

## CHAPTER THREE

### METHODOLOGY

The method of research chosen for this study was survey research. Questionnaires are an effective method used to collect information regarding a sample's characteristics, experiences, and opinions. The findings from survey questionnaires can then be generalized to the larger population the sample is supposed to represent (Gall, Borg, & Gall, 1996). In this study, survey questionnaires were used to elicit data regarding service learning (SL) student characteristics, reflection activities, civic attitude scores, and interest in future community service.

#### Research Questions

This study examines the pedagogy, frequency, and environment of reflection in relation to civic attitude scores by student characteristics and interest in future service. Specifically, this study was designed to explore the following research questions:

1. What is the relationship between civic attitude scores and the amount of variety in written reflection pedagogy?
2. For students who perform written reflection, what are the associations between civic attitude scores and gender, class year, and grade point average (GPA)?
3. What is the relationship between civic attitude scores and the amount of variety in discussion reflection pedagogy?
4. For students who perform discussion reflection, what are the associations between civic attitude scores and gender, class year, and GPA?
5. What is the relationship between civic attitude scores and the frequency of performing out-of-class reflection?

6. For students who perform out-of-class reflection, what are the associations between civic attitude scores and gender, class year, and GPA?
7. What is the relationship between civic attitude scores and the frequency of performing in-class reflection?
8. For students who perform in-class reflection, what are the associations between civic attitude scores and gender, class year, and GPA?
9. What is the relationship between continued service at the service learning site and civic attitude scores?
10. What is the relationship between the likelihood of future community service participation and civic attitude scores?

#### Participants

Data for this study were previously collected in the Spring of 1999. The instruments used to gather the data were the Service-Learning Participant Profile (pre-test) and the Service-Learning Evaluation (post-test) survey questionnaires. The surveys were administered to students at a large, mid-Atlantic, state university. Participants in this study were undergraduates enrolled in courses containing a service learning (SL) component. The data collected using this survey allow for the study of pedagogy, frequency, and environment of reflection in relation to civic attitudes and interest in future service by student characteristics.

A total of 297 students completed the pre-test survey and 161 completed the post-test survey. The post-test sample size is smaller because instructors are not required to administer the instruments. Evidently, fewer instructors administered the post-test than the pre-test.

Based on the data from participants who took both the pre-test and post-test, the sample of 161 service learners was composed of 78.4% female and 21.6% male students. Their ethnicity

was 83.9% Caucasian, 5.4% Asian American, 5.4% Multiracial, 2.7% Hispanic American, 1.8% African American, and 0.9% other. Seventy-nine percent of the sample were enrolled in the third year or above in college and 43% had a grade point average (GPA) of 3.0 (on 4.0 scale) or better.

The survey responses were predominantly (72.3%) from students majoring in arts and sciences. Seventy-four percent of the sample served 20 hours or more at their SL site during the semester. While 95% of the participants had performed previous community service, 85% had never before participated in SL.

Comparisons can be made between the sample in this study and the entire campus population based on Fall 1998 enrollment statistics. In Fall 1998, the entire university enrollment was 41% female and 59% male students. Only 48% of the undergraduate students at the university were in their third year or above, and 29.4% percent of the undergraduates were majoring in arts and sciences. Therefore, gender, class year, and choice of college major in the sample were not representative of the entire campus population (Institutional Research and Planning Analysis, 1999).

The university's ethnic composition was fairly representative of the sample. It consisted of 82.4% Caucasian, 5.8% Asian American, 5.7% Foreign National, 4.1% African American, 1.8% Hispanic American, and 0.3% American Indian (Institutional Research and Planning Analysis, 1999).

#### Data Collection

Questionnaires were used to collect the data. The pre-test and post-test survey questionnaires are printed on both sides of scantron forms (see Appendices A and B). There were 40 items on the pre-test survey and 48 items on the post-test survey. The front sides of both

surveys were identical, containing 24 Likert-scale items. The 24 questions were comprised of five items related to personal social responsibility, five items on the importance of community service, seven items related to civic awareness, four items on self-oriented motives, and three items related to service-oriented motives.

