

Students as Carers across Three Disciplines: Quantifying Student Caring in Higher Education

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This research project evaluated nursing, education, and engineering students' perceptions of themselves and their academic peers as carers using survey methods. Findings indicated the three academic majors have above average levels of caring and that there was a relationship between students' perceptions of themselves as carers and their academic peers as carers, but that these perceptions vary by academic major ($p < 0.01$). The research results also revealed that age and amount of post-secondary education were unrelated to students' perceptions of themselves as carers, but that the amount of post-secondary education influenced students' attitudes about their academic peers as carers. Students who had more years of higher education viewed their academic peers as more caring individuals than students with less time in the academic world.

Keywords: Student Development, Caring, Nursing Education, Engineering.



Developing caring, supportive communities within higher education is vital for students' learning, adjustment, and retention (Braxton, 2003; Friedlander, Reid, Shupack, & Cribbie 2007; Hirschy & Wilson, 2002; Lichtenstein, 2005; Renn & Arnold, 2003). Larrivee (2000) defines "caring"

as consisting of four fundamental aspects: respect for others, authenticity, thoughtfulness, and emotional integrity. Caring also includes an ethical dimension with aspects of empowerment, commitment, and generosity that may include time and attention to the needs and desires of others (Sumison, 2000). Teaching caring behavior and fostering a caring environment within education is complex (Berkowitz & Fekula, 1999) and requires more than giving a lecture on communication styles, having a multiculturalism presentation, or explaining to students why it is important to care (Watson, 2005). Promoting caring behaviors necessitates addressing students' attitudes, values, and beliefs supporting student acts of compassion, honesty, and responsibly. In addition, when teaching caring, one must be aware of the multifaceted nature of this concept which makes caring difficult to characterize and assess (Clouder, 2005; Noddings, 2003; Smith, 2004).

Research regarding promotion of caring within higher education is scarce (Peterson & Seligman, 2004) with much of the work focused primarily on the

interactions between students and teachers (Comadena, Hunt, & Simonds, 2007; Cory, 2007). Consistent with the scarcity of research in this domain is the dearth of investigations examining students' perceptions of caring of and between peers from multiple disciplines. Yet, it is important to develop a deeper understanding of student perceptions of caring in order to better comprehend how to facilitate the development of these behaviors in students (Peterson & Seligman, 2004). The importance of understanding student perceptions of caring is grounded on the assumption that in order to affect change in students, it is necessary to first understand what attitudes and beliefs they bring with them (Baume, Yorke, & Coffey, 2004).

Thus, to gain a deeper understanding of students' self-perceptions and their academic peers as carers, we developed a research protocol and modified extant instruments to gather empirical data about the levels of caring of students from three different colleges within a university. We begin our report with a review of literature, report our methods, present the findings, interpret our results, and conclude with implications and directions for future research.

Theoretical Framework

This research study is grounded in the work of Chickering (1993), who theorizes that student development includes growth in seven different areas or "vectors." The first vector is, "developing competence" and includes growth in intellectual and interpersonal competence. Vector two represents the way students manage emotions and relates to being able to appropriately express feelings. Chickering's third vector is associated with a students'

dependency on others, as he contends that students can and should move from autonomy towards interdependence. Similarly, vector four addresses student development of mature interpersonal relationships, including appreciation of differences and the ability to be intimate. The fifth vector is defined by the need to establish identity and therefore, is associated with having a sense of self within social and cultural contexts. Vector six centers on the process of developing purpose, which Chickering posits as being instrumental to students' ability to fulfill interpersonal and family commitments. The final vector focuses on developing integrity in association with students' capacity to behave in a socially responsible manner.

According to Chickering (1993), students have personal strengths and weaknesses that influence their character development. While in college, there is an expectation that students are influenced by the faculty, the curriculum, the campus environment, and the student community. Chickering postulates students' interactions with their surroundings can promote growth within the seven vectors. We selected Chickering's theory to guide our research project because it supports the notion that student development is enhanced by caring interactions with others. We posit understanding of student development process is guided by knowledge of students' perceptions of their own caring and their perceptions of their peers as carers. Thus, knowledge of caring may assist in enhancing student growth along each of the development vectors.

