

## **Revised Literature Review**

### **Knowledge Base for the Seven Principles**

Based on discussions across the Unit about the Vision Statement, the Mission Statement, and the Unit's Statement of Philosophy, themes were identified to organize the knowledge base of our programs and provide the context for the Principles from which the specific knowledge, skills, and dispositions were articulated. Coherence across the Vision, Mission, Philosophy, and the Themes originally led to a unified set of 11 Principles for all Queens College Education Unit graduates: 1) *Specialty Area Knowledge*, 2) *Learning*, 3) *Curriculum and Instruction*, 4) *Language*, 5) *Literacy*, 6) *Assessment*, 7) *Instructive and Assistive Technology*, 8) *Diversity and Inclusion*, 9) *Families and Communities*, 10) *Democracy*, and 11) *Social Justice*.

In fall 2003, the 11 Principles were consolidated into 7 Queens College Principles to guide the preparation of its education candidates. The 7 Principles are

- 1. Discipline Specific Competencies**
- 2. Learning and Development**
- 3. Families and Urban Communities**
- 4. Diversity and Inclusion; and Democracy and Social Justice**
- 5. Language and Literacy**
- 6. Curriculum, Instruction and Assessment**
- 7. Technology**

#### ***Principle 1: Discipline Specific Knowledge***

Understanding is the foundation upon which instruction and practice is built. As Wittgenstein (1953) argues what we mean by understanding cannot be entirely separated from the uses to which that understanding is put. So for a teacher, knowing methods cannot be entirely separated from understanding the material being taught because different subject areas afford different approaches to conveying that knowledge. For other professionals, the understanding of the field is equally indispensable for making sense of practice. The Education Unit prepares educational professionals who have both depth in their specialty areas and broad knowledge of other fields. Queens College is first and foremost a liberal arts institution with a long tradition of serving our diverse community. All Queens College undergraduates, including education candidates, are liberal arts majors. All candidates in graduate programs either have an appropriate major for their specialty or earn the equivalent as part of the requirements for graduate programs. All Queens College students take a full gamut of Liberal Arts and Sciences (LASAR) courses as part of their graduation requirements. Additionally, in the programs housed outside of the Division of Education (i.e., physical education, family and consumer science, music, TESOL, school media, and communication disorders), the content knowledge is taught within the same academic department as the core instructional component. Programs within the Division of Education coordinate closely with departments in the Divisions of Arts and Humanities, Social Science, and Mathematics and Natural Sciences to provide candidates specialty area depth.

#### ***Principle 2: Learning and Development***

Learning and development has been among the most central foci of a wide variety of efforts pertaining to educational research, practice and policies. Although is an ostensibly mundane concept, it conjures up a wide variety of definitional properties. LeVine (1990) discusses learning and development as processes of knowledge and skill acquisition that are deeply

grounded in experiential and contextual factors (e.g., culture; Vygotsky, 1978). It is facilitated both verbally and non-verbally (Luria, 1981), and is decidedly linked to the characteristics (e.g., prior experiences, knowledge, cognitive readiness, diligence) of both learners and facilitators (Li, 2002; Rogoff, 1990).

The following sections will discuss the cognitive, behavioral, developmental, and attitudinal characteristics pertaining to this crucially relevant notion.

☒ ***Learning and development occur through a multitude of forms and processes.***

Learning and development refer to a wide variety of changes in an individual caused by experience (Mazur, 1990). Formal education, which takes place in structured classroom settings, has traditionally been valued over informal education, which typically takes place outside of such settings. However, the boundaries between the two have diminished in recent years. Learners' experiences in- and outside of the classroom have changed both qualitatively and quantitatively due partly to such factors as the advancement in information technology and the changing demographics of learners. They are, for instance, often exposed to a great deal of information and opportunities for and development after school that may or may not necessarily be consistent with or complementary to what is being taught in the classroom. Given the prevalence of these informal modes of learning, it may be advantageous to consider using them as resources to complement classroom instruction.

In addition, Li (2003) reminds us that learning and development can take place through socialization (i.e., deliberate and structured instruction; e.g., classroom lessons) and through enculturation (i.e., incidental instruction in or outside of the classroom; e.g., hidden curriculum). This expands on the traditional distinction between formal and informal education by introducing the notion that children learn not only what educators intend to teach but also the manners and contexts in which such materials are presented. For example, Tobin (1991) argues that Japanese schools frequently incorporate *origami*, an art of paper folding, into their curricula, seemingly to foster the development of fine motor, spatial and creative skills. However, it also serves to encourage children to work independently, quietly and diligently in the presence of other children. In any case, educators need to be aware of a multitude of factors within which learning and development take place and these learners live, and be aware that these factors may present them with valuable opportunities.

☒ ***Learning and development are ingrained in our culture and other contextual factors.***

Since learning and development are experientially-based, they are inherently tied to contextual factors such as culture (Luria, 1981; Vygotsky, 1978). The *origami* example in the preceding section represents a good example. In many ways, by contrast, formal education in the U.S. has followed Bartlett's (1958) vision of learning and development, which focused on the transmission from teachers to learners of decontextualized knowledge, which is designed to enable learners to acquire the general principles that can be applied to understanding a wide variety of situations (Lave, 1991). Recent research, however, challenges this approach, arguing that incorporation of cognition and context has been shown to be an effective mode of learning. For example, Lave suggests that, rather than struggling to learn abstract mathematical formulas and properties which may be beyond their cognitive readiness; young learners may acquire skills and knowledge better if they were allowed, at least initially, to relate such formulas and properties to concrete contexts that are relevant to their life experiences.

Saxe's (1989) work on Brazilian street children informs us that these children, without having any formal education, were able to demonstrate their understanding of complex

mathematical operations, when the tasks were phrased in the contexts with which they were familiar, presumably due to the training these children are exposed to as street vendors. They were, however, unable to perform: (a) the same operations if they were removed from the context; and (b) other equally challenging mathematical operations, which they had not encountered. This rich example tells us that: (1) learning and development take place in context; (2) it may also be best measured in the context; and (3) based on learners' capabilities, appropriate instructional support may be provided to expand the learners' knowledge base and its application to broader contexts and higher degrees of complexity (Vygotsky, 1978). On the other hand, Delpit (1995) has argued that exclusive reliance on inquiry-based methods has been detrimental to many African American children's achievement due to a series of socio-cultural factors, such as the types of cultural capital valued in working class African American communities.

☑ ***Learning and development are linked to learners' own characteristics.***

Educators are often eager to assume that all children can learn the same way, and any indication of less-than-optimal learning is frequently attributed to failure on the part of the learner, the teacher, or other individuals and agencies. However, it should be recognized that, as in other areas of human development, learners' own characteristics have a great deal to do with the qualitative and quantitative aspects of learning (Akiba, 2002), particularly considering the recent focus on active learning. These characteristics may include, among others, cognitive dimensions (e.g., biocognitive and academic preparedness, aptitude in particular domains, and need for cognition) and affective and attitudinal aspects (e.g., temperament, diligence, and self-efficacy).