The back side of the pre-test survey elicited information regarding gender, age, ethnicity, college year, GPA, prior community service, church attendance, and preconceived perceptions related to SL. Response option formats varied from question to question. Some responses were offered in a Likert-scale design and others were categorical.

The post-test survey asked students questions regarding whether they will serve in the future and the amount of time they spent serving on their project during the semester. Additionally, the post-test survey elicited information about the pedagogy, frequency, and environment of reflection. Questions related to contact with service beneficiaries, course impact on civic attitudes, social awareness, and the usefulness of the SL course were also on the post-test survey. A variety of response option formats were used. A few questions offered simple yes or no responses, others were posed in a Likert-scale design, and some required categorical responses.

Both surveys contain information taken from pre-existing instruments. The first 17 Likert-scale questions on each survey were taken from three sources. These items were adapted from the Cooperative Institutional Research Program (CIRP) Student Information Form (Astin, Sax, Korn, & Mahoney, 1991), pre- and post- course survey questionnaires (Markus et al., 1993), and the Civic Responsibility Scale (Myers-Lipton, 1998). The last seven items on the post-test survey related to civic attitudes and social awareness were also taken from the pre- and post-course survey questionnaires (Markus et al., 1993).

The Service Learning Center (SLC) staff created all the remaining items on each survey. Data gathered from the pre-test survey and post-test survey were used by the SLC to assess the students' preconceived perceptions of SL, the impact of SL courses on student development, and the extent to which reflective methodologies were employed.

The pre-test survey was distributed during the first week of the semester. The post-test survey was given at the semester's conclusion. Students completed the instruments in class. Course instructors were responsible for administering, collecting, and delivering the surveys to the SLC. Survey completion was voluntary for students, yet highly encouraged as a part of SL participation. The survey administration was voluntary for the instructors.

The collected data were screened for missing and invalid responses. Individual surveys were then examined in an effort to remedy the inconsistencies. Each survey was assigned a case number to account for the 24 participants who did not fill in their social security numbers.

### Reliability

Reliability is a term that refers to whether an instrument measures consistently over time and populations (Gall et al., 1996). Reliability analysis allows the study of measurement scale properties and the individual items in the scale. The procedure calculates the number of commonly used measures of scale and how individual scale items relate to each other within the scale (SPSS, Version 8.0).

One form of reliability is internal consistency reliability, which refers to the examination of individual test items (Gall et al., 1996). Cronbach's alpha test is a model of internal consistency reliability and is based on inter-item correlation (SPSS, Version 8.0). It measures a test's internal consistency based on the extent to which a participant who answers a question in one way will respond to other questions in the same manner (Gall et al., 1996).

The pre-test and the post-test surveys have been used since the Fall semester of 1995. Previous studies have been conducted utilizing the data collected with the instruments (Mabry, 1998; Parker-Gwin & Mabry, 1998). In both Mabry's (1998) and Parker-Gwin and Mabry's (1998) studies, the instruments were tested for reliability by using Cronbach's alpha test on items combined into scales. The scale items were grouped together based on a factor analysis (Mabry, 1998; Parker-Gwin & Mabry, 1998). A factor analysis is a statistical procedure used to reduce the number of variables by combining highly correlated variables with each other (Gall et al., 1996).

In the study conducted by Mabry (1998), the first two scales were created and analyzed comparing pre-test and post-test scores. Coefficient alpha levels ( $\alpha$ ) for the scales were as follows: Personal Social Responsibility (4 items) pre-test  $\alpha = .63$  and post-test  $\alpha = .78$  and Civic Attitudes (5 items) pre-test  $\alpha = .80$  and post-test  $\alpha = .81$ .

Two other scales were formed consisting of post-test questions only. The coefficient alpha levels for these scales were Perceived Course Impact on Civic Attitudes (6 items)  $\alpha = .92$  and Perceived Academic Benefit of Service Learning (3 items)  $\alpha = .78$  (Mabry, 1998). These data suggest an acceptable degree of internal consistency reliability for the instruments for group research purposes.

