Teaching Undergraduate Research in Human Development and Family Studies: Piloting a Collaborative Method

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ABSTRACT. Students are often apprehensive about completing an upper-division, introductory research methods course in Human Development and Family Studies. To allay this apprehension, the instructor developed a different method of teaching the course with the intent of lessening their stress in order to facilitate a more positive experience. Students developed and wrote research proposals in collaborative small groups. The purpose of this paper is to describe the educational context and main features of the collaborative research proposal assignment. The authors also provide student feedback on the assignment. The article concludes with a discussion of the limitations and implications of this kind of pedagogy-centered research.

Keywords: Human Development and Family Studies, proposal, undergraduate research

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Many colleges and universities support increasing undergraduate students' exposure to the research process (Behar-Horenstein & Johnson, 2010; Taraban & Logue, 2012). One argument for increased undergraduate research exposure is that greater understanding of research can contribute to enhanced problem solving, communication, intellectual curiosity, and future confidence. Moreover, knowledge of the research process can positively influence participating undergraduates' later contributions to their disciplines and society (Taraban & Logue, 2012). The nature of undergraduate research experiences varies across and within disciplines (Halstead, 1997) and ranges from understanding and evaluating research findings to conducting and presenting novel research. The purpose of the current study is twofold:

1. Describe an undergraduate research experience in one human development and family studies (HDFS) program.

2. Explore student feedback on writing a collaborative research proposal.

Having research experiences (Ganong & Coleman, 1993) and understanding the research process (Davis & Sandifer-Stech, 2006) is important for undergraduates who are studying individuals and families. Research experiences expose students to various research methods for studying topics within family studies and may increase their possibility of attending graduate school (Worthy, 2009). While graduate programs in the area of HDFS often provide core curricula in research design, methodology, statistics, and research practica (Birkel, Lerner, & Smyer, 1989; Ganong, Coleman, & Demo, 1995), undergraduate research experiences in the field are often limited. Many undergraduate students who want to work with individuals and families will not have acquired extensive research experience, but these students will become consumers of research in their careers (Ganong & Coleman, 1993). A few studies document undergraduate research experiences in family sciences (Davis & Sandifer-Stech, 2006; Khelifa, Sonleitner, Wooldridge, & Mayers, 2004; Worthy, 2009), but much of the literature on undergraduate research focuses on fields such as science, technology, engineering, and mathematics (Adedokun, Zhang, Parker, Bessenbacher, Childress, & Burgess, 2012).

Nonetheless, current ideology in higher education expects undergraduate research experiences in many disciplines to stretch beyond consumption of research. These experiences warrant more attention (Davis & Sandifer-Stech, 2006). Introductory research courses offer opportunities for students to learn about the research process without expectations of actually implementing studies (Rodrick & Dickmeyer, 2002). However, the scope and nature of students' research experiences will likely vary because of the types of activities and assignments comprising such a course. Developing and writing research proposals has been part of research courses in computer science (Polack-Wahl & Anewalt, 2006) and nursing (Dobratz, 2003; Harrison, Lowery, & Bailey, 1991). Critics may assert that data collection is important to understanding the research process, but writing research proposals can provide experiences and

insights into the process without the time, space, and equipment requirements that often accompany implementing proposals (Addison, 1996).

The research proposal as a collaborative group project also affords additional learning opportunities. Collaborative learning (also known as cooperative learning) is an increasingly popular pedagogical technique in higher education (Johnson, Johnson, & Smith, 2007). Collaborative learning takes place when students work together interdependently to achieve shared goals and when learning emerges through explanation, debate, negotiation, and critical thinking (Dillenbourg, 1999; Johnson & Johnson, 1999). The ideal collaborative learning situation is one in which the group is greater than the sum of its parts and where all students excel more when working together than when working alone (Johnson & Johnson, 1999). Additionally, students must rightly perceive that they can achieve their goals only by working together cooperatively. Students can share the burden of assignments and gain mastery of skills and concepts through discussion, explanation, and creative development. Therefore, collaborative learning projects allow instructors to assign projects that are more ambitious than individualized projects, thereby affording students greater interactive experiences with learning materials. Not surprisingly, research indicates that collaborative learning projects associate positively with stronger academic outcomes for students, greater retention of learning materials, and increased social skills (Johnson et al., 2007; Tsay & Brady, 2010).

