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Walsh, M. (2011). *Multimodal literacy: Researching classroom practice.* Sydney: e:lit: Primary Teachers Association of Australia.

Wohlwend, K. (2009). Early adopters: Playing new literacies and pretending new technologies in print-centric classrooms. *Journal of Childhood Literacy, 9,* 117–140.

Appendix – Course reflection questions

Pre-course reflection questions:

(1) What are your concepts of 'design'?

(2) Do you think of the concept of design when you create a text?

(3) Do you think of the concept of design when you read a text?

(4) When you think of "design" what principles come to mind?

(5) How would you assess an assignment built around the notion of design?

(6) How could you implement a writing program with design as the central practice?

(7) How is design different from writing?

(8) In what ways would you writing program change if it is based on design?

(9) Would a design pedagogy improve your literacy program?

Post-course reflection questions:

(1) How have your conceptions of design changed?

(2) What do you regard as principles of design?

(3) Did you find that you had more choice in creating a multimodal composition?

(4) How can you build a writing program around the notion of design?

(5) How do you mediate 'writing' (with alphabetic print) and multimodal design?

(6) How would you assess with design in mind?

(7) Do you think that 'design' as a notion will increase motivation for students or not?

(8) How will your teaching of texts change with the notion of design?

(9) How would a literacy program change (i.e. structure, routines, etc.) by implementing a design pedagogy?

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Finding a third space in teacher education: creating an urban teacher residency

Emily J. Klein*, Monica Taylor, Cynthia Onore, Kathryn Strom and Linda Abrams

Department of Secondary and Special Education, Montclair State University, Montclair, USA

This paper describes an urban teacher residency program, the Newark Montclair Urban Teacher Residency, a collaborative endeavor between the Newark, New Jersey Public Schools and Montclair State University, built on a decades-long partnership. The authors see the conceptual work of developing this program as creating a "third space" in teacher education. We detail the ways in which we conceptualize epistemology and clinical practice in teacher education, and changes in the roles of the community, and P-12 teachers that occur in a third space. Providing an account of our messy and nonlinear process demonstrates the struggles of creating new spaces for teacher education. We believe the theory that informs our work, the challenges we face, and the strategies for meeting those challenges illustrate the tenuous and ever-evolving nature of doing work in the "third space."

Keywords: teacher education curriculum; community partnership and service; theories of teaching; teacher education policy; teacher thinking and knowledge

Introduction

Calls to address the "central problem that has plagued teacher education" – the disconnection between academic coursework and fieldwork – are almost as longstanding as the problem itself (Zeichner, 2010, p. 89). The issues underlying this problem range from the practical – lack of collaboration between host schools, teachers and university faculty – to the philosophical mismatches between school curricula and the central premises of teacher education. Rendering the problem more intractable still is the challenge for learners to use knowledge in action (Darling-Hammond & Bransford, 2005), often referred to as the theory–practice divide, but probably more accurately described as the difficulties of putting into practice what we learn in the classroom (any classroom) in real-life situations, colloquially "walking the talk" (Cochran-Smith, 2004; Cuenca, Schmeichel, Butler, Dinkelman, & Nichols, 2011). Confounding the problem further is the widely held belief that theory, especially pedagogical theory, has no place in actual teaching situations. It is just too abstract to be meaningful in everyday life, or so teachers who have completed university preparation programs are often heard to say.

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*Corresponding author. Email: kleine@mail.montclair.edu

As Zeichner (2010) indicates, while there is no magic bullet for fixing the problems that plague teacher education, a promising direction lies in the creation of a "hybrid" or "third space" to prepare teachers. In such a space, roles and responsibilities for faculty, teachers, and community members are redefined while the knowledge base for teaching is restructured. No longer does the university's knowledge trump that of the schools and communities nor are the customary boundaries between the roles and responsibilities of the participants in the teacher preparation process fixed. Rather, there is a "nonhierarchical interplay between academic, practitioner, and community expertise" (Zeichner, 2010, p. 89). Zeichner borrows the term "third space" from the fields of urban planning, geography, cultural studies, and most recently critical literacy (Bhabha, 1994; Gutierrez, 2008; Moles, 2008; Routledge, 1996; Soja, 1996) to refer to this hybrid space, an arena that combines the features of the two, formerly separate domains, through dialog with one another and in such a way that an entirely new territory is constructed, one which is fundamentally different from either individual domain. As Bhabha explains in his interview with Rutherford (1990, p. 211), "The process of cultural hybridity gives rise to something different, something new and unrecognizable, a new area of negotiation of meaning and representation" (p. 211). This is an *and/also* rather than an *either/or* place to share and construct knowledge, and requires that participants cross their customary role boundaries. The "third space" invites the potential to "live theory in the immediate" (Routledge, 1996, p. 401) and "deconstruct the barrier between the academy and the lives of the people it professes to represent" (p. 400). It allows all stakeholders the opportunity to be actively engaged in the transformation of a world that is not "a static reality" but "a reality in process" (Freire, 2000, p. 64).

Most importantly, a third space is neither easy nor quick, nor is it ever a completed project. It is a continual construction, a utopian prospect that is never fully achieved. Moreover, it is a fragile enterprise, thoroughly embedded in time-honored institutional regularities and customary imbalances in authority and power. Those who engage in a third space must work continually to open and build the new space in the face of the forces of conservation and the weight of institutional structures and history. This is a unique feature of the third space, one that underscores the importance of constantly reviewing and developing both guiding and operational principles. Bhabha (Rutherford, 1990) warns that a third space cannot be directed by old principles otherwise "you are not actually able to participate in them fully and productively and creatively" (p. 216). This is not unlike how Freire (2000) describes the possibility of a problem-posing education that "affirms men and women as beings in the process of *becoming* – as unfinished, uncompleted beings in and with a likewise unfinished reality" (p. 65).

The unfolding and ongoing construction of a third space in teacher education renders curriculum and practice a "utopian project" (Halpin, 2003), a "radically progressive conception of the future of education" (p. 59), an imaginative vision of what might be, that also provides the possibility of identifying in the present the very elements that are capable of transforming current circumstance, and so "provides a significant dynamic for action in the here and now" (p. 59). Vigilant attention to and awareness of current realities and future possibilities, simultaneously, is an essential component of the continual process of opening and constructing a third space.

In this paper, we describe a hybrid or "third space" program for urban teacher preparation, the Newark Montclair Urban Teacher Residency (NMUTR), created by

the Newark, New Jersey Public Schools and Montclair State University and built on a decades-long partnership. In response to critiques of both traditional and alternate teacher preparation routes, and with the aim of addressing urban teacher shortage and quality, the Urban Teaching Residency (UTR) model emerged in 2007 (Berry, Montgomery, & Snyder, 2008). Created to mirror medical residencies, in UTRs, pre-service teachers (residents) serve a one-year clinical apprenticeship under the tutelage of an experienced co-teacher in a high-needs district school (Solomon, 2009). The first teaching residencies were created to serve the communities of Boston, Denver, and Chicago (Boggess, 2010). Then, in 2009, 28 new urban teacher residency programs were created through support from five-year Teacher Quality Partnership Grants from the Office of Innovation and Improvement in the US Department of Education. The NMUTR received one of these grants. Our paper focuses on the secondary cohort, one of two strands of the NMUTR, which has been designed to prepare new secondary math and science teachers for the Newark Public Schools (NPSs).

