Outcomes for Students Completing a University Public Service Graduation Requirement: Phase 3 of a Longitudinal Study

Barbara E. Moely　　　**Vincent Ilustre**
Tulane University

University students who were required to engage in academic public service during college were surveyed just before completion of their undergraduate studies. Views of the graduation requirement remained positive, as they had been at college entry and after two years of study. Civic attitudes, knowledge, and skills were quite stable over four years. At graduation, students maintained increases in valuing of community engagement and in civic knowledge that were seen after two years of college, and showed increases in social justice attitudes and self-ratings of interpersonal skills and civic knowledge. Students reported positive outcomes of their public service, especially in the areas of civic/cultural perspectives and leadership/social skills, and many expected to include a civic responsibility aspect in their careers. Civic interests at college entry and service involvement during college made independent contributions to predictions of civic outcomes and attitudes; although initial civic interest influences gains, college service experiences play an important and unique role in determining students' civic outcomes.

This paper describes the third phase of a longitudinal study conducted at Tulane University, designed to learn about students' reactions to a public service graduation requirement instituted after Hurricane Katrina. In addition to assessing students' reactions to the requirement, the study provided the opportunity to learn about how civic attitudes, knowledge, and skills changed over the college years and to learn about outcomes of public service experiences.

There have been only a few longitudinal studies in the area of students' civic development. Several studies have used retrospective data to attempt to identify early influences on civic engagement (Fenzel & Peyrot, 2005; Warchal & Ruiz, 2004), but these have used the recollections of participants, which may or may not be reliable, and therefore have questionable validity (Achenbach, 1978; Yarrow, Campbell, & Burton, 1970). Other studies have employed short-term longitudinal designs (Bringle, Hatcher, & Muthiah, 2010; Conway, Amel, & Gerwien, 2009; Kiely, 2004, 2005), looking at students over a semester of college or an academic year in precollege classes.

Several longitudinal studies have shown benefits of service-learning for civic and academic outcomes measured several years after participation: Vogelgesang (2009) and Vogelgesang and Astin (2000) showed that involvement in service-learning predicted positive outcomes for civic values and choices of service-related careers by students at the end of four years of college. Lockeman and Pelco (2013) followed a group of more than 3,000 students for six years as they completed their studies at a large urban public university. They tracked student progress through the college years and found that service-learning participation was related to several academic indicators, including credits earned, GPA's, and degree completion. Keen and Hall (2009) reported positive effects of programmatic service involvement on both civic and interpersonal skills of college students. They surveyed Bonner Scholars at college entry, two years later, and at college graduation, and found that the scholars increased from college entry to graduation in social justice attitudes and in self-evaluated skills for dialogue and leadership. In a follow-up study, Keen and Hall (2008) found that program graduates were more likely to be involved in community service than were individuals in a comparison group. So, overall, we see encouraging results from longitudinal studies that have evaluated community involvement as a central part of the college experience.

The longitudinal design used in the present study involved repeated observations of the same individuals over extended periods of time, something that has not often been done in this research field. The study was begun when Tulane University implemented a public service graduation requirement following Hurricane Katrina. Students beginning their studies in the fall of 2006 were the first class to enroll under this requirement. These students, and those entering in subsequent years, were required to take one service-learning course during their first two years at the university and to choose a second public service course or project during their last two years of study. The second experience could be a higher-level service-learning course, a public service internship, a

capstone experience in the major, or a research project. There was little precedent at Tulane for such a broad and sudden change in academic requirements, but after the devastation of New Orleans, bold steps were required (Ilustre, Lopez, & Moely, 2012). The Center for Public Service was charged with implementing the requirement and providing support to faculty and community agencies as they created service-learning and other community engagement opportunities for students. Faculty and community agencies that had already been involved in service-learning prior to 2005 were encouraged to offer additional service-learning courses, while the Center undertook extensive efforts to increase course offerings and service opportunities. By 2014, more than 300 service-learning course sections were offered each year and the Center supervised over 400 students per year in public service internships. Thus, students had many choices of ways in which to complete the graduation requirement.

Because the literature on the effects of such a requirement was limited, and sometimes has shown negative outcomes (Jones, Segar, & Gasiorski, 2008; Marks & Jones, 2004), we decided to begin research to learn about how students were reacting to the requirement. As shown in Table 1, we surveyed entering students in 2006, 2007, and 2008, and then followed them at two- and four-year intervals. Previous reports of this longitudinal study have shown students' initially positive reactions to the graduation requirement (Moely & Ilustre, 2011) and their continued positive engagement after two years of college (Moely & Ilustre, 2013, 2014). The present report adds data from the third assessment, conducted shortly before students completed four years of study at the university, to learn about their views, at graduation, of their involvement in public service activities during college.

In addition, we were interested in tracing development over time in students' civic attitudes, knowledge, and skills. Moely & Ilustre (2011) described the measures developed for this study and the characteristics of the entering classes involved in the research. In a later report, Moely & Ilustre (2013) showed students' civic attitudes, knowledge, and skills remained stable over a two-year interval, but also showed overall increases on some measures by the end of two years of university study: Students showed increased mean scores on measures of Valuing of Community Engagement, Seeks Knowledge about Political/Social Issues, Knowledge of New Orleans Culture and Issues, and Knowledge of Current Events. The present study examined student responses after four years, to determine the extent to which these measures continued to reflect stable attitudes from college entry, to see if changes over time would be maintained, and to see if additional growth would be seen.

An important question concerns the outcomes students perceive to have resulted from their involvement in the community. We were interested in their views of the outcomes of community involvement, their career plans, and the extent to which they anticipated that their careers would include a civic/community aspect. In addition to structured questions about these outcomes, students responded to open-ended questions about their public service participation.

