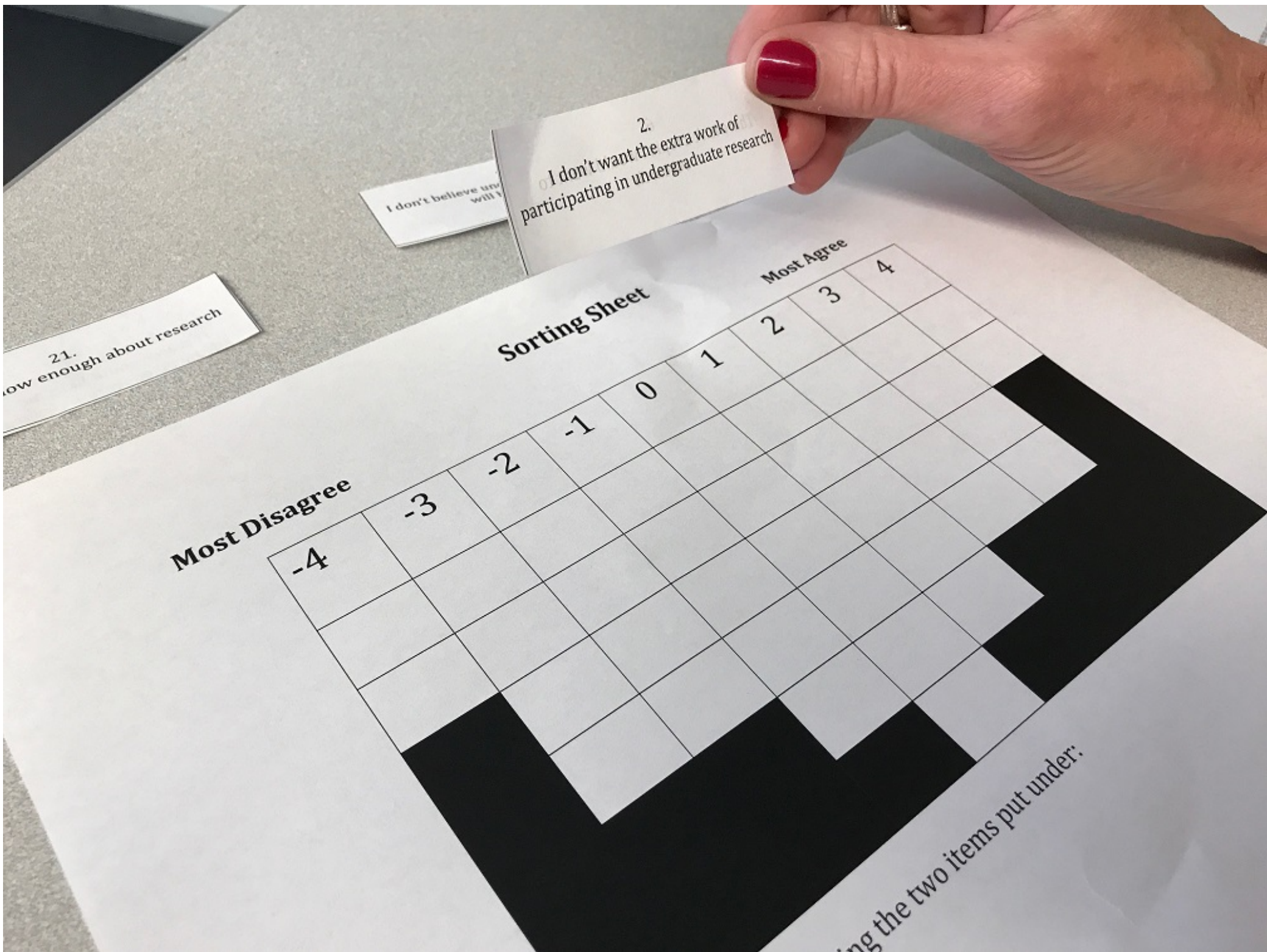


Evolving Attitudes Toward Research in Undergraduate Nursing Honors Students

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Background: Q methodology is a set of philosophical principles, data collection techniques, and statistical procedures to study subjectivity used to generate theory, test theory, or evaluate program outcomes (Hensel, 2017; Ramlo, 2015; Ramlo, 2016). When used for undergraduate research, Q is thought to contribute to positive student and faculty outcomes (Hensel, 2016). The purpose of this project was to evaluate changes in attitudes about research among a cohort of five nursing students who conducted Q methodology studies as part of an undergraduate honors program.

Figure: Sorting



Methods: The students generated a set of 36 statements, reflecting various attitudes about undergraduate research. Then they rank-ordered their level of agreement or disagreement with each statement on a -4 to +4 sorting sheet based on two conditions of instructions. First they sorted the items based on their current attitudes about research, after having participated in one semester of the nursing honors program where they completed a literature review, designed their Q study, and submitted their proposal to IRB. One student had collected data, but not yet analyzed it. Next students completed a second sort based on how they felt about research before they began the honors program. Data analysis included principal components factor analysis and varimax rotation with Ken Q software and a standard process described by Watts and Stenner (2012).