Several essential preconditions for this joint effort were already in place. The partnership between the NPSs and Montclair State University had already supported a number of projects, including programs to recruit and prepare general education teachers and math and science teachers, and to provide professional development for university faculty and staff as well as experienced classroom teachers. University and district representatives also jointly participated in professional development to support the district's beginning teacher mentoring program. Additionally, the university's teacher education program has been recognized nationally for excellence by a number of organizations: in 2007, the George Lucas Education Foundation named Montclair State University one of the 10 leading teacher education programs in the nation; and in 2010, the Society for Professors of Education recognized Montclair State University for making "singularly significant contributions to the theory and practice of teacher education" (Montclair State University College of Education and Human Services, n.d.). Thus, Montclair State University was uniquely positioned to move both quickly and innovatively to launch the program described here.

Our purposes in describing this work are multiple. Given attempts to scale-up UTRs around the country and the newness of this design, providing an illustration of the process of opening a third space in both theory and practice – of how that work is developed and sustained in its early stages – is useful to those engaged in launching similar efforts. In this paper, we share how this shift to a third space impacts the ways in which we conceptualize epistemology and clinical practice in teacher education, and how different the roles of the community, P-12 teachers, and hybrid teacher educators are. Providing an account of our messy and nonlinear process demonstrates the struggles of creating new spaces for teacher education. We believe the theory that informed our work, the challenges we faced and strategies for meeting those challenges illustrate the tenuous and ever-evolving nature of doing work in the third space.

Although this piece is meant to be a reflective program description, it is grounded in data from a longitudinal study of the program in which all stakeholders, university faculty, school faculty, and residents are engaged. We believe, like Zeichner (2007), that, "research in teacher education should contribute to the improvement of teacher education practice and to our broader knowledge about

particular questions of significance to teacher educators and policy makers" (pp. 42–43). The questions addressed here include:

- What does it look like to create a pre-service education program in the third space?
- What might be the primary components of such a program?
- What are the challenges faced by university faculty, school administrators, mentors, and residents, in a third-space teacher education program?

While this piece is not meant to be an empirical study, in our analysis of the features and challenges of what it means, to develop science and math teachers in a third space, we drew on the data from multiple sources in an effort to triangulate our emerging understanding about third-space work. This description is grounded in the literature about pre-service teacher education and we believe our programmatic analysis can be useful and "speak directly back to the teacher education community in ways that could more directly influence policies and practice" (Zeichner, 2007, p. 42).

Our data were comprised of a number of sources including interviews, meeting notes, and resident and mentor artifacts. Residents, mentors, department chairs, and principals were interviewed throughout the program. The semi-structured interviews were tape recorded and transcribed. A doctoral assistant took notes at every class session, during daylong professional development sessions for both mentors and residents, and during instructional rounds. Artifacts of resident and mentor work were collected, including curriculum units written by the residents, weekly Blackboard critical incidents, faculty responses, two digital stories created by residents, and the residents' case studies of English-language learners and students with disabilities. All data were loaded onto a Blackboard site and coded by both faculty and doctoral assistants. Coding was done both individually and as a group, with individuals sharing their emerging meaning-making. As themes emerged, faculty researchers began to define codes formally and then to provide examples of where those codes were present in the data. Participant checks were conducted with residents and mentors throughout the process.

We believe that the best way to describe the program we developed is to look at the data collected thus far. Therefore, our claims are grounded in evidence, as we have been, and continue to collect data to inform our practice. This process is ongoing and recursive, and in this article we share a snapshot of what is, and will continue to be, a program grounded in certain beliefs, but responsive to the community from which it comes and the circumstances it encounters.

The third space in action in the NMUTR

The conceptual framework for our third-space program is a direct attempt to create a new arena in which to practice teacher preparation. To do this, we identified and analyzed three major pathways to certification – traditional, alternative, and UTR – in the domains of: epistemology, the relationships between curriculum and clinical experience, P-12 and university faculty roles, and partnerships. (See Table 1 for a thorough comparison of these models.) The comparison demonstrated the ways in which a third-space teacher education program markedly shifts each of these domains of teacher preparation. In this section, we will sketch the ways in which

Table 1.   A Comparison of teacher education pathways.

	University-based teacher education	Alternate route certification/internships	UTR	Newark Montclair UTR
Epistemology	• Students acquire knowledge in the university classroom and then practice in a clinical setting via the "Application of Theory" model (Korthagen & Kessels, 1999; Tom, 1997). • Knowledge is of an academic nature, and resides with university professors (Tom, 1997; Zeichner, 2010).	• Knowledge is learned on the job (Hess, 2002). Many internship programs require students to take courses while teaching full time as the teacher of record (Chin, Young, & Floyd 2004; Helfeldt, Capraro, Capraro, Foster, & Carter, 2009; Rushton, 2001). • Practitioner knowledge is valued; this knowledge resides in the school faculty solely (Hess, 2009).	• Teachers acquire knowledge through one-year apprenticeships and curriculum tailored to the urban community (Gatlin, 2009; Newman, 2009; Solomon, 2009). • Practitioner and community knowledge is valued (Boggess, 2010) Knowledge resides in the schools and the community, and somewhat in the university (Solomon, 2009).	• Knowledge is acquired through integrated educational theory and classroom practice, accompanied by intensive faculty and mentor support, in order for residents to develop "knowledge-in-practice, knowledge-in-practice, of-practice, and for-practice" (Cochran-Smith & Lytle, 1999). • Academic, practitioner, and community knowledge is valued equally and resides in the university, the schools, the community, and the students (residents).
Curriculum	• University-based education traditionally consists of a prescribed set of courses teaching educational theory and methods in a collegiate	• Programs differ greatly in structure, scope, and requirements (Darling-Hammond, 1990, 2006; National Center for Alter-	• Coursework integrates theory with classroom practice (Darling-Hammond, 2006; Zeichner, 2010), although coursework may not be actually	• Coursework integrates theory with classroom practice (Berry, et. al., 2008; Darling-Hammond 2003; Darling-Hammond 2006; Zeichner, 2010).

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Table 1. (*Continued*).

	University-based teacher education	Alternate route certification/internships	UTR	Newark Montclair UTR
	classroom setting, with a traditional divide between theory and methods courses (AACTE, 1969; Feiman-Nemser, 2001; Feistritzer, 1984; Goodlad, 1990; Grossman, Hammerness, & McDonald, 2009; Moss, Glenn, & Schwab, 2005; NCATE, 2010).	native Certification., 2010).	provided by a university partner (Boggess, 2010; Solomon, 2009).	• The curriculum is negotiated among mentors, university faculty, mentors, and community-based organizations.
Clinical practice	• Field experience/clinical component involves classroom practice with a collaborating or mentor teacher that is often not well coordinated with previous university coursework (Goodlad, 1990; Grossman et al. 2009; Hascher, Cocard, & Moser 2004; Hammerness, 2006; Zeichner, 2010).	• Minimal Pre-service training: teacher candidates complete abbreviated coursework and field experience, or none at all, prior to entering the classroom (Baines, 2010; Darling-Hammond, 1990; Darling-Hammond, 2006; Podgursky, 2004).	• Yearlong, clinical apprenticeship is supported by a mentor teacher (Berry, et. al. 2008; Boggess, 2010; Newton, Beardsley, & Shakespear, 2003).	• Relevant coursework is integrated with extensive, guided practical experience in urban classrooms to enable residents to teach in flexible, learner-centered ways that support student learning (Baumgartner et al., 2002; Darling-Hammond, 2006) and that result in higher retention rates (Berry, et. al., 2008; Darling-Hammond, 2006; Henke, Chen, & Geis, 2000).

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Table 1. (*Continued*).