Finally, we looked at factors that might affect attitudes and outcomes. In a time-lag design, Moely & Ilustre (2013) showed that students' attitudes and self-evaluations after two years of college were different for those who entered the university after the requirement was implemented than for those who entered earlier, indicating the impact of the post-Katrina college experience. Moely & Ilustre (2014) showed the importance of one kind of experience that students had over their first two years of college, participation in high-quality service-learning courses. In the present study, we looked at two possible factors influencing student attitudes at college graduation. First, we considered the civic interest that students expressed at college entry. Moely & Ilustre (2013) found that students' reasons for choosing this university and their expectations for college were related to civic attitudes, knowledge, and skills at college entry and after two years of university study. Would this pattern continue through two more years? The second factor considered was the community service, academic and co-curricular, that students reported having undertaken during college. We expected that the extent of service involvement would be related to students' outcomes, attitudes, knowledge, and skills. We sought to determine the extent to which either or both of these factors related to civic outcomes, attitudes, knowledge, and skills at the end of the senior year.

Research questions were as follows:

1. Do seniors continue to show the positive views of the public service graduation requirement that they expressed in earlier years?

2. Do students' civic attitudes, knowledge, and skills remain stable or change over time?

3. What outcomes do these seniors perceive to result from their public service experiences? Do students' career plans include a civic emphasis?

4. What factors influence student outcomes, as well as their civic attitudes, knowledge, and skills at college completion? How important are students' civic interests at college entry and their participation in public service during college?

Table 1

Research Design, Showing Numbers of Students Entering the University in 2006, 2007, and 2008 Who Participated in Surveys at College Entry (T1), Two Years Later (T2), and Just Before Graduation (T3)

Year of Tulane Entry:	Time of Test (Year)						
	2006	2007	2008	2009	2010	2011	2012
2006	290 T1		47 T2		55 T3		
2007		185 T1		55 T2		55 T3	
2008			195 T1		45 (103) T2		70 (45) T3

Notes: Time 1 (T1): 670 students completed a survey shortly after they entered the university. Time 2 (T2): 250 students completed a survey after two years of study (including 103 who did not complete the T1 survey). Time 3 (T3): 225 students completed a survey shortly before graduating from the university.

5. Do students' qualitative responses to questions about their community engagement support or extend survey findings?

Method

Research Participants

Table 1 offers a schematic of the longitudinal study, showing the numbers of students who completed surveys at each of three testing times. Students were surveyed at college entry (Time 1), after two years of study (Time 2) and again just before the end of their fourth year of study (Time 3). The present report focuses on Time 3 participants, the 225 seniors who completed the senior survey in 2010-2012. The sample includes 180 students who had completed a survey at Time 1 and 45 additional students who had joined the study at Time 2. Most of the students surveyed at Time 3 (87%) were graduating at the end of the semester in which data were gathered.

All students who had completed earlier surveys were invited to participate in the senior surveys through e-mails that explained how to access the survey on the Student Voice website. Students were informed that they would be eligible to take part in a drawing for prizes and were sent several e-mail reminders about the survey.

In order to look for selective attrition in the sample, we considered the 670 students who had completed the survey at college entry. Of these, 180 students completed the senior survey and 353 who were invited to participate did not (137 additional individuals who had completed either the initial or the second survey were no longer at the university at Time 3). As shown in Table 2, there were a few differences at college entry between the students who chose to participate and those who did not: Participating seniors were more likely to be female, had stronger academic records at college entry, were more likely to have attended public high schools, and reported greater enjoyment of their pre-college community service than those who did not complete the survey. They did not differ from non-participants in age at college entry, race/ethnicity, area of origin, parents' education, self-ratings of religiosity, hours of pre-college community service, and perceived impact of their pre-college community service.

Participating students were compared to the larger group of students who had entered the university in 2006 and 2008 (no data were available for those entering in 2007), to see how well they represented the population of students at this university. According to Chi Square Goodness of Fit tests, participants were more likely than the typical Tulane student to be female and were more likely to have attended a public high school ($p < .001$ for each test) but they did not differ in race/ethnicity (white students vs. students of color), parents' education, or plans for highest degree completion.

Students' Public Service Experiences

The public service graduation requirement, instituted in 2006, required students to complete one service-learning course during their first two years at the university and a second, more demanding academic experience (service-learning, internship, community-based research project) during the final two years of study. We asked the students about activities in which they had engaged in order to meet the requirement. All 225 students reported completing at least one service-learning course. To complete the requirement, students took part in public service internships (41% of the sample), completed higher-level service-learning courses (35%), or engaged in community-based research projects organized by faculty members (9%) or created by the student (7%). Other options, chosen

Table 2

Characteristics at College Entry of Time 3 Research Participants and Non-Participants and Comparisons to All Students Entering Tulane in 2006 and 2008

Demographic Indices:	Time 1 2006-2008 Students at College Entry ($N = 670$)	Time 3 2010-2012 Participating Seniors ($N = 180$)	Time 3 2010-2012 Non-participating Seniors ($N = 353$)	2006 and 2008 Entering Classes ($N = 2,235$)
Mean Age in Years at Time 1	18.54 ($SD = 1.40$)	18.34 ($SD = .52$)	18.6 ($SD = 1.66$)	
Gender: % female **	61%	72%	58%	54%
Race: % white students	78%	85%	76%	85%
% from Louisiana	24%	18%	26%	
Father's Education: % Graduate/Prof. Degree	50%	50%	50%	51%
Mother's Education: % Graduate/Prof. Degree	39%	40%	40%	43%
Planning Graduate/Prof. Degree	88%	91%	88%	90%
% Quite or Very Religious	28%	30%	26%	
% Attended Public High school **	69%	75%	64%	68%
High School GPA (4-pt. scale) ***	3.69	3.81 ($SD = .26$)	3.66 ($SD = .41$)	
Hours of service in high school (0-9 point scale)	3.42 ($SD = 2.09$)	3.7 ($SD = 1.99$)	3.32 ($SD = 2.13$)	
Pre-college community service was enjoyable (1-4 point scale) ***	3.24 ($SD = .85$)	3.44 ($SD = .81$)	3.16 ($SD = .84$)	
Pre-college community service had an impact (1-4 point scale)	3.03 ($SD = .94$)	2.99 ($SD = .91$)	3.04 ($SD = .98$)	