Literature Review

In the existing literature, there are some direct explorations of caring behaviors of specific groups of higher

education students (Smith, 2004; Watson, 2005). Some less direct investigations focus on authenticity and other character strengths (Chickering, Dalton, & Stamm, 2006; Peterson & Seligman, 2004; Tisdell, 2002). The results from these studies reveal several variables influential to student behavior and values (Noddings, 2003) and that the variables emerge from the interplay between students' personal characteristics and the influence of external forces. Perhaps one of the most significant external forces is a students' peer group (Renn & Arnold, 2003), which influences students inside and outside of classrooms (Braxton, 2003). Research indicates that inside classrooms peers can influence norms, enhancing or reducing honest behavior (McCabe, Trevino, & Butterfield, 2001), which is a fundamental element associated with caring (Larrivee, 2000). In an exploration of peer influence outside of the classroom, Capeheart-Meningall (2005) reports that peers' interactions foster student spiritual growth and connections with others.

In addition to the influence of peers, interactions with faculty (Nadelson, 2006; Yost, 1997) and the curriculum (Frieden & Pawelski 2003; Worsfold, 2003) have been found to influence students' behavior and likely impact the development along Chickering's vectors (Chickering, 1993). The influence of faculty and curriculum on student development may be compounded and most profoundly expressed and experienced by students when they engage in a specific program of study. This suggests that students as grouped by college major may develop different levels of caring and other associated behaviors (Harding, Carpenter, Montgomery, & Steneck, 2002).

Further, as Chickering (1993) postulates, there are also personal factors that influence students' development of caring behaviors. Research indicates a relationship between individual characteristics such as age, gender, and levels of moral development, and the student development of caring behavior (Bennett, 2005; Cummings, Dyas, Maddux, & Kochman, 2001). In addition, other factors such as receptivity to learning, culture, and spirituality, have an impact on students' moral decisions and actions (Tisdell & Tolliver, 2003).

Thus, research related to the process of developing caring behaviors in college students reveals certain internal and external factors as influential in this process. There is little in the research literature to help us understand whether or not these variables that impact the development of caring behaviors are related to certain curricula and types of faculty in various programs. As a preliminary step in addressing this gap in the literature, our study examines students' perceptions of themselves and their academic peers as carers. Specifically, we explore the influence of social/professional groups by assessing students' perceptions of their academic peers as carers, (b) the influence of curriculum and faculty by assessing students' perceptions of themselves and their academic peers as careers by academic major (positing academic program of study as a proxy variable for the influence of curriculum and faculty), and (c) the relationship between personal characteristics and students' perceptions of themselves as carers by assessing and analyzing personal characteristics as possible variables useful for explaining variations in perceptions.

Research Questions and Predictions

The questions that we use to guide our study were:

1. *Do age, graduate status, and years of education predict how students perceive themselves and their academic peers as carers?*
2. *Is there a relationship between students' perceptions of themselves as carers and their perceptions of their academic peers as carers?*
3. *Do students' perceptions of themselves and their academic peers as carers vary by academic program?*

Our research explored students' perceptions of themselves and their academic peers as carers by academic major. Based on the extant literature, we expected to detect significant relationships between our measures of personal characteristics and students' perceptions of themselves as carers. Furthermore, we anticipated students' perceptions of themselves as carers would be correlated with their perceptions of their academic peers as carers. Finally, we predicted that students from different academic degree programs would communicate dissimilar perceptions of themselves and their academic peers as carers.

Methods

Participants

Our study sample ($N = 406$) consisted of 126 nursing students, 135 education students and 145 engineering students. The years of college level education was distributed as follows: 39.0% had 0-2 years, 40.0% reported 3-4 years, 13.0% responded with 5-6 years and 8.0% had more than 6 years. The majority of our participants were undergraduate students (95%) while a small minority reported being a graduate student (3.3%) or did not report their standing (1.7%). The age distribution of

participants ranged from 25.0% responding they were under 20 years of age, 39.2% answered they were 20-24 years of age, 14.8% replied they were 25-29 years of age, 11.0% reported being 30-35 year of age, and 4.7 % of the participants were distributed into each 36-40 years of age and over 40 years of age. The distribution of participants by academic major has been presented in Table 1.

It is important to note that due to the nature of our sampling, we gathered few demographic descriptors of our participants. The relatively few males majoring in nursing and females majoring in engineering, combined with their ethnicity would have drastically increased the chances of identifying certain individuals. Therefore, we agreed as a team and with our Institutional Review Board to limit our collection of participant information to characteristics that would minimize the possibility of recognizing specific individuals.

Procedure

Prior to data collection, we submitted a demographics survey and caring survey instruments along with an application to seeking permission to conduct this research to the university's Institutional Review Board and received approval for this research. Further, we sought and received the support from administrators in the College of Education, College of Engineering, and the Nursing Department to conduct our research.