Parker-Gwin and Mabry also conducted another study in 1998. In this study, five scales were created and compared based on pre-test and post-test scores. The scales had coefficient alpha levels as follows: Personal Social Responsibility (5 items) pre-test  $\alpha = .77$  and post-test  $\alpha = .74$ , Importance of Community Service (3 items) pre-test  $\alpha = .77$  and post-test  $\alpha = .83$ , Civic Awareness (5 items) pre-test  $\alpha = .72$  and post-test  $\alpha = .71$ , Self-Oriented Motives (4 items) pre-

test  $\alpha = .68$  and post-test  $\alpha = .79$ , and Service-Oriented Motives (3 items) pre-test  $\alpha = .77$  and post-test  $\alpha = .80$ .

An additional two scales were formed using only post-test questions. The final two scales had the following coefficient alpha levels: Course Effects on Awareness of Social Problems (2 items)  $\alpha = .75$  and Course Effects on Civic Duty  $\alpha = .89$  (Parker-Gwin & Mabry, 1998). The resulting scores from Parker-Gwin and Mabry's reliability tests also suggest a high degree of internal consistency for the instruments.

Cronbach's alpha tests were also performed on the data used in this study. Five scales were created from post-test survey questions based on a factor analysis. Table 1 displays the derived factors (scales) and post-test reliability results.

#### Civic Attitudes

Actions and attitudes related to social participation are components of civic responsibility (Weeks, 1995). Some attitudes associated with civic responsibility include intentions and beliefs related to service and the appreciation of human differences (Markus, King, & Howard, 1993). Specifically, SL students have the potential to increase their level of civic attitudes by interacting with the community. Research indicates that SL students report a heightened level of commitment to community service and a deepened sense of personal responsibility to the community (Astin & Sax, 1998; Markus et al., 1993).

To understand the associations between reflection, civic attitudes, and student characteristics, seven independent variables were chosen. Three variables were demographic characteristics and four were characteristics related to reflection. The demographic variables were gender, class year, and GPA. The remaining four independent variables were written

Table 1

Derived Factors and Reliability Scores for Service-Learning Evaluation (post-test)

Scale	Number of Items	<i>n</i>	Reliability ( $\alpha$ )
Civic Awareness	6	161	.78
Course Effect on Civic Responsibility	7	159	.84
Importance of Community Service	6	161	.83
Personal Social Values	8	152	.81
Self-Oriented Motives	4	159	.72



reflection, discussion reflection, out-of-class reflection, and in-class reflection. The dependent variable was civic attitude scores.

### Gender

The pre-test included a question related to participant gender. The item simply asked, what is your sex/gender? Female and male were given as the two response options. Females were coded zero and males were coded one.

### Class Year

The pre-test also included a question that asks what is your class year? Participants were given seven response options ranging from 1<sup>st</sup> year, coded zero, to other, coded six. The five middle options each account for one-year intervals, graduate, and other students, coded one to five accordingly.

### Grade Point Average

A question regarding GPA on the pre-test asked, what is your current GPA? and provided five response categories. The categories were below 2.0, 2.0-2.49, 2.50-2.99, 3.0-3.49, and 3.5+. The coding of these items ranged from zero to four beginning with the lowest GPA.

### Written Reflection

The post-test presented a series of three items in a yes/no fashion to elicit information regarding participants' written reflection activities. The questions inquired as to whether participants kept a SL journal, wrote about their service activities in a paper or report, or participated in a listserv or on-line discussion. Yes responses were coded zero. No responses were coded one.

Another variable was formed regarding written reflection. The Written Reflection Composite Score was created using the three questions related to types of written reflection pedagogy. A sum of the items formed a composite score to indicate the amount of variety in written reflection pedagogy for each participant. This composite score is discussed further in the Data Modifications section.

