Strange Bedfellows: No Child Left Behind and Service-Learning

Pamela J. Gent
Clarion University

This article explores the relationship between service-learning and the scientifically-based research clause of the No Child Left Behind Act. It reviews the state of the service-learning literature base with regard to academic achievement, and provides specific strategies in which service-learning can be used under the guise of No Child Left Behind, including pairing service-learning with other school reform efforts and using service-learning strategically.

Some view the *No Child Left Behind Act* (Public Law 107-110, 2002) as the school yard bully of public education. Bullies are usually big and strong. They control others through threats and the use of force. They tend to have little empathy for the people they are trying to control. They expect others to cowtow to their demands. They create environments of fear and frustration. The *No Child Left Behind Act* forces schools to do what it wants and punishes them if they do not. *No Child Left Behind* declares the principal and foremost role of the schools is to ensure that students acquire academic skills. This act mandates, "curriculum, and instructional materials [that] are aligned with challenging State academic standards" (*No Child Left Behind*, § 1001, 115 Stat. 1439). *No Child Left Behind* requires all students to perform at "proficient" levels in mathematics, reading, and science by 2013-2014. If students in schools do not perform at this level, *No Child Left Behind* authorizes the withholding of 25% of the state's administrative funds under Title I, Part A. This can be a hefty loss and significantly impact the fiscal survival of the schools. *No Child Left Behind* also mandates that schools identified as "in need of improvement" be overhauled and employ methods of instruction that have been scientifically validated.

What will happen to service-learning at a time when schools are bullied into adopting methods of instruction that have been validated by rigorous, scientifically-based research as specified in *No Child Left Behind*? The power of a bully is reduced when others are educated about the bully's methods, we empower the victims, and we commit ourselves to creating a better environment (Barone, 1997; Benard, 2004; Henderson & Milstein, 1996). To create the best learning environments, it is important that university faculty educate themselves about *No Child Left Behind* and its application to service-learning and to the reforms posited by the service-learning movement.

Scientifically-Based Research

No Child Left Behind uses the phrase "scientifically-based research" more than 100 times (Center on Education Policy, 2003). Without a doubt, Congress wants schools to avoid the use of teaching methods "that had no scientific evidence and effectiveness and were not improving children's academic achievement" (Center on Education Policy). In doing so, Congress emphasizes the need to use teaching methods based on "experimental studies that randomly assign subjects to experimental and control groups" (Center on Education Policy, 2003, p. 163). *No Child Left Behind* defines scientifically-based research as "research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs" (*No Child Left Behind*, § 9101, 115 Sta. 1964). According to *No Child Left Behind*, scientifically-based research is research that: employs systematic, empirical methods that draw on observation or experiment; (ii) involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn; (iii) relies on measurements or observational methods that provide reliable and valid data across evaluators and observers, across multiple measurements and observations, and across studies by the same or different investigators; (iv) is evaluated using experimental or quasi-experimental designs in which individuals, entities, programs, or activities are assigned to different conditions and with appropriate controls to evaluate the effects of the condition of interest, with a preference for random-assignment experiments, or other designs to

the extent that those designs contain within-condition or across-condition controls; (v) ensures that experimental studies are presented in sufficient detail and clarity to allow for replication or, at a minimum, offer the opportunity to build systematically on their findings; and (vi) has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review (§ 9101, 115 Stat. 1964-1965).

This type of experimental research is the most powerful means of testing cause and effect relationships. Because the purpose of education is to cause change and improvement, experimental research enables researchers to say with confidence that a particular method results in particular changes in students' achievement (Lee & Yarger, 1996).

To help school districts and educators learn about scientifically-based research, the U.S. Department of Education established the "What Works Clearinghouse." The "What Works Clearinghouse" reviews efficacy data from programs to determine those that meet the scientifically-based research criteria and makes this information available via a Web site (http://www.w-w-c.org/). Thus, everyone—schools, administrators, teachers, teacher educators, parents, and students—will know which methods of instruction are scientifically validated as effective methods of instruction.