A major concern about collaborative learning for instructors is to create social contexts in which students work together actively (Dillenbourg, 1999; Johnson & Johnson, 1999). Faculty members must develop clear objectives, explain the work's interdependent nature, monitor student work, and assess student learning (Johnson & Johnson, 1999). In the current project we explore student perceptions of faculty support as well as how students experienced the research proposal's collaborative nature. We will also study how this extensive proposal project relates to students' perceived mastery of research methods. Obtaining a comprehensive picture of undergraduate research experiences requires a qualitative research approach (Bauer & Bennett, 2003; Taraban & Logue, 2012). Therefore, this paper explores 22 undergraduate students' reflections/responses to questions about their experiences writing a research proposal as part of an upper-division course in HDFS research methods. Our research questions were:

RQ1: Does the experience of writing a collaborative research proposal contribute to students' perceived understanding of research methodology in HDFS?

RQ2: How does perceived faculty support influence students' reported satisfaction with the research proposal experiences?

RQ3: How do group dynamics influence students' reported satisfaction with the research proposal experience?

These research questions necessitate qualitative exploration of students' research experiences in HDFS. The core concepts in these research questions parallel questions on the administered survey.

Method

Informants

Twenty-two female university students (or 88% of the total class) completed the survey. This group included 19 seniors and three juniors. All informants were HDFS majors. Of these, 15 students (68.2%) identified themselves as White/Caucasian, three (13.8%) identified as Black/African American, two (9.1%) identified as Hispanic/Latino, one (4.5%) identified as Middle-Eastern, and one (4.5%) identified as Mixed Race (Black/White). Self-reported grade point averages ranged from 2.0 to 3.9 for these students.

All informants were enrolled during a fall semester in a three-credit introductory research course offered through a HDFS program in a college of education at a public university in the western United States. The university offers undergraduate and graduate programs; the Carnegie Classifications report high research activity at this university (Carnegie Foundation, 2013). The course met twice weekly for a total of two hours and 30 minutes each week, with 31 class meetings during a 16-week semester.

Procedure

Collaborative research proposal context and assignment. Twenty-five undergraduate students worked collaboratively in small groups to create research proposals within the field of HDFS over the course of a semester. See Table 1 and Table 2, respectively, for information on class activities and grading. Although the syllabus provides brief descriptions of the collaborative research proposal and of each task, the first few lectures of the semester underscore the research process and make links to the major course assignment—the collaborative research proposal.

Before starting the tasks for the collaborative research proposal, the instructor lectured on topics such as (a) empirical research and theoretical frameworks, (b) the research process, (c) brainstorming as part of the research process, (d) the APA writing style (see American Psychological Association, 2010), (e) selecting a research design, and (f) ethics in the research process. Each lecture lasted for approximately 1 hour, with the remaining 15 minutes used for activities relevant to the lecture or for housekeeping questions. A librarian also demonstrated how to extract viable search terms from a research question and how to enter applicable terms into databases. Finally, there was a guest panel of three former students who had completed the course and are now in, or have finished, graduate school. The intent of the guest panel was for students to (a) share experiences with the collaborative research proposal, (b) share information about experiences with research after the class, (c) provide tips for a successful research process and product, and (d) field questions from the class. Students were expected to complete the following before starting tasks for the collaborative research proposal:

- Three homework assignments, which emphasized reading chapters from the course text and responding to end-of-chapter questions;

- Two exams, which assessed knowledge of concepts covered across eight chapters and information in the current edition of the Publication manual of the American Psychological Association (American Psychological Association, 2010);

- Candidacy statement (counted as a homework assignment) that asked students to specifically address the following six areas, with approximately one paragraph for each area: (a) prior experiences with research (i.e., consumer of research, participant in research, completed a research class in another program, assisted faculty or a graduate students with research. It is typical for students to state that they have no prior experiences with research or that they are consumers of research), (b) identify and assess library skills, (c) experiences with the style guidelines of the American Psychological Association or APA, (d) writing strengths and weaknesses, (e) personal qualities or attributes that may be strengths to the proposal process, and (d) their top three broad research areas of interest. During a class session, the students and instructor generated 10 broad research areas based on student interest and the instructor's existing knowledge about a broad area.

