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**FEATURE**

**The Performance of Trilogy Functions of Higher  
Education of Selected NOCEI-member HEIs  
in the CALABARZON\* Provinces**

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***Abstract:** Often the three functions of the trilogy of higher education, which consist of teaching, research and community service, are not assigned equal merit. The priority for performance is only given to teaching, and to a certain extent to research efforts, and community service is not given importance at all. Of a total fifteen NOCEI-member HEIs in the CALABARZON region, the researcher was able to get the responses of nine NOCEI faculty representatives (3 females and 6 males) who are doctoral degree holder and most of whom are full professors, with ages ranging from 40 years and above, and who have worked in the academic field for more than 11 years. The results basically confirmed that trilogy functions of higher education were not simultaneously performed in their institutions. This was supported by the findings that teaching, research and community service did not seem to correlate with each other. In addition there were significant differences in the perceptions of how teaching, research and community service were performed when grouped by the number of graduate students or province in CALABARZON.*

**Introduction**

The trilogy functions of higher education institutions (HEIs) are comprised of teaching, research, and community services. In congruence with its general mission, an HEI exists as an agent of development for the nation. It must therefore seek to educate and interact with the community in terms of the three elements of trilogy of higher education. Often, however, the priority of performance of these three functions has been given to teaching, and to a certain extent to research efforts, with community service not receiving much

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\* An acronym of Cavite, Laguna, Batangas, Rizal and Quezon provinces on Luzon Island.

importance at all. Research and publishing has long been associated with academic life; however, many studies (see for example Boyer's comment from the American Historical Association) document a tension between research and teaching in higher education. A long standing criticism of academia is embodied in the concept of the ivory tower--that what is done within the HEI is quite useless for the rest of society. Many schools have attempted to take this critique to heart, and to make a difference in their community, but again, it creates tension with the other functions of teaching and research. The purpose of this study is to examine institutions of higher education with the CALABARZON region of Luzon, to assess to what extent they are performing each of these three functions of the trilogy.

Many have seemed to agree that the trilogy functions are not performed simultaneously in their institutions. Boyer argues that

a wide gap now exists between the myth and reality of academic life. Almost all colleges pay lip service to the trilogy of teaching, research, and service, but when it comes to making judgments about professional performance, the three rarely are assigned equal merit. The time has come to move beyond the tired old 'teaching versus research' debate and give the familiar and honorable term 'scholarship' a broader, more capacious meaning, one that brings legitimacy to the full scope of academic work." (as cited in American Historical Association, para. 1)

Bowen and Fincher (1996) suggest that "education as part of trilogy, on the teaching-learning function, is defined to embrace not only the formal academic curricula, classes and laboratories, but also all these influences upon students flowing from association with peers and faculty member from the many and varied experiences of campus life" (p. 33). The point here is that the teaching-learning function should not be seen as limited to classroom experience, but it can have a broader interpretation, including "non-academic" relationships and experiences, for example. Many schools, however, focus all their planning and funding on the formal aspects of curriculum, instruction, and educational infrastructure. Hammersley (2002) suggests careful planning in order to make the best use of resources for learning, and says that "it is not unreasonable, in principle, to argue that in a situation of scarce resources, expenditure should be coordinated so as to maximize the benefit" (p. 102). I believe this sort of planning is necessary, including consideration of not only formal academic curricula, but also supporting infrastructure which can be utilized to promote more research-based and community service-based teaching and learning.

It is understandable that trilogy functions will not be performed perfectly when an HEI begins its operation. The tendency is that the institution will only operate with the teaching-learning function first, without involving the academicians in extensive research or community service work. It requires

capable management for an institution to advance to these higher learning activities. Sims and Sims (1995) suggest that “the new phrase being heard in the higher education community is TQM or total quality management. Within the academic community, discussions are taking place regarding the application of TQM to the operation of higher education.” (p. 26) In promoting total quality learning, some authors have emphasized leadership and the teaching-learning environment as facilitators which allow the trilogy of higher education functions be performed successfully:

- Deal and Peterson (1993) stress a particular combination of instruction, carefully designed curriculum, and effective school leadership. (p. 89)
- Nightingale and O’Neil (1994) confirm that “teachers should create a teaching-learning environment that enables individuals to participate responsibility in the learning process.” (p. 83)