This is not to say that only certain learners will be able to learn. Rather, all learners should be given the opportunity to learn, while recognizing the roles of their own characteristics. As Thomas and Chess's (1977) *goodness of fit* model suggests, the optimal levels of learning will transpire when the demands and expectations of educators match the characteristics of the learner. As such, as discussed in later sections, educators should be keenly aware of the ways through which learning can be facilitated among a wide variety of children by seeking to create such a "fit."

☑ ***Learning and development are expressed differently across individuals and contexts.***

It may be a cliché to cite Gardner's (1983) notion of multiple intelligences to point out that learning and development may extend beyond the content areas that have traditionally been associated with formal education. Learners, therefore, should not be classified unwarrantedly into pervasive categories such as "quick learner" or "slow learner." That is, educators should realize that strengths or weaknesses in one domain of learning or development do not necessarily imply strengths or weaknesses in another context.

Learning styles vary across individuals and contexts. Learning styles refer to tendencies for approaching learning tasks and processing information in particular ways. Some individuals, particularly those with learning or developmental differences, learn more efficiently under certain conditions (e.g., preferences concerning the presence of others, lighting, etc.) over others (Dunn & Dunn, 1987).

In addition, individuals differ in how they approach learning. For instance, some are classified as field dependent learners (i.e., learn best when working with the whole over its parts) while others as field independent learners (i.e., prefer to work with parts rather than the whole). Other researchers have shown that these differences may exist across cultures. For example, according to Peng and Nisbett (1999), learning in the mainstream U.S. schools is frequently based on polarization of contradictory perspectives (e.g., critical thinking and hypothesis testing) while East Asians tend to be dialectical learners who are

more focused on reconciling the differences among opposing perspectives (i.e., each of a set of seemingly contradicting perspectives can simultaneously be correct in its own way). Culture also interacts with socioeconomic factors in complex ways. Heath (1983) was the first of a number of ethnographers of communication to point to the effects of different forms of socialization to language in school. Differences with expectations regarding time management, turn taking in conversation, what is valued in speech acts, and differences in dialects can play havoc with students' learning and development when teachers are not prepared for them. Even progressive school reforms can founder on this issue, as Delpit (1995) argues, when these reforms assume mainstream middle-class socialization and early childhood learning/developmental patterns.

☑ ***Learning and development are facilitated differently across individuals and contexts.***

Learning and development can be facilitated by a wide variety of agents through a range of means. For instance, learning and development are facilitated by mentor-directed interactions (Vygotsky, 1978) as well as peer interactions (Rogoff, 1990). They are also facilitated: (1) verbally or non-verbally; (2) actively or passively, and (3) in formal or informal settings (Brown, Collins, & Newman, 1991).

In addition, given the variations in the processes and styles of learning and development, it makes intuitive sense that learning and development are facilitated differently across learners and contexts. For example, children who are even-tempered have been shown to respond well to induction (i.e., verbal reasoning) while the same instructional strategy appears ineffective for other children. Since the match between the children's characteristics and the context in which learning and development occur appear to facilitate these processes, educators should consequently be aware that an instructional approach that proves useful for some children may not necessarily be effective among others.

☑ ***School as communities in which learning and development are supported.***

School effectiveness findings indicate that student achievement and behavior can be influenced by the overall characteristics of the school environment (Rutter & Maughan, 2002). In fact, classroom and school environments have been found to be strong predictors of children's achievement and attitudes. Some features fostering student success include

- 1) school organization and management (e.g., good leadership, shared visions and goals, home-school partnership),
- 2) school ethos (e.g., orderly atmosphere, high expectations, a focus on good behavior),
- 3) effective monitoring (e.g., regular assessment of student, teacher, and school performance across domains),
- 4) classroom climate (e.g., structure, cohesion, flexibility, communication), and
- 5) pedagogical qualities (e.g., learning time, engagement, teacher knowledge) (Rutter & Maughan, 2002).

There is also evidence that student performance outcomes might be improved by modifying classroom environment (Fraser & Walberg, 1991). Classroom environments formed as supportive learning and development communities enhance the quality of students' experiences and promote achievement. Student learning and development are heightened in classrooms where students feel that they belong, trust others and are safe (Osterman, 2000). According to McMillan and Chavis (1986), community consists of membership, influence, integration and fulfillment of needs, and fosters a shared sense of connection and the feeling that members matter to one another.

Both Dewey and Vygotsky viewed education as a social process and Dewey promoted the idea that students should function as a social group. Furthermore, he proposed that

teachers and students share membership in the classroom community and that learning and development occur through this collaboration. Relatedness (connection) is essential to human growth and development, along with autonomy and competence. These needs are affected by the social context, are context specific and are ongoing. In a review of research, Osterman (2000) found that

*When children experience positive involvement with others, they are more likely to demonstrate intrinsic motivation and to accept authority of others while at the same time establishing a stronger sense of identity, experiencing their own sense of autonomy, and accepting responsibility to regulate their own behavior in the classroom consistent with social norms. (p. 331)*

While there is little evidence demonstrating that a sense of belonging directly affects achievement, indirectly, achievement is affected by a higher level of engagement that develops in learning communities. Community membership fosters feelings of competence and autonomy, higher levels of intrinsic motivation and a stronger sense of identity. These inner resources in turn produce engagement and performance.

Osterman (2000) found that community is built in classrooms when instruction incorporates cooperative learning and dialogue involving all members. Teachers who convey respect and who value all students through positive and affirming interactions build a cohesive community. And teachers who actively support students in their learning and development engender positive feeling in students toward one another and toward learning. Supportive classroom environments promote pro-social behaviors when these behaviors are encouraged, explained, and modeled. Teachers who provide opportunities for students to experience autonomy, strengthen conditions for relationships in the classroom community. This is true for adolescents, as well, whose membership and feelings of belonging are enhanced when they feel more autonomous.

Classroom environments are shaped by the instructional and management practices of teachers. Instruction that responds to student needs, and routines and organizations that provide for order and high levels of participation and engagement promote student learning and development. A teacher's skillful management frees up or maximizes opportunities for (Doyle, 1986) and scaffolds instruction. Worthwhile academic activities require classroom management designed to maximize student engagement in those activities (Brophy, 1988). In the case of constructivist activities, teachers must model and explain the procedures and social skills of active involvement and problem solving.

Supportive classroom environments engage students actively in comprehensive curriculum ideas and in applying these to solve real problems related to their lives. Students engaged as active learners expand and reconfigure their pre-existing knowledge frameworks. Learning and development occur more readily when lessons build on students' experiences and interests and when they are engaged in purposeful and meaningful activities. Murrell (2001) advocates a dynamic and engaging pedagogy for students from culturally and linguistically diverse communities. These classrooms support learning and development with experiences that authentically incorporate the lives, cultures, and experiences of culturally and linguistically diverse learners and their families. Murrell delineates a balanced system of five practices for supportive classroom communities: engagement and participation, identity development, community integrity, inquiry and re-appropriation, and meaning making. When teachers combine these practices, they create classrooms where respectful communication is used and modeled; democratic sensibilities are promoted; and active, rigorous, and meaningful participation in curriculum occurs. An important outcome of such an environment is that students develop identities as successful learners.