#### Discussion Reflection

The post-test also presented a series of three items on discussion reflection activities. Responses were requested in a yes/no format. Participants were asked whether they spoke about their service activities with their fellow students, site supervisor, or course instructor. Items answered with a yes response were coded zero and no responses were coded one. The drawback of this item is that each type of contact was weighed the same.

Another variable was created for discussion reflection. The Discussion Reflection Composite Score was formed using the three questions related to types of discussion reflection pedagogy. The composite score is a sum of the items used to indicate the amount of variety in discussion reflection pedagogy for each participant. This composite score is also discussed further in the Data Modifications section.

#### Out-of-Class Reflection

The post-test included a question related to the frequency and environment of reflection. Participants were asked about the frequency of their out-of-class reflection activities. The six possible responses were: did not reflect on service activities outside the class, once or twice during the semester, once a month or about 3 times during the semester, about twice a month/every other week, at least once a week, and two or more times every week. The responses were coded zero to five beginning with no reflection activities.

### In-Class Reflection

Also on the post-test was an item inquiring about the frequency of participants in-class reflection. Students responded by using response options identical to the six provided in the out-of-class reflection question. The responses were coded in the same manner.

### Civic Attitude Scores

The post-test included four questions relating to the impact of the SL course on civic attitudes. The questions asked participants to indicate how much their intentions and beliefs related to service and appreciation of human differences were strengthened after completing the SL course. Response options are given in a four-point Likert-scale format ranging from not at all (coded one) to a great deal (coded four).

These four items were extracted from the Course Effects on Civic Responsibility Scale (see Table 1) to comprise the Civic Attitude Scale. First, a factor analysis was performed on the four items in the Civic Attitude Scale. The results indicated the four items measure one common factor, thereby making it a viable scale. Second, a Cronbach's alpha test was run to measure the scale's reliability. The items for each participant were summed and divided by four to create a mean civic attitude score. Then the data was screened and one participant was found to have only answered three of the four items in the scale. The fourth item that was left blank was assigned a nine and not figured into the participant's mean score. For this one instance, the participant's score was summed and divided by three.

Table 2 displays the question statement, the individual items that comprise the Civic Attitude Scale, and the scale's reliability score. All response options and coding are given at the bottom of the table.

Table 2

Civic Attitude Scale Items and Reliability

Scale	Individual Items	<i>n</i>	Reliability ( $\alpha$ )
Civic Attitude		57	.88

Indicate the degree to which participation in this course has increased or strengthen your:

- intention to serve others
- belief that helping others is one s social responsibility
- belief that one can make a difference in society
- tolerance and appreciation of others

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Note. Four response options were offered not at all (coded one), a little (coded two), somewhat (coded three), and a great deal (coded four).

## Future Service

Students who volunteered in high school have a greater likelihood of participating in community service in college and afterwards in their adult life (Yates & Youniss, 1998). Research also indicates, upon course completion, that SL students report an increased desire to participate in future community service. Those who perceived they were making a contribution to society were more likely to continue serving in the future (Astin & Sax, 1998; Markus et al., 1993; McKenna & Rizzo, 1999).

The Civic Attitude Score was used as the independent variable to examine the associations between inclination to perform future community service and the level of civic attitudes. The variable of civic attitude score contains the same four items that were discussed in the previous section and displayed in the Civic Attitude Scale (see Table 2).

Two items addressing future service were used as dependent variables in this study. The first dependent variable related to continued service at the assigned SL site. The second dependent variable reflected the likelihood of future community service participation.

### Continued Service at SL Site

Students were asked whether they planned to continue serving at their SL site after the semester was over. The response choices were given in a yes/no format. The no responses are coded zero and the yes responses are coded one.

### Future Service Participation

The post-test also contained an item that asked what are the chances that you will participate in community service in the future? A four-point Likert scale was used with response options ranging from no chance (coded zero) to very good chance (coded three).

## Data Modifications

Before statistical procedures could be performed on the variables used in this study, modifications were performed. Some of the items were collapsed and recoded to provide an adequate sample size or summed to create composite scores.