	University-based teacher education	Alternate route certification/internships	UTR	Newark Montclair UTR
P-12 teacher roles	• During student teaching, P-12 classroom teachers serve as cooperating classroom teachers, whose abilities to provide student teachers meaningful opportunities to learn vary, due to lack of support and/or training (Bullough & Draper, 2004; Feiman-Nemser, 1996; Valencia, Martin, Place, & Grossman, 2009). • The impact of cooperating teacher is often limited due to disconnects between the university and the school site (Borko & Mayfield, 1995; Jahreie & Ottensen, 2010; Zeichner, 1996) similarly,	• Mentors are assigned by the school district to provide classroom support to alternately certified teachers, making regular visits to classrooms; however, actual consistency of mentoring can vary by program (Darling-Hammond, 1990; Smith, 1991; Zumwalt, 1996).	• Residents serve a one-year, clinical internship under the supervision of an experienced mentor teacher, co-teaching in the same classroom as an apprentice (Boggess, 2010; Newton et al., 2003; Solomon, 2009).	• Mentor teacher is regarded as teacher educator, and professional development for mentor teachers is provided through reflection, action research, the mentoring process (Huling & Resta, 2001; Moir & Gless, 2001) in order to develop future teacher leaders (Lieberman & Miller, 2004; Onore, Goeke, Taylor, & Klein, 2009). • Mentor teachers take part in co teaching, co-investigation through action research, and co-learning, through joint participation with residents in workshops.
University Faculty Roles	• The impact of the university faculty member (visiting faculty, often adjunct faculty) may be minimal due to limited	• Programs vary; a university faculty member may be assigned through the program (Grossman & Loeb, 2008), or a mentor	• University faculty may serve as course instructors, but supervisors are mainly district- or pro-	• University faculty serve as mentors and facilitate academic and field experiences.

(*Continued*)

Table 1. (*Continued*).

	University-based teacher education	Alternate route certification/internships	UTR	Newark Montclair UTR
	interaction with student teacher (Bullough & Draper, 2004; Zeichner, 2010).	may be assigned through the school district (Walsh & Jacobs, 2007).	gram-appointed personnel (Boggess, 2010).	• Collaborative partnerships between MSU, NPS, and other Newark community organizations help to support teacher learning over a lifespan and the transformation of schools (Darling-Hammond, 2006; Feiman-Nemser, 2001). • NMUTR is tailored to the needs and objectives of NPSs.
Partnerships	• Although many universities have formed partnerships with school districts, the university retains the position of power and authority (Goodlad, 1990; Gorodetsky & Barak, 2008).		• UTRs consist of partnerships between school districts, universities, and/or community organizations (Solomon, 2009). • Residencies in individual cities are formulated to meet the needs of those cities' urban districts (Boggess, 2010, Newman, 2009).	

the NMUTR has attempted to reconceptualize these with the goal of creating a third space in which to practice.

Epistemology

In contrast to traditional, alternative, and UTR programs, the intention of the NMUTR is to integrate academic, practitioner, community, and student knowledge, and not to privilege one over the others. Simultaneously, we wanted to reconfigure them in a nonhierarchical fashion, thus distributing the power of knowledge-making across constituencies. In order to do so, we had to facilitate generative conversations among all stakeholders (university faculty, mentor teachers, community organization representatives, and residents) to develop roles and responsibilities, common goals/objectives, instructional strategies, assignments, and assessment tools (Table 2).

We hoped that asking stakeholders to share their knowledge, experiences, and expertise would lead to the co-construction of a blueprint for the program, and while we were not exactly sure what our final product would be, we believed engaging in such a process to be essential. In reflecting on this process, one district administrator shared:

> I think the leadership comes from a lot of different areas. You know, there are a lot of components to it, like we have our operations meetings ... where the group gets together to talk about the program and what's next and what are we going to do in the future to make it grow.

As soon as the grant was awarded, NMUTR teams of university professors, school-based faculty, and district administrators participated fully and equally in selecting the residents and the mentors for the program. These teams chose schools through a multistep process that involved meeting interested principals and department administrators (who formally applied by a letter of interest), observing math and science classrooms, and interviewing prospective mentors. Mentors applied by submitting a letter of interest to their principal, requesting to be recommended. Next they were observed and interviewed by the NMUTR teams, and were asked to present artifacts about their teaching that demonstrated their preparedness to be teacher educators. The selected mentors joined the NMUTR teams and together all were trained in the protocols of the resident selection process. There were three evaluative stages to this rigorous process including: examining Graduate School Record scores, application letters, essays, and letters of recommendations; a full day of interviews, including the Haberman protocol which was designed to screen for successful urban teachers (Haberman, 1995) and a group problem-solving activity; and a full day in a host school where potential residents visited classrooms, were interviewed by mentors and high-school students, and participated in fishbowl discussions. No more than eight residents are chosen per year. The school selection and resident admission processes illustrate the ways in which the participation of all members of the NMUTR community facilitate boundary crossing between our customary roles and responsibilities.

Additionally, the epistemology of the program is constructed through a third-space lens. In contrast to other pathways to certification, we wanted to provide a space for the residents to explore, apply, and critique their prior knowledge and

Table 2. UTR course descriptions and assignments.

Course	Credits	Key concepts	Activities/assignments
Inquiry Into knowledge, learning, and education (Summer)	9 credits	1. Knowledge is an active social construction 2. Learning is a process of making-meaning of new phenomena to what we know 3. We participate in educative environments outside of school, which exert a strong influence on our learning in school 4. Urban youth need to be understood outside of school among their families and within their own communities	1. Writing and examining a personal learning story and cultural identity 2. Exploring learning theories 3. Engaging as inquiring learners in math and science at a Newark museum PD workshop 4. Designing and teaching science and math inquiry based lessons at the Newark Museum Summer Camp 5. Managing Newark adolescents who are corporate interns 6. Constructing a case study of a Newark adolescent
Inquiry Into Knowledge, Learning, and Schooling (Fall)	11 credits	1. To meet the needs of all students, a holistic portrait of the student using a variety of student data needs to be constructed 2. Students' learning histories impact their academic success 3. Essential questions and understandings drive deep math and science instruction 4. Math and science students do their best learning through inquiry-based instruction 5. Students need opportunities to construct conceptual understandings for themselves. 6. Teachers are reflective practitioner and natural researchers	1. Develop preliminary case studies of a student with a disability and an English-language learner 2. Design a mini-curricular unit using the backward design framework 3. Initiate a collaborative action research project 4. Teach individual lessons 5. Practice co-teaching models with mentor
Inquiry Into teaching and schooling (Spring)	11 credits	1. To create an inclusive community of learners, democratic relationships in the classroom must be fostered 2. School culture impacts student learning and instructional choices 3. Formative and summative assessments help to address the needs of students and evaluate their learning 4. Technology has the potential to enhance learning 5. Being a teacher involves being a change agent	1. Assume lead teaching responsibilities 2. Plan innovative math and science instruction using technology, gather data on instructional choices, and monitor learning through formative and summative assessments 3. Design modification strategies to address the needs of a student with a disability and an English-language learner 4. Continue to engage in collaborative action research 5. Engage in professional relationships with all members of the school community
Reflections on knowledge, learning, and teaching (Summer pre-session)	3 credits	1. Teachers are reflective practitioners and agents of change 2. Understanding educational policy structures locally and nationally impacts professional identity as a teacher 3. Teachers are lifelong learners who are continuously engaged in professional development	1. Prepare and present an electronic portfolio documenting learning and achievement 2. Artifacts for the portfolio will include sample lesson plans, student work, a teaching philosophy statement, case studies of students, reflections about teaching and learning

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Table 2. (*Continued*).

