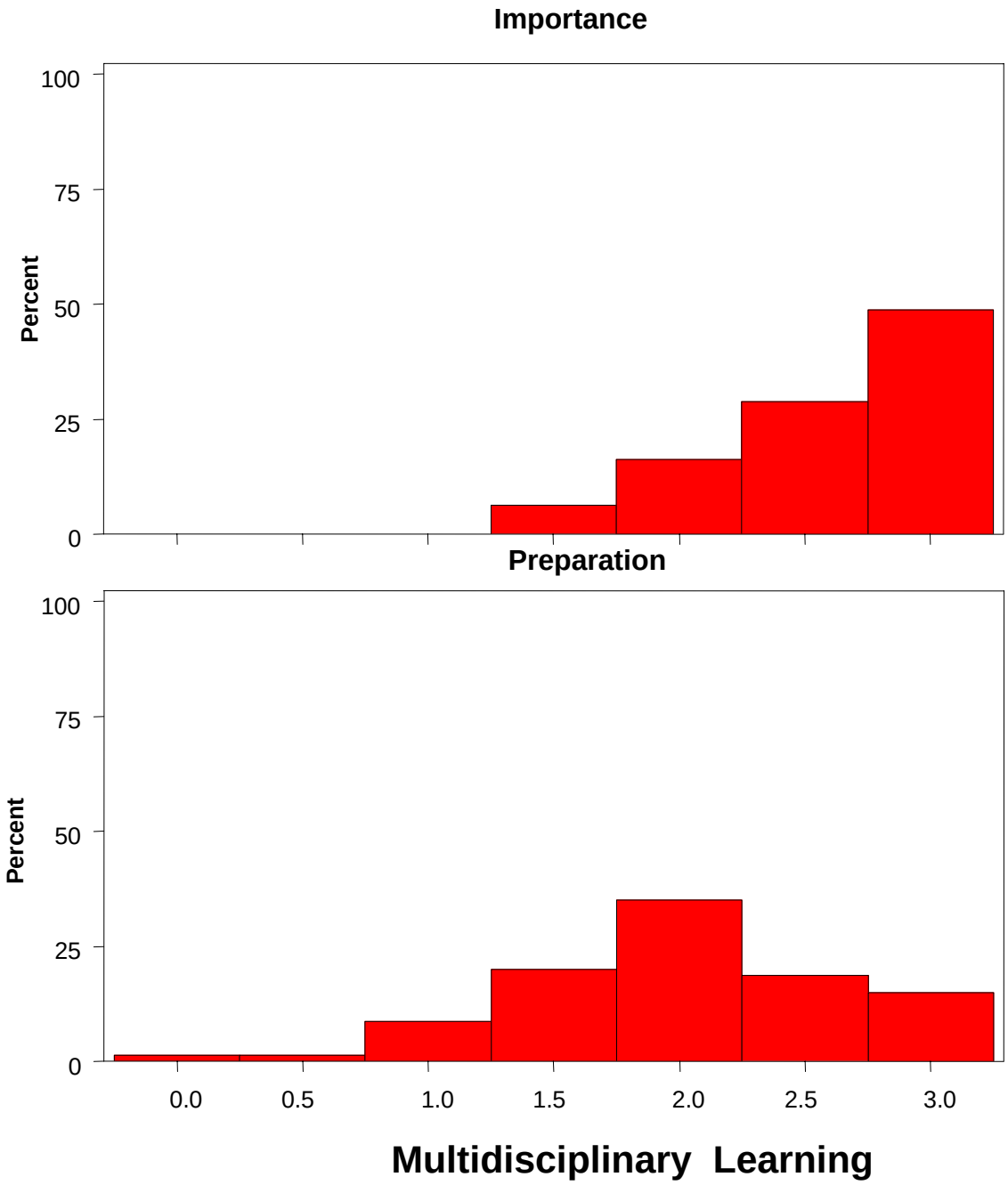
Inquiry-Based Learning


Importance
Percent
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Preparation
Percent
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2.5
3.0
Multidisciplinary Learning

Qualitative Findings

Areas of Initial Interest

- Factors influencing choice of program
- Reasons for becoming a teacher
- Positive perceptions of program experience
- Negative perceptions of program experience

Program Choice

Areas of Focus as We Move Forward

- Source of information
- Proximity
- Familiarity with the institution
- Program length and flexibility
- Masters degree
- Program depth and content
- Financial concerns

Decision to Teach

Areas of Focus as We Move Forward

- Previous experiences in teaching and schooling
- Expressed sense of purpose in teaching
- Family considerations - (Spouse, Child, Parents/Siblings)

Negative Perceptions

Areas of Focus as We Move Forward

- Specific courses or topics
- Redundancy in program content
- Ineffective instructors
- Program pace
- Amount of work

Positive Perceptions

Areas of Focus as We Move Forward

- Practical/field knowledge
  - Lesson plans, assessment plans, classroom management
- General education knowledge
  - What is happening in the world of education

Summary

- Compared to first-year Mathematics and Science teachers, ATCP Teachers in this study are
  - Similar in terms of gender percentages,
  - Somewhat less diverse in terms of ethnicity,
  - Older
- 50 percent have 10 or fewer years of work experience.
- ATCP Teachers report that Conceptual Learning, Inquiry-based Learning and Multidisciplinary Learning are important skills, but they don't necessarily feel prepared to teach in ways that support this type of learning.

Summary

- Participants often have personal and societal interests for entering teaching
- Various factors influence program choice
- ATCP teachers want to learn about education
- Issues with ATCPs: what's being delivered, how, and by whom.