Nunnery (1983) capitalized on the concept of effective leadership through the development of educational goals. He further said that “educational leaders must respond to challenges in building up cooperative participation in the development and legitimization of attainable educational goals and objectives for the community” (p. 78). This sort of vision is crucial. But the goals cannot merely be focused internally. The development of educational goals and objectives for the higher education institution should be integrated with community needs. The concept of doing to others what we would have them do to us needs to be included in these goals, as learning cannot be for the individual or the institution alone, but is for the entire community. “There is no greater principle regarding human relations than these simple yet profound words of Christ. The standard of the golden rule is the true standard of Christianity; anything short of it is a deception” (General Conference, 1999, p. 54). Some NOCEI-member HEIs, especially those offering health care educational programs like nursing or Master of Public Health programs, have integrated their educational goals and objectives for higher education with the needs of the communities around them. Some of the needs a community may have include needy families, burdened mothers, lonely widows and widowers, the aged, fire victims, accident victims, transients, and many more who need help (General Conference, 1978, pp. 65-68).

### **Research Questions**

The main focus of the study was to determine whether the selected NOCEI-member HEIs performed all of the trilogy functions in their institutions, and to what extent. The study sought to answer the following questions:

1. What is the trilogy profile of the NOCEI-member HEIs?

2. How does each NOCEI-member HEI rank their perceptions on the performance of each function of the trilogy of higher education in their respective institutions?
3. Do NOCEI representatives' perceptions on the performance of trilogy functions differ when respondents were grouped by
  - The number of graduate students in their respective HEI, and
  - The province in which their HEI was located?
4. Do perceptions on the combination of teaching with research and teaching with community service of each NOCEI-member HEI significantly correlate with each other?

The study design focused on the trilogy of higher education as a unity (see Figure 1). In terms of the number of graduate students and different provinces in CALABARZON, the model sought to determine whether there was a difference in the trilogy performance perceived by NOCEI representatives.

The research undertaken was a descriptive study. It used a simple non-parametric method for analyzing and interpreting the data. The non-parametric method was used to sum up the rank of how NOCEI representatives perceived their HEI's performance of the trilogy of higher education as well as observing differences resulted from the analysis. In addition, for the same non-parametric method, the Spearman rank-order correlation was applied to test whether combination of teaching with research and teaching with community service were correlated with each other.

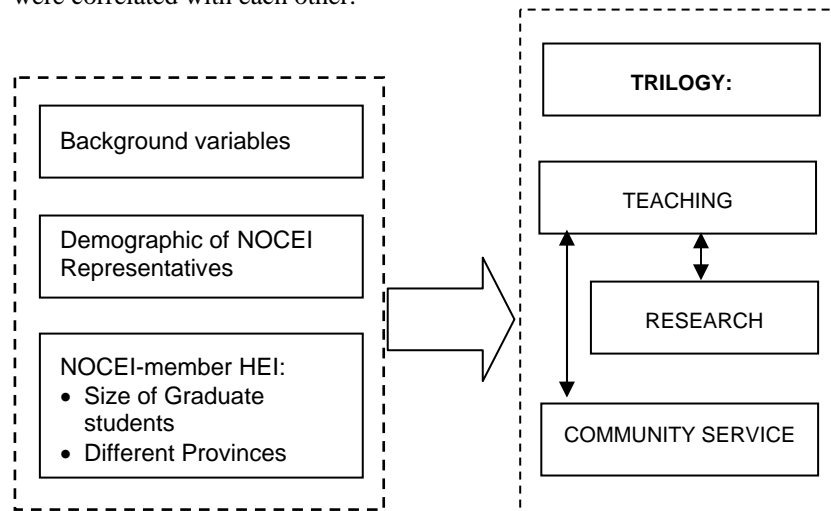


Figure 1. The Simple Paradigm of Trilogy Functions Practiced by NOCEI-member HEIs

### **Respondents**

NOCEI (*Network of CALABARZON Educational Institutions*), is a non-stock, non-profit corporation, which aims to promote cooperation and collaboration in research activity among private and public higher levels of educational institutions in the Philippine provinces of Cavite, Laguna, Batangas, Rizal and Quezon. AIIAS has been a NOCEI member since September 18, 2006. The writer of this article has been appointed by AIIAS to be its representative to the NOCEI organization.