Note: Seniors participating in the Time 3 survey differed from those who chose not to participate on the measures for which statistical significance is indicated, at **$p < .01$ or ***$p < .001$.

less frequently, were public service independent study projects or participation in an academic leadership program offered through the Center for Public Service (each of these chosen by 4% of the sample).

Students also took part in non-academic community service organized by various university organizations, including CACTUS, the university's main volunteer service organization (32% participated), residence halls (30%), and Greek or other social groups (37%). Some students (8%) completed service through community-based Federal Work Study. Many (44%) indicated other voluntary service activities, including service activities not based on campus; 42% reported engaging in non-academic service through more than one kind of volunteer opportunity.

The settings in which students carried out academic or volunteer community service included elementary and secondary education programs (69% of participants), nonprofit agencies (40%), agencies focused on community organizing (29%), programs engaged in environmental restoration (28%), medical/health settings (27%), agencies concerned with housing (23%), cultural and arts programs (22%), adult education and ESL programs (22%), advocacy programs (17%), agencies concerned with poverty and homelessness (16%), and other governmental and private agencies (13%). Most students (84%) reported service at more than one kind of site.

Measures

At Time 1, research participants provided information about themselves (gender, ethnicity, area of origin), their pre-college experiences with community engagement, their expectations for college, and their views of the public service graduation requirement (Moely & Ilustre, 2011). At Time 2, after two years of college, participants answered questions about their experiences with service-learning and its impacts (Moely & Ilustre, 2013, 2014). At Time 3, the focus of this paper, new questions focused on students' views of public service outcomes and their plans after graduation. Measures were the following:

Students' evaluations of the public service graduation requirement. As in the earlier assessments, students gave their evaluations of the public service grad-

uation requirement and also indicated the amount of service they had accomplished. See Table 3.

Civic attitudes, knowledge, and skills. These were assessed at all three testing times, using scales developed for this research, described in Moely & Ilustre (2011). Scales are listed in Table 4.

Public service outcomes. Students were asked to indicate the extent to which they had gained from their participation in public service activities. Students were presented with a list of possible outcomes (see Table 5), and asked to indicate, using a five-point scale, the impact of their service experiences on each outcome. A factor analysis yielded four factors that accounted for 65% of the variance in scores. Items were grouped on the basis of this analysis into the four kinds of outcome shown in Table 5: Civic/Cultural Perspectives, Leadership/Social Outcomes, Cognitive/Academic Outcomes, and Plans for the Future/Self Development. Internal consistency estimates (Cronbach's *alpha*) for the measures ranged from .86 to .92, indicating adequate reliability.

Career plans. Students were asked about the nature of the careers they planned to pursue. They were also were asked about the extent to which they planned to include a civic responsibility aspect in their career work, as shown in Table 6.

Students' public service activities. Three measures were used to index students' service over their four years at the university. Students indicated all of the kinds of academically based service and volunteer service they had done over their time at the university. Their reports were used to assess the variety of experi-

ences in which students had taken part: Academically based service experiences ranged from two courses (the minimum needed to meet the graduation requirement) up to a high of five courses. Some students (20%) engaged in no volunteer experiences at all, whereas others reported up to four different kinds of volunteer service activity. A third measure of students' service is the 3-point rating students made of the amount of service done in regard to the graduation requirement (shown in Table 3). The students' ratings of service correlated positively with the number of academic service experiences reported ($r = .31$, $p < .001$, $N = 225$) and also with the number of different volunteer services reported ($r = .38$, $p < .001$, $N = 225$). The latter two measures were not significantly related to each other. In analyses below, we used the student rating measure as the best indicator of the actual amount of service performed, since it appears to reflect both academic and volunteer service.

To gain additional information about their service experiences, we asked students to respond to the following questions:

Describe briefly the public service experience that was most beneficial to your academic, career, and personal development. What about this experience made it beneficial?

What problems did you encounter in your public service activities or in completing the graduation requirement?

Would you recommend Tulane to a young person about to begin college? Please explain.

Students' civic interests at college entry. As they began their studies at Tulane, participants completed a survey that included questions about their civic, academic/career, and social interests. Students indicated the importance of 11 reasons for choosing this university and 13 items about possible gains they might experience during college. Moely & Ilustre (2013) identified 7 items that reflected civic interests, such as attending Tulane because of the opportunities to be engaged in service to the community, expecting to gain leadership skills, and expecting to "make a difference." A summary score, obtained by averaging these items, was used to give an indication of students' interests in civic matters at college entry.