Service-Learning and Scientifically-Based Research in Service-Learning

Where does service-learning fit in? On the surface, service-learning is a stark contrast to *No Child Left Behind*. Proponents of service-learning believe that education is not just about academics. Education should be transformative, and schools should prepare students to be social change agents and collaborative problem solvers (Buchen, 1995; Myers & Pickeral, 1997; Skrtic, 2004; Strand, Marullo, Cutforth, Stoecker, & Donohue, 2003). That is not to say that service-learning overlooks the acquisition of academic skills; according to the National Commission on Service-Learning (2002), teachers "have a definite responsibility to teach students the academic skills they need."

Service-learning is not listed on the "What Works Clearinghouse" Web site as an effective, scientifically-valid form of instruction. Furthermore, in all probability, it will not be listed as an effective, scientifically-valid form of instruction in the near future. The research on the relationship between service-learning and student academic achievement is very weak (Eyler, 2000). "There is a paucity of research evidence documenting the effectiveness of service-learning in reaching educational objectives of the course, [and] the curriculum" (Bringle & Hatcher, 2000, p. 68). We are unable to answer a very fundamental question, "In comparison with other pedagogies, how effectively does service-learning help student achieve a variety of traditionally-valued disciplinary goals?" (Zlotkowski, 2000, p. 63).

Some argue that we are conducting research about the effect of service-learning and academic achievement because some of the quantitative research we do sounds as if it is scientifically-based research. The research talks about validity, of dependent and independent variables, and control groups; it uses statistical analysis; it examines such factors as cognitive engagement, grades, homework completion rates, and attendance rates (Eyler, 2000). But these do not make the research scientifically-based. To be deemed scientifically-valid, a study on service-learning as a teaching technique must randomly assign a relatively large number of matched students to two groups, a control group and a treatment group that uses a well defined and replicable version of service-learning. The study must measure students' academic achievement using standardized measures of achievement pre and post service-learning.

Most quantitative research conducted on service-learning can be best described as quasi-experimental. It uses correlation designs and relies on "the self-selection of participants into groups that produces pre-existing differences in groups" (Bringle & Hatcher, 2000, p. 72). These are both hallmarks of quasi-experimental research (Cook & Campbell, 1979). Moreover, most of the studies of the effects of service-learning on students' academic achievement use self-report measures in which students report how much they have learned (Steinke & Buresh, 2000). These measures, even when they use well constructed questionnaires or interviews, do not meet the criteria for scientifically-validated methods as outlined in *No Child Left Behind*.

For instance, the largest study of service-learning, the *National Evaluation of Learn and Serve America* (Center for Human Resources, Brandeis University, 1999), did not use the rigorous, systematic methods of experimentation required by *No Child Left Behind*. It examined extant groups of students in schools that were using a variety of different techniques consonant with the pedagogy of service-learning. The study did not look specifically at achievement test scores or attainment of academic standards. Although the report did not conclude that service-learning would harm students, it also

did not provide the type of evidence required for it to be considered a scientifically-validated method of instruction. Likewise, the Michigan Learn and Serve study (Billig & Klute, 2003) examined student academic achievement using a standardized test of achievement, the Michigan Educational Assessment Program, and found positive relationships between test scores and service-learning in fifth graders. Rather than assigning students to "service-learning" and "no service-learning" groups, however, the study used extant groups of students in a building or class. The 1,988 students were very unequally divided into treatment and control groups; 1,437 students participated in service-learning and 551 did not. Therefore, the study will not be evaluated favorably in relation to the scientifically-valid criteria outlined in *No Child Left Behind*.