Each student submitted his or her candidacy statement during a 10-minute, one-on-one meeting scheduled with the instructor (Walsh, Cromer, Park, & Essa, 2012). The student spoke about his or her prompt and the instructor asked questions. The instructor often asked students to share pertinent information about their broad research areas of interest. For example, if parent involvement in early childhood was a broad area of interest, the instructor would find out whether the student had done any formal or informal observations in early childhood classrooms. The total time for one-on-one meetings and instructor reflection and planning for assigning students to research groups was approximately six hours. The instructor purposefully assigned students to groups with diverse skills, with shared research interests serving as common threads within groups. Students discovered what their group assignments would be at about the eighth class meeting of the semester. Each group had access to a discussion board in an online portal to facilitate communication and information sharing about the research proposal. The instructor and teaching assistant monitored each group's discussion board. Before this class, students were asked to use an online portal to read a sample research proposal and Task 1 guidelines for the proposal.

As students began work on the tasks, ideas from the first part of the semester started to come alive. For example, the first part of the semester included a lecture on ethics in the research process. The latter part of the semester requires students to complete the Collaborative Institutional Training Initiative. While students were working on collaborative research proposals in the second half of the semester, lectures focused on (a) research designs; (b) evaluating introductions and literature reviews; (c) writing research questions, hypotheses, purposes, and objectives; (d) writing the method, basic statistics, and formulating a data analysis plan (this lecture included the instructor and two graduate students to facilitate forming a data analysis plan specific to each group's project); and (e) writing the implications and limitations. As the proposal writing process progressed, one class featured two graduate students presenting their research proposals and answering questions from the class. During two class sessions, each group met with the instructor for specific guidance about the proposal's progress.

The collaborative research proposal included five tasks that students completed in groups of 4-5. Research indicates this group size is optimal since it is small enough to discourage social loafing yet large enough for representation of multiple perspectives and abilities (Aggarwal & O'Brien, 2008; Griffin, Griffin, & Llewellyn, 2004). Compared to groups with 7-10 members, students report greater satisfaction and better learning outcomes in such smaller-sized groups (Griffin et al., 2004). Each task had 1-2 pages of guidelines that included a directive to view examples of successful tasks from previous semesters posted in an online portal. See Table 3 for task descriptions. Thus, tasks related to the proposal and to the final proposal document comprised the majority of students' graded work. After submission of each task, students completed a reflection activity about the process of each task, which included self- and peer-evaluations. At the end of the semester, each small group had completed a full research proposal, which consisted of an integrated introduction and literature review, research questions, and a methodology appropriate to test the research questions. The final research proposal also adhered to style guidelines of the American Psychological Association (APA). Each group presented their research proposal when the semester concluded. Graduate students who presented in class throughout the semester and program faculty received invitations to attend the presentations.

Feedback on collaborative method. The instructor wanted feedback on the collaborative research proposal process and created a survey to gather student reactions. Upon completion of the proposals and presentations, 22 informants completed the survey for reflecting on course experiences with an emphasis on proposal writing tasks. The instructor administered this anonymous, optional paper-and-pencil survey. Directions asked students to place completed surveys in one envelope. Student survey respondents were aware that the task provided no class points in extra credit or any grading category. Survey completion took place during the last course meeting of the semester as part of regular end of term reflection activities. The university's institutional review board approved the analysis of the informants' surveys. Each completed survey received a unique identification number. Data analysis commenced about 1 year after survey administration.