To support students with disabilities, Tomlinson (1999) indicates that teachers create welcoming and inclusive classroom environments that provide access to the curriculum and membership in the classroom community. Teachers create supportive learning environments for all students when they differentiate curriculum and instruction by positioning students' learning within their "zones of proximal development," connecting with their prior learning and experiences. Teachers create a healthy inclusive environment by recognizing the individuality and wholeness of each student, hold high expectations and provide the scaffolding needed for students to achieve, and create environments of interdependence where students and teachers share responsibility for teaching. (Tomlinson, 1999)

### ***Principle 3: Families and Urban Communities***

Home and community have a powerful impact on learning and school functioning (Wang, Haertel & Walberg, 1993). This understanding has led to a greater concern about the relationships between home and community and school. Collaboration between home and school is regarded as best practice by professional educational and related organizations (Erwin, Soodak, Winton, & Turnbull, 2001; Turnbull & Turnbull, 2001). It is now firmly grounded in federal legislation (i.e., Individuals with Disabilities Education Act). Parent-professional partnerships are built on the ideas that parents know their children best and families are the constant in their children's lives. Therefore, family-professional partnerships give an advantage to children in academic, social, and emotional areas. Successful outcomes are maximized by joining families' preferences, priorities, and culture with professionals' expertise in education, learning, and development.

Home-school relationships may take many forms including parents as decision-makers, helpers, learners, partners, and experts. Since families are complex and diverse, the partnerships that are developed between home and school need to be highly individualized. Variables influencing each family include cultural background (e.g., ethnicity, religion), nature of household (e.g., two-parent, single-parent, gay /lesbian parent homes), as well as special circumstances (e.g., child or parent with a disability, family experiencing poverty). Approaches such as an ecological framework (Bronfenbrenner, 1986), family-systems model (Turnbull & Turnbull, 2001), or family-centered practices (Dunst, 2002) assist professionals in more fully understanding the complexity, uniqueness and resourcefulness of each individual family. These approaches assume that each family has its own set of values, beliefs, dynamics, and practices. Therefore, supports and services provided to children and their families must be respectful, responsive, individualized, and flexible so that families receive information in a way that empowers them to make informed decisions.

Families need to be actively involved in their children's education. Home environment and family support influence child performance in areas such as, but not limited to attendance, grades, dropout prevention, and discipline (Epstein, 1996; Fine & Simpson, 2000; Fish, 1990; Rutter & Maughan, 2002; Turnbull & Turnbull, 2001). Every child, including those who are traditionally underserved, such as children with disabilities or recent immigrants, have an advantage in school when parents encourage and support schooling. There is also recognition that the community plays a role in student success, and that the community can be a powerful and resourceful school partner.

Queens College graduates need to develop strong skills in empowering families and facilitating high quality home-school and home-community partnerships. The following summarizes knowledge, skills and dispositions that are critical for creating healthy relationships between school, home and the community:

- ☑ ***Cultural competence and compatibility***  
 When values, attitudes and practices are compatible and/or respected across school, home and community settings, positive outcomes are produced for children, their families and professionals.
- ☑ ***Family-professional partnerships***  
 When families and professionals join forces in educating children, academic, social, and emotional development is enhanced and a healthy interdependence is created.
- ☑ ***School-community collaboration***  
 When school and community are viewed as valuable resources, the opportunity for developing and maintaining collaborative, mutually beneficial linkages are greatly enhanced.
- ☑ ***Empowering Families***  
 Because a number of barriers to family-school partnerships exist (e.g., philosophical, attitudinal, logistical, or skill deficits), focus on identifying family strengths, priorities, and resources must be facilitated. In addition, an emphasis on building trust, respectful practices, and effective communication are promoted so parents are viewed as resources, not adversaries.
- ☑ ***Inclusive Learning Communities***  
 When the philosophy and practices of a school reflect a climate of community and acceptance, and accommodations are individually developed and implemented, all students and their families feel welcomed, valued, and supported.

#### ***Principle 4: Diversity and Inclusion; and Democracy and Social Justice***

***Diversity and Inclusion.*** Queens College is situated in one of the most diverse communities in the United States and is committed to preparing teachers and educational professionals who have the knowledge, skills, and dispositions to nurture, engage, and value all learners. Our candidates honor, welcome, and respect the diversity of students and families with regard to social class, ethnicity, gender, disability, religion, language, culture, and/or sexual orientation. Numerous studies identify correlations between educators' attitudes, behaviors, beliefs, knowledge, and cultural awareness and students' success (Gollnick & Chinn, 1998; Banks & Banks, 1993; Sleeter & Grant, 1991).

As a first step in our preparation of teachers and other educational professionals, our candidates explore their own diversity so that they can embrace and feel comfortable with their own histories, cultures and backgrounds through a series of coursework, activities, journal articles, reflections, and assignments. Diversity here is defined as the infusion of positive awareness and inclusion of differences in the education of students. This calls for the application of knowledge about race, ethnicity, gender, religion, language, disability, class, and sexual orientation, to issues, problems, viewpoints, theories, and programs concerning the education of students (King, Chipman, & Cruz-Janzen, 1994). By providing the structure and opportunity for our candidates to reflect on their own operating paradigms about disability and diversity, we hope to be able to reinvent the belief systems of our graduates so that they can more effectively support the diversity within their classrooms and develop inclusive educational experiences that promote the full potentials of all learners.

In order to enable our students to work effectively with diverse student populations, develop effective instructional strategies, and feel comfortable working with all students, our programs require that students demonstrate knowledge and understandings of the cultures in which the

schools are located and exhibit high levels of cultural sensitivity. As Ferguson (1995) describes the educational reforms necessary to truly honor the full diversity of learners within urban public schools and support the inclusion of all students within general education classrooms: “meaningful change will require nothing less than a joint effort to reinvent schools to be more accommodating to all dimensions of human diversity” (p. 285). As teachers and educational professionals, our graduates must be careful to explore their own ideologies about equity, diversity, and how those ideologies either subtly or not so subtly influence their classroom practices. Unfortunately, more often than not, we are not aware of the ideologies that shape our behaviors; and at other times we simply are not intellectually able to put our ideologies into words (Wolfensberger et al., 1972). In education our ideologies about curriculum, teaching, and learning are, and historically have been, the direct result of the beliefs held by society and educators about various diverse populations—most notably recently around issues of curriculum and instruction for students with disabilities (e.g., Ferguson, 1987; Michaels, 1994).

Queens College candidates develop the knowledge, skills, and dispositions to increase equity and opportunities for students by creating nurturing and supportive classroom communities that honor the diversity of all community members while simultaneously engaging and challenging each student. Following a careful self-examination of personal beliefs about diversity during which our program candidates examine their own value systems and come to terms with their own biases and prejudices, program candidates commit to using students’ strengths and diversity as valuable and positive learning assets.