beliefs about teaching, learning, and knowledge in their disciplines. We each have extensive experience with negotiating the curriculum, and so believe that in order to share power and authority it is essential to purposefully and explicitly negotiate with all of the stakeholders about every aspect of program policy and practice. But we went beyond that. Concerned that in traditional and alternate teacher preparation programs, university or district faculty create the content and structures of the course of study, thus cutting learners off from generating knowledge for themselves, in the third space, the residents participate fully in defining what they know, need to learn, and how to engage in learning. It was clear to us that while the authority of different sources of knowledge can be rendered more equal in a UTR, this does not necessarily result in a shift in voice and authority for novice teachers. We are committed to bringing residents' prior knowledge and experience, and current contexts and needs to bear in their knowledge construction and meaning-making. We explored the roles of the residents in the redefined hierarchy. We asked, in what ways do the boundary shifts that mentors and faculty experience affect the nature and status of residents' knowledge and experience? To address this question, echoing Freire (2000) and his model of problem posing education, we were determined to find ways to reposition traditionally passive receivers of knowledge as active knowledge constructors, problem posers, and problem investigators. The perspectives of soon-to-be teachers needed to be fully integrated. We hoped that "through dialogue, the teacher-of-the-students and the students-of-the-teacher cease to exist and a new term emerges: teacher-student with students-teachers" (p. 61). Complicating this further, the third-space NMUTR also included the knowledge making of school-based mentors and the local community. Hence, this created a dialog among four central knowledge makers – the university faculty, the school-based mentors, the residents, and the local community.

Opening up spaces where residents negotiated the curriculum increased their agency in their professional responsibilities as well as made them aware of the importance of the inclusion of student voices in their classrooms (Boomer, Lester, Onore, & Cook, 1992). One biology resident reflected:

> I find myself more negotiating, and even as a first year teacher saying, I'm not doing that to my kids. I'm gonna do what's going to make sense for them and what's best for them. I think even the way the UTR is designed, we negotiate our, we negotiate what we learn ... so in a way I have had practice doing that, it's not like I'm afraid of or I find it hard to negotiate, learning objectives [with my department chair].

A resident who now teaches chemistry found that his own learning experiences shaped his efforts to prioritize student voice in his own practice:

> ... getting the student voices in there – I'm constantly trying to be aware of how students are feeling in the class, what their interests are, and trying to follow the model from last year ... it was very open, [faculty] always wanted our feedback, and I guess, the interactions between each other were very based off of everyone having an equal say or close to an equal say. So, I try to do that with my students.

Curriculum and clinical practice in the third space

The relationships between the curriculum and clinical experiences in each of the models of teacher preparation we analyzed reflect their prevailing epistemologies. We believe that this is necessary and appropriate, and therefore have tried to create

coherence in the NMUTR between our epistemological framework and our curricular practices. Overall, our goal is to yoke together theory and practice by making the practical theoretical and the theoretical practical. In contrast to all the other models, the NMUTR strives to provide coursework that is tightly integrated with, and emergent from, resident classroom practice, with a focus on constructivist teaching practices (Baumgartner, Koerner, & Rust, 2002; Darling-Hammond, 2006). Curriculum for all coursework is constructed, negotiated, and continually modified with students, faculty, classroom-based practitioners, and community representatives. It is based on input, reflection, and observation by all of the stakeholders.

In these ways, we hoped to connect practitioner and academic knowledge, and to bring to bear what novice teachers already know, what they want and need to learn, and the course of study they are provided. To do so requires more than changing the sources of knowledge to the school, classroom, and the community from the university, or changing the roles and responsibilities of professors and mentors. It requires placing the novice teachers' understandings, questions, and intentions at the center, making it the very source of the curriculum. Thus, the curriculum is emergent. It grows from the experiences of the novices in the classroom; it is connected to the novices' prior knowledge, and it activates their desire to learn by giving them opportunities to generate what they wish to know about teaching and learning, and how they can go about learning with the support of mentors and professors. It provides a space for them to name and interrogate their own experiences and understandings. This is inquiry in action and curriculum as living process. It is the sort of problem-posing pedagogy that involves listening, dialog, and action, when, Freire (2000, p. 62) writes, "the students – no longer docile listeners – are now critical co-investigators in dialogue with the teacher."

Our roles, then, reside in mediating the experiences of the residents, and in giving them reason (Duckworth, 1998). This requires generating the topics, issues, and process of teaching and learning out of the experiences the residents are having in the school and the classroom. We help them to connect their experiences to theories and principles of teaching and learning, and turn those experiences into their own inquiries. Above all, those inquiries become the basis for the scope and sequence of the curriculum. Thus, the very origin of the curriculum is the lived experience of the resident in the classroom, mediated by the knowledge of the mentors and faculty. That is not to say that the curriculum is entirely open, nor that it is value free. There were nonnegotiables in the curriculum, determined solely by the university faculty: for example, residents were required to write and enact curricular units, engage in weekly critical incident reflections online, develop case studies of English-language learners and students with disabilities, and engage in action research. But, as Zeichner (2010) has pointed out, "expanded learning opportunities that are created through the interplay of different sources of knowledge will not be realized" unless we fundamentally alter the epistemology of teacher education (p. 96). That epistemology finds it expression in daily language and practices.

Like so much else in the third space, putting our beliefs and intentions into practice was often less straightforward than we wished. For example, we modeled inquiry in our classes and reflected on the experiences with the residents. We constructed definitions of inquiry inductively. We read Dewey (1902/1971) on inquiry and the residents posed questions about inquiry. We provided unit and lesson plan templates that supported inquiry-based teaching and learning, and gave the residents feedback on what they created. Our observations of their teaching centered on

inquiry-based practices and we observed high-school math and science classrooms where inquiry was practiced and debriefed the lessons together. Yet, throughout the fall and early spring, we noticed that our residents struggled to shift their teaching paradigm from a traditional transmission model to an inquiry-based framework. We had hoped that the move from university classrooms to a school-based setting in conjunction with negotiating the curriculum with our residents based on their needs would help us in the daunting task of transferring knowledge gained in academic settings back into classrooms (Darling-Hammond & Bransford, 2005). As the year progressed, however, we often found that bridging theory and practice in this setting was not much more effective than if we were teaching on the university campus. At the beginning of the second semester, our chemistry resident shared his frustrations regarding implementing higher-level learning:

> I find it extremely difficult to tie the activity into the understanding. Making that bridge between the two is a tremendous task. Even now I still am having a very difficult time making lessons on bonding which have activities that can stimulate critical thought which will lead into a theory of bonding. This is an extremely complex theory that did not come up over night. I have been reading lots of information on different activities and how students can even learn about chemical bonding, but getting these concepts across without direct transmission of information has been a very big struggle.

