4-5-2012

Teach Next Year / Noyce Urban Teacher Scholarship Program

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Introduction and Overview

UMass Boston has hosted Noyce Scholars for the last four academic years (2006-2010). The program is built upon seven years of an existing program in the UMass Boston Graduate College of Education: Teach Next Year. TNY is an accelerated teacher education program designed to prepare interns for urban teaching as they obtain their initial licensure. Noyce funding supports TNY interns who are dedicated to teaching math and science in urban schools. Graduates have all gone on to teaching positions in the Boston Public Schools.

TNY/NOYCE Facts & Statistics

- 44 math and science teachers prepared over four years
- 76% retention rate over three years
- 25% teachers of color prepared over four years
- 43% male and 57% female teachers prepared
- Between 2006 and 2010, the traditional teacher preparation program at UMB graduated 40 STEM teachers. However, 30 of these, or *75%*, were already classroom STEM teachers *before* they started their Masters program. This means that the Noyce program brought 44 new recruits to STEM teaching in comparison to the 10 brought in by the traditional teacher education Masters program.

TNY/NOYCE Curriculum

Summer Session 1 (July)	Summer Session 2 (August)	Fall	Winter Session	Spring
Inclusion K-12 Edc G – 630 (First SPED course)	Content Literacy Edc G – 648	Classroom Management -EdcG-643 This course is part of the year long seminar	Pathways Moderate Disabilities Workshops: -Educational Terminology -Preparation, -Implementation, and Evaluation of Individualized Education Programs (IEPs) -Knowledge of Services Provided by Other Agencies -Modification of Curriculum, for Students With Moderate Disabilities -Federal and State Laws -Ways to Prepare and Maintain Students with Disabilities for General Classrooms	Practicum & Seminar EdcG – 688, 687 This course is part of the year long seminar
Using Data to Plan & Design Curriculum & Instruction Edc G – 660	Socio-Cultural Perspectives Edc G – 606	Developmental Stages EdcG – 644		Assessment in Teaching Edc G 663 This course is part of the year long seminar
		Content Methods Courses in math or science		Sheltered English Immersion or Teaching ELLs course
		Legacy Project or SEI/ELL course		
Total Credits = 12		**Total Credits=12**		**Total = 12 (36 total)**

Participating Schools

Over the four years of our Noyce Scholars program we were able to expand our urban school partnerships from one high school to 13 middle and high schools in two high-need, urban districts. Now, the TNY / Noyce students complete their internships at one of the follow participating urban public schools.

Dorchester Educational Complex, comprised of
- Dorchester Academy
- TechBoston Academy

Hyde Park Educational Complex, comprised of
- Community Academy of Science and Health
- Social Justice Academy

South Boston Educational Complex, comprised of
- Odyssey High School
- Excel High School

John D. O'Bryant School of Math and Science

Young Achievers Science and Math Pilot K-8 School

Randolph Community Middle School

Randolph High School

School profiles can be found at
http://www.boston.k12.ma.us/schools/profiles.asp &
http://www.randolph.k12.ma.us/pages/index

Research Project 1*

Development of a Rubric for Evaluating Science Teachers

The Problem - It is difficult to separate explanations of science from a deliberate attempt to teach science
Relevant research literature:
1. Characterization of how science is explained by science teachers
2. Types of knowledge that teachers possess

The Rubric - The rubric runs parallel to what we know about effective science teaching – that it requires three kinds of knowledge

Science content knowledge

Factual knowledge and processes <u>and</u> how well that knowledge is understood in broader contexts. Assesses accuracy and depth, including how well the scientist portrays the overall organization of knowledge.

Factual knowledge

Evidence of organization of knowledge by the guiding principles of the discipline

Ability to transfer knowledge to broader contexts

Pedagogical Knowledge

The knowledge and skill involved in explaining major concepts involved in the scientist's research. Assesses methods scientists employ to communicate their knowledge orally to an audience, with written media to support in real-time.

Structure and balance of presentation

Response to the audience

Choice of language

Technical skill of presentation and use of media

Integration of content and pedagogy in the service of a clear explanation

Assesses the ability to integrate content and pedagogy in the service of a clear, coherent, and engaging explanation of scientific research.

Development of appropriate mental images to support explanation

Tactical use of media

Scaffolded explanation

The Findings

1.Effective explanation of science is developed in layers
- When an explainer is strong in only one type of knowledge (content or pedagogy), there is a clear transition in the person's explanation

2.Only when both pedagogy and content are strong is a scientific explanation effective
- Science explanations in this category exhibit development of powerful mental images, tactical use of media to support explanation, and scaffolded development of concepts

3.Presentation skills add an extra layer that can cause a good presentation to fail or a poor presentation to appear to succeed

4.Gestures sometimes reveal deep content understanding that the explainer is unable to articulate verbally

**Hannah Sevian & Lisa Gonsalves Researchers*

Research Project 2*

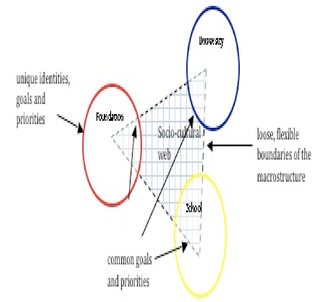
Navigating the socio-cultural web: Introducing a theoretical model for evaluating teaching residency & alternative certification programs (TRPs & ACPs)

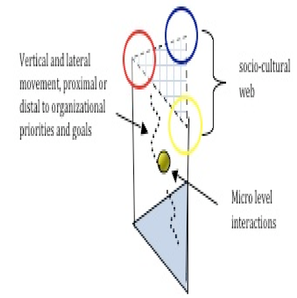
The Rationale - To ensure that we are indeed providing highly qualified teachers for urban students, we must be able to evaluate and understand how alternative certification programs operate in various settings because:
- what is expected to happen conceptually is not often what happens in between the university and the school that these partnerships depend upon.
- few TRP/ACP evaluations are grounded in an overarching theoretical framework for examining these programs in a broader context.
- TRP/ACP evaluations tend not to examine the relationship between the university and the school that these partnerships depend upon

The Problem – TNY/Noyce has evolved very differently in each new school site, for example:
- Site1: the balance of program control belongs to the teachers, who exclude administrators from decision-making around the placement of interns.
- Site 2: the balance of program control belongs to the administration, who exclude teachers from decision-making around the placement of interns.
- Site 3: the administrators are hands off and teachers are not overseeing the program; leaving the university faculty with control over assigning interns to teachers.

The Model - The above control structures take place within the organizational, relational and socio-cultural contexts of the TNY/Noyce program. Therefore, **we propose a three dimensional theoretical model that provides educators, policymakers, and researchers with a way of understanding and evaluating TRPs & ACPs within and between their macro-level socio-cultural contexts and their micro-level daily implementation.**

MACRO Level **MICRO Level**





The agency of participants within the micro level (i.e., teachers, students, interns) will be influenced by the interactions of the three organizations. Depending upon their proximity to the more powerful organizations within the exosystem, individuals will be more or less able to apply their agency in dynamic ways to meet their goals on the classroom level.

**Lisa Gonsalves & Tricia Kress Researchers*