Teaching Tips and Tools

The Student Organization for the Advancement of Research (SOAR): A Student-Led Initiative to Increase Research-Related Learning

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Abstract

The Student Organization for the Advancement of Research (SOAR) is a student-led initiative founded in partnership with the Louisiana State University Health Sciences Center School of Public Health (LSUHSC-SPH) Office of Research and the Student Government Association. SOAR was created to increase student research capacity and practice-based learning experiences by facilitating faculty-student research collaboration via a matching program within the LSUHSC-SPH. This article describes the development, implementation, challenges, and student reflections of SOAR, and disseminates SOAR's applied learning technique. SOAR received 21 student inquiries within 6 months of implementation. Of student inquiries received, over 60% were successfully matched to LSUHSC-SPH faculty members to implement various inter-disciplinary research projects. Of students who participated in a post-evaluation focus group, 72% reported that their research skills (e.g. study recruitment, focus group facilitation, professional writing skills, and manuscript development) improved from participating in SOAR. The SOAR matching program is replicable and provides a framework for institutions to develop a tailored research program that is student-driven and focused. Ultimately, SOAR allowed the LSUHSC-SPH to meet a growing gap in student involved research by emphasizing the value of practice-based learning, fostering the spirit of collaboration, and increasing students' desire to pursue research-related careers.

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Introduction

Students enrolled in research institutions have the opportunity to participate in high-impact research projects that not only advance their respective fields, but also improve their individual capacity to perform research and overall learning (Neary et al., 2009; Willison & O'Regan, 2007). Students who actively engage in research perform better academically, exhibit increased problem-solving skills and improved scientific writing, and are also more likely to pursue research careers at the doctoral level (Russell, Hancock, & Mccullough, 2007; Seymour, Hunter, Laursen, & Deantoni, 2004; Willison& O'Regan, 2007). Yet, students often do not engage in research opportunities that may provide valuable learning experiences while benefitting the professor and research (Brew, 2006; Neary et al., 2009). A formative assessment revealed that 89% of responding (n=17) Louisiana State University Health Sciences Center School of Public Health (LSUHSC-SPH) faculty members felt that students would benefit from research participation. Despite LSUHSC-SPH's strong faculty research base and culture of student-centered faculty research, students enrolled in the Masters of Public Health (MPH) program may have lacked the skills or resources to capitalize on research opportunities occurring outside of the classroom. The Student Organization for the Advancement of Research (SOAR) was created to provide student research opportunities by increasing faculty-student research collaboration within the LSUHSC-SPH. SOAR increases student research capacity via a faculty-student matching program as well as through quarterly research-related educational forums. The purpose of this article is to (a) describe the development, implementation, challenges, and student reflections of SOAR, as well as (b) disseminate SOAR's applied learning technique that has enhanced the student experience at LSUHSC-SPH.

Methods

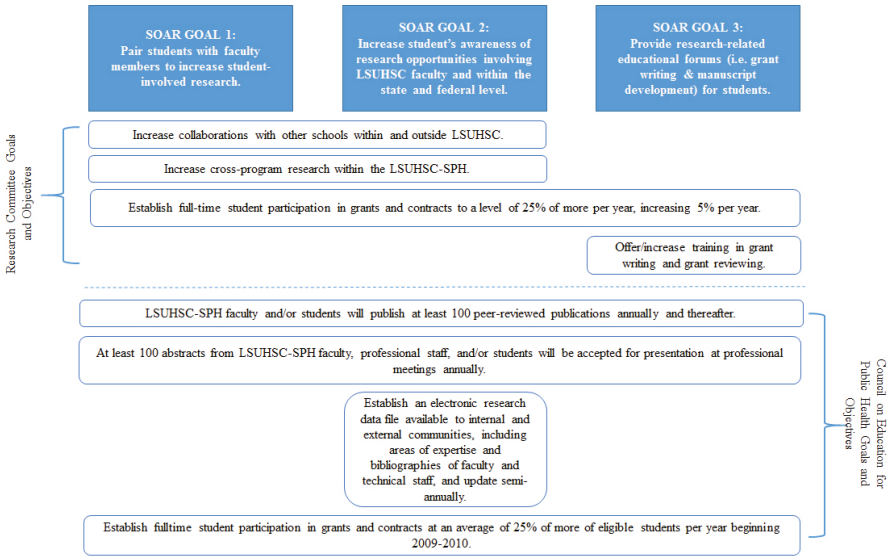
Program Overview

SOAR is a student-led initiative founded in partnership with the LSUHSC-SPH Office of Research and Student Government Association (SGA). Its mission is to enhance students' research capacity through increased awareness, collaboration, and skill building. SOAR's goals and objectives were designed to improve individual learning as well as support the LSUHSC-SPH Research Committee's goals, which align with the school's Council on Education for Public Health (CEPH) accreditation goals and objectives. For example, SOAR supports the LSUHSC-SPH Research Committee and CEPH goals of establishing full-time student participation in grants and contracts. SOAR actively supports this objective by providing access to faculty-mentored grant writing opportuni-

ties via the matching program, as well as hosting grant related seminars and workshops (Figure 1). We designed our goals and objectives in this manner to ensure that the organization is working in accord with the future directions of the LSUHSC-SPH. Overall, SOAR has three main goals: (a) implement a student-faculty matching program; (b) increase student awareness of research; and (c) provide research-related educational forums for students. Our major focus is to pair students with faculty to provide volunteer research opportunities that offer research-specific learning experiences outside of the classroom.