In some respect our problem was that of building pedagogical content knowledge, that special "amalgam" of how to bring together pedagogical knowledge of how to teach with particular classroom content (Shulman, 1987). This was another kind of epistemological problem. Our own content area backgrounds were not in math and science, although we are well practiced at teaching inquiry both at the secondary and post secondary levels. Our content area partners, while very knowledgeable in the requisite subject area, were less practiced in using inquiry in the classroom. Thus, in many ways we were recreating the very divide we wanted to heal, and falling into the same "apprenticeship of observation" as our students; the roles we know so well as university faculty have sometimes limited our understanding of what the opportunities of being on-site allowed (Lortie, 1975). Much like Taylor and Otinsky (2007), we hoped to find "ways to disrupt the pre-service teachers' traditional notions of teaching, learning and curriculum" (p. 69). This took us on a new path, one we had neither anticipated nor planned for, but emerged as a response to the real and pressing need of the residents to see inquiry in action with their students. We decided to move into their classrooms, to work directly with their students and to co-teach a cycle of inquiry in a chemistry class. Alongside the residents and one of the mentors, the university faculty co-constructed an inquiry cycle for five weeks that invited the high-school students to pose questions about the role of chemistry in their daily lives, investigate answers, and share their learning with one another. We hoped that the residents would "begin to rethink the ways in which they approach curriculum. As they moved to value the learners in the teaching equation, they realize that curriculum is not fixed but rather evolves with the students" (Taylor & Otinsky, 2007, p. 76). We attempted to make transparent the process of planning and enacting the kinds of teaching and learning we value, which serves as the epistemology of the program. It was also an important turning point for the residents; one in particular continued to use the students' inquiry projects as the basis for his chemistry curriculum for the rest of the semester. His experience of

"doing" inquiry alongside the faculty and mentors scaffolded the process for him in a way that finally seemed relevant to his work. After months of insisting that students could not "do inquiry" in chemistry because it was "too theoretical a subject," he was able to experience the subject of chemistry in a different way and he began to feel less frustrated in his own attempts. After one particular breakthrough where he noticed the link between student-generated questions and meaning-making, he reflected:

> [The students] started talking about the colors of the different atoms, the proportions of atoms to each other based on their name, what the names meant, and several other things. Indulging in their questions made the class a lot more interesting, and by the time they were done with all their questions, they had solved most of the content mysteries before I even started to cover it myself. I got a lot out of that particular lesson. I feel like I was able to see first hand how the transitions of the lesson were dependent on the students' questions and inquiries.

Through this process, he began to understand inquiry not as an occasional project but as a fundamental orientation to learning and teaching in chemistry.

Besides the emergent resident curriculum, we had to rethink the ways in which we approached clinical practice. This involved creating new processes for writing and reviewing lesson plans, conducting informal and formal observations, and ultimately evaluating the residents. We worked on developing a lesson plan format that would scaffold the kinds of thinking that the mentors and faculty valued for instruction (see Appendix A). With a common language, we were better able to analyze and discuss lesson plans. Periodically, we conducted in-depth lesson plan analysis, examining lessons for their overarching structures and how and whether they supported students' inquiry. These involved a modified version of the tuning protocol (McDonald, Mohr, Dichter, & McDonald, 2007) where we would ask residents to present the lesson plan, mirror what we heard in the presentation, share warm and cool feedback, and then have the resident respond. These sessions proved invaluable as they gave the group a chance to deeply unpack a lesson and reflect on the essential components. Using a tuning protocol consistently enabled mentors, residents, and faculty to engage as equally authoritative voices in the third space. We want to emphasize that, like so much else in our curriculum, these activities and structures emerged from our moment-by-moment reflections on what the residents needed to know and be able to do.

The third space also requires adjusting how we approach informal and formal observations. Valuing the knowledge that the mentor, faculty, and resident bring to the classroom, the pre- and post-discussions of informal observations must be collaborative, an epistemological shift where power and authority over knowledge of teaching is shared between all three stakeholders. In order to focus on the lesson objectively and minimize a subjective stance, we borrowed protocols from the New Teacher Center (NTC) and trained in using them together. These protocols encourage scripting the lesson, that is; describing without evaluating, and employ a collaborative assessment log where mentor and resident plan their work together by selecting what they will focus on and how the resident can learn about these foci (The New Teacher Center, n.d.). These tools helped the mentor, faculty, and resident to have discussions about the lesson where the focus of attention was determined by the mentor and resident together. Additionally, for formal observations, we adapted the "Reformed Teaching Observation Protocol" (RTOP)

(Pilburn et al., 2000) – a tool developed at Arizona State University in support of constructivist math and science teaching and informed by the standards in those fields. We also used the NPS teacher observation and assessment protocol, and the NPS mentor observation protocol that is used with new teachers. Both mentors and faculty used the RTOP, which encourages a clear, inquiry-based pedagogy. The RTOPs were completed in dialog with the residents, including their perspective on the lessons.

The role of the P-12 teacher in the third-space curriculum

We have tried to honor the principles of the third space by opening up possibilities for the P-12 teacher to become an authentic mentor, co-teacher and teacher educator. The customary role of a cooperating teacher is to have sole responsibility for the novice teacher's experiences in her classroom. In this context, practitioner knowledge is distinct from and valued differently in the classroom and at the university. The cooperating teacher invites a student teacher into her classroom and then gradually gives over her planning and teaching responsibilities. In essence, there is one teacher at all times: the student teacher begins by observing the teacher of record; she takes over classes and then gives them back to the cooperating teacher at the end of the university semester.

A mentor's role in the third space is quite different both in her own classroom and in the larger teacher education program. She is co-constructing the pre-service teacher education curriculum, co-teaching, and co-planning with the resident, and learning alongside the resident through joint participation in workshops, collaborative action research, and instructional rounds. One concrete action we took was to meet as a whole group to discuss and role-play co-teaching models (Friend & Cook, 1996) before the school year began. We envisioned that the residents would take the lead *for* rather than *take over* the classes gradually during the course of the school year and recognized that we needed to put structures in place to enable this. Initially, mentor–resident relationships resembled the more familiar model. As one of the mentors commented:

> Because right now I feel like a host, like, she's here, she has a desk, she's very helpful, but I don't feel like I am being a true mentor yet, which is okay because it's the early stages and I understand that.

As we continued to transform the relationship between mentor and mentee, we moved to an apprenticeship model, another kind of epistemological shift. When the novice teacher worked alongside the mentor, rather than in tandem, it allowed her access to the moment-by-moment thinking and decision-making of the experienced teacher. Attention to even basic teaching tasks become opportunities for connecting theory, in this case about reflection, and practice, and makes it possible for the residents to bring their ideas and voices into play, even before they are actively leading the teaching of the students.

Such changes are as much a matter of institutional structure as they are of philosophical and practical orientation. Our hope that the mentors would be involved in all components of the program rested on finding ways to free up their time so they could commit to doing the work this requires. With this in mind, prior to the beginning of the program, we approached the principal to explore what he

could do, structurally, to make it possible for the mentors and residents to work together during the school day and for the mentors to meet with the faculty for planning and reflection. We urged the principal to schedule common prep time each day when we could meet either as a whole group or with the mentors alone. He complied willingly and also gave the mentors reduced class loads so that they would have some extra time to work with the residents. These were very important institutional structures that helped to shape the new roles and understandings of the mentors.

Creating a hybrid space with new relationships between faculty and mentors also required both philosophical commitments and as well as practical actions. In order to facilitate role shifts for the mentors and faculty, we had to build trusting relationships that invited honest and open communication. We had to position ourselves in ways that were at times unfamiliar and uncomfortable (the privileging of academic knowledge can be difficult to dismantle), and this required vigilance to and deliberate changes in our language and actions. As we became increasingly aware of the ways in which we were blocking our own abilities to make change, our community developed and we began to make progress. This shift was enabled by having regularly scheduled meetings with the mentors with an open agenda. Initially, we approached the mentors with our own ideas about their roles, but as we talked with them openly about our vision for the program, we began to realize that all roles needed to be co-constructed. So for example, we struggled to find the right balance between supporting the mentors and valuing their expertise while, at the same time supporting their growing development as teacher educators. We were reluctant to impose a formal timeline for shifting from observation to co-teaching because we were trying to respond to the residents' questions and needs in the order in which they emerged. This caused some frustration for the mentors. One mentor reflected:

> The only thing I would like, and I'd been stressing this from the beginning, with the lack of structure I feel like I am not helping the resident as much, because I just don't know what I should be focusing on, because I think that's ... I don't know how much I should be asking her to teach ... I don't think she knows. So I wish there was a little more structure.