### Adequate Sample Size

To obtain an adequate sample size for the demographic independent variable of class year, the responses were collapsed and recoded (see Appendix C). The responses for class year were changed as follows: 1<sup>st</sup> year (coded zero), 2<sup>nd</sup> year (coded one), 3<sup>rd</sup> year (coded two), and 4<sup>th</sup> year and above (coded three). The 5<sup>th</sup> year, graduate, and other options were included in 4<sup>th</sup> year and above.

Independent variables from the post-test also were changed to obtain an adequate number of responses. The two items related to the frequency and environment (out-of-class/in-class) of reflection were collapsed and recoded in the same fashion (see Appendixes D and E). Both items responses were regrouped in the following manner: did not reflect on service activities outside/inside of class, once or twice during the semester, 1 to 2 times per month, and once a week or more.

The did not reflect on service outside/inside of class option was coded zero and the once or twice during the semester response was coded one. The 1 to 2 times per month option was coded two and comprised of the once a month, about 3 times during the semester and about twice a month, or every other week responses. The final response option, once a week or more, was coded three. This item was made up of the two options at least once a week and two or more times every week.

### Composite Scores

Items were also combined and recoded to form composite scores. Two scores were created entitled the Written Reflection Composite Score and the Discussion Reflection Composite Score. These scores were designed to calculate a summed score for the number of reflection activities by pedagogy performed for each participant. Both scores were formed in the same way.

First the items were recoded so that the yes responses were one and the no responses were zero. Items left blank were assigned nines and not figured in to the composite score. Then the three items containing the questions related to written reflection were summed to create the Written Reflection Composite Score, and the three items regarding discussion reflection were summed together to form the Discussion Reflection Composite Score.

### Data Analysis Procedures

Prior to analyzing the data, the civic attitude scores were grouped into three categories. The categories are as follows: 1.00 to 2.99, 3.00 to 3.99, and 4.00. Then crosstabulation procedures and chi-square test statistics were performed to answer the research questions. In the following sections, the crosstabulation procedure and the chi-square test of independence are described. Then the procedures used for each null hypothesis are explained.

### Crosstabulation Procedure

The crosstabulation procedure forms two-way and multiway tables. It also provides tests and measures of association such as the chi-square test statistic. Each cell in a table contains any combination of counts, percentages, or residuals. Counts are the number of cases actually observed and the number of cases expected in rows and columns that are independent of each other. Percentages add up across or down a row or column. Raw unstandardized residuals give

the difference between the observed and expected counts. The crosstabulation procedure uncovers patterns in the data that contribute to chi-square test significance by displaying the observed frequencies, expected frequencies, and residuals (SPSS, Version 8.0, on-line index).

### Chi-square Test Statistic

A chi-square ( $\chi^2$ ) test statistic determines the statistical significance of the difference between observed frequency counts and expected frequency counts. Data in the form of frequency counts can be organized in two or more categories (Gall et al., 1996). This procedure tests the hypothesis that the row and column variables are independent, without indicating strength or direction of the relationship (SPSS, Version 8.0, on-line index).

To test whether two variables are independent of each other, first the expected cell counts are computed by multiplying the row total by the column total and then dividing by the total number of sample measurements ( $n$ ) (Ott, Larson, & Mendenhall, 1983). For example:

$$\text{Expected cell count} = \frac{(\text{row total})(\text{column total})}{n}$$

Then a chi-square test statistic is calculated to measure whether the observed and expected cell counts agree. First the expected cell count ( $E$ ) is subtracted from the observed cell count ( $O$ ). The square of this difference is then divided by  $E$ . The chi-square calculation is done for all the cells and the results are added. The expected cell counts in rows and columns add to the corresponding marginal totals. Below is an example of the formula for a chi-square test statistic (Ott et al., 1983):

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

The chi-square results will be large if observed cell counts differ from the expected cell counts. Large chi-square results indicate the variables are related to each other. The term *large* is defined by examining the probability distribution of  $\chi^2$ . Many chi-square probability distributions



exist. A probability distribution is obtained by deciding the degrees of freedom particularly for that chi-square distribution (Ott et al., 1983).