Similarly, Queens College program candidates are aware not only of the differences among students, the schools and the society at large but also of inequalities in the country and in the world. This helps our program candidates develop the knowledge, skills, and dispositions to assist their students to act as responsible members and democratic citizens of the world community. However, issues of racial segregation, economic oppression, and political powerlessness, and the dynamics produced by these forces also inform discussions on diversity. Discussions inform candidate preparation, their classroom practice and serve as subject matter in which to engage their students in reflective, didactic, and affective inquiry.

Therefore, it is our mission to prepare “educators who can design and implement learning activities which develop simultaneously the students’ academic skills and their capacities to critique and act on the structures of oppression which impose on their daily lives” (Larkin, 1995, p. 3). The purpose here is to produce teachers and other educational professionals who acquire knowledge from diverse perspectives, who develop caring attitudes and feelings and who can take action to create a more humane nation and world (Banks & Banks, 1993). At the completion of their programs, our graduates have a wide array of culturally relevant experiences and are able to implement and evaluate multicultural and diverse curriculums and to individualize instruction to make it relevant to each learner.

Curriculum plays an important role in the design and implementation of educational processes. Curriculum therefore should address the needs of diverse learners and reflect diversity (Bassey, 1996). Indeed, studies have shown that teachers and other educational professionals who provide teaching-learning environments and curricula which reflect different ethnic, racial, social, exceptionality and language groups provide higher quality instruction than those who do not because most students think that it is important to see reflections of themselves in the learning environment (Breault, 1995; Valli, 1995; Cochran-Smith & Lytle, 1992; Reed, 1992; Sleeter & Grant, 1991).

Giroux (1989) argues that empowering education must provide students with “a curriculum and an instructional agenda that enable them to draw on their histories, voices, and cultural

resources in developing new skills and knowledge” (p. 703). As we know, students differ in information acquisition, personal traits, interests, and desires. Accordingly, certain methods work better for some students than for others (Bassegy, 1996; Bower, 1994; Gay, 1993). But basic underlying principles of learning suggest that active student-centered pedagogy, culturally responsive instruction, a constructivist learning approach and dialogue enable students to move from object to subject position and enhance democratic experience (Bartolome, 1994).

These modes of learning are best depicted in cooperative learning groups. Learning flourishes in cooperative groups because the variety of thinking styles, backgrounds, values, abilities, and experiences often contributes to the creation of a synergistic community of inquiry. Candidates in the Education Unit at Queens College play crucial roles in creating inclusive and diverse learning communities in their classrooms and in making every student feel a part of the classroom and school community.

Nevertheless, as Delpit (1995) argues, an exclusively constructionist approach privileges those students who gain academically valued knowledge in family and community, and these tend to be from mainstream households. Therefore, overt instruction sometimes needs to be integrated into the type of principled eclecticism discussed earlier for reasons of equity. Not all children are taught by parents to organize information in ways that schools expect. Not all children are exposed to narrative structures that are valued in academic settings (Cazden 1988). Not all children see the background of facts, concepts, and forms of analysis that schools work with supported by parents and communities (Fishman 1988). Not all children are exposed to standard registers of English at home. Nor are all children prepared for the type of classroom discourse expectations (e.g., being asked test questions) that take place in classrooms (Cazden 1988). What is important is that these differences not be seen as deficiencies of the culture, family, or student, but as the result of different historical and cultural experiences. For this reason, the types of knowledge that non-mainstream families *do* give their children should also be respected and used in a truly inclusive and diverse curriculum.

In a similar vein, The Education Unit at Queens College is also dedicated to preparing our candidates to work with students who speak languages other than English through instructional practices which enhance critical thinking and self-directed learning activities. Candidates demonstrate an understanding of ESL and the instructional needs for English language learners through their lesson plans, class work, and through group assignments and activities.

Our graduates demonstrate through lesson plans, projects, essays, papers, and portfolios an understanding of and respect for the needs of diverse learners as well as the ability to teach or work with diverse student populations including students of different races, ethnicities, genders, disabilities, sexual orientations, and geographical backgrounds. Candidates develop the skills to modify curriculum and instruction to meet the needs of all learners. They make accommodations and adaptations to curriculum and instruction and develop parallel and overlapping curriculum outcomes for students with more severe disabilities (Janney & Snell, 2000). At the conclusion of their programs, graduates in our Education Unit demonstrate the ability to design and implement an inclusive curriculum and a set of learning strategies to support all learners. They also demonstrate clear understanding of diversity; ability to analyze strategies, methods, and techniques for working with all students; and belief in their ability to teach and work in diverse school/educational settings.

**Democracy.** A major challenge of our democracy has been how to achieve *e pluribus unum* (Barber, 1992). We are a nation founded by many, and since the earliest years have struggled with how to be one. This challenge endures, and has characterized our unique democracy. In addition, as our democracy has been based on assumptions of equity and

equality, schools have emerged as a vehicle for resolving social injustices. The Education Unit at Queens College engages in this vital work as we actively promote quality public education.

Public schools developed as a foremost means for addressing individual and societal challenges of democracy and social justice. “[Thomas Jefferson] held that only as a result of proper civic education and active participation in community life could individuals refine their sense of republican virtue and thus secure themselves against oppression and tyranny” (Urban & Wagoner, 1996, p. 73). While schools were founded to serve the interests and needs of individuals, their purpose has also been to continually renew and strengthen our democratic society. “Democracy must be born anew in each generation and education is its midwife” (Dewey, 1916b, p. 139). The common school, as imagined by Horace Mann, emerged as a place for the common, as well as elite, members of society — it was also to be a place where all persons would come together to construct a shared identity as a pluralistic public.

Schools, and public schools in particular, provide a place for young people to experience democracy and learn the social as well as intellectual skills necessary for such shared concerns. The necessity of schooling for the perpetuation of democracy has been most fully, and perhaps most eloquently, expressed by John Dewey. Jefferson and Mann argued that only an educated citizenry could achieve an effective democracy. Dewey expanded on this concept in his assertion that “democracy is more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience” (Dewey, 1916a, p. 87).

In its national standards, the American Educational Studies Association identified the necessity for educator preparation programs to address democracy. According to two of their principles: “[t]he educator understands how moral principles related to democratic institutions can inform and direct schooling practice, leadership, and governance. [...and] [t]he educator understands the full significance of diversity in a democratic society and how that bears on instruction, school leadership, and governance” (CLSE, 1996).

Schools can and should practice democracy in their internal workings. Understood correctly, democracy is not simple majoritarianism, but an institutionalization of participation. Rules and decisions may not be always agreed with, but they are agreed to just as social norms are in society at large. In democratic schools all stakeholders, students, parents, teachers, counselors, and psychologists know that their voices will be heard and respected. Administrators know that their authority is based on their leadership. Such schools prepare students as future citizens to participate and preserve their democratic society.