NOCEI conducts a forum every year with the following objectives:

- To promote awareness on the research undertakings of each member institution of NOCEI,
- To share research conducted by the faculty and researchers from NOCEI through a lecture session,
- To provide opportunity to appreciate the impact of the research in the immediate community and the country as a whole,
- To update the participants on new research conducted in the CALABARZON,
- To create a compilation of conference papers for publication highlighting research conducted by NOCEI member institutions.

This study reports on nine of the fifteen NOCEI members, from the three largest provinces in CALABARZON: Cavite, Laguna, and Batangas. Table 1 shows the statistics of the five provinces, including the number of NOCEI members and the sample observed. The three provinces included in this study, with a total population of 5,934,381, represent some 63.7% of the total population of the CALABARZON region, which stands at 9,320,629. Altogether, these three provinces have a total of 70 HEIs. At the time of data collection, the number of institutions which had NOCEI membership was recorded at only fifteen, or 21.4% of the total HEIs in the three provinces.

The respondents of the study were the nine NOCEI-member HEIs, represented by their respective faculty members, who are usually selected to be a part of NOCEI because of their heavy involvement in the research undertakings of their institutions.

Table 1  
Population and Samples of NOCEI-member HEIs

Province in CALABARZON	Population*	N* (HEI)	N (NOCEI Member)	n (Sample)	% Observed
Cavite	2,063,161	17	4	3	75.0
Laguna	1,965,872	35	6	3	50.0
Batangas	1,905,348	20	5	3	60.0
Rizal	1,707,218	n/a	none	none	0
Quezon	1,679,030	19	none	none	0
Total provinces	9,320,629	91	15	9	

\* Source: Wikipedia (population as of the year 2000 and N as of the year 2004)

### Instrument Used

The questionnaire measured the rank on how the trilogy functions were performed using a 5-point Likert scale for simplicity, where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree. The questionnaire, complemented by interviews, was developed and validated by the researcher. It consisted of four sections: first, the performance of trilogy of higher education of NOCEI-member HEIs as perceived by their representatives, who were also research faculty; second, the NOCEI-member graduate school profile; third, the demographic profile of the NOCEI representatives; and fourth, an open-ended question for the respondents' general opinion on trilogy performance in their respective HEIs. The questionnaires were distributed to and gathered from the selected respondent NOCEI representatives by the researcher.

### Data Analysis

The trilogy profile of NOCEI-member HEIs was described using simple percentages. Means and standard deviations were computed to measure the perceptions of how trilogy of higher education was performed. They were further rank ordered to see what behaviors were mostly practiced in each element of the trilogy function. These simple descriptive statistics were used to answer the first and second questions.

To answer the third question on the differences of perceptions on the performance of trilogy functions, the Kruskal-Wallis test was used. The overall means of the perceptions of each trilogy element were derived and ranked by the number of graduate students per institution and provinces. To answer the fourth question, Spearman rank-order correlation was used. The overall means of the

perceptions on each trilogy element were derived, ranked, and the differences between them were squared in order to get the rho or product-moment correlation coefficient for ranked data. This was done for two combinations; teaching with research and teaching with community service.

In the non-parametric method, the researcher used a 5% alpha level of significance to analyze and test the hypotheses of differences by number of graduate students and province, as well as the correlation of teaching with research and community service. Figure 2 contains the formulas used for Kruskal-Wallis and Spearman's rank order correlation:

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Kruskal-Wallis (Sheskin, 2000, p. 598)

$$H = \frac{12}{N(N+1)} \sum [(\sum R_i)^2 / n] - 3(N+1)$$

Where:  $H$  = chi-square ( $\chi^2$ ) at a certain degree of freedom ( $df = k - 1$ , where  $k$  = number of groups)  
 $N$  = the total number of cases  
 $R_i$  = rank order assigned to the mean perception scores,  
 $n$  = number of cases in each grouping category

Spearman's rank order correlation (Sheskin, 2000, p. 867):

$$r_s = 1 - \frac{6 \sum D^2}{N(N^2 - 1)}$$

Where:  $r_s$  = Spearman's correlation coefficient  
 $D$  = the difference between the mean rank orders on each combination (teaching with research and teaching with community service)  
 $N$  = the total number of cases.