Data Analysis. Data were coded to assess informants' experiences for each of the three research questions. First, a graduate student without involvement in any aspect of the course served as coder, reading and reflecting on each survey independently. Next, this same individual read, reread, and reflected on each question in the survey, across all informants' responses. Then the coder entered students' responses for each question or category (e.g., faculty support) into a Microsoft Word document. The graduate student coded each response within each question/category and grouped similar responses to form subcategories. Each category contained a small number of subcategories and numerous codes. After the coder's initial coding, the first author reviewed the coder's work independently, along with completed surveys. The first author agreed with the coder's categories, subcategories, and codes, especially since the survey dictated the topics covered.

Findings and Discussion

To answer our research questions, we report and discuss student responses for the following categories: (a) collaborative writing of research proposal contributes to understanding

of research methodology in HDFS, (b) effects of perceived faculty support on students' reported satisfaction with research proposal experiences, and (c) group dynamics and students' reported satisfaction with research proposal experience. To support each area, we provide verbatim examples of student comments.

Collaborative Nature, Contributes to Understanding of Research Methodology

Concerning Research Question 1, there is an apparent association between the collaborative research proposal and perceived understanding of research methods. Students indicated comprehension of the full research process. Most (77%) of the students defined the research design of their proposal accurately, indicating understanding of the research methodology they used. When asked about the research design of the proposal, 17 students responded. Six students wrote *qualitative*, four students responded *quasi-experimental*, four students stated *descriptive*, and three students identified *correlational*. The researchers did not compare the quantity of reported research designs with the quantity of actual designs of the proposal to determine accuracy. Students also expressed themselves about the value of repeating their experiences. For example, "I now have the experience so if need be in the future, I can do it again" one student stated. Students also reported understanding particular elements of proposal writing such as locating and using resources, proposal format, choosing a topic, and understanding the literature review. According to one student, "I learned how much work goes into research. I know the basic format of a proposal and learned how to conduct a literature review." Overall, many informants remembered feelings of apprehension at the onset of their first experience in writing a research proposal but also reported gains in understanding research methodology and appreciation for the project's collaborative nature. For example, one student stated "The students in my group provided different perspectives on how to go about the research topic. They provided different opinions that I might not have thought of. Peer edits are always beneficial too."

Faculty Support

For Research Question 2, students' responses indicate links between positive interactions with supportive faculty and overall gainful experiences. Students reported that wide availability of the instructor to meet and discuss the group's progress was very important to the proposal writing process. Students also expressed abundant appreciation for the comfortable relationship with the instructor. They liked when the instructor provided specific guidance such as helping with proposal direction/focus, clarification of tasks/process, explicit revisions on how to improve the proposal, and suggestion of resources such as articles with empirical content. They also felt that the large quantity of the feedback was important to their progress. Students added that they liked that the instructor was caring and challenging. One student stated:

> The instructor was always available in person or via email to answer any questions, make suggestions, or clarify answers/instructions. She provided invaluable, instructive, and clear feedback on every assignment. She always provided explanations for assignments and articulated her goals for us and this class. She challenged us to think about what we did every step of the way.

Another respondent reported, "throughout the entire process of the research proposal I was given support, feedback, and positive guidance. During times where I felt off track or lost I was reinforced with nothing but support." Students also expressed appreciation for the iterative process the instructor provided: "we got a lot of feedback from the instructor once tasks were submitted, and then we were able to make those changes."

Students also reported needing more meetings with the instructor early in the proposal process -- such as in the idea phase. A few students reported needing more time to work on feedback and they felt there was too much feedback. Overall, students liked that the feedback was often available in the form of questions that forced them to think critically. Others were frustrated and felt the questions were cryptic; they would have preferred explicit advice.

Group Dynamics

As for Research Question 3, it appears there is an association between group dynamics and students' satisfaction with the research proposal experience. The feedback from the survey indicated that group dynamics and lack of personal connection to the topic led about 20 percent of the students to feel less enthusiastic about the experience. However, the majority of students stated mostly positive feedback in this area. The group aspect allowed for delegation of work to promote time management and allowed students to use their strengths. They reported that the peer editing process was helpful and that the contrasting ideas in the groups encouraged critical thinking by challenging assumptions. Students also reported that groups provided positive reinforcement; in turn, this led to the group working toward a better product, to enjoyment of the work, and to working frequently on tasks to maintain the enjoyable group atmosphere. Students also reported that groups provided emotional support and outlets to share common experiences. For example, one student stated, "two of my group members were extremely helpful. I've had many group projects but I feel that this is the first I've actually used collaborative learning!" Another respondent explained, "my group members really helped me understand the research proposal. At times, I was tired and drained from the proposal and having my group there to give me positive feedback and motivation helped." Students also reported favorably on guest speakers and how these lectures put the assignment into useful contexts for the groups:

> Having the guest speakers from a previous semester to explain how they dealt with their strengths and weaknesses helped. As did seeing graduate research proposals. My group members also made me want to push and do my best not only for them but myself.

In some groups, respondents singled out students as negative influences. This was largely expressed in veiled statements such as, "two group members were supportive…," "two of my group members were extremely helpful," and "three of us were able to collaborate together…" There was evidence of perceived exclusion, such as when one student thought her group did not want to be pulled down by her lack of skills. Another student reported that her group lacked confidence in her. There was also reported imbalance of responsibility in some groups. For example, one student felt that the others depended on her ideas, while she was getting little support or feedback from them. Another student reported that a group member was lazy and busy with other responsibilities, so the group did not frequently ask that student to contribute.

Limitations and Implications

The method this paper describes has evolved since its first iteration approximately five years ago and it will continue to do so. During this time, changes based on instructor observations and survey findings include the instructor's providing more opportunities for scaffolding by meeting with students in small groups, inviting writing center staff to attend a class to work to support groups' revision and peer-review process, and having graduate students attend a class to help provide input on their data analysis plan to each group. The students and the instructor also debrief after all guest presentations or guest support to bolster intended objectives of the experiences. In a new semester, survey findings also prompted the instructor to ask students about group responsibilities in small group meetings early in and throughout the process. Although students have always reported about responsibilities via self- and peer-evaluations after each task, now the instructor also talks about distribution of responsibilities with each group. Finally, the University now requires the listing student learning outcomes along with course objectives on all syllabi. Through instructors' eyes, stating objectives *and* outcomes in syllabi seems to make big picture goals clear to students at the start of the semester.

There are a handful of limitations for the current project, which need addressing and can be useful to providing a framework for future work. Given the current study's qualitative nature, our sample size is not a limitation per se, but our findings are limited in generalizability. Quantitative work using a larger sample of informants would complement the current project and allow us to extend our findings. For example, it is possible for us to assess learning outcomes across classrooms and teaching styles through collaborations with multiple universities. Another limitation of the current project is that the course instructor distributed the questionnaire before leaving the room. Perhaps it would be helpful if an external evaluator administered future questionnaires, allowing students more comfort and freedom to discuss opinions of the research proposal. Furthermore, some students chose not to complete the survey, so it is possible that this kept us from revealing additional findings. Future work should attempt to get data from all students so there is representation of all perspectives on the research proposal project.

Finally, the participation from only female students in the assessment of the research proposal project is a limitation. Although there was one male in the class, we were unable to capture that student's experiences. In a study of 1,505 students across multiple disciplines, Tucker (2014) found that female students receive slightly more favorable peer assessments compared to men and that men were more generous in their peer assessments of women. Women therefore appear to receive more favorable evaluation in collaborative work, but it is unclear whether there are gender differences with regard to enjoyment and learning outcomes of collaborative work. Researchers have found that male students in business courses enjoy collaborative work more than their female peers do; many female students indicated that they felt taken advantage of or that they were used only for organizing in group work situations (Kaenzig, Hyatt, & Anderson, 2007). Compared to business, HDFS is not a male-dominated discipline. Therefore, it is unclear whether these gender differences would be present in HDFS group work and unfortunately, we are unable to explore this question with the current data. Furthermore, collaborative learning outcomes may vary based on group composition (same-gender versus

mixed-gender) since women tend to be more socially skilled and may be better suited to collaborative work; however, this is probably task-dependent (Chizhik, 1999). Future work may begin to unravel how males and females experience a collaborative research proposal project.