The degrees of freedom for a chi-square distribution are related to the number of expected cell counts to be calculated before obtaining the rest of the cell counts by subtraction. Degrees of freedom (df) are calculated by the number of tables rows ( $r$ ) minus one multiplied by the number of columns ( $c$ ) minus one. The formula is (Ott et al., 1983):

$$df = (r - 1)(c - 1)$$

Chi-square distributions are not symmetrical and will always be a one-tail, upper-tail test, meaning only one end of the distribution will be the rejection region. The null hypotheses are rejected if  $\chi^2$  exceeds the value of  $\chi^2$  based on a preset value (alpha level =  $\alpha$ ) and  $df = (r - 1)(c - 1)$ . It is also assumed that no expected cell counts will be less than one and only 20% can be less than five in the contingency table (Ott et al., 1983).

Having a predetermined  $\alpha$  decreases the probability of a Type I error (rejecting the null hypothesis when it is true). Educational researchers generally reject a null hypothesis if the  $\alpha$  value reaches a significance level of  $p < .05$ . The term *probability value* ( $p$ ) is the actual level of significance obtained after the data have been collected and analyzed (Gall et al., 1996).

### Null Hypotheses

All hypotheses were examined using crosstabulation procedures and chi-square tests because the data results were frequencies. The research questions were changed into null hypotheses. For each null hypothesis, the calculation used for degrees of freedom was  $df = (r - 1)(c - 1)$ . The researcher rejected the null hypotheses if the  $\alpha$  value reached a significance level of  $p < .05$ . The next section describes the specific tests performed to determine the associations between civic attitude scores, reflection, student characteristics, and future service.

Civic Attitude Scores and Written Reflection. To examine the relationship between the civic attitude scores and number of written reflections, respondents were divided into four categories of students who performed: no written reflection, one type of written reflection, two types of written reflection, and three types of written reflection. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and number of written reflections. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, Written Reflection, and Gender. To examine the relationship between civic attitude scores and gender for students who performed written reflection, respondents who had performed one or more types of written reflection were filtered from the data. Then the filtered respondents were divided into two categories: male and female. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and gender. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, Written Reflection, and Class Year. To examine the relationship between civic attitude scores and class year for students who performed written reflection, respondents who had performed one or more types of written reflection were filtered from the data. Then the filtered respondents were divided into four categories: 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year, and 4<sup>th</sup> year and above. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and class year. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, Written Reflection, and GPA. To examine the relationship between civic attitude scores and GPA for students who performed written reflection,

respondents who had performed one or more types of written reflection were filtered from the data. Then the filtered respondents were divided into five categories: below 2.0, 2.0-2.49, 2.50-2.99, 3.0-3.49, and 3.5+. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and GPA. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores and Discussion Reflection. To examine the relationship between civic attitude scores and number of discussion reflections, respondents were divided into four categories of students who performed: no discussion reflection, one type of discussion reflection, two types of discussion reflection, and three types of discussion reflection. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and number of discussion reflections. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, Discussion Reflection, and Gender. To examine the relationship between civic attitude scores and gender for students who performed discussion reflection, respondents who had performed one or more types of discussion reflection were filtered from the data. Then the filtered respondents were divided into two categories: male and female. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and gender. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, Discussion Reflection, and Class Year. To examine the relationship between civic attitude scores and class year for students who performed discussion reflection, respondents who had performed one or more types of discussion reflection were filtered from the data. Then the filtered respondents were divided into four categories: 1<sup>st</sup> year,