Further, because we respected their knowledge of teaching and were committed to a nonhierarchical third space, we were slow in dictating their development as mentors. Comments such as "I don't really know how to provide that feedback without some type of focus, and that's what I wish there was a little bit more of" alerted us to our misstep in gauging their needs. On top of this, we worried about piling on too many responsibilities and requiring too much of their time for participation in activities and meetings. However, being overly concerned with burdening them on top of their many commitments after school, we found ourselves missing opportunities for us all to participate in more transparent, collaborative, and reflective conversations that are necessary in all of our new roles as mentor teacher educators and faculty. There is a deep dilemma embedded here – how do we have an emergent curriculum with the residents and, at the same time, respond to the mentors' needs to know which topics to stress when so that they can provide the best support for their mentees? What stands out in terms of third-space work, however, is that the mentors are asking for this guidance, seeking to co-teach with the university faculty

in essence, and standing with rather than in opposition to the work of university faculty, a very different position that the traditional ones of either opposition to or ignorance of the teaching and learning that is occurring in the "university space."

Despite the dilemmas and obstacles to acting as teacher educators in the third space, one mentor, speaking for the group at a reflection session at the end of the first year, surprised us with her proclamations about her new role:

> ... my overall perspective on teaching has now broadened to value the greater good of the school learning community. As a teacher I now feel that my responsibility is not just to my students but the whole school community so as to improve all aspects of the school.

Based on our critique of the first year, as we moved forward into the second year of the residency, we organized a more formal framework for the mentors, one we hope, honored their knowledge and expertise while creating new opportunities for professional growth and development. Simultaneously, it honored the curriculum that is negotiated with the residents. In the fall semester, as part of a weekly mentor study group, the mentors engaged in their own self-study and action research, and participated in instructional rounds (City, Elmore, Fiarman, & Teitel, 2009). Both of these projects enact the co-learning role of the mentors and, simultaneously, maintained the third-space epistemology. Because it is nonhierarchical and requires mentors and faculty to assume roles as co-teacher educators and co-learners, we believe a third-space orientation requires a collaborative self-study methodology (Berry, 2004; LaBoskey, 2004; Lighthall, 2004) to develop these new hybrid identities. We agree with Bullock (2009) when he writes that "the construction of a pedagogy of teacher education that goes beyond transmitting best classroom practices to teacher candidates requires a sustained, systematic, and careful inquiry into one's own practice through self-study" (p. 292). Simultaneously, we believe that reflective self-study is not enough to make changes in the roles we have traditionally all played in teacher education, and we believe that action is central to change. Cochran-Smith and Lytle (1992) defined action research as "systematic, intentional inquiry by teachers" (p. 5) and usually involves a cycle of observation, reflection, action, evaluation, modification, and then observation again (McNiff & Whitehead, 2006). Engaging in action research positions the mentors as active knowledge creators and full subjects in their own learning.

However, in the context of the NMUTR, action research takes on further significance as it sanctions members of all constituencies both to take on the work of action research and self-study, and to provide support and critique of one another. In contrast to traditional roles and relationships where university faculty instruct others in how to conduct action research and support their work, or where school and university faculty study a problem of practice together, in the case of the NMUTR, there is reciprocity in roles and rights. University faculty examine their own work in the program and school-based faculty, and mentors provide input and feedback, and vice versa. This process of examining their practices transparently and opening themselves to critique and change with the co-participation of the mentors allows for a true shift in power and authority over knowledge about how to grow and develop teachers. As well, we believe that as a significant partner in the third space, the residents must also play a role in this process. In the spring semester, mentor teachers have taken the lead in helping residents design their own

action research projects. We recognize that if the mentors and we work together, there is still a danger that university faculty voices are louder and more powerful. But if we work on separate (though overlapping) investigations, and we open ourselves up purposefully to critique and input, if we consciously say, "Tell us what you see. What are we missing? How could we do this better? How are we preventing you from having an equal voice?" our hope is that we will respect different individual goals while also informing our joint venture in teacher education.

A final important tool in our work together is that of instructional rounds. While during the first year of the program we engaged in instructional rounds with the residents, in year two we began using the process with the mentors as a strategy for helping the mentors be more transparent about their work, a challenge they identified in year one. Adapted from the medical rounds model, instructional rounds is "an explicit practice that is designed to bring discussions of instruction directly into the process of school improvement" through the use of "a set of protocols and processes for observing, analyzing, discussing and understanding instruction that can be used to improve student learning" (City et al., 2009, p. 3). In the spring, the mentors will advise the residents' action research projects and instructional rounds, providing them with an opportunity to reverse their role to that of teacher educator, teaching some of the tools and strategies they themselves have just developed.

Partnerships

A third-space model, such as the NMUTR, structures the university, the district, and the community as full partners and strives to create equal status. The partnership is intended to serve the mission and needs of all the partners equitably and to give equal voice to each in every aspect of the program, from admissions and curriculum, through hiring and induction. At Montclair State University, our teacher education program has had a long tradition of partnering with schools to provide pre-service teachers with frequent opportunities for teaching experiences in classrooms and support for experienced teachers in their professional development. Additionally, we have longstanding relationships with several community-based organizations with whom our urban teaching candidates have interned. Valuing the academic, practitioner, and community expertise, we built a summer internship in collaboration with community organizations committed to urban youth. Over a six-week period, residents work with the Newark Museum at Camp Junior Museum, the Newark All Stars Project, a youth development organization, which provides private-sector internships for urban young people in the summers, and most recently the Newark Leadership program for adolescents at La Casa de Don Pedro, a Latino community organization.

Some of their internships experiences include teaching science and math inquiry lessons to Newark youth at the Museum summer camp, acting as "relationship managers" with the Newark All Stars interns, and mentoring adolescents about future career and college goals at La Casa de Don Pedro. In each case, internships have been collaboratively designed with our community partners so that the needs of both the youth of Newark and the residents are served. From these experiences, residents construct a case study of one Newark youth with whom they work, blending learner, academic, practitioner, and community knowledge. These diverse, outside of school experiences help residents to develop a vision of the hopes, dreams and creativity of Newark youth, often less visible in school. They have the potential to

ground the pre-service teachers' future relationships and instructional choices. In addition, it is also our hope that through their interactions with community youth development organizations we can help them to "play crucial roles in the work of forming persons and forming citizens for democratic nations" (Yinger, 2005, p. 289) and thereby to develop deep knowledge and a sense of unity with urban communities. In these ways, we intend to expand their notions of what it means to be an urban educator. We believe that working with community organizations will plant the seed for their development as "public professionals" (Onore & Gildin, 2010) who understand their work as "educational professionals who are citizens with special purposes – to work with those outside of school to achieve common goals" (p. 42). Recognizing that the residents might have been too classroom and school focused, the mentors recently have requested that the NMUTR do more to develop residents as public professionals. As a result, we are all currently developing a project that will ask the residents to contribute to the school or community outside of their formal teaching roles. Community knowledge, as Zeichner (2010) explains, is an essential source of understanding for teachers and one that can also best be developed in a third space.

