

A Case Study: Assessment of Civic Learning Knowledge amongst Informatics Faculty and Undergraduate Students' Attendees of Civic Workshops at Mercer University

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Many of the colleges and the universities in the United States have prepared their students to be effective citizens (Knefelkamp, 2008; Packer, 2016; Sullivan, 2000). The higher education sector has realized the importance of the civic-learning strategies and commits to develop civic and service-learning awareness among the graduates; the commitment's timing and context have varied amongst the different institutions (Packer, 2016; Stanton and Wagner, 2006; Thelin, 2011). Different governmental and non-profit leader organizations in the United States have realized the importance of the community engagement definition and context. These organizations have adopted the community collaboration concept and have tried to involve it in the higher education institutions' missions and strategic plans (Sandmann, Thornton, and Jaeger, 2009). The Association of American Colleges and Universities (AAC&U) has been engaged to endorse civic strategies and service-learning concepts and skills amongst the faculty and the students, and there are successful curricular and program strategies that have been conducted to attain these missions across the nation (American Association of Colleges and Universities [AAC&U], n.d.b). The AAC&U states that "In this turbulent and dynamic century, our nation's diverse democracy and interdependent global community require a more informed, engaged, and socially

Abstract

In 2018, the informatics faculty team at Mercer University were awarded an AAC&U mini-grant on Civic Learning in the Major. To meet the grant's requirement, the department conducted different activities. These activities included two intensive workshops.

The study design was before and after quasi-experimental research of two steps:

1. Piloting the study survey on the informatics faculty who attended the first mini-grant workshop.
2. A before and after quasi-experimental trial, on the students and the informatics faculty who attended the second workshop and did not participate in the first workshop.

First workshop: Faculty. There was no significant statistical relationship between the participants' years of teaching experience and the percentage of the questions the participants correctly answered

Second Workshop: Wilcoxon Signed-Rank test used to measure the relationships between before- and after-responses of the participants. There was a significant statistical difference between the studied variables

responsible citizenry” (AAC&U, 2019). The National Leadership Council for Liberal Education and America’s Promise (LEAP), 2007, has defined the most critical learning outcomes to have qualified graduates with a successful career. Two of those learning outcomes were personal and social responsibility, and integrative and applied to learn (Association of American Colleges and Universities American Association of State Colleges and Universities Association for Public and Land-grant Universities, 2010; Jacoby, 2009).

Civic knowledge and learning has defined as " civic engagement is acting on a heightened sense of responsibility to one's communities that encompass the notions of global citizenship and inter-dependence, participation in building civil society, and empowering individuals as agents of positive social change to promote social justice locally and globally” (Musil, 2009). Higher education institutions should tweak this definition and develop applicable civic strategies for their institutions, departments, education majors, and the programs’ missions and visions (AAC&U, 2019a, AAC&U, 2019b). Social interaction and active engagement of the students in colleges are the effective mechanisms of supporting and increasing civic knowledge and skills among the students (Strayhorn, 2008). Civic knowledge is a result of interaction and collaboration between communities, students, faculty, and other entities and individuals (Saltmarsh, Hartley, and Clayton, 2009).

In May, 2018, the informatics faculty team at the Department of Mathematics, Science, and Informatics at the Mercer University were awarded an American Association of Colleges and Universities (AAC&U)’s Grant, which was one out of 24 awarded from the Endeavor Foundation Supports; an AAC&U Signature Initiative, Civic Learning and Democratic Engagement (AAC&U, 2018). To meet the grant's requirement and to help our students to be actively involved in the learning process and be able to possess civic knowledge and skills, the department:

- Conducted several formal and ad hoc meetings amongst the grant’s co-authors
- Conducted two intensive workshops involving a keynote Civic-specialist speaker in the first workshop. Those workshops attended by the informatics faculty and seven undergraduate informatics students
- Conducted a survey, during the workshops, to assess the before and after Civic knowledge among the targeted faculty and students
- Designed a poster, which collected the most important information on the Civic and Service learning for both workshops’ audience
- Presented a panel discussion at the 2018 Transforming STEM Higher Education Conference to disseminate the faculty’s civic learning experience, evidence, and recommendations for the conference’s attendees

For the current study, the investigators aim to assess the two workshops audience's knowledge before and after exposure to the extensive information about Civic- and Service-learning. The current study also aims to assess the workshops attendees’ awareness about the importance and impact of the civic and service-learning strategies on the community, the higher education institutions, and the students.