2<sup>nd</sup> year, 3<sup>rd</sup> year, and 4<sup>th</sup> year and above. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and class year. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, Discussion Reflection, and GPA. To examine the relationship between civic attitude scores and GPA for students, who performed discussion reflection, respondents who had performed one or more types of discussion reflection were filtered from the data. Then the filtered respondents were divided into five categories: below 2.0, 2.0-2.49, 2.50-2.99, 3.0-3.49, and 3.5+. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and GPA. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores and Out-of-Class Reflection. To examine the relationship between the civic attitude scores and amount of out-of-class reflection, respondents were divided into four groups of students who reflected out-of-class: no out-of-class reflection, two times during the semester, one to two times per month, and once a week or more. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and amount of out-of-class reflection. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, Out-of-Class Reflection, and Gender. To examine the relationship between civic attitude scores and gender for students who performed out-of-class reflection, respondents who had performed out-of-class reflection at least one time during the semester were filtered from the data. Then the filtered respondents were divided into two categories: male and female. A crosstabulation procedure was conducted to determine the relationship between the

frequencies of civic attitude scores and gender. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, Out-of-Class Reflection, and Class Year. To examine the relationship between civic attitude scores and class year for students who performed out-of-class reflection, respondents who had performed out-of-class reflection at least one time during the semester were filtered from the data. Then the filtered respondents were divided into four categories: 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year, and 4<sup>th</sup> year and above. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and class year. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, Out-of-Class Reflection, and GPA. To examine the relationship between civic attitude scores and GPA for students, who performed out-of-class reflection, respondents who had performed out-of-class reflection at least one time during the semester were filtered from the data. Then the filtered respondents were divided into five categories: below 2.0, 2.0-2.49, 2.50-2.99, 3.0-3.49, and 3.5+. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and GPA. This procedure included a significance investigation using the chi-square test statistic..

Civic Attitude Scores and In-Class Reflection. To examine the relationship between the civic attitude scores and amount of in-class reflection, respondents were divided into four groups of students who reflected in-class: no in-class reflection, two times during the semester, one to two times per month, and once a week or more. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and amount of in-class reflection. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, In-Class Reflection and Gender. To examine the relationship between civic attitude scores and gender for students who performed in-class reflection, respondents who had performed in-class reflection at least once during the semester were filtered from the data. Then the filtered respondents were divided into two categories: male and female. A crosstabulation procedure was conducted to determine the relationship between the frequencies of civic attitude scores and gender. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, In-Class Reflection, and Class Year. To examine the relationship between civic attitude scores and class year for students who performed in-class reflection, respondents who had performed in-class reflection at least once during the semester were filtered from the data. Then the filtered respondents were divided into four categories: 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year, and 4<sup>th</sup> year and above. A crosstabulation procedure was conducted to determine the relationship existed between the frequencies of civic attitude scores and class year. This procedure included a significance investigation using the chi-square test statistic.

Civic Attitude Scores, In-Class Reflection, and GPA. To examine the relationship between civic attitude scores and GPA for students who performed in-class reflection, respondents who had performed in-class reflection at least once during the semester were filtered from the data. Then the filtered respondents were divided into five categories: below 2.0, 2.0-2.49, 2.50-2.99, 3.0-3.49, and 3.5+. A crosstabulation procedure was conducted to determine the relationship existed between the frequencies of civic attitude scores and GPA. This procedure included a significance investigation using the chi-square test statistic.

Continued Service at SL site and Civic Attitude Scores. To examine the relationship between continued service at the SL site and civic attitude scores, respondents were divided into

two categories: students who did plan to continue at their SL sites and those who did not plan to continue at their SL sites. A crosstabulation procedure was conducted to determine the relationship existed between the frequencies of continued service at SL site and civic attitude scores. This procedure included a significance investigation using the chi-square test statistic.

Future Community Service Participation and Civic Attitude Scores. To examine the relationship between the likelihood of future community service participation and civic attitude scores, respondents were divided into four categories based on whether they would participate in future community service: no chance, very little chance, some chance, and very good chance. A crosstabulation procedure was conducted to determine the relationship existed between the frequencies of the likelihood of future community service participation and civic attitude scores. This procedure included a significance investigation using the chi-square test statistic.