The present study used qualitative data from 22 surveys that students completed at the end of the semester in an introduction to research course offered in a HDFS program. Analysis of students' responses revealed that, overall, they found a group research proposal to be a useful semester project. Students reported learning a great deal from the project and indicated value in the experience in terms of learning research methods. Students also seemed to like that faculty provided feedback in ways that caused them to think about and evaluate their projects. Essentially, students seemed to enjoy the assignment's critical thinking and creative requirements and they reported gaining much from this endeavor.

Given the findings of this study, there are several practical implications for research courses in the field. First, our findings indicate it is a valuable learning experience for students to create their own research proposals. This activity allows students not only to learn about how to consume research and various methodologies, but also gives them firsthand experience creating a research project without the extensive resources that carrying out a research project often requires. Students indicated they benefited academically from this exercise. Of course, not all students will fall in love with the research process and choose to pursue graduate studies, but many students should expect to be consumers of research in their chosen professions in HDFS (Ganong & Coleman, 1993).

Second, given that one concern for the research proposal was frustration with group work, we recommend emphasizing the importance of group work in the course. Many students will soon find themselves in graduate school or working in various professions where group work is an expected component. Emphasizing that group work mirrors real-life work experiences can prepare students to work together in a more cohesive manner. Self-evaluations and peer-evaluations of group members may also be incorporated as parts of the core assignment (i.e., may be worth points), allowing students to express themselves about the climate of respect and degree of participation in their groups while getting credit for their evaluations.

Finally, since there is momentum in higher education to give students more dynamic and hands-on research experience (Behar-Horenstein & Johnson, 2010; Davis & Sandifer-Stech, 2006; Taraban & Logue, 2012), a research proposal project provides a highly desirable learning opportunity. Future papers on undergraduate research experiences in human development and family studies that report on other types of research experiences that undergraduates have completed (e.g., research participant; formal observations in classrooms) will be helpful. The research proposal project may represent a first step for students who are motivated to immerse themselves in research. In sum, HDFS students often approach research methods courses with trepidation, but creating a research proposal helps them see value in such courses and may even allow them discover that they enjoy research. Most students seem to appreciate faculty feedback throughout the proposal writing process; moreover, students perceived the carrying out of the process in the context of small groups as a beneficial experience.

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Table 1
Research Activities Conducted in Class Sessions

General Class Activities	Group Collaboration	Other
20 lectures	2 instructor-guided research meetings	1 meeting with individual students (~10 minutes each)*
2 exams	1 meeting in computer lab	1 graduate student panel discussion
	2 meetings for proposal presentations	0.5 class library guidance
		1 class guest research presentations
		1 class to reflect on proposal process

Note. Class met two times per week for 75 minutes each day, totaling 31 sessions during the semester. Numbers indicate class sessions spent on activity. Activities conducted outside of class time are denoted by *

Table 2
HDFS Undergraduate Student Grading Criteria

Graded Items	Percent of Total Grade
Participation and Attendance	5%
Homework (4 assignments)	20%
Exams (2 tests)	10%
Successful completion of CITI training	5%
In-progress proposal (5 tasks)	25%
Proposal Presentation	5%
Final Proposal	30%

Note. CITI is the Collaborative Institutional Training Initiative, Social Behavioral Research Investigators and Key Personnel Group

Table 3
Undergraduate Research Proposal Tasks

Activities	Description
Task 1	Student groups demonstrated organizing a research proposal with headings, such as the Method. They demonstrated having a topic and that they have located 8 to 10 references on the topic with half or more primary sources from peer review journals. They also wrote their references in APA Style.
Task 2	Student groups summarized five empirical articles from primary sources with adherence to APA Style. Student groups demonstrated organizing a research proposal with headings, such as the Method.
Task 3	Student groups completed an integrated introduction and literature review with adherence to APA Style.
Task 4	Student groups submitted research questions or purposes. Student groups demonstrated organizing a research proposal with headings, such as the Method.
Task 5	Student groups completed the Method. Student groups had the option of resubmitting Task 4. Student groups completed the Abstract of the proposal and demonstrated organizing a research proposal with headings, such as the Method.