Challenges and supports for third-space teacher education

In this section, we describe the universal challenges facing third-space UTRs and then describe seven specific challenges we have faced. The lack of nimbleness in making change in universities has stymied efforts to create hybrid spaces that transform teacher education. UTRs may generate opportunities to develop new structures and policies, which can support real change. The third space is one that takes the best of school–university–community partnerships and organizes them in new ways that can honor all of the strengths and needs of the stakeholders and in the process transforms them. There is little in the literature about UTRs that describes the challenges faced in designing a field-based teacher education program in coordination with district and community organizations; the literature on UTRs thus far emphasizes program design and the successes achieved. This newest phase of UTR designs draws on institutions of higher education (IHEs) in significantly different ways and in "scaling up" to new contexts, and these come with a host of new challenges. McDonald, Klein, and Riordan (2009) describe the kinds of resources necessary for scaling up school reform: human, financial, and intellectual. Below we highlight the resource challenges we have faced and continue to face in our university-linked UTR and how we have managed them thus far. They are challenges only to be *managed* rather than solved, as we see them as challenges that will recur throughout our work in the project. This sort of management is, in essence, a commitment to maintaining the nonhierarchical nature of knowledge in the third space, and to a process of continually building a new epistemology. This process is, in essence, one of the core challenges of a UTR.

Challenge 1: institutional regularities

From the outset, we knew we would face institutional regularities such as course credit weights, grading, semester timing, faculty load, and other aspects of the usual rhythm and flow of a university. These may seem benign but if strictly and unthinkingly imposed can alter the vision and meaning of the program. Managing

these kinds of regularities figured prominently in how we designed the curriculum and the program.

While the university traditionally offers course credits for individual courses, we designed a program that wove coursework into the experiences of the residents. In doing so, we opted for a single block of coursework time every week where we integrated concepts and field experiences, rather than having the residents take separate courses and make connections across them for themselves. This chunking of course time (as opposed to individual courses) gave us the time and flexibility to have a generative/inquiry-based curriculum where the objectives emerge from their prior knowledge and assumptions as well as their experiences in the classroom. We also had monthly full-day professional development sessions geared towards particular curricular nonnegotiables (such as action research). Yet our university requires "courses" with titles and credits attached. In addition, those courses need to be "graded," although we believe the appropriate system would be Pass/Fail (which within the university system becomes either an "A" or an "F"). Either the residents meet the standards and goals that we have created together or they must revise their work and continue to struggle with their practices until they meet those standards. Finally, our semesters no longer concluded when the university semester ended, as we believe it is essential to our relationship with the district to follow their calendar. After the new year, for example, the public schools resume immediately, while the university semester begins in mid-January, right as our residents and mentors were beginning mid-terms. We have had to adjust our work to move with the ebb and flow of their semester (i.e. state and district mandated standardized testing, school holidays, etc.), which means program work continues and we are working when the university is not, technically, in session.

Rather than try to bend either the university or the school district to the needs of the NMUTR, we have opted to engage in a compromise that allows us to hold to our partnership principles. Instead of enrolling in individual courses, residents take 11 credit blocks each semester and an additional three credit course that carries us from May, when the university ends, to the end of June when the schools end. Over their first summer, residents enroll in an additional nine credits. This allows us to think about their course work as a complete entity rather than segmented blocks of time. Assessment has been negotiated with the residents and mentors as we find ways to ensure that all students are either passing with an "A" or that they are given more time to redo work or continue to refine practices which do not meet the "A" standard.

Assessment also takes place in "negotiated space," rather than along with university structures and timelines, with residents making sense of their work within the context of the NMUTR, but in ways that allow us to have some sense of the cycle of semesters with the closure of some things and the beginning of others. Residents negotiate their own goals with us and their mentors in alignment with the standards of the program. For example, in the fall semester, residents identified the following goals: "Build Relationships within School, Student, and Newark Community, Incorporate Inquiry Based Lessons, Incorporate Technology, Develop Effective Methods of Assessment, and Differentiate Instruction." We added "Professionalism" as a goal because we and their mentors believed it was not covered by what the residents articulated and it had become apparent that we needed to focus the residents' attention more explicitly on their behaviors as professional educators. We then collectively brainstormed definitions of these goals and an action plan for meeting

them. Towards the end of the semester, residents wrote self-reflections focused on the goals, evaluating their progress, and providing evidence from their work. They then met individually with all of the professors and mentors to debrief their reflection, receive feedback, and talk about challenges they faced. Part of the data that informed that meeting included written mentor reflections based on the residents' goals as well as of university faculty. Finally, we debriefed the assessment process as a group and began to develop new goals for the spring semester. Skilled practitioners in every field have a deep capacity to self-monitor and self-evaluate. Our goal was to develop this capacity in the residents and also to mirror the ideology of the program: constructivist teachers need to be constructivist learners.

Challenge 2: reliance on the support of individuals

Challenge number two pertains to the reliance on support of individuals. Our ability to create space within university constraints has largely been due to the particular people serving in roles that provide ·structural support. The backing we have received from specific individuals, particularly the dean and associate dean of the College of Education, has been instrumental in helping us navigate many of the challenges we face. The institutional culture, history, and programs in the College of Education are, in many ways, quite compatible with the work in the NMUTR, as we have previously discussed. However, the unambiguous support and active backing of the dean and her encouragement to take risks, even if that meant bumping up against institutional policies and practices, has been essential. But it has also meant that we have been dependent on one individual's commitment to the project. This has been true of both school and district support as well where individual relationships are paramount. The reliance on individuals for support of a new program leaves it in a precarious position as a single change in leadership could seriously threaten its status and success.

Finally, financial resources have come through the grant, allowing us politically endorsed freedom to experiment and the ability to pay for much of what we want (mentors, time for mentors to participate in professional development, etc.). However, reliance on the grant has also meant that the major source of financial support in building the program is a temporary one – leaving an issue of sustainability, which we describe next.

Challenge 3: sustainability

Challenge three addresses issues of sustainability. Berry et al. (2008), in discussing UTRs, raise the issue of how the costs for preparing teachers impacts university-based residency programs. Despite evidence that residencies cost approximately the same as traditional programs to educate a teacher, "The differences of 'when, for what, and who pays,' however, do have implications for IHE-based teacher education programs. Residencies allocate resources earlier and later in the teacher development process than IHEs traditionally do" (p. 16). Despite support for the residency from the grant, the district, and the university, there are significant financial challenges to our work that lie in the near future and the years to come, not the least of which is the generous living stipend for the residents, funded by the grant and the school district.

Currently, the district and state are undergoing upheavals both financial and political (including the sudden retirement of the superintendent midway through the first year of the program) that may have implications for our program. There are rumors of a potential take-over of district administration by the mayor or return to control of the district to the community, either of which could lead to substantial changes in leadership. As well, while the district originally agreed to fund and develop the induction mentoring program, funds to do so may be limited, and currently there is little movement in creating that program.

Additionally, the university has provided resources to help faculty have more time in their schedules to do the necessary work in developing and implementing the residency model. However, there is increasing financial pressure for faculty to teach courses with large numbers of students, which may challenge the residency model as we try to move towards implementation beyond the grant. Beyond that, teaching a "course" in the NMUTR is hardly equivalent to teaching one in the traditional teacher education program, as is apparent from the descriptions of the intense, regular, and sustained contact that faculty engage in with the residents and the larger school community. So without the support of the grant, the extra time has no institutional means of support.

Challenge 4: inventing and borrowing tools

The fourth challenge, inventing and borrowing tools, highlights the need for intellectual resources in reform work. In creating an innovative, break-the-mold teacher education design, we continuously found ourselves searching for tools that would support a generative and emergent curriculum. In some instances, extant tools could be borrowed – such as the RTOP described earlier. In other cases, tools were adapted to fit our needs, such as tuning protocols (McDonald et al., 2007) for sharing and receiving feedback on curriculum plans as well as mentor forms and protocols from the NTC. In some cases, our adaptations were inadequate and required further development. For example, the tools from the NTC, while rich, are primarily geared towards a mentor/mentee relationship where the mentor made limited visits to the mentee's classroom, while, in our program, the mentee and mentor work together full time. In the midst of using the tools, we realized that although they provided some support to the mentors, they needed to be rewritten to reflect the nature of our mentor–resident relationships.

