



Participation in Undergraduate Research Conferences: An Assessment of Student Outcomes

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Introduction

In 2003, three junior faculty at Massachusetts College of Liberal Arts organized a small research presentation day with 18 posters authored by Psychology, Biology, and Math students. Ten years later, this two-hour poster session has grown into the Annual Undergraduate Research Conference (URC), an all-day campus-wide event with over 100 posters, oral presentations, and performances representing nearly every academic program offered at the College. Undergraduate research is widely considered a high-impact educational experience that yields numerous beneficial outcomes for students (Brownell & Swaner, 2009; Elrod, Husic, & Kinzie, 2010; Lopatto, 2010), particularly at primarily undergraduate institutions (Kuh, Chen, & Laird, 2007). It stands to reason that undergraduate research conferences, as the culmination of undergraduate research experiences, should also predict positive student outcomes. At MCLA, the URC is interdisciplinary in scope and considered a high-impact educational experience for both presenters and attendees.

The objectives of MCLA's URC include helping students see the interrelationships between their varied areas of study, and apply their critical skills and background knowledge to understanding their peers' work both within and outside their majors. The conference also provides an opportunity for students to develop the skills of clear presentation, public speaking, and explaining their ideas and discoveries to others. In 2012, members of the Undergraduate Research Advisory Board, along with the Office of Institutional Research, drafted two brief assessments of the above learning outcomes to be completed by attendees and presenters for the 2012 and 2013 conferences.

Significant campus resources are dedicated to the URC every year so this type of assessment was crucial in supporting our continued commitment to this high impact experience and providing direction for growth and improvement.



Method

Two sets of similar questionnaires were developed to evaluate learning outcomes associated with attending the conference and presenting at the conference, respectively. To distribute the 11-item attendee survey, student volunteers were stationed outside of poster and oral sessions to distribute surveys to students as they left. Surveys were also available at the registration tables. Survey dropboxes were available at multiple locations in the conference buildings. In 2012, 117 attendees returned surveys and in 2013, 113 returned them.

All the student presenters were e-mailed a request to complete a 21-item survey through SurveyMonkey, an online survey tool. In 2012, 42 presenters responded to the survey and in 2013, 41 responded. In both years, the return rate was approximately 33%.

Survey items are included in the Tables below:

Table 1. Attendee Survey

Item	Response Options
1. Major?	Open-ended
2. Class year?	Fr; Soph; Jr; Sr
3. Was this first time you attended the URC?	Yes; No
4. Why did you attend the URC? (Select all that apply)	Course Requirement; Course Extra Credit; Personal Interest; Support Classmate/Friend
5. Did you present at the URC?	Yes, this year; Yes, previous year; No
6. To what extent did attending the URC:	Not at all; A little; Somewhat; A great deal; Not applicable
a. Influence curiosity to learn more about different subjects	
b. Increase likelihood of enrolling in course you wouldn't have before	
c. Influence desire to present at future URC	
d. Increase/confirm desire to attend graduate school	
7. What did you like most about the URC?	Open-ended
8. Is there anything you'd like improved?	Open-ended

Table 2. Additional items included on the Presenter Survey

Item	Response Options
1. Was this the first you presented?	Yes; No
2. What prompted you to participate?	Course Requirement; Major Requirement; Personal Interest; Other
3. To what extent did presenting at the URC:	Not at all; A little; Somewhat; A great deal; Not applicable
a. Improve understanding of your subject	
b. Give you confidence in your knowledge	
c. Influence curiosity to learn more	
d. Improve presentation skills	
e. Increase desire to conduct more research	
f. Increase desire to present at regional or national conferences	
g. Increase/confirm desire to attend graduate school	
h. Improve team work skills	
4. Would you present at URC again?	No; Yes; No, Graduating
5. Tell us about how URC affected your knowledge, attitude, behavior, etc.	Open-ended

Results

Attendee surveys. Table 3 reports descriptive information about why students attended the conference in the two years of data collection. There was a marginal increase in the number of first time attendees from 2012 to 2013. Table 4 reports the mean responses to the questions about what attendees gained from conference attendance. Attendees reported significantly more curiosity to learn than the other three outcomes. Conference attendance seemed least likely to encourage students to take a new course.