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Figure 2. Formulas used for statistical tests.

### Responses to Research Questions

1. To answer the first question, the section on the NOCEI-member graduate school profile was analyzed. The three elements of the trilogy of higher education are presented in Appendix A, while the demographic data of the NOCEI representatives are presented in Appendix B.

#### *Teaching*

In terms of the size of graduate students in the NOCEI-member HEIs; one third of the institutional respondents admitted up to 100 students, one third between 101 and 200, and one third between 201 and 400. The majority of the NOCEI-member HEIs employed up to 20 faculty members in their respective institutions, including part-time faculty, as revealed through several of the interviews. The institutional representatives were apparently comfortable with the academic infrastructure available to sustain a successful learning process in their institutions. This infrastructure ranged from the faculty expertise in the courses they taught, the availability of a well-defined curriculum and syllabi, instructional materials, grading policies, and acceptable teaching methods. Interview data showed that most faculty members were also members of professional organizations.

#### *Research*

Most NOCEI-member HEIs had ranked student research as the number one activity, followed by faculty research and projects proposed by their respective administrators. There were generally up to 20 theses per year orally defended by the graduate students. Two respondents of the study mentioned more or less 40 theses per year. They seemed to be the larger institutions with more student population. Most of them mentioned that they had regularly conducted on-campus research seminars attended by their own students. For faculty research, some interviewees said that it was a requirement for faculty members to make professional and academic presentations, as well as to publish their research in academic journals.

#### *Community Service*

From the NOCEI-member HEIs interviewed, six of them (66.7%) confirmed that their institutions did have a special department serving the communities around them. The officer may be designated as either a Community Relations Officer, Director of Community Services, Vice Chancellor for Community Affairs, or Director for Extension Services. Unfortunately, only three of the institutions (33.3%) included community services as part of their academic curriculum.



2. To answer the second question, the mean perceptions of NOCEI representatives on how they practiced each element of the trilogy functions were ranked from the highest to the lowest to see whether specific elements of the trilogy function were performed. Table 2 summarizes the fact that the trilogy functions were not simultaneously performed in NOCEI-member HEIs as indicated by the different percentages of performance (see Appendix C for details). Teaching was perceived as 90% performed, except for the on-line learning modality, which not all NOCEI-member HEIs operate.

Table 2

A Summary of NOCEI Faculty Representatives' Mean Perceptions of the Performance of the Trilogy in Their Respective HEIs (N = 15, n = 9)

<b>Trilogy of Higher Education</b>	<b>Total Values*</b>	<b>Those Performed**</b>	<b>% Performed</b>
Teaching	10	9	90.0
Research	10	7	70.0
Community service	10	2	20.0

\* This represents the total questions provided for trilogy performance

\*\* This represents the total questions with the means values of above 3.75

Research was perceived as 70% performed, except for the following: a peer review culture was not yet developed in their institutions, there was little coordination to acquire external grants for institutional research, and time for research and writing was considered inadequate. Community service even demonstrated even less implementation. Only 20% of the representatives surveyed considered that their institution had a commitment to develop the community; in the others, this was not yet there. Community needs were not assessed for a well-defined community service program and funding for such purposes was not necessarily available. Only some of the NOCEI-member HEIs indicated they had integrated community service into the curriculum.

3. To answer the third question, Table 3 summarizes the results of the data analysis by number of graduate students and provinces within CALABARZON. At a level of significance of 0.05, the hypotheses of the chi-square ( $\chi^2$ ) values by number of graduate students and province were tested and found to vary. When respondents were grouped by number of graduate students and province, most perceptions seemed to significantly differ, except for teaching. Their  $\chi^2$  values at  $df = 2$  were larger than the critical  $\chi^2$  5.990. The result shows that the 3 sets of schools (that were grouped according to number of graduate students and

according to province) did not significantly differ in their perception of their performance of teaching as part of the trilogy but significantly differed in their perceptions of the performance of research and community service as part of the trilogy. The results indicate that although these groups of schools have similar teaching practices/performance, their practice/performance of research and community service varies. That is, of the three components of the trilogy, the schools differ in their application or practice except for teaching. This suggests a lack of emphasis on research and community service in some of the schools.