Results

Students' Views of the Public Service Graduation Requirement

As in earlier surveys in this longitudinal study, students were asked to give their views of the requirement and to indicate how much public service they had done during college. Table 3 compares attitudes expressed by students throughout the phases of this longitudinal study, from the time of college entry through two years

Table 3
Students' Views of the Public Service Graduation Requirement at Three Points in Time

Evaluating and Planning for the Public Service Requirement:	Time 1 First Year Students ($N = 670$)	Time 2 After Two Years of Study ($N = 250$)	Time 3 After Four Years at the University ($N = 225$)
Evaluation: *"Do you think that learning about academic subject matter through public service experiences is…"*			
A good idea	57%	65%	70%
OK	31%	29%	26%
No opinion	6%	1%	0%
A bad idea	6%	5%	4%
Plans/Activities: *"How much public service do you plan to do/have you done while here at Tulane?"*			
I plan to/have become very active in the community	27%	14%	14%
More than the amount required if it seems beneficial	57%	61%	68%
Just the amount that is required, no more	16%	25%	18%

Table 4

Stability and Change over Time in Civic Attitudes, Knowledge, and Skills

	Time 1 N = 670 M (SD)	Time 2 N = 250 M (SD)	Time 3 N = 225 M (SD)	Stability: Times 1-2 Times 2-3 Times 1-3
CIVIC ATTITUDES				
Civic Responsibility (From Furco's *Higher Education Service Learning Survey*)	3.11(.48) (4-pt. scale)	3.95 (.72) (5-pt. scale)	3.78 (.65) (5-pt. scale)	.58*** .58*** .49***
Valuing of Community Engagement *Time 1 vs. Time 2: *** *Time 1 vs. Time 3: **	3.62 (.68)	3.93 (.65)	3.93 (.64)	.67*** .65*** .47***
Social Justice *Time 1 vs. Time 3: **	3.78 (.56)	3.86 (.62)	4.03 (.57)	.75*** .76*** .34***
Cultural Awareness	3.78 (.56)	3.87 (.50)	3.91 (.49)	.55*** .61*** .44***
CIVIC KNOWLEDGE				
Seeks Knowledge about Political/Social Issues *Time 1 vs. Time 2: *** *Time 1 vs. Time 3: ***	3.36 (.55)	3.58 (.54)	3.49 (.54)	.71*** .63*** .42***
Knowledge of New Orleans Culture and Issues *Time 1 vs. Time 2: **** *Time 1 vs. Time 3: **** *Time 2 vs. Time 3: **	2.92 (.73)	3.31 (.67)	3.37 (.68)	.56*** .69*** .44***
Knowledge of Current Events *Time 1 vs. Time 2: **** *Time 1 vs. Time 3: ****	3.54 (.89)	3.77 (.81)	3.77 (.84)	.59*** .70*** .47***
CIVIC SKILLS				
Interpersonal Skills *Time 1 vs. Time 3: **	4.00 (.49)	4.18 (.46)	4.21 (.47)	.61*** .66*** .40***
Leadership Skills	3.67 (.65)	3.80 (.62)	3.77 (.64)	.58*** .71*** .47***
Cultural Skills	3.79 (.55)	3.92 (.53)	3.85 (.53)	.62*** .70*** .38***

Notes: $*p < .05$, $**p < .01$, and $***p < .001$
Scores could range from 1 to 5 (indicating extent of agreement with statements) on items contributing to each scale. Significant increases in mean scores from Times 1 to 2 and/or Times 1 to 3 were found for the scales represented by italicized labels. Levels of significance for comparisons of means and assessments of the magnitude of correlations are indicated.

of college and just before graduation. Students continued to be positive in their evaluations of the graduation requirement and about their community service activities over the four years: Only 4% of those responding at Time 3 thought that the public service requirement was a "bad idea," and only 18% indicated that they had done no more than the required amount of service during their four years at the university.

Civic Attitudes, Knowledge, and Skills

Participants used quantitative scales, described by Moely & Ilustre (2011), to characterize their civic atti-

tudes, self-assessed knowledge of civic matters, and self-assessed skills for community engagement. Moely & Ilustre (2013) reported on stability and change in these attitudes and self-assessments from the beginning of college to the start of the junior year. The present report adds information from the third assessment, asking about continued stability and possible additional changes during the last two years of college. As shown in Table 4, scores on each scale were relatively stable over time, with highly significant correlations between Times 1 and 2 and Times 2 and 3, and moderately significant correlations between Times 1 and 3.

Also shown in Table 4 are increases over time, seen

on several measures. Changes during the first two years in college appeared for Valuing of Community Engagement, Seeking Knowledge about Political/Social Issues, Knowledge of New Orleans Culture and Issues, and Knowledge of Current Events. These changes from Time 1 were maintained through the senior year. Significant increases in Social Justice and Interpersonal Skills took place from Time 1 to Time 3. Comparisons of survey responses of students at Times 2 and 3 yielded one significant change – an increase in Knowledge of New Orleans Culture and Issues.

Students' Public Service Outcomes

The third research question concerned students' views of the outcomes of their public service activities. Ratings for each outcome item and for four summary scores are shown in Table 5. The four summary scores differed significantly in mean strength of ratings, according to a repeated measures analysis of variance, $F(3,192) = 24.86$, $p < .001$, $\eta p^2 = .280$. Students reported that public service had stronger effects on their Civic/Cultural Perspectives and Leadership/