Figure 1

Student Organization for the Advancement of Research goals



Program Development

SOAR launched in the fall of 2015 after nine months of development and planning. Two doctoral students and the Associate Dean for Research created the organization's proposal, goals, and objectives. These efforts were also supported by LSUHSC-SPH Research Committee members. In the planning phase, formative research was conducted to ensure that faculty would be willing to participate in the SOAR program. Of those responding (n=19), 84% indicated that they would be willing to provide individual mentorship to students. Furthermore, 79% of these faculty members were interested in involving/collaborating with students on grant writing; 84% with manuscript

development; and 95% with general research projects. Therefore, the organization's constitution, matching protocol, and timelines were created. A website was also created to inform LSUHSC-SPH about SOAR, provide easy access to inquiry forms for faculty and students wishing to be matched, distribute up-to-date information on research and professional opportunities, and highlight current student research achievements. At the end of the planning phase, SOAR partnered with the SGA to elect three leadership positions (president, secretary and educational chair) to prepare for implementation.

Recruitment

The SOAR program was promoted at new-student orientation and at SGA meetings, as well as via flyers, Facebook posts, and emails to LSUHSC-SPH students and faculty. SOAR leadership engaged program directors of Behavioral and Community Health Sciences, Epidemiology, Biostatistics, Health Policy and Systems Management, and Environmental and Occupational Health Sciences as liaisons in order to increase faculty participation. Because the matching process is ongoing, email and Facebook reminders are sent to the LSUHSC-SPH community periodically. Furthermore, the SOAR educational chair is responsible for promoting research-related events and learning opportunities within the LSUHSC-SPH, LSUHSC and the community.

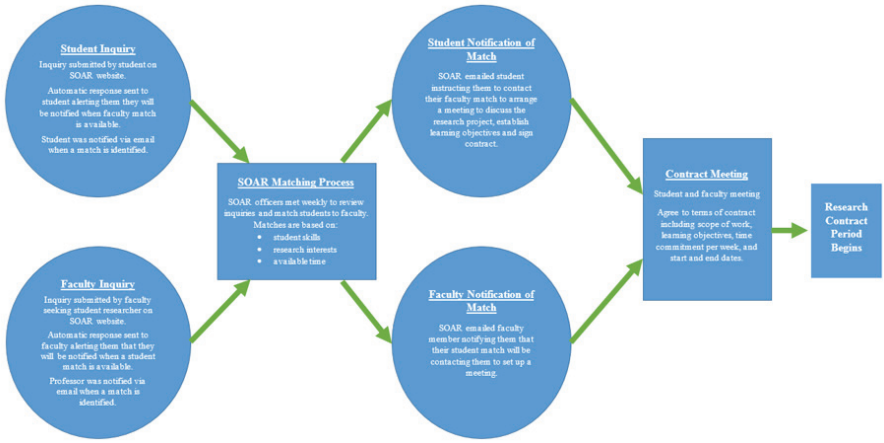
Student-Faculty Matching

The SOAR matching process is detailed in Figure 2. The SOAR website provides access to web-based inquiry forms for student and faculty members interested in being matched. The student provides information on their research interests, skills, and availability. Similarly, the faculty member completes a form indicating the research project, scope of the student work, time, and skills required from the student volunteer, as well as what opportunities this project provides for the student (e.g., manuscript authorship, professional meeting presentation, etc.). SOAR leadership met weekly to match faculty and students based on three criteria: interests, skills, and availability. The organization strives to make realistic matches based on the three criteria (especially skills and availability), ensuring that the match is beneficial for student learning and productive for the faculty's research. Once matched, the student and faculty member receive an email notification of the match that includes a student-faculty research agreement to be completed, signed by both parties, and returned to SOAR within two weeks. The agreement outlines project start and end dates, the student's scope of work for the project, and the learning objectives. Prior to the completion of this form, the student and/or faculty member may decline the match via email if the research project does not fit their interests, skills, or

available time. Otherwise, the signed agreement indicates a successful match and the research project may begin.