Our multidisciplinary quantitative investigation collected data from our participants using two Likert scale surveys. The participants in our research were attending a large, public, metropolitan university in the western

United States. Our participants were recruited from undergraduate courses we identified to be specific to education, engineering, or nursing majors. We visited classes and invited the attending students to participate in our research. When students agreed to partake in this endeavor, our research group member asked them to complete our demographic survey and two brief Likert scale surveys to assess their perceptions of caring. We coded the responses accordingly, and conditioned the data in preparation for analysis and used SPSS (v. 17) to perform our calculations.

Instruments

Demographics. Our research group developed our limited demographics instrument to minimize the possibility of identifying specific students. We limited our demographics questions to gather our participants years of college level education, undergraduate or graduate standing, academic major, and age. To ease data collection and again to minimize the possibility of participant identification, all items were developed to allow participants to respond using selected response scales. For example, participants were asked to respond to “Years of higher education” using the scale “0-2” “3-4” “5-6” “over 6”.

Assessment of students’ perceptions of themselves as carers. We selected Nyberg’s (1990) extant instrument, *Caring Attribute Scale*, to assess our participants’ perceptions of themselves as carers. The published instrument was originally designed to assess nurses’ perceptions of their commitment to caring, yet the items were generalized and do not reflect a specific focus on nursing. The provided instructions requested participants to respond to the prompt “Do you:” in conjunction to a combination of 20

forward and reversed phrased items such as, “Remain sensitive to the needs of others” or “Consider rules before relationships.” We modified Nyberg’s response scale from a focus on “practice” to a more general five point Likert scale ranging from “1” for “Will Not Use” to “5” for “Always Use.” In the instrument validation study using a sample of 135 nurses, Nyberg reported a Cronbach’s coefficient alpha measure of internal reliability of .85 to .97. However, Nyberg communicated very little information about establishing the instrument construct validity. The instrument scoring began with reverse coding the responses to the negatively coded items, the item responses were then summed and averaged to create a composite score. We were not able to locate a scale for interpreting the composite scores in terms of levels of their perceptions. Therefore, we considered the interpretation of results to be relative to the five-point scale with an mean composite score around 1.0 indicating very low perceptions of self as a carer, mean composite scores of about 3.0 being around average perception of self of carer and average composite scores upwards of 5.0 representative of high perception of self as carer.

Assessment of students’ perceptions of their academic peers as carers. The survey our research group used to measure our participants’ perceptions of their academic peers as carers (both students and faculty) was adopted from extant instrument developed by Hughes (1998), the *Peer Group Caring Interaction Scale*. Again, we slightly modified the original form of the tool from a focus on nursing to a more general perspective, and adjusted the Likert scale from a six point scale to a five point scale. The provided

instructions for participants to use the prompt, "Rate how accurately you feel these apply to *your school*:" to respond to a combination of sixteen forward and reversed phrased items. Participants responded to items, such as "*Students at this school can count on their classmates for help*" using a five point Likert scale ranging from "1" for "Strongly Disagree" to "5" for "Strongly Agree." Hughes (1998) reported a reliability estimate Cronbach's coefficient alpha of .91, which indicated a high level of internal stability. The instrument was scored by first reverse coding the appropriate item responses and then averaging the sum of the item response to produce a composite score. As with our assessment of students' perceptions of themselves as carers, we considered the interpretation of results to our assessment of students' perceptions of academic peers as carers to be relative to the five point scale with an average composite score around 1.0 indicating *very low perceptions of peers as carers*, mean composite scores of about 3.0 being around *average perceptions of peers as carers*, and average composite scores upwards of 5.0 representative of *high perceptions of peers as carers*.

Results

Reliability Analysis

Our research group began our analyses with the calculation of the reliability of our two study instruments. The internal reliability of our measure of students' perceptions of themselves as carers produced a Cronbach's alpha of .78, indicating a moderate to good level of reliability. The reliability analysis of our measure of students' perceptions of their academic peers as carers produced a Cronbach's alpha of .89, which indicated a high level of instrument reliability. The confirmation of the reliability of our

instruments allowed us to progress with our analyses with the assumption that our data was dependable and reflective of the participants' perspectives.