Methods

The study design was before and after quasi-experimental research of two steps:

1. Piloting (testing) the study's survey on the informatics faculty who attended the first AAC&U grant's workshop.
2. Conducting before and after a quasi-experimental trial, by using the refined survey questions, as a result of the first step, on the students and the informatics faculty who attended the second workshop and did not participate in the first workshop.

The First AAC&U Grant Workshop/ September 6-7, 2018:

The first workshop conducted on September 6-7, 2018. In this workshop. We invited an AAC&U Civic Learning awardee, led the informatics faculty in a two-day workshop that involved discussions on how to incorporate civic learning in the major, how to assess civic learning, and shared resources in civic engagement. In addition, she presented professional information and checklists on practicing civic and service-learning strategies within the higher education institutions, discuss how to collaborate with the community organizations and entities to enhance the learning process and the social responsibility of the university students, and she leads discussions with the workshop audience along the workshop's two days. The keynote speaker successfully has lead students to civic-learning outcomes, she Received Texas Public Power Association Award 2017 (Texas Lutheran University [TLU], 2017a; LTU, 2017b; ACC&U, n.d.a). The audience was the informatics faculty of the Department of Mathematics, Science, and Informatics of the College of Professional Advancement (COPA) at Mercer University, in addition to the other two faculty from Communication Department and Liberal Studies Department. Before the workshop started, we distributed a survey of ten questions for the informatics faculty to assess their basic knowledge and awareness about the civic and Service Learning. The survey also explored the faculty's perspectives of civic strategies and how these approaches are important for the education institutions, how to affect the learning process's outcomes of our non-traditional students, and how to impact the community. Five of the department informatics faculty responded and answered all the survey questions.

The Second AAC&U Grant Workshop/ October 2018:

Another AAC&U grant workshop was conducted at Mercer University on October 15th. We disseminated the invitation to attend the workshop to our informatics students through the faculty members. All informatics faculty attended the workshop in addition to seven undergraduate informatics students. We conducted a tweaked survey, which we tested on the previous workshop's faculty audience, on the participants of the second workshop. We distributed the survey before the workshop started to the workshop's audience and we disseminated the same survey on the same audience at the end of the event. We got five participants anonymously answered the survey questions before the

workshop started and six of the participants answered and returned the survey at the end of the workshop.

Results

The first workshop's results:

Demographics:

The participants were five faculty members. As the following Figure shows, most of the participants' age (60%) was between 45-54 years old. Twenty percent of the participants' age was between 35-44 years old, and the remaining (20%) participants' age was more than 55 years old.

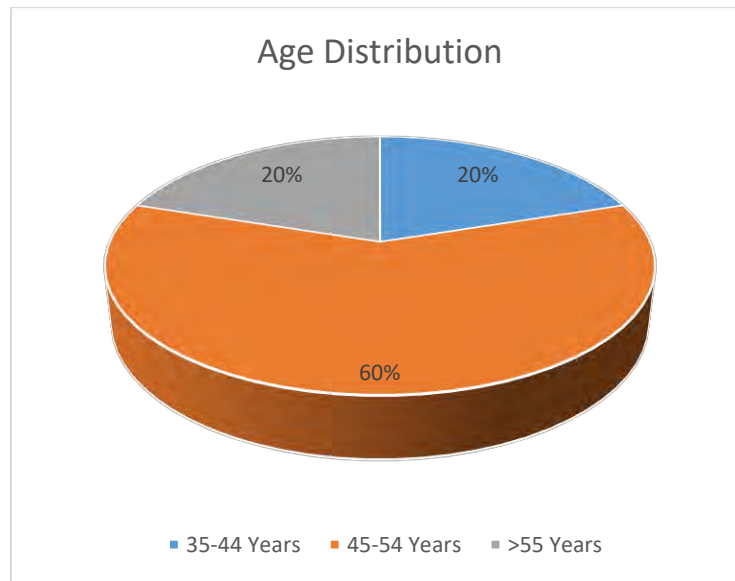


Figure 1. The age distribution of the participated faculty

As the following figure shows (figure 2), three (60%) of the participated faculty were males, and the other two (40%) were females.