Results: A 2-factors final solution explained 70% of the variance. Factor 1 was characterized by believing that participating in undergraduate research could distinguish students from their peers and get them into advanced education programs, like graduate school. Seven sorts loaded on Factor 1, including all sorts completed reflecting current attitudes.

Table 1: Factor 1

-4	-3	-2	-1	0	1	2	3	4
3. Research isn't important for my career	7. I don't believe undergraduate research would benefit me	32. I didn't get enough information about undergraduate research	30. I'm not comfortable approaching a professor to mentor me for research	36. I don't have time to participate in undergraduate research	34. I believe that undergraduate research could deepen or create an interest in a science career	8. I believe my judgment of information quality could be improved by participating in undergraduate	18. I feel undergraduate research could help guide my career practices in the future	33. I believe that undergraduate research could distinguish me among other graduates when
21. I already know enough about research	25. Research is not important in the undergraduate level	27. I haven't thought about doing research	6. There isn't a topic I would want to research	2. I don't want the extra work of participating in undergraduate research	19. I want to do research in a graduate program	31. I feel undergraduate research could make me a more well rounded student	26. I believe undergraduate research is an opportunity of improvement	23. I believe that doing undergraduate research could help me get into advanced education programs, like graduate school
16. I don't understand what research is	10. There isn't funding for the research I want to do	5. Undergraduate research is required for my class or major	29. There aren't enough professors to work with for undergraduate research	9. Undergraduate research is intimidating	4. I believe undergraduate research could increase my confidence	35. I feel I could gain experience by doing undergraduate research		
14. I haven't learned enough about research to be able to participate in it	22. I believe doing a research project could exempt me from another course	17. Research is not interesting to me	13. I feel that undergraduate research could improve my organization skills	15. I feel that participating in undergraduate research could help raise my GPA	28. I feel undergraduate research could connect me with a faculty member as a mentor	12. I feel I could gain experience outside of the classroom by participating in undergraduate research		
		11. I don't feel skilled enough to do research	24. There is a lack of opportunity to do research in undergraduate programs	1. I feel that undergraduate research could enhance my writing and communication skills				
			20. I feel undergraduate research could teach me how to solve real world problems					
					Legend ◉ Distinguishing statement at P < 0.05 + Distinguishing statement at P < 0.01 ➤ z-Score for the statement is higher than in all of the other factors ➤ z-Score for the statement is lower than in all of the other factors			

Factor 2 was characterized by believing that undergraduate research was intimidating and too time consuming. The 3 sorts loading on Factor 2 reflected only attitudes before beginning the honors program.

Table 2:Factor 2

-4	-3	-2	-1	0	1	2	3	4
21. I already know enough about research	25. Research is not important in the undergraduate level	22. I believe doing a research project could exempt me from another course	12. I feel I could gain experience outside of the classroom by participating in undergraduate	24. There is a lack of opportunity to do research in undergraduate programs	1. I feel that undergraduate research could enhance my writing and communication skills	32. I didn't get enough information about undergraduate research	28. I feel undergraduate research could connect me with a faculty member as a mentor	36. I don't have time to participate in undergraduate research
3. Research isn't important for my career	19. I want to do research in a graduate program	34. I believe that undergraduate research could deepen or create an interest in a science career	10. There isn't funding for the research I want to do	35. I feel I could gain experience by doing undergraduate research	16. I don't understand what research is	17. Research is not interesting to me	14. I haven't learned enough about research to be able to participate in it	9. Undergraduate research is intimidating
	7. I don't believe undergraduate research would benefit me	5. Undergraduate research is required for my class or major	20. I feel undergraduate research could teach me how to solve real world problems	13. I feel that undergraduate research could improve my organization skills	26. I believe undergraduate research is an opportunity of improvement	23. I believe that doing undergraduate research could help me get into advanced education programs, like	11. I don't feel skilled enough to do research	
4. I believe undergraduate research could increase my confidence	30. I'm not comfortable approaching a professor to mentor me for research	15. I feel that participating in undergraduate research could help raise my GPA	29. There aren't enough professors to work with for undergraduate research	18. I feel undergraduate research could help guide my career practices in the future	33. I believe that undergraduate research could distinguish me among other graduates when applying for jobs		2. I don't want the extra work of participating in undergraduate research	
		27. I haven't thought about doing research	8. I believe my judgment of information quality could be improved by participating in undergraduate	6. There isn't a topic I would want to research				
			31. I feel undergraduate research could make me a more well rounded student					
					Legend ◉ Distinguishing statement at P < 0.05 + Distinguishing statement at P < 0.01 ➤ z-Score for the statement is higher than in all of the other factors ➤ z-Score for the statement is lower than in all of the other factors			

Discussion: After engaging in one semester of an honors program and designing a Q study, all students strongly believed that they benefited professionally. More research is needed to determine how much the structured processes associated with doing a Q study contributed to the evolution of positive attitudes.

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