Why do we still have so little scientifically-based research on service-learning and academic achievement? Service-learning "began with a moral imperative: a philosophical base about what is right for students. As such, initial service-learning publications focused on the virtues of service-learning…followed by publications that were essentially program descriptions" (Gent & Gurecka, 1998, p. 269). As the research base began to develop, much of it was not scientifically-based research because scientifically-based research generally has not been the norm in education (Center on Education Policy, 2003) or in most of the social sciences. Some service-learning proponents argued in this Journal that quantitative research is too limited and will not capture the depth and richness of the service-learning experience (Shumer, 2000). As such, they endorsed shunning the conventional or traditional "rigid' cookbook'" (Strand et al., 2003, p. 10) research methods which narrowly define a problem and work to advance the knowledge of the field. Instead, they advocated using more qualitative, community-based research in which knowledge is created or discovered (Strand et al.). An additional complication is that what is called service-learning is wide-ranging and, as such, includes a diverse assortment of activities, methods, and practices conducted in numerous settings by a wide variety of people (Billig, 2004; Shumer).

Several prominent researchers in the field have repeatedly acknowledged that we must conduct more research to validate the effectiveness of service-learning on academic learning (Billig, 2000; Bringle & Hatcher, 2000; Giles, Honnet, & Migliore, 1991). In March, 1991, the first service-learning research agenda listed impact on student learning as its initial goal (Howard, Gelmon, & Giles, 2000). In 1997, the goal to research service-learning and student learning outcomes was reiterated. These goals were not met, and the call for research on service-learning and academic achievement was repeated once again in 2000 (Bringle & Hatcher; Eyler, 2000). Until we have this data, teachers and teacher educators must admit that service-learning may not always work (Moore, 1999) to produce academic gains in students. Moreover, until we have this data, service-learning will not be accepted and advanced by the "What Works Clearinghouse" as a research validated method of instruction as defined by the *No Child Left Behind Act*.

Impact of Scientifically-Based Research Clause on Teacher Preparation

In the past decade, we have increasingly emphasized service-learning as a pedagogical technique in Colleges of Education. Indeed, Myers and Pickeral (1997) deemed service-learning "an essential process for preparing teachers" (p. 13), and the American Association of Colleges for Teacher Education published an entire book dedicated to service-learning in teacher education (Erickson & Anderson, 1997). The *No Child Left Behind Act* of 2001 is changing the practice of teaching; with it, the practice of teacher education is also changing (Zancanella & Noll, 2004). Policy makers now insist that teachers are accountable for student achievement in mathematics, reading, and science, and teachers must demonstrate that their students actually learn academics "to some reasonable and acceptable level of proficiency" (Fenstermacher & Richardson, 2005). The National Council for Accreditation of Teacher Education (NCATE) seems to endorse this when it says that "Candidates for all professional education roles are expected to demonstrate positive effects on student learning…Student learning should be demonstrated directly by all teacher candidates during clinical practice." (2006, p. 19). In Washington, teacher preparation programs must demonstrate that their graduates make "a positive impact on student learning" (Griffin & Hett, 2004, p. 2) to receive approval for their programs. In Louisiana, the Louisiana Teacher Quality Initiative measures student achievement and relates this to the teacher's preparation and preparation program (Cochran-Smith, 2005). The Initiative has resulted in visible changes in teacher training programs in Louisiana colleges and universities.

It is expected that future teachers will be taught those scientifically-based methods of instruction that have produced documented gains in student learning (Browder, Karvonen, Davis, Fallin, &