Table 3

The Kruskal-Wallis Chi-square Test of Trilogy Perceptions of NOCEI-member HEIs by Number of Graduate Students and Province (N = 9, n = 3)

Description	Teaching	Research	Community Service
<b>By number of graduate students</b>			
critical $\chi^2$ at df=2 and $\alpha=.05$	5.991	5.991	5.991
computed $\chi^2$ value	5.392	11.560	10.789
Interpretation	did not differ	significantly differed	significantly differed
<b>By province</b>			
critical $\chi^2$ at df=2 and $\alpha=.05$	5.991	5.991	5.991
computed $\chi^2$ value	10.789	10.086	9.985
Interpretation	did not differ	significantly differed	significantly differed

4. To answer the fourth question, correlations were determined between teaching and research and between teaching and community service. Table 4 shows that there is no significant correlation for any of the combinations. Although the correlations were not significant, the coefficient values show moderate strength of correlation ( $r_s=0.47$  and  $0.43$ ) for both combinations. At a  $df = 7$  ( $9 - 2$ ) at the alpha significance level of  $.05$ , the t values were computed at  $1.412$  and  $1.257$  for the combination of teaching with research and teaching with community service, respectively. These values were lesser than the critical t value at  $df=7$  and  $\alpha=.05$  which is  $2.365$ . This suggests a lack of connection between teaching and the practice of research and community service. The perceived unbalanced attention given to the components of the trilogy of higher education may explain this (see Appendix C).

Table 4  
Spearman's Rank Order Correlation for the Combination of Teaching with Research and Community Service at NOCEI-member HEIs (N = 9)

Description	Teaching with Research	Teaching with Community Service
D <sup>2</sup>	63.5	68.5
Rho (4)	0.47	0.43
Computed <i>t</i>	1.412	1.257
Critical <i>t</i> (df = 7, $\forall = .05$ )	2.365	2.365
Interpretation	no significant correlation	no significant correlation

### Discussion

Based on the responses to the research questions, it is apparent that NOCEI-member HEIs have not performed the trilogy functions simultaneously in their respective institutions. Teaching, as might be expected, was perceived as 90% performed, except that of on-line learning as a modality, which the majority of the institutions had not embarked on. At the NOCEI-member HEIs, research was perceived as 70% performed, while community service was only 20% performed. The combination of teaching with research had more of a tendency toward correlation than that of teaching with community service. These simple findings lead to the following further questions for discussion:

1. Should on-line learning as a modality be developed by the NOCEI members in their respective institutions?
2. Can NOCEI help develop the research system of its members?
3. Should a NOCEI Community Service Committee be formed in order to develop and further tie in the academic program with that of community needs?

Based on these discussion points, the following recommendations are proposed for further consideration:

1. A long-term strategic plan should be initiated by each NOCEI-member HEI toward the full implementation of the trilogy of higher education.
2. The Philippine Commission of Higher Education should be represented in the composition of the NOCEI Board of Directors.
3. For better development of the trilogy of higher education, additional committees such as a NOCEI On-line Learning Committee and a NOCEI Community Service Committee should be set up.

4. Through discreet solicitation of a large amount of funds, a NOCEI Thrift Bank should be organized under the Philippine banking system. The thrust of the bank would be particularly aimed at helping NOCEI-member HEIs finance trilogy programs in addition to catering to the free market.

**Appendix A**

NOCEI-member Graduate School Profile (N = 15, n = 9)