***Social Justice.*** A concern for democracy is necessarily a concern for social justice, as our democracy’s ideals include social, economic, and political equity (Ayers, Hunt, & Quinn, 1998; Barber, 1992; Greene, 1988). This concern has enjoyed a long-standing home at Queens College and City University of New York, which were founded on the ideals of bringing the benefits of higher education to all students. In particular, those students who have historically been marginalized from higher education because of their economic or cultural background have gained access to the benefits of higher education at Queens College and CUNY (Lavin & Hyllegard, 1996). Located within the most ethically and culturally diverse county in the U.S. (Sanjek, 1998), Queens College has embraced the path of education to overcome socio-economic inequities within our society.

From this stance, the Education Unit at Queens College endeavors to rectify several areas of injustice and a lack of democracy including inequities of school funding, poverty, racism, sexism, and homophobia. To gain a truly educated citizenry in support of our democracy, we work to eliminate the negative effects of differences in learning style, intellectual ability, physical ability, and culture. Our programs are designed to develop educators who work toward the

betterment of the larger democratic society that they will enter and, presumably, in which they will become active members. Such work actively resists traditional models of schooling that reproduce existing injustices (Giroux, 1983) and seeks instead to cultivate educational institutions that honor each individual's rights and responsibilities.

### ***Principle 5: Language and Literacy***

***Language.*** It is hard to overestimate the importance of language in schooling or its potential, when mishandled, to interfere with educational achievement. There are three basic reasons that interact to make this the case:

- ☑ *Students normally begin school only after having already acquired an incomplete but remarkably sophisticated knowledge of one or more languages and they continue to use and learn language as much outside as inside the classroom.*
- ☑ *Children vary in linguistic development because of varying social experience and personal qualities creating a cohort entering kindergarten with widely varied linguistic knowledge and subsequently acquiring language in different ways.*
- ☑ *Yet these differences are not accounted for in expectations. All subjects either have language as primary content such as in reading, writing, ESL or foreign languages or integrate specific registers (i.e., domain-specific language varieties) in conceptual content such as in math, social studies, or science. To meet standards, students must achieve a high degree of linguistic competence in all subject areas.*

Consequently, the Queens College Education Unit assumes the mission of preparing candidates who are highly sophisticated about linguistic issues in schools. Our candidates are familiar with relevant linguistic theory and the principles of language acquisition and with communication disorders. They are also highly knowledgeable about the linguistic influence of students' homes and peer groups, and the tensions that can arise between in school and out of class linguistic contexts. We explain these issues in further detail, as follows:

Although students arrive in kindergarten after five or more years of language learning, their phonology and syntax are normally still developing during most of their elementary school years (Cairns 1996). Yet the incompletely developed language children acquire before school is the foundation for the language learning they do in school, and there is a wide variation in even normal linguistic development. However, the differences between children are not only developmental. The New York metropolitan area is one of the most linguistically diverse regions of the world, and children arrive in New York schools learning many different varieties of language at home and in the community. Many of these children speak English as a new or second language, and some enter school with little knowledge of the language. These children can fool adults into overestimating their level of English. Because young children can acquire informal language skills with native-like phonology and syntax relatively quickly, it is easy for teachers or other school professionals to confuse their fluency with advanced language acquisition. In fact, English language learners (ELLs) usually lag in academic language behind their native-speaking peers for many years (Cummins 1979). All New York teachers are likely to encounter ELLs and they need to be able to differentiate instruction appropriately so that these students are not left out. Similarly, other specialists need to understand how ELLs may perform differently on diagnostic instruments of various kinds. All school professionals need to be aware of how ELLs' language behavior norms (e.g., governing how and when to speak to adults, participate in class) may differ from those of native speakers and how they should respond appropriately.

Even for native speakers of English there is no uniformity in experience. Children acquire different dialects at home and in their communities, and these vary in the degree to which they approximate school registers. That variation gives advantages to some youngsters and disadvantages to others, particularly with respect to literacy. Historically, these issues have not been treated with sensitivity by educators and educational theorists. Language difference has systematically been confused with language deficit (Labov 1973) or pathology. The result is that children of non-mainstream social groups are seen as “linguistically deprived,” and so provided with inappropriate treatments. The miscomprehension of dialectal variation remains widespread. A recent example of what needs to be avoided is the 1996 Ebonics controversy (Rickford 1999), resulting from the Oakland School Board’s decision to use African American Vernacular English (AAVE) to support standard language learning. Both proponents and opponents based arguments on flawed premises. What began as a debate over educational policy then degenerated into linguistic ridicule that hid cultural insecurity among some African American critics and barely disguised racial prejudice among others. In New York City, most English speaking children who come from homes that speak a dialect are stigmatized in some respect. Many speak AAVE, and others a variety of Latino English (Wolfram 1974, Newman 2003). Others come from homes in which an English-based Creole (e.g., Jamaican Patois) is spoken. Even many European Americans use a non-standard variety (Newman, forthcoming). New York teachers need to respond knowledgeably to this variation.

The role of school in linguistic development is, in good part, to provide access to special uses of language and the registers that go with them. Specifically, schools teach a series of closely related formal registers that are used in academic and professional spheres. These written and spoken registers can be grouped together under the name *standard language*. The inability to use standard varieties in situations where they are normatively called for is a serious problem for a speaker or writer. Without standard language competence, students will not be able to produce and understand professional genres of text and discourse (Newman 1996). In the industrial era, a high proportion of relatively well-paying jobs were available that did not require the use of highly specialized professional genres, and a limited ability in standard English language did not prevent many from achieving a comfortable life. However, in the emerging knowledge economy, these positions are increasingly limited. Our goal therefore, is that all students achieve control of standard written and spoken English and whatever other standard languages (e.g., heritage languages) that are significant for that student. However, learning standard English is not enough to achieve educated usage. Each register is also characterized by its own particular rhetorical characteristics, information structures, and specialized jargons that reflect the ways of knowing used in the field. Talking about Shakespeare is not the same as writing about chemistry. Learning each of these registers requires considerable effort and direction for almost all students. *Therefore, it is also essential that our candidates also have control of the relevant standard languages and of academic registers, even to a certain extent those of a variety of subject areas.*

Despite its importance, it is also crucial that education professionals understand that Standard language is no more inherently correct or virtuous than the vernacular. Importantly, the use of academic and professional registers, referred to by Delpit (1995) as “codes of power,” does not imply abandoning vernacular forms any more than learning a new language implies replacing a native one. Each register is best understood as an addition to the student’s linguistic repertoire. Students need to know when and how to switch between them. Nevertheless, because of the tendency for linguistic practices to get bound up in issues of identity (Eckert 2000), this point can be difficult to see for students, educators, as well as parents and the general public. However, the linguistic flexibility that allows a youth to move back and forth from book to street is the key for many, particularly minority and working class, students to combine educational

achievement with social and cultural wellbeing. Teachers need to model register switching not simply be models of standard English, with which students may have difficulty identifying.