In other instances, we had to create our own tools almost from scratch. In constructing the NMUTR curriculum, we created a curriculum development tool that generated input from all stakeholders. This tool enabled a multi-step process of collaboratively setting learning goals and then negotiating roles, responsibilities, and means to achieve these goals for all stakeholders including residents, mentors, and faculty (described previously). We mapped out these goals, roles, and means in order to write our semester long curriculum. The map was co-constructed and helped each participant to shape and understand his or her role; this allows us to hold ourselves, and one another, accountable.

Challenge 5: recruitment challenges

The fifth challenge we faced entailed the recruitment of both residents and mentors. Most of the UTR literature describes similar recruitment incentives for residents: a

living wage, a free or nearly free master's degree, strong mentor support, job placement upon graduation, and high-quality induction mentoring (Berry et al., 2008; Boggess, 2010; Newman, 2009; Solomon, 2009). While the NMUTR offers similar incentives, we have struggled with recruitment challenges, limiting the pool of qualified residents from which we are able to choose. There are probably multiple reasons for this. Our residency is located in one of the most challenging urban school districts in the country (US Census Bureau, 2010a, 2010b) and while both the Boston and Chicago residencies similarly struggle with challenging urban districts, they are still located within residentially sought after cities. In addition, our residency is located near New York City, which has multiple residency programs with which we must compete. We also are a math and science residency, content areas notoriously hard to staff with high-quality teachers (in our first round of applications, 10 out of 20 candidates could not pass the Praxis Exam required for NJ certification), and fields that, at the high school level, narrowly define what learning and knowledge look like. This makes finding residents with the potential for constructivist beliefs about teaching and learning hard, particularly when there is limited funding in the budget for recruitment.

As well as struggling to find high-quality residents for our program, we were also challenged to find high-quality constructivist math and science mentors, which we knew was necessary to support the residency. Despite numerous reform efforts in Newark, there have been few instances of whole school reform that provide new school designs privileging constructivist teaching practices, and there were especially few examples of this in math and science classrooms there. This is consistent with the concern about the shortage of math and science teachers in urban districts nationally as well as the quality of instruction in these areas (EdSource, 2008; Ingersoll & Perda, 2010; Newton, Jang, Nunes, & Stone, 2010).

In our mentor selection process, we emphasized finding mentors who, while not necessarily constructivist math and science teachers, were interested in learning alongside their resident, highly dedicated to the Newark community, and had excellent relationships with their students. We have attempted to create professional learning opportunities that support the mentor both in developing as constructivist teachers (such as action research) as well as opportunities to grow as mentors. At times it has been tricky – figuring out how both to honor the knowledge and expertise of the mentors while growing it, and how to do so without undermining their knowledge and authority with the residents. We have also brought them into all conversations and lesson debriefs, particularly early on, that focused on inquiry. In doing so we have subtly (and sometimes not so subtly) asked them to increase the degree to which they do inquiry-based lessons. As we re-thought the second year of the program, we realized that they should have accompanied us to daylong sessions at other schools to see examples of inquiry in action and we plan to do so in the upcoming semester and next year. In this way we can increase the degree to which we are all co-learners. The chemistry mentor affirmed this approach when he commented:

> The residents want to do a more inquiry-based classes and I would love to learn more about that too. So when I heard that they are going to visit another chemistry class, I wanted to go too because I feel that learning from other teachers helps tremendously. So I would like to see more classrooms like that.

We believe the recruitment challenge is less about creating new recruitment strategies and advertisement (although we have developed these as well), and more about creating a long-term grassroots community change movement. We know that this work will take more than five years to do and the creation of a community of math and science educators involves the work of growing and developing learners who are passionate about math and science education, who then become teachers in their own communities, and mentor teachers who see their job as one of teacher education. We recognize that recruitment as advertisement cannot solve this challenge, only help us to manage it as we do the more intensive work.

Challenge 6: the paradigm shift from traditional to constructivist and inquiry based

Unlike the other challenges, which we named, the naming of this challenge emerged from work around a conference presentation we did in conjunction with the residents where we asked them to name the most significant challenges they faced in their work. For our residents, the push to move towards a constructivist, inquiry-driven classroom has been extraordinarily challenging, as their own transmission experiences of how math and science are taught revolve around textbooks and lectures. Some, while enthusiastic about the concept, struggled to enact what it meant for their own teaching, while others resisted the concept of constructivist teaching and learning altogether. Strategies, such as co-teaching an inquiry unit with the residents described earlier in the paper, have helped us begin to support them in this shift. What we realized was that we had to be deeply involved in demonstrating what inquiry looked like in the context in which they taught. Observing teachers in other schools simply did not have the impact we hoped it might.

Conclusion and Implications

In this paper, we have tried to describe the structures we have put in place to support the creation of a third space in teacher education and document the achievements and struggles that emerged. In the NMUTR, we align ourselves with many others who, over almost a century, have attempted to bring progressive forces to bear on the education of new teachers. We invite others engaged in third-space work to join us in sharing their successes and challenges. The radical shifts involved in this kind of work require open dialog among colleagues across settings.

It is appropriate to ask how finding a third space in teacher education is different from the many other teacher education reform efforts. First of all, there is the comprehensiveness of the approach. It is fair to say that the third-space attempts, all at once, to address the major criticisms of teacher education, from the theory practice divide, to the unequal status of practitioner and academic knowledge as well as teacher and learner knowledge, and to the nature of school–university partnerships.

Additionally, the third space envisions a very different kind of teacher, a utopian creature who supports and drives the achievement of young people who have been under and ill-served. This teacher is, as we have suggested, not only an expert in her field, a nurturer of the curiosities and interests of herself as a professional and her students as apprentice professionals. She is also a "public professional" and, as such, an agent of change in the context outside the walls of her school, one who acts in solidarity with those in the community who are committed to socio-political

change that will lead to enhanced social justice for her students and their families and communities.

Beyond that, we believe that third-space work is utopian work. It is ultimately a change project in which traditional structures and regularities are applied differently. It is improvisational in the sense that there are no pre-set meanings, roles, and responsibilities to be filled. Similar to what Bateson (1990) described decades ago in *Composing a Life*, the third space is a place where the participants engage in seeking and finding in the givens of their contexts, the materials and means for creating something new. It is imaginative and generative. The participants continually act, reflect, and change in order to get closer and closer to engaging in learning for themselves and their students that is empowering, equitable, diverse, and just. It is ultimately a hopeful enterprise, not in the sense of embodying wishful thinking. Rather it invites us to create and critique and, primarily, to act in new ways.

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Appendix A

Appendix
UTR Lesson Plan format

Teacher: _____

Course: _____

Unit: _____ Topic: _____ Grade: _____

Essential Questions:

1.

2.

3.

New Jersey State Standards:

Daily Performance Objectives:

- *Knowledge:*

- *Skills:*

- *Understandings:*

Prior Knowledge:

- *Knowledge:*

- *Skills:*

- *Understandings:*

Materials and Aids:

Time Frame of Activity	Student Will...	Teacher Will...

Time Frame for the Lesson:

Assessment/Evaluation:

- *Formative-*

- *Summative-*

Adaptations

- *ELL Learners:*

- *Special Needs:*

Homework