Demographic Difference between Academic Majors

We began our analysis by examining our data for any significant differences in age, graduate status, and years of college level education between our three participant groups. Given the ordinal and nominal nature of these data, we chose the Chi Square for analysis. In our examination of age, we found a significant difference $\chi^2(2,5) = 91.22, p < .01$, which indicated that age groups were not evenly distributed among the three academic majors. A review of the demographics reported in Table 1 indicated that nursing students tend to be older than education and engineering students. Further, a secondary χ^2 analysis of the age distributions of engineering and education students was found to be non-significant, which suggested these students were similarly distributed by age.

Our demographic analysis also revealed a significant difference in the distribution of years of higher education by academic major, $\chi^2(2,3) = 90.04, p < .01$, which indicated the academic majors did not have equivalently distributed years of higher education. This was expected since nursing majors must complete two years prerequisite coursework prior to being admitted as nursing students (see Table 1). Again, a secondary χ^2 analysis of the year of higher education distributions of engineering and education students was found to be non-significant, which suggests these students were similarly distributed in their years of higher education. Given the high correlation between age and years of education

$r(402) = .60, p < .01$, it was reasonable to expect both of these variables to be differentially distributed. Our analysis for difference between academic major and graduate level was not significant. These results were considered salient to our examination and interpretation of our analysis of students' perceptions of themselves and their academic peers as carers.

Personal Characteristics and Caring

Our first research question asked: *Does age, graduate status, and years of education predict students' perceptions of themselves and their academic peers as carers?* To answer this question, we conducted three separate ANOVAs, one each for age, years of higher education, and graduate status as the factors, and the composite mean scores of students' perceptions of themselves and their academic peers as carers as the dependent variables (see Table 2 for composite means and standard deviations).

Our analysis indicated that students' perceptions of themselves as carers did not differ based on age, graduate status, or years of college level education. Likewise, we found no differences in student perceptions of their academic peers as carers in relation to graduate status or the age of the participants. However, our analysis did reveal that students' perceptions of their academic peers as carers significantly varied based on years of education, $F(3,400) = 2.87, p < .05$. Our post-hoc analysis revealed that those students reporting 0-2 years of college education had significantly lower perceptions of their academic peers as carers than their peers with 5-6 years of education ($p < .05$). Thus, the students' perceptions of their academic peers as carers appeared

to increase with years of education. See Table 3 for a summary of analysis results.

Relationship between Perceptions of Self and Academic Peers as Carers

Our second research question asked: *Is there a relationship between students' perceptions of themselves as carers and students' perceptions of their academic peers as carers?* To answer this question, we conducted a correlational analysis using our participants' composite scores for their perceptions of themselves and their academic peers as variables. Our results revealed a significant correlation $r(406) = .32, p < .01$, which indicated that as students' perceptions of themselves as carers increased there was also an increase in their perceptions of their academic peers as carers.

Difference in Caring Perceptions by Academic Major

Our third research question asked: *Do students' perceptions of themselves and their academic peers as carers vary by academic major?* To answer this question, we conducted two ANOVAs using academic major as the factor and composite mean perceptions of students as carers and perceptions of their academic peers as carers as the dependent variables. (see Table 4 for the composite means and standard deviations).

Our analysis revealed a significant difference for students' perceptions of themselves as carers, $F(2, 403) = 18.74, p < .01$ (see Table 5 for a summary of results). A Bonferroni post-hoc analysis revealed that nursing students and education students had significantly higher perceptions of themselves as carers than engineering majors ($p < .01$). The mean responses by academic major can be found in Table 4.

Our analysis also indicated a significant difference for students' perceptions of their academic peers as carers, $F(2, 403) = 28.04, p < .01$. Our Bonferroni post hoc analysis revealed nursing students reporting significantly higher perceptions of their academic peers as carers than both education ($p < .01$) and engineering majors ($p < .01$) (see Table 6 for a summary of results). The mean responses by academic major can be found in Table 4.

Table 6.

Thus, our results indicated there were detectable differences in students' perceptions of themselves and their academic peers as carers by academic major. The box plot presented in Figure 1 displays how the distributions of the participants' perceptions of themselves as carers and their academic peers as carers varied by academic major.