Another point concerns potential pathologies. Language is such a complex system, that it is not surprising that it does not function in the same way for all students. Some students suffer from a variety of communication disorders of diverse cause, ranging from specific language impairments (which impede first and second language acquisition) to stuttering to deafness to various forms of dyslexia. Responding to these disorders is the province of specialists, but teachers and administrators need to be sensitive to them to be able to suggest referrals for testing and to be helpful in inclusion contexts. For instance, all education professionals need not know American Sign Language, but they should know that it is a real and autonomous language and that it functions as irreplaceable cultural resource for the deaf community. They should also know who to turn to for more information. As teachers and other educational professionals interact with parents, they also must be able to function as resources on language issues at this level of knowledge on a variety of language-related issues.

**Literacy.** During the last 25 years, the concept of literacy has become fundamentally altered, from a narrow definition of an ability to decode written text to one of competent handling of informational systems and domains generally. In this expanded view, traditional literacy, sometimes called *print literacy* constitutes a special case, writing being one informational system and written texts a domain of competence. As is true in any shift in meaning, this expanded definition has not completely overwhelmed its narrower predecessor; at times *literacy*, *literate*, and *illiterate* are still used to refer only to print literacy. Nevertheless, the expanded meaning can commonly be found in both popular and academic usage. Terms such as *computer literacy*, *media literacy*, *geographic literacy*, *cultural literacy*, and so on have entered the popular lexicon. In academic study of literacy a number of movements using broader definitions have emerged. They include the New Literacy Studies (Gee 1996; Street 1984, 1993a, 1993b), Genre Theory (Swales 1991, Cope & Kalantzis 1993, Johns 1999), Biliteracy (Hornberger 2001), and Ethnographies of Communication (Heath 1982, 1983, Fishman 1988). These trends, grouped into what Johns (1999) calls “Socioliteracy,” have replaced decoding as a primarily cognitive skill with competence at literate practices. In most versions of socioliteracy, these practices are not limited to interactions with written texts but include oral discourse and other informational systems such as graphics and information technology. According to the New London Group (1996) comprised of a number of prominent literacy researchers from the US, Britain, and Australia, the emergence of new technologies is key. They have removed print from its former near monopoly on management and communication of culturally important knowledge by providing a wide repertoire of means (see summary in Newman 2001).

This broad understanding of literacy clearly informs the new NYS Regents English Language Arts Standards. These standards and the exams based upon them eliminate the emphasis on decoding, which characterized the old Regents Exams and Competency Tests. In their place are sets of active interactions with oral and written texts and graphic representations of information. In fact, this understanding of literacy permeates the other state exams as well. In Social Studies, New York State students are required to answer document-based questions and interpret graphic images of various kinds. In Sciences, they must handle formulae, graphs, and charts in meaningful ways. In Math, they must explain their understanding of mathematical systems. A literate person in New York State is someone who has control of a variety of informational systems, including but not limited to production and comprehension of written genres of text needed for learning and business. Similar formats are found in all these areas at the elementary and middle school levels.

A useful way of viewing these kinds of standards has been put forward by the New London Group (1996, 2001), in what they call “The Multiliteracies Project” (see also Cope and Kalantzis 2001). As its name implies, Multiliteracies is designed around the principle of literacy as a pluralistic phenomenon. The pluralism operates on several dimensions. Like the Regents, Multiliteracies is concerned with preparing students to be competent in a world of new economic systems and globalization. First, as the economic center of gravity moves from mechanical production of physical objects to creation, manufacture, and manipulation of knowledge, learners require increasingly sophisticated abilities to achieve economically secure lives. Second, as globalization progresses, individuals must be able to interact with others who are accustomed to different norms of communication and have different traditions of expression. It is worth mentioning four components:

- ☑ *Modality: Like the New York State Regents, literacy is understood pluralistically as consisting of the design (or dynamic structuring) of a multiplicity of informational systems.*
- ☑ *Cultural: Since literacies are intertwined with culture and identity, due respect is given to all cultural achievements in this regard. The emergence of technology should not imply the demise of deeply rooted oral and artistic traditions of expression.*
- ☑ *Equity: Pedagogy is based on the ethical principle of access for all to all manifestations of literacy.*
- ☑ *Pedagogical Practice: Multiliteracies assumes that there is no one right approach for literacy acquisition. There is a principled eclecticism in which overt instruction combines with constructivism. Critical framing of literacy practices and events are combined with students’ own creative designing of literate systems of various kinds.*

While Educational Unit faculty need not subscribe to this or any other specific pedagogical system, these philosophical points coincide with our views of literacy and of teaching generally. We endeavor that our candidates attain the knowledge, skills, and dispositions needed to teach their students in ways that are consonant with these views.

## ***Principle 6: Curriculum, Instruction and Assessment***

***Curriculum and Instruction.*** In order to become teachers who can build democratic learning communities that engage all learners in affective and constructivist inquiry and overt instruction, teachers need specific pedagogical knowledge. Queens College education students gain knowledge of motivational and instructional learning strategies that enable them to put into practice an active, constructivist approach to learning and engage in overt instruction, and use each at appropriate times. This orientation may be realized in a number of different ways. Reading teachers, for example, may employ strategies such as Questioning the Author (Beck, McKeown, Hamilton, & Kucan, 1997); social studies teachers may use reflective decision making (Engle, 1960; Engle & Ochoa, 1988) or “doing history” by constructing original interpretations (Levstik & Barton, 2001; VanSledright, 2002); math teachers may use hands-on “workshop” explorations so that “students learn to use mathematics to create meaning for themselves and others” (Halter, 1998, p. 137), and Cognitively Guided Instruction (Carpenter et al., 1999) which encourages students to discover knowledge and invent strategies. While some learning strategies are discipline specific and are referred to as pedagogical content knowledge (Grossman & Yerian, 1992), other “best practices” such as collaborative grouping, encouraging artistic representation as a way of learning, and providing authentic learning experiences have wide application across the curriculum (Daniels & Bizar, 1998).

Our candidates know that when planning curriculum, they need to focus on networks of powerful ideas (Brophy & Good, 2003; Brophy & VanSledright, 1997; Newmann, 1988) rather

than a random collection of facts. As Brophy and Good (2003) have noted, “Analyses of all of the subject areas suggest the need for teacher decision making about how to reduce breadth of coverage, structure the content around powerful ideas, and develop these ideas in depth” (p. 410). Students know from their student teaching experiences that the school day does not provide time for teaching everything we would like. Therefore, choices must be made about what is significant to cover and in what depth. Networks of information structured around powerful ideas support a learner’s understanding, appreciation, and application of content in all subject areas.

Inquiry teaching brings together affective, didactic, and reflective processes to create new understandings. Even for very young learners, the inquiry cycle (Harste & Short, with Burke, 1988) provides a curricular framework that puts the learner at the center of the curriculum. In such classroom settings, teachers support, listen, pose questions, organize, and learn along with their students (Pataray-Ching & Robinson, 2002). Within inquiry cycles, our candidates provide differentiated instruction to support the needs of all learners.

Queens College candidates in education engage their students in critical literacy, reading that acknowledges the social, cultural, historical, and political context in which learning takes place. Critical literacy involves interrogating multiple viewpoints, asking questions about knowledge, social justice, and equity. It involves dealing with human rights, issues of racial justice, gender equity, religious tolerance, and socioeconomic and class issues, and acceptance of difference generally. As Leland and Harste note (2002), “children should be invited to analyze texts and hypothesize about the work authors are doing and how they are using language to get this work done . . . They need to understand how language works, how to find and question the cultural story being told, and how to act on their new awareness” (p. 468). Our candidates do not shy away from introducing books that deal with compelling social issues.