Courtade-Little, 2005). The U.S. Department of Education (2002a) has repeatedly stated that teacher preparation needs to "change dramatically" (p. 8). The 2002-2007 strategic plan for the U.S. Department of Education outlines a plan to "work with states to ensure that all professional development funded through Department programs focuses on research-based instructional practice" and that "programs for new teachers…are focused on research-based practices" (2002b, p. 48). Moreover, school districts are clamoring for teachers who have been trained in research-based strategies (Lyons & Algozzine, 2006). In North Carolina, school administrators are motivated to hire teachers skilled in scientifically-based strategies because when a school meets or exceeds the targeted achievement scores, the principal and teachers receive financial bonuses. When the school doesn't meet the targeted scores, the state sends a state assistance team to the school to help improve curriculum and instruction (Browder et al., 2005). Poplin and Rivera (2005), of Claremont Graduate University, recount how the graduates of their teacher preparation program which focused on social justice were not being hired because the graduates could not produce noticeable gains on achievement test scores. A principal in New York noted, "If your program provides your students with the right skills, your students get hired" (Dean, Lauer, & Urquhart, 2005, p. 288).

Will this emphasis on scientifically validated teaching methods cause those of us in teacher preparation to focus solely on scientifically-based methods of instruction? Will it cause us to eliminate service-learning in teacher preparation programs? The answer is no. There are at least three alternatives to the elimination of service-learning as a teaching method—wait and see, teach future teachers to link service-learning with other reforms, and teach future teachers to use service-learning in a strategic manner.

Wait and See

The suggestion that we do nothing but "wait and see" stems from two types of wishful thinking. The first is the notion that a change in the Administration will result in the repeal of portions of *No Child Left Behind*. The second is the dream that the U.S. Department of Education will not really enforce the policy of scientifically-based research. Indeed, when the Center on Education Policy (2003) surveyed the state Departments of Education about their interpretation of the policy on scientifically-based approaches, only 23 states said that the U.S. Department of Education was "very strictly" or "moderately strictly" enforcing the policy. Thus, some of us may "wait and see" if the U.S. Department of Education does not strictly enforce the mandate of scientifically-based approaches. This "wait and see" attitude, however, will leave us unprepared should the Department strictly enforce the standards. Because bullies flourish in environments where their activities are ignored (Barone, 1997), waiting to see what happens will also allow the bully to victimize more schools.

Linking Service-Learning with Other Reform Efforts

The power of a bully is sometimes reduced when the bully collaborates with others in pro-social activities or when others befriend the bully (Barone, 1997; Benard, 2004; Henderson & Milstein, 1996). A viable recommendation, then, is to teach future teachers to link service-learning with other school reform efforts that use scientifically-valid methods of instruction. Adopting reform efforts that combine service-learning with other school reforms will facilitate change (Gent & Gurecka, 1998; Pearson, 2002) and ensure a continued role for service-learning in the schools.

On the surface this sounds ideal, but a more in-depth analysis reveals that this may be more difficult than it sounds. The reform models that best meet the standards of *No Child Left Behind* are not the reform models that work best with service-learning. Pearson (2002) reviewed 28 comprehensive school reform models and rated their compatibility with service-learning. None of the models deemed highly compatible with service-learning were listed as "Proven Practice" or "Promising Practices" models that increase the percentage of students performing at grade level or meeting state curriculum standards (see table 1).

Further, none of the models deemed highly compatible with service-learning provided strong evidence of positive effects on student achievement according to the Educational Research Center (1999). Indeed, as Table 1 indicates, the two models of school reform ranked as the most highly compatible with service-learning (Coalition of Essential Schools and League of Professional Schools) were rated marginal in positive student achievement effects. Conversely, the two models that provide strong evidence of positive effects on student achievement (Direct Instruction and High Schools that Work) were not rated as highly compatible with service-learning by Pearson (2002). Thus, there is a wide chasm between service-learning and school reform models that produce substantiated effects on student learning.