Discussion

Our study did produce noteworthy findings. The most surprising was that we did not discover a relationship between age and students' perceptions of themselves and their academic peers as carers. Chickering's (1993) theory of student development suggests that undergraduates developed more mature interpersonal relationships and more interdependence with both age and college attendance. Thus, we anticipated that older students and those with more experience in higher education would perceive themselves and their academic peers as more caring persons. However, the only significant difference we found in the data was only related to educational experience of the participants, not their age. The finding of no relationship with age suggested that other variables may supersede age as a significant influence on students'

perceptions of themselves and their academic peers as carers (e.g. older students might need more time to develop themselves as carers; there might be a plateau of sorts for older adults' perceptions of themselves and others as carers; there might be some contextual factors that influence the relationship; older students may be more focused on relationships outside of school and allocated their caring resources to others than their academic peers).

That said, the finding of a relationship between educational experience and perceptions of others as carers suggested that students perceived themselves to be a part of an increasingly caring community. In other words, in the early years of higher education, students, in general, did not see their academic peers as particularly caring persons, but those perceptions positively change over time. This finding might be explained by students developing more positive supporting relationships with academic peers over time and the disconnected students dropping out of their academic program after the first two years of study. The significance of the relationship between years of education and students' perceptions appears to corroborate Chickering's (1993) contention that students become part of more caring and supportive peer groups as they progress through college.

Another notable finding was the detection of variation in students' perceptions of themselves and their academic peers as carers by academic program. On items related to perceptions of themselves as carers, nursing students and education students scored significantly higher than engineering students. On its own, this finding was not surprising and we suspected this difference might have been due to the

profile of the students (i.e. female with a caring orientation, in general) that are typically drawn to academic programs in nursing and education, respectively. However, on items related to perceptions of their academic peers as carers, nursing students scored significantly higher than both engineering *and* education students. In addition, although there is a general relationship between students' perceptions of themselves as carers and student's perceptions of their academic peers as carers, students' perceptions differ by academic program. Specifically, nursing students' perceptions of themselves as carers and their academic peers as carers varied less than education and engineering students' perceptions. Thus, nursing students not only viewed their academic peers as more caring, but they were also more consistent in those perceptions when compared to education and engineering students.

These findings led us to believe that the differences related to academic program are due to something more than simply the type of students drawn to each respective academic program. Instead, these differences might also be explained by the personal characteristics and approaches of the faculty who teach in these programs, as well as the focus placed specifically on caring in the curriculum of each program. For example, nursing curricula, in general (and at this institution of higher education), tended to include direct attention to caring behavior in the form of role-playing, communication skills coursework, case studies, and simulation exercises, while often nested within a cohort model of instruction. Thus, our study raised the possibility that the integration of curriculum that specifically addressed caring could have potential for increasing students' perceptions of

themselves and their academic peers as carers.

In like manner, our findings also led us to wonder why there was no change in students' perceptions of themselves as carers based on age, graduate status, or years of education. The data indicated, and we anticipated as much, that students' perceptions of their academic peers as carers differ based on years of education and academic program. Given the correlative finding that there was a relationship between students' perceptions of themselves and their academic peers as carers, it would seem to follow that students' perceptions of themselves as carers should also differ based on years of education. However, our data indicated that such a difference is only significantly related to academic program—not years of education or the amount of time spent in that academic program. This finding not only counters an intuitive analysis of the data, but it also appears to contradict the extant literature on the development of caring behaviors in college. We were left to speculate why years of education, and the amount of time spent in a specific program of study do not seem to significantly change students' perceptions of themselves as carers, and it also left us wondering how we might affect change in this regard—especially if the amount of time spent in academic programs focused on caring do not appear to have any effect on students' perceptions of themselves as carers.

Limitations and Future

There were limitations to this study. One is the use of a convenience sample of nursing, education, and engineering students from one urban university. Having a larger sample of students or a random selection of students from a variety majors and multiple universities

would strengthen the study and is recommended to increase the relevance and application of outcomes. Our study results are also limited due to the quantitative nature of this study and the self reporting of students' levels of caring. We recommend that future work use a mixture of qualitative and quantitative methods to more extensively examine the relationships between age, years of education, emphasis of the curriculum, and caring. However, it should be noted there are a number of studies that have exclusively employed instruments that gather quantitative data to assess students' level of caring (For examples see Watson, 2002, 2005).

Conclusions

We believe that our research can inform higher education student services personnel, faculty, and administrators to aide in their development of a better understanding of student levels of caring and their perceptions of the levels of caring of their peers. Further, we speculate that our study could be used to support the creation of curriculum and other interventions that will foster the development of student caring. We envision that, through education, students will learn to be more caring and compassionate, and that upon completion of their programs in higher education, students will be prepared to readily express caring behaviors.

