

How Does the Level of Education of Students' Familial and Social Networks Influence Their Perception of Barriers to Applying to Graduate School in Mathematics?

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Graduate enrollment is heavily influenced by a student's parent's level of education, especially for doctoral programs (Mullen et al., 2003). One possible explanation could include the impact of students' familiar and social networks on the graduate school application process, due to the theory of social capital (Coleman, 1988). We use this framework to discuss our results. The following data was collected from 519 survey responses to a 57-question survey investigating student knowledge about applying to graduate school. The following two tables show selected results from two questions in the survey. Based on the first table, there is an association between students seeing graduate school application fees as a barrier to applying and their immediate members having less education. From the second table, one observes that students with someone in their social network with a higher degree are less likely to view obtaining letters of recommendation as a barrier to applying to graduate school. Due to the known association with educational attainment and social inequality (Blau & Duncan, 1967; Wells et al., 2011), not all students worry about the financial resources needed to apply to graduate school. Students with members of their social network who have graduate degrees are less worried about finding recommenders for their application and know what it is like to travel for graduate school. Therefore, these students who have people with higher degrees in their immediate circles have additional resources to apply to graduate school due to their social capital.

Table 1. Kruskal-Wallis test results for selected items for the question "To what extent are the following factors a potential barrier to your pursuit of graduate school?" using the level of education of immediate family member variable.

<u>Item</u>	<u>Degree</u>	<u>N</u>	<u>Mean</u>	<u>Mean Rank</u>	<u>H</u>	<u>df</u>	<u>p</u>	<u>r</u>
Graduate Application Fees	< Bachelor's	104	3.28	341.55	43.701	3	<.001	0.078
	Bachelor's	151	2.58	263.41				
	Graduate	265	2.29	232.91				
	Other	4	1.50	133.50				

Table 2. Kruskal-Wallis test results for selected items for the question "To what extent are the following factors a potential barrier to your pursuit of graduate school?" using the level of education of social network variable.

<u>Item</u>	<u>Degree</u>	<u>N</u>	<u>Mean</u>	<u>Mean Rank</u>	<u>H</u>	<u>df</u>	<u>p</u>	<u>r</u>
Obtaining letters of recommendation	< Bachelor's	44	3.07	328.99	12.625	3	.006	0.019
	Bachelor's	122	2.56	270.27				
	Graduate	346	2.36	248.62				
	Other	9	2.67	279.00				
The possibility of having to relocate	< Bachelor's	44	3.41	329.88	17.226	3	<.001	0.028
	Bachelor's	122	2.93	282.11				
	Graduate	344	2.57	243.34				
	Other	9	2.78	255.28				

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