Figure 2

Flow diagram of SOAR's faculty-student matching process



SOAR performed post-evaluations to assess completion of learning objectives, skills acquired, satisfaction with SOAR, and recommendations for improvement. Furthermore, students who failed to uphold the research agreement could be terminated from SOAR, removed from the SOAR database, and become no longer eligible for future matches by SOAR leadership. SOAR leadership was not able to sanction faculty members who did not uphold the research agreement. However, the SOAR faculty liaison would discuss failed research agreements with the faculty member to gain an understanding and encourage future success.

Results

Implementation Outcomes

After 10 months of implementation, SOAR matched 29% (n=11) of interested full-time SPH faculty members with graduate student researchers. SOAR received 21 student inquiries within 6 months of implementation. Of student inquiries received, 62% (n=13) were successfully matched to SPH faculty members. Across matches, tasks included formative research/literature review development (54%), grant writing and development (31%), data management and analysis (23%), project management and design (23%), scientific writing

(15%), and data collection/entry (15%). Professional development opportunities were also provided. In all, 93% of faculty members offered their student authorship on a manuscript, 67% provided opportunities to attend/present at a professional meeting, and 13% provided students the potential inclusion on grant applications. As of May 2016, 58% of matches remained active. SOAR also successfully held two student-focused forums to increase student interest in pursuing the doctoral degree, and showcase research applications in community settings through a panel discussion of local public health professionals.

Post-Evaluation: Focus Groups

After 10 months of implementation, SOAR held separate faculty and student focus groups to assess the implementation of SOAR and to gather recommendations for organizational improvement. The student focus group had three main goals: (1) to understand why students did or did not participate in SOAR, and the benefits they received from participation; (2) to identify challenges experienced during the match; and (3) formulate ways to improve SOAR's matching process. The student focus group was attended by 33% of all SOAR students who were currently matched, matched in the past, or currently in the SOAR database but never matched.

Student Reflections: Student Participation and Benefits

The majority of students heard about SOAR at new-student orientation, at SGA monthly meetings, or via word of mouth. All students participated in SOAR to gain research experience and marketable skills for their future careers. More than half (57%) of students reported that they are interested in pursuing research-related careers, and 72% reported that their research skills improved from participating in SOAR. Students reported improvements in the following skills: identifying suitable grants, study recruitment, conducting focus groups, entering and cleaning data, using online-survey tools, performing a literature review, professional writing skills, and manuscript development. Students also acknowledge the benefits to their professional development such as improvements in professionalism, communication in a research team meeting and working across disciplines. Students also testified to the success of SOAR's educational forums. SOAR's community-based research event was beneficial for students to hear community partners' ideas and learn how research translates into community settings. The community-based research event was a panel discussion of three local professionals who presented insight on the daily usage of research in the workplace. The panelists were from The Department of Health and Hospital's Office of Public Health; Southern United

Neighborhoods; and The Center of Gulf Coast Environmental Health Research Leadership, and Strategic Initiatives. During this hour-long session, panelists discussed community outreach, grant writing, data collection, and reporting strategies. They also addressed student questions during a Q & A segment. In addition to the community-based research event, SOAR held an "Ask a PHD" event to address questions about academic advancement. (Faculty with DrPH, ScD, PhD, MD and DSN degrees participated.) Students who attended the "Ask a PhD" event felt it was very helpful and reported continued contact with the panelists, some of whom were current PhD candidates at the LSUHSC-SPH, for mentorship regarding their doctoral applications and future careers in research.

Student Reflections: Challenges During the Match

Students expressed the need for more structured projects under the direction of only one faculty member, as compared to being one of several members on a research team. Students reported that they expected a more formal project with greater involvement from faculty members and specific project deadlines. Overall, students felt that faculty needed to be more receptive and responsive, and follow-through on agreed upon project tasks and objectives. Students recommended that SOAR clearly advertise the organization's processes and mission to faculty members to emphasize the goal of student learning to improve student's match experiences. One student reported that the faculty expected too much student involvement (i.e., project management). This student acknowledged the benefit of this role and first-hand involvement, but regretted that the research agreement had to be terminated prematurely as his classroom responsibilities became too burdensome in conjunction with his project-specific responsibilities. Two students felt they did not have adequate skills to complete their research project. However, students reported that they gained these skills in their classes as the semester progressed. Additionally, two students reported that their work styles and personalities were not compatible with their faculty match, ultimately making their partnership less productive. Overall, students were satisfied with the SOAR matching process and reported that SOAR's web-based inquiry process was user-friendly. Students recommended that SOAR better communicate to first-semester students that SOAR offers opportunities for all skill levels, therefore students should submit inquiries regardless of perceived qualification. First-year students found it difficult to report three specific areas of research interest.