Table 1
Compatibility of Service-Learning with Scientifically-Based School Reform Models

School Reform Models	**Compatibility with Service-Learning** *(Pearson, 2000)**		**Rank of Compatibility with Service-Learning** *(Pearson, 2000)*	**Evidence of Positive Effects on Student Achievement** *(Educators Guide to School Wide Reform, 1999)***
Accelerated	Highly compatible	4.75	3	Marginal
America's Choice	Compatible	3.66	11	No research
Atlas Communities	Compatible	4.16	7	Promising
Audrey Cohen College	Highly Compatible	4.58	4	Promising
Center for Effective Schools	Highly Compatible	4.50	5	Not listed
Coalition of Essential Schools	Highly Compatible	5.00	1	Marginal
Community for Learning	Compatible	4.16	7	Promising
Community Learning Centers	Compatible	3.91	9	No research
Co-Nect	Highly Compatible	4.50	5	No research
Core Knowledge	Compatible	3.91	9	Promising
Different Ways of Knowing	Highly	4.75	3	Promising
Direct Instruction	Compatible	3.50	12	Strong
Expeditionary/Outward Bound	Highly Compatible	4.83	2	Promising
Foxfire Fund	Somewhat Compatible	3.08	14	No research
High Schools that Work	Compatible	4.00	8	Strong
High/Scope	Compatible	4.33	6	Marginal
Integrated Thematic Instruction	Highly Compatible	4.91	2	Not listed
League of Professional Schools	Highly Compatible	5.00	1	Marginal
Learning Network	Compatible	3.66	11	Not listed
MicroSociety	Highly Compatible	4.75	3	Not listed
Modern Red Schoolhouse	Compatible	4.00	8	No Research
Onward to Excellence	Neutral	2.00	15	Marginal
Paideia	Highly Compatible	4.58	4	Mixed, weak
QuEst	Compatible	3.66	11	Not listed
Roots and Wings (Success for All)	Somewhat Compatible	3.41	12	Marginal
School Development Program	Compatible	4.33	6	Promising
Talent Development	Somewhat Compatible	3.41	13	Marginal
Ventures Education Systems Corp.	Compatible	3.75	10	Not listed

* Compatibility Rating Scale
4.5-5 Highly Compatible
3.5-4.4 Compatible
2.5-3.4 Somewhat Compatible
1.5-2.4 Neutral
0-1.4 Not Compatible

** Evidence Rating Scale

Strong indicates four or more studies, using rigorous methodologies, show some positive effects on student achievement, with at least three of such studies showing effects that are educationally (or statistically) significant. Further, only 20 % of studies show negative or no effects on students. To ensure enough information for future replications, at least one study provides information on implementation as well as on effects.

Promising indicates three or more studies, using rigorous methodologies, show positive effects of the approach on student achievement, with at least one such study showing effects at statistically or educationally significant levels. No more than 30 % of studies show negative or no effects on students, and at least one study provides information on implementation. Evidence that is rated as promising, rather than strong, may include fewer studies using rigorous methodologies, fewer studies showing significant effects, or a higher proportion of studies showing negative or no effects.

Marginal indicates at least one study, using rigorous methodology, shows positive effects of the approach on student achievement. At least 50 percent of studies show positive effects on student achievement. Evidence that is rated marginal rather than promising may include fewer studies using rigorous methodologies, fewer studies showing significant effects, or a higher proportion of studies showing negative or no effects.

Mixed, weak, or no effects indicates at least one study, using rigorous methodology, shows negative or no effects of the approach on student achievement. Evidence that is rated mixed, weak, or no effects rather than marginal may include the same number and quality of studies, but the findings are negative or ambiguous rather than positive.

No research indicates there are no methodologically-rigorous studies by which to assess effects of the approach on student achievement.

We are at a crossroads. If we advocate that schools adopt models of instruction highly compatible with service-learning, we put schools at risk for not meeting the scientifically-valid research clause of *No Child Left Behind*. If, on the other hand, we advocate that schools adopt models of instruction that are scientifically-validated, we put schools at risk for not being able to implement service-learning. It is to our advantage, therefore, to compromise and accept the use of instructional models that are not the most highly compatible with service-learning.