Queens College candidates in education understand the role of dialogue as a means of fostering learning. This takes various forms as book clubs (Short & Pierce, 1990; Raphael, Pardo, Highfield, & McMahan, 1997), peer and cross-aged talk (Paratore & McCormack, 1997; Gambrell & Almasi, 1996), and class discussions. Discussion, dialogue, and responses to open-ended questions allow students to encounter different points of view and reconsider their ideas. Candidates know how to prepare youngsters for thoughtful discussion about how to evaluate content-centered (“accountable”) talk. They also know that at times they must directly supply information through overt instruction. They understand that overt instruction is not a rival of inquiry, but its compliment. They are aware that in schools with diverse populations, assumptions regarding language, literacy, and learning common in middle-class mainstream America may not reflect what students bring to school. Not every young child gets a bedtime story, and even among those that do, the types of interactions that take place around the story may vary widely (Heath 1983). Our candidates know that part of their curriculum is to act as a bridge between school-based expectations and the knowledge and values that their students bring to class. They know that they must build curriculum and instruction on this knowledge and these values, but they also must supply missing information directly in order to serve all students.

For this reason, our candidates engage in reflective practice. While we acknowledge the difficulty faced by inexperienced teachers whose reflections are “frequently shallow and egocentric” (Risko, Vikelich, Roskos, 2002), we believe that more explicit modeling and instruction in reflection to such areas as problem solving, closely considering teaching actions and student reactions, and examining alternative viewpoints on teaching can make an impact over time. As a result we ask our candidates to do a variety of activities: keep reflective journals, interact with informed others such as more experienced teachers and supervisors, and

use multiple sources of information including audio and videotaping (Artzt & Armour-Thomas, 2002). Our candidates are also encouraged to guide the children they teach to reflect on their own learning. Such reflection has already been shown to be effective (Fellows, 1994).

Queens College candidates in education act on the belief that all children can learn. In order to make this a reality, they incorporate multiple ways of knowing, provide differentiated instruction, and use technology to support teaching and learning. In addition to reflective practice, they believe in the power of collaboration with colleagues. Sometimes this takes the form of study groups or work with grade level colleagues, while other times it means learning from the research and writings of colleagues across the country and abroad. In addition, as part of their professional growth, a number of our graduates have acted on their belief in the importance of joining the professional conversation by contributing to professional publications (see, for example, Schneider & Gregory, 2000). Our candidates believe that they can make an impact on the lives of the children they teach and that over time they will grow and change as professionals.

**Assessment.** We know that assessment improves student learning and instruction. As early as 1902, American educational reformers were stressing the need for teachers to use both formative and summative types of assessment to orient curriculum and classroom pedagogy. John Dewey, for example, advised his colleagues that:

To see the outcome is to know in what direction the present experience is moving . . . The far-away point, which is of no significance to us simply as far-away, becomes of huge importance the moment we take it as defining a present direction of movement . . . it is no remote and distant result to be achieved, but a guiding method in dealing with the present. (cited in Dever, 1988)

In fact, with the current emphasis on standards in response to growing dissatisfaction with the performance of American schools and American students, assessment issues are at the forefront of school-based reforms across the nation. Major elements of this standards-based reform include: "(a) higher content standards, (b) the use of assessment aimed at measuring how schools are helping students meet the standards, and (c) an emphasis on holding educators and students accountable for student achievement" (Nolet & McLaughlin, 2000, P. 2). This focus on assessment represents one of the cornerstones of America's efforts initiated in the 1990s to reinvent schools (see for example, Osborne & Gaebler, 1992).

This focus on standards and standards-based school reform should help to guide pedagogical practice by answering the what, how, and where of instruction (Falvey, 1989). Specifically, the identification of desired outcomes should help us determine (a) *what* activities should be taught; (b) *how* those activities should be taught; and (c) *where* those activities should be taught. Wiggins & McTighe (1998) suggest implementing this approach as, what they call, "backwards planning," according to which teachers begin by identifying desired learning outcomes, developing assessments to measure those outcomes, and only then planning instruction.

One aspect of candidates' knowledge, skills, and dispositions regarding assessment involves the difference between assessment for internal purposes and external purposes.

**External assessment** refers to assessments that are done for purposes other than instruction. At the most simplistic level, external assessments tend to be conducted for externally directed purposes. External assessments also tend to rely heavily on the use of experts to either administer and/or score them. In the case of learning, they are typically standardized achievement tests that serve as a capstone of a course of study, as in NYS Regents exams, or

milestone markers such as state-wide or city-wide elementary or middle school exams. They may also be various aptitude (e.g., reading tests that measure grade level) or competency (e.g., NYSESLAT) tests used to place students in or exit students from programs of various kinds. Finally, there are assessments for measuring the accomplishments of schools and school districts for purposes of state accountability.

Today, school districts and many educator preparation programs emphasize assessment primarily for external purposes. We are fortunate that the New York State Education Department has implemented relatively progressive state-wide assessments and Student Learning Standards that aim for higher order critical abilities and infuse an advanced concept of literacy throughout the curriculum. We are aware that this sophisticated approach does not characterize all states, and that assessment is highly contested. Moreover, a recent controversy concerning the validity of certain Regents exams, and the subsequent annulling of results, shows that the system continues to have serious flaws. Teachers and administrators cannot just rely on “experts.” On the contrary, educators must be able to analyze and critique the high-stakes external assessments they administer, and be able to use their analyses to help their students overcome the hurdles that they present. They must be able to do so, while also avoiding the trap of measurement-driven instruction, and thus promote the kind of intellectual growth that these tests are unable to measure (Wiggins 1999, Shohamy 2001). Finally, educators must be able to use their critiques to explain and advocate for students and make compelling arguments for appropriate high stakes assessments. In exactly the same way, non-instructional education professionals, who typically make use of psychometric instruments for diagnoses, cannot rely uncritically on the results of their instruments either. These tests are valuable tools, but practitioners must understand their limits and the principles underlying them. They are, just like teachers, students’ advocates. It is just as important that they do their best to protect vulnerable youths from inappropriate uses of assessments as it is to interpret and apply the valid information external assessments can provide.

**Internal assessment** refers to assessments that are done primarily to inform instruction. Internal assessment can be either summative or formative in nature. Internal assessment is summative in nature when it occurs after teaching and learning have presumably taken place to measure the end product (usually to grade the student). Examples include screening for students within a class who may need to be taught particular skills; collecting data to inform instructional decisions; selecting goals and choosing instructional procedures and materials that will be utilized to accomplish these goals; and monitoring to check the results of classroom efforts before, during, and after instruction. Internal assessment is formative in nature when it is used to illustrate the process of learning, used to make decisions about how to teach, or when assessment attempts to identify if skills are being learned.