Table 5
Students' Reported Outcomes of Public Service Participation

"Through my public service activities, I have:"	N	M	SD
Civic/Cultural Perspectives (*M* = 3.77, *SD* = .84, *N* = 197)			
Learned to see social problems in a new way.	199	3.88	0.99
Learned to appreciate different cultures.	204	3.83	1.02
Changed the way I think about the community/ies in which I worked.	199	3.8	0.95
Changed the way I think about societal problems.	199	3.78	1.02
Gained understanding of individuals different from me in their religious beliefs, political views, or personal values.	203	3.73	1.08
Gained knowledge and skills I will need for my future role(s) as a citizen.	198	3.69	1.06
Been inspired to see out opportunities for community engagement in the future.	199	3.61	1.09
Leadership/Social Outcomes (*M* = 3.73, *SD* = .82, *N* = 203)			
Interacted productively with other students.	204	3.88	0.96
Practiced my ability to lead and make decisions.	204	3.75	1.03
Had opportunities to take a leadership role.	203	3.73	1.16
Developed my leadership skills.	204	3.7	1.17
Been encouraged to form my own solutions to problems.	204	3.69	1.04
Built positive relationships with one or more faculty members.	204	3.61	1.1
Cognitive/Academic Outcomes (*M* = 3.58, *SD* = .90, *N* = 204)			
Integrated my academic and non-academic college experiences.	204	3.71	1.16
Improved my ability to synthesize and organize ideas and experiences.	204	3.62	1.01
Improved my ability to think creatively.	204	3.56	1.02
Improved my ability to make judgments about the arguments or assertions of others.	204	3.54	1.07
Learned to apply theories and concepts from my courses to real situations.	204	3.47	1.18
Plans for the Future/Self Development (*M* = 3.41, *SD* = .96, *N* = 198)			
Acquired knowledge and skills I will need for my future career.	204	3.68	1.19
Gained an understanding of myself.	204	3.65	1.09
Developed a personal code of values and ethics.	203	3.47	1.03
Developed my plans for my career and life's work.	204	3.28	1.31
Formulated my plans for further education.	199	3.2	1.25
Been inspired to become involved in governmental or political activities in the future.	199	3.07	1.3

Note: Participants rated each item on a scale ranging from 1 = *Strongly Disagree* to 5 = *Strongly Agree*.

Table 6

Students' Plans for Engaged Careers: Overall Interest in Future Civic Engagement and Extent of Interest for Those Planning Different Careers

Do you plan to incorporate a civic responsibility aspect into your career work?					% agreeing with each alternative ($N = 224$)
Yes, civic/community engagement will fit well with my career plans.					56%
Possibly, if opportunities become available to me.					41%
No, my career plans do not allow for any civic/community involvement.					3%
Do you plan to incorporate a civic responsibility aspect into your career work?					
Careers Planned:	Medicine ($N = 41$)	Law ($N = 32$)	Business ($N = 29$)	Education ($N = 20$)	Other Careers ($N = 102$)
Yes, civic/community engagement will fit well with my career plans.	71%	81%	35%	50%	50%
Possibly, if opportunities become available to me.	27%	19%	62%	45%	46%
No, my career plans do not allow for any civic/community involvement.	2%	0	2%	5%	4%

Social Skills than on their Cognitive/ Academic Skills and Plans for the Future/Self Development.

Students' Career Plans

Students were asked about their career plans and advanced degrees they planned to pursue. The most popular career choices were in medicine (19%), law (15%), business (13%), and education (9%). Other areas indicated were psychology (5%), architecture (5%), sciences (6%) and the arts (4%). Consistent with these findings, surveys of graduating students conducted at Tulane in 2011, 2012, and 2013 (Ayoubi, n.d.; Busby, 2013, 2014) showed that students most often anticipated careers in medicine, law, education, or various business fields. In terms of career areas, then, this sample is quite typical of Tulane graduates of recent years. Students reported plans to seek graduate or professional degrees appropriate to their career choices.

Also with regard to the third research question, students were asked if they planned to incorporate a civic responsibility aspect into their career work. As indicated in Table 6, the majority (56%) agreed that civic/community engagement would fit well with their career plans, while an additional 41% were open to the possibility of such an emphasis. There was some variation by career area, also shown in Table 6: Students planning careers in medicine and law were particularly positive about future civic/community engagement in their work. Students planning to pursue work in business, education or other fields were positive about engagement, but not as strongly.

Predicting Public Service Outcomes

Research question 4 concerned possible relations between students' civic interests at college entry, the amount of service they carried out during college, and their outcomes and civic attitudes, knowledge and skills at Time 3. In order to investigate the contributions of possible predictors, regression analyses were conducted, each controlling for gender and ethnicity (white students vs. students of color) in the first step and entering in the second step students' civic interests at college entry and their ratings of amount of public service during college. These two predictors were positively, but not strongly, correlated with each other ($r = .22, p < .01, N = 170$). Table 7 summarizes one of the regression analyses, predicting students' Civic/Cultural Outcomes. The first step in the analysis controlled for gender and ethnicity (white students vs. students of color) and the second step evaluated the impact on the outcome measure of civic interests at college entry and amount of service during college. The variables considered in the first step did not predict significantly, but the combination of earlier civic interests and service during college strongly predicted Civic/Cultural Outcomes. As shown in Table 7, each of the predictors contributed significantly to the prediction, showing that they had independent influences on the outcome.

Similar regression analyses were carried out for each of the dependent variables listed in Table 8. In each regression analysis, findings were similar to those for Civic/Cultural Outcomes: non-significant prediction in Step 1, and significant prediction from the combination

Table 7
Predicting Students' Civic/Cultural Outcomes from Their Civic Interests at College Entry and the Amount of Service Done during College

	Dependent Variable: Civic/Cultural Perspectives		
Predictors	*b*	*SE b*	*β*
Step 1: Personal Characteristics			
Gender (1 = Male, 2 = female)	0.041	0.148	0.023
Race (1 = students of color, 2 = white students)	-0.112	0.186	-0.051
Note. Neither of the predictors above was significantly related to the outcome measure.			
Step 2: Precollege Interests and College Experiences			
Civic Interests at College Entry**	0.366	0.104	0.267
Public Service Activities during College***	0.505	0.111	0.346

Notes. For Step 2 prediction, $p(2, 141) = 20.50$, $p < .001$, cumulative $p = .50$
Each of the variables contributed to the prediction of Civic/Cultural Perspectives, at **$p < .01$ and ***$p < .001$

of two variables in Step 2, with strong and independent contributions to each prediction from civic interests at college entry and service during college. Table 8 shows bivariate correlations between each predictor and each outcome/attitude measure. Thus, both the interests students brought to college and their experiences during college contributed to civic outcomes and attitudes at college graduation.