For instance, direct instruction can be combined with service-learning. Direct instruction is a top-down approach that focuses on acquisition of academic skills and uses a precisely structured, quick paced format to do so (Carnine, Silbert, & Kameenui, 1990). Direct instruction begins with a short statement of the goals for a lesson followed by a daily review of prerequisite skills. Then new material is presented in small steps; one point is taught at a time. After a focused lesson on a topic, teachers provide students with guided practice complete with corrections and feedback. Independent practice follows (Rosenshine, 1987). Service-learning can provide the next steps in the learning process—more independent practice and generalization. Generalization is the ability to apply knowledge or skills in new situations or to new problems (Snell & Brown, 2000). It is the transfer of the skill from the classroom setting to the real setting. Thus, service-learning will complete the instructional process that began with direct instruction of a skill or concept. The combination of direct instruction with other forms of teaching is "innovative and powerful" (Knight, 2005, p. 265). While this combination does not result in the most optimal platform for service-learning, combining service-learning with scientifically-valid forms of instruction will enable some service-learning to remain in the schools.

Strategic Use of Service-Learning

Bullying is reduced when we pinpoint the places where is bullying is most likely to happen and monitor those place (Barone, 1997). *No Child Left Behind* clearly pinpoints academics, and until enough rigorous scientifically-based evidence has been collected to conclusively demonstrate that service-learning improves academic achievement in students, *No Child Left Behind* will limit teachers' ability to use service-learning. Teachers will not be able to use service-learning with all students in every grade, in all classes, for all subjects, for most of the day, for the entire school year or semester, in every public elementary and secondary school. But teachers can still use service-learning if they use it in a strategically and targeted manner that meets the mandates of other sections of *No Child Left Behind*.

No Child Left Behind references service-learning or service at least a dozen times and includes a sec-

Table 2
NCLB and Strategic Use of Service-Learning

Topic	**Section of Law**
Innovative programs such as service-learning	§ 5131, 115 Stat. 1781, 2001
Students with gifts and talents	§ 5464, 115 Stat. 1827, 2001
Drug and violence prevention programs	§ 4115, 115 Stat. 1749, 2001 § 4121, 115 Stat. 1751, 2001
Service for students with limited English proficiency	§ 3212, 115 Stat. 1709, 2001
Mentoring programs	§ 4130, 115 Stat. 1758-1759, 2001 § 3247, 115 Stat. 1727, 2001
Small learning communities	§ 5441, 115 Stat. 1823, 2001
Character education	§ 5431, 115 Stat. 1819, 2001
Civic education	§ 5441, 115 Stat. 1823, 2001
Integrating Alaska Native, Hawaii Native, and Native American children with their elders	§ 7121-7304, 115 Stat. 1920-1944, 2001
Reduction of drop-out rates	§ 1822, 115 Stat. 1613, 2001 § 6223, 115 Stat. 1895, 2001 § 7121, 115 Stat. 1920, 2001
Economic education	§ 5533, 115 Stat. 1849, 2001
Community technology centers	§ 5513, 115 Stat. 1844, 2001
Emergency Immigrant Education Program	§ 3241, 115 Stat. 1723, 2001
Career education	§ 1825, 115 Stat. 1616, 2001

tion specifically funding service-learning programs as innovative programs. Service-learning is also mentioned in certain circumstances in which non-academic gains are the goal. Additionally, service-learning, while not mentioned specifically, can be used as a methodology to meet the goals of other parts of the law (Billig & Brown, 2002). A brief overview is provided in Table 2. A discussion of some of these targeted and strategic uses of service-learning follows.

Service-learning is mentioned specifically as an innovative program in the section of *No Child Left Behind* that makes funds available to school districts for innovative programs (§ 5131, 115 Stat. 1781). This section refers to "community service programs that use qualified school personnel to train and mobilize young people to measurably strengthen their communities through nonviolence, responsibility, compassion, respect, and moral courage" (§ 5131, 115 Stat. 1781).