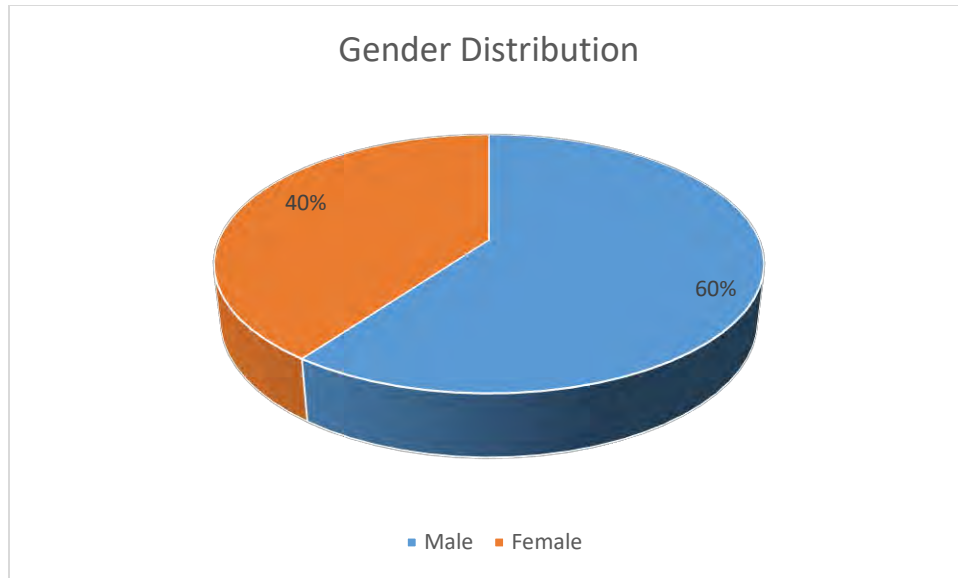


Figure 2. The gender distribution of the participated faculty

The following table demonstrates the race distribution of the participated faculty. Three of the faculty (60%) were Asian, and the other two faculty (40%) were White.

Table 1. The race distribution of the participated faculty

Race	Participant Number (%)
White	2 (40%)
Asian	3 (60%)

We measured the descriptive statistics of the total teaching experience years of our participants. The following table illustrates the distribution of the faculty's teaching experience. The measurements were as following: the range = 9-29 years, the mean = 15.6 years, and the median = 13 years.

Table 2. Total Teaching Experience years of the participated faculty's descriptive statistics

Total teaching experience years' range	9-29 Years
The mean of the teaching experience years	15.6 Years
The median of the teaching experience years	13 Years

We measured the descriptive statistics of the total teaching experience years in undergraduate and graduate courses and programs for all the participants. The distribution of the undergraduate experience was as follows: The range = 9-29 years, the mean = 15.6 years, the median = 13 years. While the graduate experience

distribution was: the range = 9-12 years, the mean = 4.2 years, the median = 10.5 years.

Table 3. Total Teaching Experience years in Undergraduate and Graduate Programs of the participated faculty's descriptive statistics

Teaching Experience	Undergraduate	Graduate
Range	9-29 Years	9-12 Years
Mean	15.6 Years	4.2 Years
Median	13 Years	10.5 Years

The Percentage of the Right Answered Survey Questions of the participated faculty were as the following figure shows.