Table 8
Predicting Time 3 Outcomes, Civic Attitudes, Knowledge, and Skills from Civic interests at College Entry and Reported Community Service Involvement during College

	Civic Interests at College Entry	Service Involvement during College
Predicting Outcomes of Public Service Participation (Table 5)		
Civic/Cultural Perspectives ***	.33**	.39***
Leadership/Social Skills ***	.33**	.50***
Cognitive/Academic Skills ***	.28**	.35***
Plans for the Future/Self Development ***	.31**	.43***
Anticipated Civic Responsibility Aspect of Career ***	.29**	.41***
Predicting Civic Attitudes, Knowledge, and Skills (Table 4)		
Civic Responsibility ***	.29**	.35***
Valuing of Community Engagement ***	.34***	.45***
Social Justice **	.09	.17*
Cultural Awareness **	.19	.25**
Seeks Knowledge about Political/Social Issues ***	.30**	.31**
Knowledge of New Orleans Culture and Issues**	.17	.25*
Knowledge of Current Events *	.19*	.26**
Interpersonal Skills **	.15	.23*
Leadership Skills ***	.24**	.32**
Cultural Skills **	.21*	.29**

Note: *$p < .05$, **$p < .01$, and ***$p < .001$
Regression analyses performed for each dependent variable showed significant prediction from the combination of Civic Interests at College Entry and Amount of Service during College for each of the dependent variables listed in the first column, with the significance level for each prediction and each predictor, as indicated. Values shown in the second and third columns are bivariate correlations of measures.

Students' Voices

When asked about their service, students described a wide variety of experiences that had been beneficial to them. In explaining the impacts of the service, they demonstrated many of the constructs measured in our surveys, thus validating the approach to evaluation taken in this research. Responses given by 181 of the 225 participants fell into content areas related to the outcome, attitude, knowledge, and skill measures described above, along with a few additional categories:

Civic attitudes. Some of the students' responses corresponded to civic attitudes we had measured in the surveys:

Responses reflecting Civic Responsibility and Valuing of Community Engagement, Civic/Cultural Perspectives: These responses constituted 9% of the answers students gave to the question about possible benefits of their public service activities. Students spoke about how service experiences gave them an appreciation of the changes one person can make, a realization of how valuable efforts in service could be to a community, and how they had set up programs that they hoped would last long after they had graduated.

Responses reflecting Social Justice: These were given by 7% of the students, who gave examples of how their service experiences had increased their awareness of inequities in society. They saw first-hand the difficulties poor people experienced in access to adequate medical care, educational opportunity, and elderly care, and in their treatment in the criminal justice system. These experiences led them to think critically about changes needed in society, challenges faced by nonprofits attempting to deal with these issues, and the importance of advocacy.

Responses reflecting a civic emphasis in future careers: Only 3% of the responses mentioned this concern, although the open-ended question did not specifically request such information. Consistent with findings shown in Table 6, students planning careers in a variety of professional fields (law, medicine, education, social work) mentioned aims to serve the public, especially those with limited access to services, or to become advocates for people in need.

Knowledge gains. Other responses focused on academic and civic learning:

Responses reflecting cognitive/academic skills: In 12% of their responses, students described ways in which the service experience made course concepts more real; showed them ways in which to relate community engagement to their majors; motivated them in challenging classes; gave them experience with grant writing, planning and conducting research, and report writing; and offered them opportunities to develop their technical skills.

Responses reflecting Knowledge of New Orleans Culture and Issues as well as Cultural Awareness and Skills: Such responses were shown in 8% of students' views of the benefits of service. They described gains in their understanding of New Orleans communities and the structure of the city as a whole, as well as gains in their understanding of different cultures as they learned about different ways of interacting and different lifestyles experienced by members of those cultures.

Interpersonal gains and plans for the future. Students often mentioned personal benefits of service:

Responses reflecting plans for the future, careers, and personal development: A future focus was shown in 22% of the students' responses. Students described experiences that helped them learn what they would experience in medicine, law, education, public health, and other career fields; a few reported that their service experiences had influenced them to change their career plans.

Responses reflecting Interpersonal Skills and Leadership/Social Skills: In 15% of their responses, students reported that their service experiences had provided opportunities for quality interactions with their peers, with faculty, and with community members; enhancing their communication skills; their understanding of individuals of different ages and backgrounds; and their self-awareness. Students particularly emphasized the opportunities for leadership that service offered them and how they had gained in the ability to assume leadership roles.

Rewards of service. These were mentioned by 10% of students, who described enjoyment of public service involvement, pleasure in helping others, or personal rewards experienced in accomplishing a community-based project.

Other responses. A few views did not fit the categories above:

Responses indicating negative views of public service. Only 3% of the responses were negative. Some students did not find their service to be related to their academic studies, career goals, or personal development.

Descriptive responses. Finally, 11% of the responses mentioned the service experiences but did not describe benefits or costs of participation.