Profile	Frequency (NOCEI-members)	Percent	Cumulative Percent
Number of graduate students (in range)			
Up to 100	3	33.3	33.3
Between 101 – 200	3	33.3	66.7
Between 201 – 400	3	33.3	100.0
Number of faculty members (in range)			
Up to 10	3	33.3	33.3
From 11 – 20	2	22.2	55.5
From 21 – 40	3	33.3	88.8
41 and above	1	11.2	100.0
Quantity of research output			
Up to 10:			
Theses	3		
On-campus research seminars	5		
Faculty research presentations	6		
Number of article in journals	5		
Sponsoring of research forum	<u>8</u> 27	60.0	60.0
From 11 – 20			
Theses	3		
On-campus research seminars	2		
Faculty research presentations	2		
Number of article in journals	3		
Sponsoring of research forum	<u>0</u> 10	22.2	82.2
From 21 – 40			
Theses	2		
On-campus research seminars	1		
Faculty research presentations	0		
Number of article in journals	0		
Sponsoring of research forum	<u>0</u> 3	6.7	88.9
Missing	<u>5</u>	11.1	100.0
Community service as a department			
Organized by the HEI	6	66.7	66.7
Not organized by the HEI	3	33.3	100.0
Community service as a requirement			
Included in the curriculum	3	33.3	33.3
Not included in the curriculum	6	66.7	100.0

**Appendix B**

The Demographic Profile of Respondent Faculty Members of the NOCEI-member HEIs

Demographic Profile		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	3	33.3	33.3	33.3
	Male	6	66.7	66.7	100.0
	Total	9	100.0	100.0	
Age	31 - 40	3	33.3	33.3	33.3
	41 - 50	4	44.4	44.4	77.8
	51 - 60	2	22.2	22.2	100.0
	Total	9	100.0	100.0	
Marital Status	Single	1	11.1	11.1	11.1
	Married	8	88.9	88.9	100.0
	Total	9	100.0	100.0	
Level of education	Master's	2	22.2	22.2	22.2
	Doctorate	7	77.8	77.8	100.0
	Total	9	100.0	100.0	
Academic Experience (years)	1 - 5	1	11.1	11.1	11.1
	11 - 15	4	44.4	44.4	55.6
	16 - 20	2	22.2	22.2	77.8
	Above 20	2	22.2	22.2	100.0
	Total	9	100.0	100.0	
Length of service (years)	1 - 5	1	11.1	11.1	11.1
	6 - 10	3	33.3	33.3	44.4
	11 - 15	4	44.4	44.4	88.9
	Above 20	1	11.1	11.1	100.0
	Total	9	100.0	100.0	
Academic Rank	Assistant professor	1	11.1	11.1	11.1
	Associate professor	2	22.2	22.2	33.3
	Full professor	6	66.7	66.7	100.0
	Total	9	100.0	100.0	

**Appendix C**

Ranked Perceptions on the Performance of the Trilogy (N = 15, n = 9)

Rank	Description	M
<b>Teaching</b>		
1	I have the specialization and expertise in the courses I teach	4.78
2	A well-defined curriculum established by the school is used	4.78
3	The instruction using a more active interaction can be implemented	4.70
4	A well-defined grading policy established by the school can be used	4.60
5	An approved syllabus is used for each course I teach	4.56
6	The teaching methods that suit the course content can be applied	4.56
7	I learn from the evaluation check sheet submitted by students	4.44
8	I am a member of a professional organization/(s)	4.44
9	In-depth graduate level instructional materials are available	4.11
10	The on-line learning program as a teaching modality is available	3.11
	Overall mean	4.43
<b>Research</b>		
1	A competent faculty are present in the research committee	4.78
2	A research center is affiliated with the graduate school	4.44
3	The graduate school journals will disseminate the findings	4.44
4	A monetary allowance for doing research is offered by the school	4.22
5	Monetary incentives for publication are provided by the school	4.22
6	The research seminars and workshops are regularly conducted	4.11
7	The facilities and assistance with statistical analysis are adequate	3.89
8	A peer-review culture is developed within the graduate school	3.56
9	External grants or fellowship program are made available	3.22
10	The time allowance for research and writing is adequate	3.22
	Overall mean	4.01
<b>Community Service</b>		
1	My specialization/expertise matches the needs of the community	4.00
2	The graduate school initiates help to develop nearby communities	3.78
3	The school is committed to the development of community projects	3.67
4	An up-to-date knowledge of the community needs is available	3.44
5	The community needs are properly discussed and analyzed	3.44
6	The funding to finance community development is available	3.44
7	A well-defined community service program is available	3.33
8	Published data on community needs are widely available	2.89
9	The graduate school cooperates with a reputable NGO	2.89
10	Community service is part of the curriculum	2.67
	Overall mean	3.36

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