Assessment is never easy. At the Queens College Education Unit, we believe along with Wiggins (1999: 42) that, “despite our desire to test what was learned in a dispassionate fashion, no test is ever neutral—about epistemology. Tests *teach*. Their form and content teach what kinds of challenges adults (seem to) value.” Therefore, we are committed to developing critical internal assessment skills for all graduates. Knowledge, skills, and dispositions related to assessment for internal purposes are critical to the development of teachers who can effectively challenge and engage all learners.

Assessment must be at the heart of school reform initiatives and of our preparation of candidates within the Education Unit. Knowledge, skills, and dispositions related to internal assessment strategies are critical to our program graduates. Our candidates must re-frame what has traditionally been a focus on the variability of students and their inherent ability to learn, to a revised focus on variability of instruction. Regular focused internal assessments

provide the information teachers and educational professionals need to create inclusive and welcoming learning environments in which all students are personally engaged and challenged. Our graduates' skills as teachers and educational professionals will be stretched as they provide personalized and differentiated instruction (e.g., Tomlinson, 1999). Knowledge, skills, and dispositions related to assessment among teachers and other educational professionals guide views of the potential competency and value of all learners, including those with diverse instructional needs. Appropriate beliefs will be manifested in a willingness to begin to individualize instruction while simultaneously maintaining high expectations and academic standards.

Knowledge, skills, and dispositions related to assessment will allow our program graduates to engage and challenge all learners while simultaneously building nurturing and democratic learning communities within their schools. Our graduates must have the knowledge, skills, and dispositions to effectively develop, implement, and utilize the evidence they gather through internal assessment to address critical questions related to individualizing instruction within their classrooms: *Which objective should we focus on next? What skills are needed by students to function in this curriculum and how should they be taught? How should I teach these lessons? How could the lessons be made more interesting and relevant to my students? What information and resources do I need?*

### ***Principle 7: Technology***

While we view new technology as one modality among many literacy practices and research tools (Cuban, 1986), its prevalence and unique importance necessitate a focused discussion of computer and related technology within the Educational Unit. Jonnesen, Peck, and Wilson (1999) contend that technology will help students learn to recognize and solve problems, comprehend and construct mental models of new concepts, set goals, and regulate their own learning. Teachers' roles, as a result, change to guiding students to develop these skills. To do this well, teachers need to revisit the role of technology in the context of instruction in order to develop classes that will prepare students for this altered information environment. While the goal may be clear, the strategy and tactics to be employed in achieving this end are not. A key factor in the development of strategic plans to meet the goal outlined above is the place of technology. The advantages of technology are widely discussed. The Internet "provides an ideal learning environment to learn by doing, to receive feedback, to refine understanding based on new knowledge and to visualize difficult concepts through modeling and visualization software" (Jonassen, Peck, & Wilson, 1999).

More specifically, technology can be used to bring exciting curricula based on real world problems to the classroom. It can provide scaffolds and tools to enhance learning; give students and teachers more opportunities for feedback, reflection and revision. It can also build local and global communities that include teachers, students, parents, practicing scientists, and other interested individuals. Technology can also expand opportunities for teacher learning (Technology & Learning, 2002).

The International Society of Technology (ISTE) coincides with the New London Group (1996/2000) in pointing out that future learning environments will contrast with their predecessors in a number of ways (Technology & Learning, 2002). In the future, as the ISTE sees it, learning will:

- ☑ *be student centered rather than teacher centered,*
- ☑ *be multi-sensory media based rather than single sense based,*
- ☑ *make use of multimedia not simply print mediated,*
- ☑ *foster collaborative work rather than individual efforts,*
- ☑ *emphasize the exchange of information as opposed to its delivery from the teacher,*
- ☑ *aim at the development of critical thinking and decision making not the retention of facts and specific knowledge,*
- ☑ *promote proactive learning activities rather than passive learning, and*
- ☑ *present problems in an authentic real world context.*

The ISTE adds to its support for the use of technology in education by pointing out “research shows that students with access to (a) computer assisted instruction, (b) integrated learning systems, (c) simulations and software for higher order thinking, (d) collaborative based technologies, and (e) design and programming technologies, tended to do better on standardized tests measuring achievement” (Technology & Learning, 2002).

The appropriate roles of technology in education are to provide tools to support knowledge construction; permit access to information vehicles for exploring knowledge to support learning by use; supply a context to support learning by doing; establish a social medium to support learning by doing; and establish an intellectual setting to support learning by reflecting (Jonassen, Peck, & Wilson, 1999). However, instructional technology, especially the newer electronically based resources, should not be viewed as a panacea. These technologies cannot be used for the sake of being used and appearing to be current but should be both meaningful and appropriate. A guiding question for the use of instructional technology should be “What can instructional technology do that can not be done as well by other means?” When its use supplements and compliments the learning process, it is appropriate. What cannot be repeated is the misuse of media (e.g., showing a video without appropriate initiating and follow-up activities). Instead, technology ought to be woven into every aspect of the curriculum and used “to foster the creation of active, multidimensional lessons that scaffold student learning” (Oates & Lipton, 1999).

None of these ends will be achieved unless our candidates are prepared to incorporate technology into their teaching in appropriate and effective ways. The faculty of the Education Unit endorses this endeavor. Only by acting as role models for the appropriate and innovative uses of technology in their own courses, especially methods courses, can the Unit ensure that its students/candidates will become familiar with software, multimedia resources and Internet based resources that will support learning within all disciplines and levels of learning. This should include assistive technologies to ensure the inclusion of students with special circumstances in the learning process to attain their place in society as well.

The City University of New York has outlined these in its “CUNY-Guidelines for Technological Literacies for Students and Faculty” (City University of New York, 2002). These guidelines state that faculty and students should use technology to:

- ☑ *communicate among faculty and between faculty and student (e.g., use email, presentation software, Blackboard or other classroom management tools, create web pages and web sites);*
- ☑ *improve teaching and learning (e.g., address different learning styles, use assistive technology to assure all students have the opportunity to learn and create and use multimedia resources)*
- ☑ *promote research and intellectual development (e.g., obtain and evaluate information found on the Internet)*

To these, we would add that students must be made aware of ethical and “netiquette” issues: (e.g., be familiar with current concepts of intellectual property laws, plagiarism, and the Digital Millenium Copyright Act).

A second major consideration concerns the competence of the students/candidates as they begin their professional careers. The ISTE has established six standards for teachers (Educational Technology Standards and Performance Indicators, 2002). Teachers demonstrate:

- ☑ *A sound understanding of technological operations and concepts including the obligation to stay abreast of current and emerging technologies;*
- ☑ *the ability to plan and design effective learning environments and experiences supported by technology;*
- ☑ *the implementation of curricular plans that include methods and strategies for applying technology to maximize student learning;*
- ☑ *the application of technology to facilitate a variety of assessment and evaluation strategies;*
- ☑ *the use of technology to enhance teacher productivity and professional practices;*
- ☑ *the understanding of social, ethical, legal and human issues surrounding the use of technology in PK-12 schools and applying these principles.*

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