Faculty reflections

SOAR leaders also met with several LSUHSC-SPH faculty members with varied levels of program participation to help inform future directions for SOAR matching. Faculty recommended that SOAR have a research roundtable event to allow student-faculty interaction prior to matching at the beginning of each semester. Faculty indicated that in-person interaction prior to the match would allow individuals to learn personalities and work styles, and discuss research interests and current projects. Faculty also suggested that SOAR be a part of existing SGA events to further promote student-faculty contact. Although the faculty felt that SOAR's web-based inquiry process was clear, they indicated a need for periodic follow-up throughout the project period. Faculty advocated for expansion to include faculty from other LSUHSC schools (i.e., the School of Allied Health, the School of Medicine, the School of Nursing, etc.).

Future Directions: Response to Student and Faculty Reflections

SOAR plans to address student and faculty concerns to improve our newly developed and implemented student organization. To better accommodate differing skill-levels and the progression of skills as students matriculate through the SPH curriculum, SOAR may need to implement requirements regarding students' current matriculation in their graduate studies prior to matching. Furthermore, SOAR will make several changes to the matching and evaluation processes. First, inquiry forms will be amended to provide a drop-down list of research areas for future inquiries. Students felt SOAR should better communicate with matched students and faculty throughout their agreed upon research period to facilitate adherence to learning objectives and project outcomes. Ultimately, SOAR will work to better streamline evaluations including mid- and end-point surveys. Students identified that it was difficult to amend start and end dates originally reported in their research agreement. Therefore, an additional process will be created to allow students to change their initially reported start and end times via the SOAR website. This amendment will further SOAR's ability to gather mid- and post-evaluations, and communicate with students throughout their match.

Based on faculty feedback, SOAR will create more opportunities for in-person contact between the faculty and student prior to matching. One method for improving student-faculty contact and discussion of research opportunities will be through participation in ongoing organized events with the LSUHSC-SPH SGA. Currently, the SGA hosts an event which allows students to meet faculty and hear about research within LSUHSC-SPH. Although the goal of

this event is not to match students, SOAR could use this as an opportunity to open a dialogue between students and active faculty researchers. Such interactions may ultimately improve student-faculty engagement throughout their research project. Furthermore, such events will allow SOAR to clearly promote the mission and recruit faculty that value and devote involvement with the student throughout the project period.

Over the long term, SOAR will promote the organization school-wide to improve inter-professional educational experiences for public health students. However, SOAR does recognize the substantial amount of work and organization required to integrate public health students with different skill-levels into inter-disciplinary research projects across LSUHSC. Therefore, this initiative is a long-term goal that SOAR does not plan to initiate for several years.

Conclusion

SOAR was developed to increase the research capacity of master's-level students enrolled in the LSUHSC-SPH. SOAR not only met its 2015-2016 objectives, but also integrated evaluation methods in order to assess progress and inform future directions for the organization. Overall, SOAR's matching program had a substantial reach to LSUHSC-SPH students and faculty. SOAR was able to match one third of faculty, while more than half of students reported gaining valuable research skills as a result of their match experience. SOAR will strive to increase student and faculty participation in the future, as well as improve interdisciplinary research by expanding our matching program to include other LSUHSC schools. Furthermore, based on student and faculty feedback, SOAR will make several changes to their matching processes in order to improve adherence to learning objectives and project outcomes, increase student and faculty involvement throughout the match, and bolster the sustainability of SOAR research projects. The SOAR matching program is replicable and provides a framework for institutions to develop a tailored research program that is student driven and focused. Ultimately, SOAR helped the LSUHSC-SPH to mend a gap in student-involved research by emphasizing the value of practice-based learning, fostering the spirit of collaboration, and increasing students' desire to pursue research related careers.

References

Brew, A. (2006). Learning to develop the relationship between research and teaching at an institutional level. *New Directions for Teaching & Learning, 107*, 11-22.

Learning and Development Centre. (n.d.). Benefits of Research-Based Learning. Retrieved from https://www2.warwick.ac.uk/services/ldc/resource/rbl/benefits/

Neary, M., & Winn, J. (2009). The student as producer: Reinventing the student experience in higher education. In M. Neary, H. Stevenson, & L. Bell (Eds.), *The future of higher education: Pedagogy, policy and the student experience* (pp. 126-138). London, England: Continuum.

Russell, S. H., Hancock, M. P., & McCullough, J. (2007). The pipeline: Benefits of undergraduate research experiences. *Science, 316*(5824), 548-549. doi:10.1126/science.1140384

Seymour, E., Hunter, A., Laursen, S., & Deantoni, T. (2004). Establishing the benefits of research experiences for undergraduates in sciences: First findings from a three-year study. *Science Education, 88*(4), 493-534.

Willison, J., & O'Regan, K. (2007). Commonly known, commonly not known, totally unknown: A framework for students becoming researchers. *Higher Education Research & Development, 26*(4), 393-409.