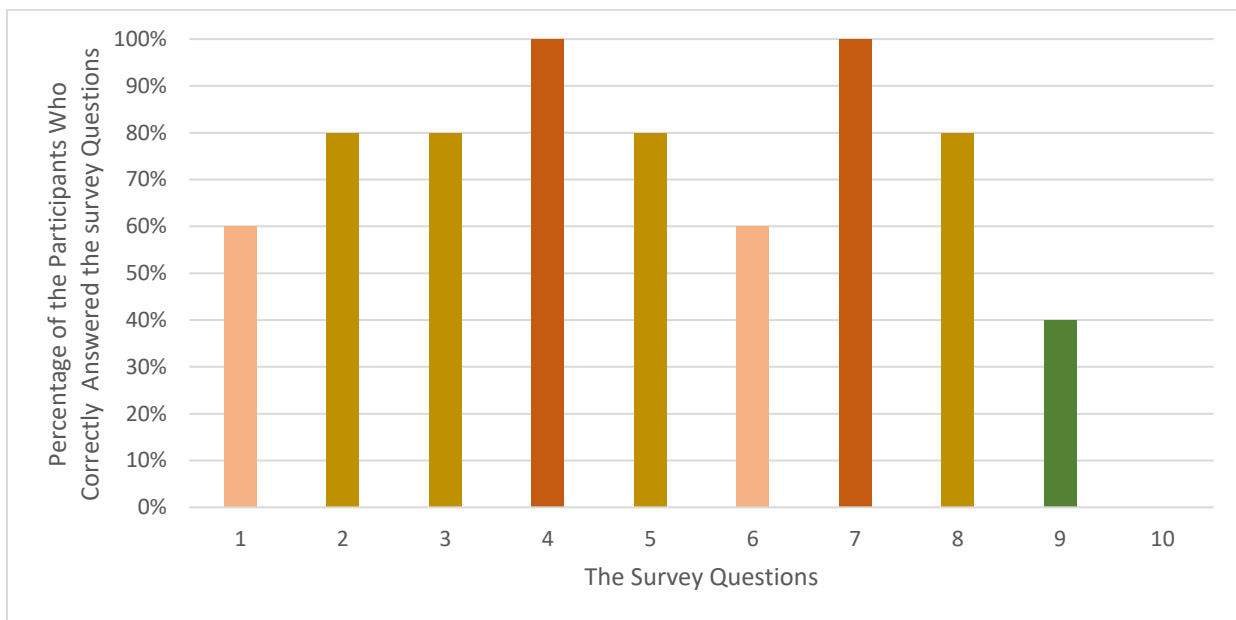


Figure 3. Percentages of the faculty who correctly answered the survey questions

Only two questions, questions number 4 and 7 out of the ten asked questions, correctly answered by the faculty participants. Questions number 2, 3, 5 & 8 (40% of the survey questions) correctly answered by eight (80%) of the participants. Questions number 1 and 6 Correctly answered by two (20%) of the participants. Question number 9 was answered right by four (40%) of the participants. Question number 10 was not answered right by any of the participants.

The following table demonstrates the percentages of the questions the participant faculty correctly answered.

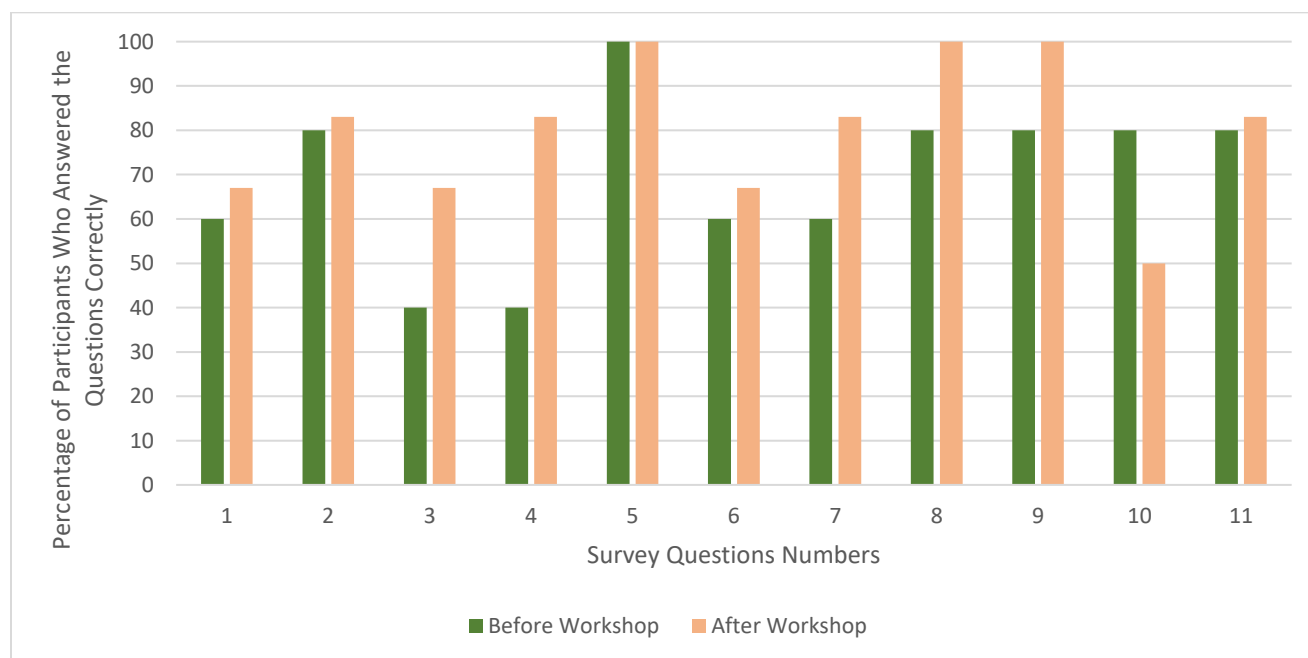
Table 6. Percentages of the questions the faculty answered them correctly