No Child Left Behind specifically mentions service-learning as a teaching methodology to be used (without regard to scientifically-valid instruction) with students identified as gifted and talented (§ 5464, 115 Stat. 1827, § 5464). Why would Congress recommend specifically that students with gifts and talents experience service-learning, in spite of it not being a research-validated method, while Congress does not afford the same opportunity to other students? Perhaps the rationale for including service-learning for students with gifts and talents is that students with gifts and talents generally master basic academic skills and score well on standardized assessments. Thus, Congress might be less concerned about using research-validated methods with these students. Instead, because the students are already proficient in academics, schools can concentrate on other less tangible attributes such as responsibility, problem-solving, compassion, connection to the community, etc. with these students.

No Child Left Behind also specifically mentions service-learning as a tool to be used in drug and violence prevention programs (§ 4115). These drug and violence prevention programs can include alternative education programs, video-based conflict resolution programs, child abuse prevention programs, and "community service and service-learning projects, designed to rebuild safe and healthy neighborhoods and increase students' sense of individual responsibility" (§ 4121, 115 Stat. 1751). The focus of these programs is not on academic achievement but instead on the development of skills and appropriate attitudes. Thus, the law recognizes that service-learning may not result in academic changes, but it can change attitudes or contribute to changes that will benefit the community as a whole. It also suggests that we can continue to use service-learning if we do so strategically—as a tactic to reduce drug use and to prevent violence.

Similarly, *No Child Left Behind* provides grant funds to mentor children and youth who are at risk for school failure or dropping out; for involvement in criminal, delinquent, or gang activities; or who lack positive role models (§ 4130, 115 Stat. 1758; §6223, 115 Stat. 1895). Hopefully, involvement with a mentor will decrease gang involvement, decrease drop out rates, improve interpersonal relationships, improve academic achievement, and reduce juvenile delinquency. Mentors can include responsible adults, college students, and high school students who have been screened, trained, and who are interested in working with others. Because this section of *No Child Left Behind* does not focus on academics, service-learning can be used as a vehicle to build positive connections between students and their community mentors. Thus, service-learning can be used for this specific population of students.

Sprinkled throughout *No Child Left Behind* are sections in which service-learning can easily be used as a technique to meet the goals of other programs. For instance, the "Partnerships in Character Education" section of *No Child Left Behind* funds programs that develop such character traits as caring, responsibility, respect, and trustworthiness (§5431, 115 Stat. 1819). The law does not stipulate the use of scientifically-based methods when developing these character traits. Therefore, the use of service-learning would be acceptable. Service-learning has been billed as a "gateway asset" (Scales, 2004, p. 28) because there is a positive correlation between service-learning and the development of caring, equality and social justice, and interpersonal competence (Scales). Clearly, then, we could use service-learning with all students if the purpose of service-learning is to develop character.

Similarly, *No Child Left Behind* provides grant funding to break down large schools into small learning communities (§ 5441, 115 Stat. 1823). When developing these small learning communities, the law suggests the use of special curriculum or curricular emphases, instructional practices, and organization strategies (§ 5441, 115 Stat. 1823). Once again, no mention is made of the need to promote academic gains or to use scientifically-based methods. Once again, service-learning can be employed as part of our strategy to build small learning communities.

Moreover, Title IV of *No Child Left Behind* (§ 4205) promotes the development of community

learning centers that would provide a wide range of before and after school activities as well as summer activities. The primary goals of these centers would be to improve student academic achievement, but a "broad array" (*No Child Left Behind*, § 1772) of activities could be incorporated into these centers including character education programs, telecommunications, and technology education programs. Although not specifically mentioned, service-learning could be used to do these things if we can show that the service-learning "program or activity will help the students meet…local student academic achievement standards" (§ 1772). Local academic achievement standards vary greatly; many local standards include more than the math, reading, and science standards required by the federal government. For instance, school districts in Pennsylvania have standards for mathematics; reading, writing, thinking, and listening; science and technology. They also have standards for history; health, safety, and physical education; geography; family and consumer sciences; environment and ecology; economics; civics and government; career education and work; and arts and humanities.