Problems in completing service. When asked about problems they had encountered in completing the graduation requirement, 65% of the students identified at least one concern. Most problematic was the availability of service-learning courses or public service internships (mentioned by 14% of participants). Students gave examples of courses that showed a lack of planning of the service experiences (13%) or an inadequate connection between course content and service placements (7%). Also mentioned were problems with transportation (10%), difficulties at service

sites (8%), and scheduling and time use (8%). These concerns may reflect the early stages of program implementation, as the number of courses available has increased dramatically since the first class entered in 2006; efforts have been made to better prepare both faculty members and community agencies to work with students on service-learning, internship, CBR, and other community-based projects; and transportation problems have been mitigated. Despite the problems students described, many (66%) were positive about their Tulane experience, indicating that they would recommend the university to others.

Discussion

A major question addressed throughout this longitudinal study concerned students' views of the public service graduation requirement. Although early research, largely with secondary school students (Jones et al., 2008; Marks & Jones, 2004) showed negative effects of required service-learning, Tulane students have consistently shown positive attitudes toward this requirement. Among the seniors surveyed here, only 4% (8 students) felt that the requirement was a bad idea. A recent study of college students' motives for community service participation (Soria & Thomas-Card, 2014) showed positive reactions to a similar academic requirement. They found that participation in service required through academic programs predicted students' desire to participate in community-focused activities after college graduation. We have previously proposed (Moely & Ilustre, 2011, 2013) that the positive reactions of students to the Tulane requirement can be attributed at least in part to students' initial interests in community engagement and the range of choices available to them in meeting the requirement (Stukas, Snyder, & Clary, 1999). It should be emphasized that students remained positive about the requirement even though many did report some problems in completing it.

The second research question concerned stability and change over time in students' civic attitudes, knowledge, and skills. We found that responses to our measures remained quite stable over time, with students who began college with positive attitudes about civic issues continuing to hold positive views and those who were not initially positive maintaining their views after two and four years. At the same time, mean scores for some measures increased over time in college. The most dramatic changes in attitudes and knowledge occurred during the first two years of college (Time 1 to Time 2 comparisons), with students increasing in Valuing of Community Engagement and in three measures of Civic Knowledge. During these years, students completed at least one service-learning course (thus satisfying the first component of the public service graduation requirement), which for many of the students provided an introduction to a culture very different from their own, with new strengths and challenges. This first experience showed students ways in which they could contribute to communities and increased their valuing of such involvement. It stimulated them to seek information about social/political events and to increase their knowledge of the city and current events. Others also have reported important changes during the first two years of college in such perspectives (e.g., Hurtado, 2005).

During their junior and senior years, as students completed the second public service requirement, engaging in academic experiences such as advanced service-learning, public service internships, or a community-based research, they maintained increases shown earlier, and also increased in their Social Justice attitudes and Interpersonal Skills for community engagement. They viewed themselves as more knowledgeable about the city than they were at Time 2. An increase in social justice attitudes from the beginning of college to graduation was also reported by Keen and Hall (2009) in their study of Bonner Scholars. Building a social justice perspective may take a certain level of cognitive development (Baxter-Magolda, 2001), as well as meaningful exposure to societal injustices. When asked about the benefits of public service, students in the present study gave high ratings to civic and cultural outcomes, including components of civic responsibility, social justice, and appreciation of cultural differences. Consistent with this finding, students' responses to an open-ended question about possible benefits of service showed awareness of inequities in society, reasons for poverty and other social problems, and ways in which citizens can make a difference.

Thus, Tulane efforts to broaden educational goals to develop civic and cultural attitudes, knowledge, and skills through service-learning and other academic experiences appear to be worth continuing. Although such gains have long been emphasized as a primary focus of service-learning, summary studies (e.g., Conway et al. 2009; Yorio & Ye, 2012) have yielded inconsistent findings about effects of service-learning on students' citizenship outcomes. Positive outcomes for the Tulane program may have been influenced by a number of factors: Students completed more than a single service-learning course and often were involved in volunteer service as well. The campus was oriented toward community engagement, public service is emphasized in university admissions, there is a center on campus that facilitated community engagement efforts by students and faculty, there was a graduation requirement that every student had to consider in course selection, and there were opportunities for community involvement that went beyond service-

learning to include community-based research, leadership opportunities, program development, and career previewing. The needs in the city following Katrina helped students see that their service was valuable and could make a difference.

Another outcome, for leadership and social skill development, was also rated positively by students. This is consistent with previous research (Conway et al. 2009; Stukas, Clary, & Snyder, 1999). The service placements offered opportunities for students to work with other students, faculty, and community members in developing projects, carrying them out, and solving problems that might arise. Students' reports of benefits emphasized opportunities for collaboration and leadership that they had found in their public service experiences.

Somewhat lower ratings were shown for cognitive/academic outcomes and plans for the future, though these were also represented in students' responses to open-ended questions, and have been shown to be affected by service experiences in other studies (Conway et al., 2009; Novak, Markey, & Allen, 2007; Warren, 2012). Students described ways in which their service experiences had helped them gain technical skills, apply classroom learning, and enrich their understanding of their major areas of study. Many students gave examples of how their public service activities had helped them with career decisions, either by strengthening their resolve about a career direction or showing them that they needed further exploration of career possibilities. An important question is the extent to which college service experiences have an impact on students' lives beyond college (e.g., Mitchell, 2015; Mitchell, Battistoni, Keene, & Reiff, 2013; Mitchell, Richard, Battistoni, Rost-Banik, Netz, & Zakoske, 2015). In the present study, many of the students came to see how their future careers in medicine, law, social work, education and other fields could contribute to the public good and indicated plans to shape their careers for societal benefit. Consistent with the findings of Seider, Gillmor, and Rabinowicz (2011), students completing business majors were less inclined toward future civic engagement than other students.