There is a need for a greater understanding of student caring in higher education. Some work has been done, but little empirical data is available to support the predicted differences in caring between disciplines and student perceptions of the levels of caring of their peers. Our research provides a greater understanding of development, student caring, and caring among peer groups in higher education. Our research could be

used to perceive how caring is differentially integrated into the curriculum and the importance of promoting caring as a goal in all aspects of higher education.

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Table 1.
Demographic Distribution of our Participants by Academic Major

Demographic		Academic Major		
		Nursing	Education	Engineering
Years of Higher Education	0-2	5	56	94
	3-4	73	47	46
	5-6	28	13	11
	Over 6	20	7	6
Graduate Status	Undergrad	119	121	152
	Graduate	7	2	5
Age Group	Under 20	0	39	62
	20-24	51	53	58
	25-29	31	14	15
	30-34	24	6	15
	35-39	14	2	3
	40 and Over	6	9	4

Table 2.
Means and Standard Deviations for Perceptions of Caring by Age, Years of Higher Education and Graduate Status

Demographic		Count	Self as Carers	Academic peers as Carers
		N	M (SD)	M (SD)
Years of Higher Education	0-2	155	3.76(.38)	3.23(.52)
	3-4	166	3.79(.43)	3.39(.63)
	5-6	52	3.84(.34)	3.46(.67)
	Over 6	33	3.75(.36)	3.38(.71)
Graduate Status	Undergrad	392	3.78(.39)	3.34(.60)
	Graduate	14	3.68(.34)	3.29(.76)
Age Group	Under 20	101	3.74(.39)	3.23(.50)
	20-24	162	3.78(.43)	3.33(.63)
	25-29	60	3.84(.33)	3.44(.64)
	30-34	45	3.74(.39)	3.41(.67)
	35-39	19	3.77(.34)	3.34(.73)
	40 and Over	19	3.91(.33)	3.46(.52)

Table 3.
Summary of Relationships between Perceptions of Caring and Participant Age, Graduate Status, and Years of Education

Measure	Self as Carers	Academic peers as Carers
Age	No Relationship	No Relationship
Graduate Status	No Relationship	No Relationship
Years of Education	No Relationship	Positive Relationship*

* $p < .01$

Table 4.
The Three Academic Groups' Means and Standard Deviation for Perceptions of Caring

Academic Major	N	Perceptions of Self as a Carer	Perceptions of Academic peers as Carers
		<i>M (SD)</i>	<i>M (SD)</i>
Nursing	126	3.90 (.32)	3.65 (.63)
Education	123	3.83 (.41)	3.18 (.56)
Engineering	157	3.64 (.39)	3.21 (.52)

Table 5.
Summary of Comparison of Perception of Self as Carer between Disciplines

	Education Students	Engineering Students	Nursing Students
Education Students	--		
Engineering Students	Significant*	--	
Nursing Students	Not Significant	Significant*	--

* $p < .01$

Table 6.
Summary of Comparison of Perception of Academic peers as Carers between Disciplines

Academic Major	Education	Engineering	Nursing
Education	--		
Engineering	Not Significant	--	
Nursing	Significant*	Significant*	--

* $p < .01$

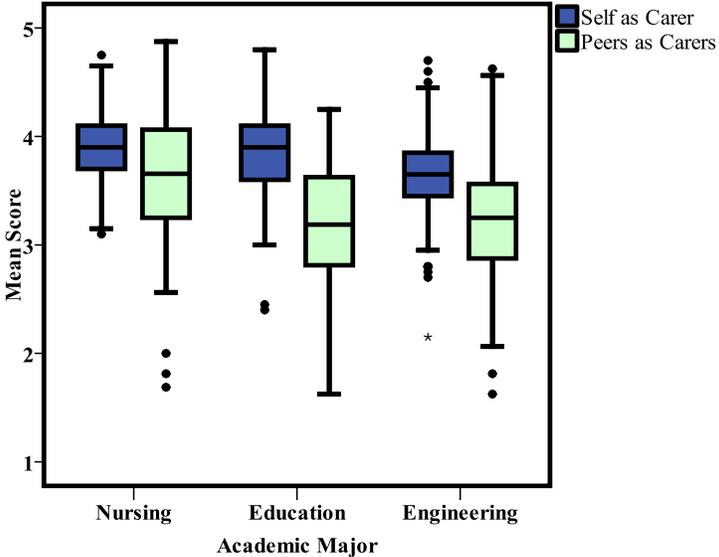


Figure 1. Box plots representing the distribution of perceptions of caring by academic major.