Additionally, the "Civic Education" section of *No Child Left Behind* mentions the need to foster civic competence and responsibility in students and charges the Center for Civic Education for doing so (§5441, 115 Stat. 1823). No mention is made of the need to promote academic gains or to use scientifically-based methods. Service-learning could be used. Indeed, several states recommend service-learning as an appropriate method of civic education (Piscatelli, 2004) because there is a positive correlation between service-learning and the development of equality and social justice values (Scales, 2004), civic and political involvement, voting, campaign contributions, and service on public boards (Perry & Katula, 2004).

Service-learning could also be used to meet the *No Child Left Behind* provisions for programs that integrate Alaska and Hawaii Native children and Indian children with their elders and seniors (§7121-7304, 115 Stat. 1920-1944) because the goal is connectedness and not academic gains. Children and their elders could work in tandem to resolve a pressing community issue or meet a community need.

No Child Left Behind allocates funds for "creating and conducting school-based student activities to promote consumer, economic, and personal finance education" (§5533, 115 Stat. 1849). This section of the law does not specifically cite service-learning nor does it discuss the need to promote academic gains or use scientifically-based methods. Once again, service-learning can be used to teach consumer and personal finance education. Service-learning projects involving fund raising or the production of consumer information brochures would be acceptable. This limited and targeted use of service-learning can achieve the goals of this section of *No Child Left Behind*.

Similarly, *No Child Left Behind* allocates funds for programs that provide technology to community residents. It specifically mentions "after-school activities in which children and youths. . .develop their technical skills, explore the Internet, and participate in multimedia activities including web page design and creation" (§5513, 115 Stat. 1844). Again, this section of the law does not specifically cite service-learning or scientifically-based methods, but service-learning can come into play as students teach computer skills to their parents, senior citizens, younger children, or other community members; or develop PowerPoint presentations, Web sites, and brochures for community nonprofit agencies. The strategic use of service-learning would be acceptable because it is used to meet the goals of a section of *No Child Left Behind* that does not discuss scientifically-valid research.

Bullies sometimes bully because others stand by and do nothing (Barone, 1997). We can do something; we can teach future teachers to use service-learning in a strategic and deliberate manner. We can teach future teachers to carefully target when, where, and with whom to use service-learning within the mandates of *No Child Left Behind*. Some may argue the targeted, selective, tactical use of service-learning is selling-out, that it is not true to the fundamental core and principles of service-learning. I argue that the strategic use of service-learning is a realistic and pragmatic approach to the limitations placed on us by the scientifically-valid research clause of *No Child Left Behind*. I would rather see limited use of service-learning while we conduct the research we need on service-learning than to see the demise of service-learning as a pedagogy.

Conclusions

Farber's Fourth Law says "Necessity is the mother of strange bedfellows." Service-learning and the *No Child Left Behind Act* are indeed strange bedfellows, and current circumstances necessitate that universities and colleges of education teach future teachers how to combine these two bedfellows. Those of us in the field of teacher education face an unpleasant reality. The *No Child Left Behind Act* limits teachers' ability to use service-learning as a primary pedagogical tool for teaching academic skills in public elementary and secondary schools. Therefore, we must capitalize on the fact that *No Child Left Behind* allows the strategic use of ser-

vice-learning with certain students or in certain situations where academic achievement is not the goal. We must teach future teachers to carefully select when, where, and with whom to use service-learning. Thus, rather than being controlled by the bully of *No Child Left Behind*, we dilute its power by using it to our advantage.

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Author

PAMELA J. GENT is professor of Special Education at Clarion University where she teaches a special education course on service-learning as a tool to build inclusive schools. She is a national peer mentor for service-learning and has published articles on service-learning and people with disabilities in *JASH* and the *Michigan Journal of Community Service Learning*.