Table 3. Attendee characteristics and reasons for attendance (percentages).

Item	2012	2013
First time attendee	47.0	57.5
Only attending (not presenting)	80.4	84.1
Course requirement	47.0	54.0
Course extra credit	24.8	24.8
Personal interest	55.6	47.8
Support a friend	60.7	39.8

Table 4. Mean responses to items about outcomes associated with conference attendance based on a 4 point scale.

Item	2012	2013
Increase curiosity	3.23	3.27
Increase desire to take new course	2.49	2.59
Increase desire to present at URC	2.81	2.86
Increase/confirm graduate school aspirations	2.96	2.89

Further analyses suggested that students who attended the conference out of personal interest rather than as a course requirement tended to report greater interest in taking new courses and more curiosity to learn about various academic subjects.

Presenter Surveys. Table 5 reports descriptive information about why students presented at the conference in 2012 and 2013. The most notable change from 2012 to 2013 was the marginal increase of students presenting at the conference as a major requirement. Table 6 reports the potential learning outcomes for students presenting at the conference. Presenters perceived substantial benefits from their experience with the conference, particularly in terms of direct learning outcomes. Conference presentation had less of an effect on increased desire to present at an off-campus conference or graduate school aspirations.

Table 5. Presenter characteristics and reasons for presentation (percentages).

Item	2012	2013
First time presenter	65.9	70.7
Course requirement	43.2	46.3
Major requirement	4.5	14.6
Personal interest	56.8	48.8
Would present again	85.0	80.0

Table 6. Mean responses to items about outcomes associated with conference presentation based on a 4 point scale.

Item	2012	2013
Improve understanding	3.7	3.4
Gain confidence	3.65	3.6
Influence curiosity	3.48	3.5
Improve presentation skills	3.3	3.5
Increase desire to do research	3.38	3.45
Increase desire to present off-campus	2.77	3.05
Increase/confirm graduate school aspirations	2.75	3.1
Improve team work	3.73	3.43

When comparisons were made between presenters and attendees, presenters tended to report greater curiosity, more motivation to pursue research and graduate school than students who only attended.

In addition, first time presenters were significantly less likely to want to present at the regional or national level compared to returning presenters, suggesting that improved confidence may be a multi-year developmental process.

Conclusions

As the data clearly demonstrate, students at MCLA perceive multiple benefits from attending and presenting at the URC. Student presenters perceive greater direct benefits, such as increased confidence and curiosity, improved presentation and teamwork skills, and motivation to continue with research as compared to students who only attend.

Students who attend the conference are also perceiving that experience as positive, however. In particular, attendees report increased intellectual curiosity as well as an interest in participating in undergraduate themselves in the future. In addition, attendee and presenter free responses on the surveys suggest largely positive experiences with the URC. Negative feedback was generally focused on logistical concerns or reflected inexperience with academic conferences. More rigorous and systematic qualitative analysis of these responses is needed, however, before any firm conclusions can be drawn.

Of course, there are areas for improvement suggested by these data. For example, some academic departments have incorporated conference attendance and/or presentation into various course curricula and programs of study, but there is room for growth. Although students who attend the conference out of personal interest report greater benefits, we still may need to entice first and second year students unfamiliar with this type of academic activity with various assignments. Early engagement may stimulate greater participation by our students in regional and national conferences as they may need more than one experience with the URC before feeling confident enough to present to a broader audience. These data suggest a developmental trajectory of encouraging first and second year students to attend, second and third year students to present for the first time, and third and fourth year students to present off-campus. Taken together, these data suggest that MCLA's significant investment in the URC is worthwhile and should continue as an example of a high impact educational practice.



References

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