The Teaching Experience Years of the Participant	% of the Questions the Participant Answered Them Correctly
18 Years	50% (5 out of 10 questions)
29 Years	90% (9 out of 10 questions)
13 Years	70% (7 out of 10 questions)
12 Years	90% (9 out of 10 questions)
15 Years	40% (4 out of 10 questions)

The investigator conducted the simple regression test to explore the statistical relationship between the teaching experience years of the participants as an independent variable and the percentage of the questions the participants correctly answered as a dependent variable. The *P*-value was (0.63), so there was no significant statistical relationship between the two measured variables ($\alpha = 0.1$).

Second Workshop Results:

The following figure illustrated the before- and after-second workshop audience’s responses to the survey’s questions



Before- and after-workshop audience's responses on the disseminated survey

As the figure shows, the percentages of the participants who answered the survey questions correctly improved for all the questions except question number 10, which was on the students' benefits of the service-learning strategies.

We used the Wilcoxon Signed-Rank test to measure the statistical difference between before- and after-responses of the participants. The measured statistic was (-1.83) and the *P*-value was (0.06) which is $< \alpha 0.1$. There is a significant statistical difference between the participants before and after the answers to the survey questions.

We used the Wilcoxon Signed-Rank test instead of the t-test because it does not require "random sampling, normality, equal variances" which are not available and guaranteed by the studied samples.

Discussion

In the first workshop, the participants' demographics were diverse and the teaching experience range for the same sample was wide. Therefore, we were able to assess the civic learning knowledge amongst participants who have variant teaching experience, representing different generations, and maybe having diverse background and points of view regarding the teaching process, student engagement and success, collaboration between higher education institutions and their communities, and understanding the social responsibilities and the active citizenship.

All the participants are correctly answered questions # 4 & 7, which were about the service-learning definition and the higher education institution benefits of service-learning. This indicates that our faculty are alert and aware of the importance of involving the students in activities that address their own communities' current issues and problems and help, through internships or capstone projects, in solving and/or resolving these difficulties. The participated faculty also realized the benefits the higher education institutions could get through applying and adopting the service-learning activities, which they are going to apply to engage their students in their societies, meet their courses' learning outcomes, and get new opportunities for faculty in teaching and research disciplines.

Eighty percent of the participated faculty answered the questions regarding the civic learning definition and strategies, the students' benefits from the service-learning strategies, and they were alert enough about the citizenship characteristics, which the service-learning strategies are aiming to develop and how these strategies enhance the social responsibility amongst the students. Sixty percent only of our faculty answered correctly the questions about the civic learning vision and the communities' benefits of service-learning strategies. We assume that all the participated faculty now be able to answer all the questions correctly after they exposed to the information from the workshops.

The participated faculty could not answer correctly the survey question on the college departments' benefits of the service-learning strategies. This was disappointing but made our department think of developing new interventions and strategies to inform and educate our faculty about these benefits. Our department leaders have realized the