This longitudinal study allowed us to trace change over time, but was limited in that we have no control or contrast group by which to evaluate the outcomes of public service involvement. Instead, we adopted another strategy, looking at the predictive value of variations in students' involvement in service. The amount of service carried out during college, as reported by students themselves, was a strong predictor of outcomes, attitudes, and self-evaluations. As concluded in many previous studies, service-learning has value as an integral component of a college education.

Another potential influence on seniors' outcomes and attitudes was the interest in civic affairs that these individuals had shown at college entry. Consistent with the findings for stability over time of our measures (Table 4) and with the findings for students after two years of college (Moely & Ilustre, 2013), the attitudes students expressed at college entry predicted student outcomes at Time 3. The contribution of initial interests to the prediction of outcomes and attitudes was independent of the contribution of involvement in service. Students' views at the end of college are a reflection of both the attitudes they bring to college and the experiences they find there. Although students may be attracted to a program because it offers opportunities for service, there is still room for service experiences to positively influence students' gains during college and the civic attitudes, knowledge, and skills they show at graduation.

There are other limitations to this study. Since all students were required to complete public service, we did not have a problem with self-selection into service-learning courses, as has been the case in other studies (e.g., Chesler & Scalera, 2000; Lockeman & Pelco, 2013). However, our research design left open the possibility of bias due to whether or not students chose to complete our surveys. At college entry, characteristics of students in the sample were similar to those of the larger population of entering students (Moely & Ilustre, 2011). But after two years of college, students continuing to participate were different from those who did not continue in the research in that they were more likely to be female, were more conscientious students, and were more likely to have engaged in service prior to college (Moely & Ilustre, 2013). At Time 3, most of these differences between participants and those who did not complete the surveys were maintained. Interpretation of these findings, then, must take into account the possibility of such selection bias. Further, as the study was conducted at a private, research university in a unique city in the southern part of the United States, generalizability of findings to students at other kinds of higher education institutions remains a question for future research.

Another limitation of the study is that we did not obtain information about the quality of all of the students' service experiences during college. In an earlier report, the quality of service-learning courses taken during the first two years of college was related to students' reported outcomes from those courses (Moely & Ilustre, 2014), but we did not obtain information about students' academic and volunteer service during their last two years of college. Such information would be useful in understanding the impacts of service experiences.

These findings have implications for programming academically-based community involvement for students. First, consistent with other recent studies, we did not find negative effects on students of a public

service requirement for students who continued at the university through graduation. As we have noted in previous work, it is possible to avoid negative effects by providing service opportunities in which students are interested and giving them choices about the nature and extent of service experiences. Students' comments about the benefits of service included many examples of situations in which these two conditions were met, thus contributing to the positive outcomes we have seen.

Another implication of this research is the importance of taking a developmental perspective in planning service-learning and other community-based academic experiences. Changes in attitude and knowledge measures were most dramatic over the first two years of college, which would include the first community service experience. Exposure to the community increases students' valuing of engagement, stimulates them to seek information about civic issues, and leads to increases in knowledge of local and more general civic matters. Particular attention should be given to making these lower-level courses high in quality so that their impacts on students' attitudes, knowledge, and skills can be maximized (Moely & Ilustre, 2014). Organized service-learning and service opportunities, academic and co-curricular, serve to introduce students to the community in an organized fashion, offering them service that is challenging but not too much for them to handle. Regularized and developmentally appropriate reflection activities can stimulate inquiry about social issues important to the community and can aid students in gaining knowledge of local and more general social issues.

During the last two years of college, students can be encouraged to take a more active role in shaping their own service experiences, providing opportunities for them to collaborate with peers, faculty, and community members and to exercise their interpersonal and leadership skills. Reflection activities can encourage students to think more deeply about issues of social justice and about their current and future roles as citizens. It is also important to give students opportunities to experience activities that help them develop their career plans. In this sample, service experiences sometimes helped students learn what they did not want to do in their careers, while convincing others of the validity of their already-formed career plans.

Future research can build on these findings, to investigate factors responsible for civic interests at college entry, specific experiences affecting students' attitudes and learning as they progress through college, and college graduates' involvement in service as they move into adulthood. In addition, we are investigating the views of students who entered the university some years after Katrina, when the community needs for service were less obvious than they were when the present study began: Will the same interests in community involvement be seen in a new group of students? And finally, we are attempting to learn about pre-college educational and family experiences that shape students' civic attitudes and interests.

In summary, this longitudinal study has demonstrated the importance of involvement in well-planned academically-based service activities during college, as well as showing the importance of civic attitudes and interests that students bring to college. Participation in public service produces a wide range of benefits for interested students, thereby preparing them for citizenship, careers, and future life choices.

Notes

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Authors

BARBARA E. MOELY (moely@tulane.edu) is professor emerita in Psychology at Tulane University and research affiliate at Tulane's Center for Public Service. She has published research on service-learning in higher education and has served as PI for grants supporting service-learning program development. She was a co-editor of two volumes in the Information Age Publishing's Advances in Service-Learning Research series: Creating Our Identities in Service-Learning and Community Engagement (2009) and Research for What? Making Engaged Scholarship Matter (2010). She has served on the Board of the International Association for Research on Service-Learning and Community Engagement and was Co-Chair of the Program Committees for the Association's annual conferences in 2008 and 2014.

VINCENT ILUSTRE (vilustr@tulane.edu) is senior director of development, regional program at Tulane University. Previously, he was the founding executive director of Tulane University's Center for Public Service, where he provided leadership and vision to ensure that the Center's mission of engaging the university community in public service was achieved. Vincent received his Bachelor's degree in Sociology and Political Science from Tulane's Paul Tulane College and his Master's degree in Business Administration in Management and Marketing from Tulane's Freeman School of Business. He serves on nonprofit boards, including NetWork Voluntours and New Orleans Court Appointed Special Advocates.