essentiality of enhancing the learning environment and student engagement, supporting collegiality and collaboration with other departments and the society, and creating new opportunities in teaching and research for faculty and students. The department leadership has encouraged faculty to design and teach civic- and service-based curriculum in our undergraduate and graduate courses and capstone. The leadership has supported and sponsored different community-based workshops and scholarship activities, and it has always encouraged involving our students in these activities. I will give examples of both the teaching and the scholarship civic- and service-based opportunities that the department has supported. The teaching examples are several but I will focus on the following examples: this AAC&U's civic-based grant and the grant's related workshops; the undergraduate and graduate capstone's community-based projects; study-abroad projects; in addition to the panel discussion, we conducted as informatics faculty in 2018 Transforming STEM Higher Education Conference in November 2018, about the high impact practices (HIPs) we had used to enhance the learning environment of our students. The research example is that our department sponsored four faculty to attend and participate in the Professional Grant Development Workshop to get the necessary skills and knowledge to target community-based national funding opportunities. Two of the participated faculty submitted, in October 2019, a community-based grant-application as Primary Directors/Primary Investigators (PDs/PIs) to the National Institute of Health (NIH) targeting the under-served Somali immigrant community at DeKalb County of Georgia. The grant applicants have included undergraduate and graduate informatics students in the grant's application; they have cooperated with colleagues from other schools of the University; and have collaborated with community partners.

Before we started the study, we assumed that the faculty with more teaching experience would correctly answer the survey questions than the less experienced faculty. We tested our assumption and it was incorrect. Based on the results we got, we think that because civic and service-learning concepts are emerging concepts and recently have adopted in the higher education environment and all the faculty have exposed to these concepts at the same time. So, the previous teaching experience does not add towards realizing these evolving notions' impact on the individuals, higher education sector, and communities.

In the second workshop, the percentages of the participants who correctly answered the questions were higher at the end of the workshop than the percentages of the correctly answered at the beginning of the workshop, except for the question, which was about the student benefits of the service-learning initiatives. We are assuming that the participants benefited from the information they got from the workshop presenters, the grant designed poster, and the discussions amongst the workshop attendees. Based on the results, we recommend that the students need educational sessions within their classical courses about the importance and impact of civic and service-learning on the learning process and their success and citizenship (The Civic Learning and Democratic Engagement National Task Force, 2011). We also recommend that the higher education entities might have to think seriously about developing more civic-based and service learning-based classes and/or seminars for the college freshmen and undergraduate students (New, 2016). These classes might help these institutions to

educate the students on how to advocate for social change in their societies, how to be ethically and socially responsible, and how to be actively involved and interacted in the learning process (New, 2016; The Civic Learning and Democratic Engagement National Task Force, 2011; U. S. Department of Education, 2012). In our department, some faculty have started adopting civic- and service-learning components into their undergraduate and graduate courses in addition to their Capstone projects, which have been very promising. We recommend that we have to encourage our entire full-time and adjunct faculty to consider and include more civic- and service learning strategies in their curriculum and motivate them to assess the impact of these strategies on our students' success and on the students' understanding of their social responsibility.

Conclusion

From the two workshops' findings, the study investigators concluded that the participants benefited from the material they exposed to during the two workshops. The investigators recommend that the students and the faculty need to be exposed to civic interventions (lectures, webinars, workshops, flyers and brochures,) to be able to realize the impact and the importance of these strategies on the communities, students, and the higher education outcomes. To teach civic skills and habits, faculty need to develop curriculum including course-based service-learning strategies such as cooperative education, field studies, or internships (Battistoni, 2000; Eyler and Giles, 1999; Moely, 2002).

Faculty need to be well educated on civic learning, leadership, and democracy to be able to engage their students in civic related tasks and responsibilities and developing responsible citizens (U. S. Department of Education, 2012). Current literature shows that by having faculty who have created great collaboration between the higher education institutions and community entities, the student knowledge and values of the different races and ethnicities have been increased across the nation since 2005 (DeAngelo, 2009). Faculty also need to be actively involved in civic learning research, and in building robust evidence on the civic learning and democracy's best practices and strategies in higher education (U. S. Department of Education, 2012). The study also recommends that the faculty should apply for civic grants and participate in different on-campus, national, and international civic related activities and events (i.e. workshops, seminars, panels, conferences, webinars), and they should be able to modify the knowledge and implement it into their courses' curriculum.

Civic personality and identity are related to both the moral and intelligent development of the individuals within their communities (Knefelkamp, 2008). We recommend that to develop lifetime civic skills and commitments, we need to engage our students in community activities and peer interaction (Hatcher, 2011; Youniss, McLellan, and Yates, 1997; Strayhorn, 2008).

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