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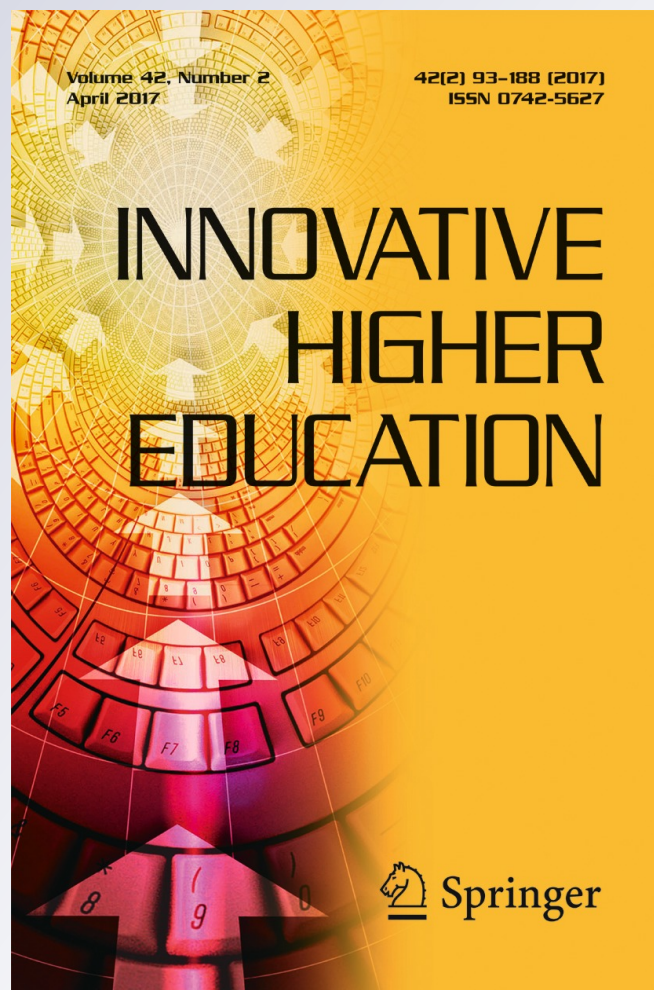
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Documenting the Aspiration Gap in Institutional Language About Undergraduate Research, Scholarship, and Creative Work

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Abstract We conducted a content-analysis of the websites of 100 institutional members of the Council of Undergraduate Research in order to examine the relationship between messages communicated on websites as compared to messages expressed within institutional procedures and policies. Findings show that public research institutions were more likely than baccalaureate institutions to have an Office of Undergraduate Research. Further incentives and supports provided by such offices are predominantly directed to students. Lastly, our analysis of promotion and tenure policies reveals that only 14

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institutions out of the 100 in our sample explicitly mentioned mentoring undergraduate researchers in the evaluation criteria for faculty members. We offer implications for research and practice.

Keywords Undergraduate research · Faculty experiences · Institutional websites · Content analysis

Seeking to ensure that students have access to “high impact” learning experiences (Kuh 2008), institutions of higher education have aspired to increase the availability and visibility of programs that engage undergraduates in research, scholarship, and creative work (URSCW) (Malachowski et al. 2015). While the growing body of research provides strong evidence that students benefit from participation in such activities (Ishiyama 2002; Jenkins and Healey 2010), it is not clear whether or not institutional aspirations to promote URSCW are matched by institutional support of faculty engagement.

Faculty members who serve as mentors in this high-impact practice are *the* facilitators of undergraduate research, thus making it critical to understand the messaging and corresponding resources and support that faculty members receive about the value of their participation. Thus, the research question for our study was as follows. Do institutions’ public messages about their commitment to undergraduate research, scholarship, and creative work align in formal evaluation and reward systems with the resources available to faculty members and the messages faculty members receive about the value of their work as mentors?

This research extends our prior efforts (Baker et al. 2015), which focused on faculty mentors’ experiences, perceptions, and understanding of URSCW. In the study we report here we turned our attention to an examination of the connection between institutional aspirations and the policies and practices related to excellence in undergraduate research, scholarship, and creative work. Relying on policy analysis as a framework, we reviewed the websites of 100 institutions randomly selected from the membership list of the Council of Undergraduate Research (CUR) in order to examine public statements of support for this work. We then compared these public statements to guidelines from CUR for recognizing faculty work in this high impact practice.

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Mentoring Undergraduates: Realities and Representations

The research presented here is situated at the intersection of several bodies of scholarship. We first discuss the critical role of the faculty mentor in undergraduate research, scholarship, and creative work and the ways in which institutions both enable and constrain faculty members as they take on this work. Next, we discuss how colleges and universities communicate with internal and external constituencies via institutional websites. We conclude with a discussion of the connection between promotion and tenure criteria and undergraduate research, scholarship, and creative work.

Faculty Mentors and Institutional Constraints

A mentoring relationship is one of the key characteristics that differentiates undergraduate research from other educational experiences, and the benefits to students who participate in URSCW are well documented (Dolan and Johnson 2010; Elder and Trapp 2010). Despite the time-intensive nature associated with effective mentorships, Johnson (2007) found that faculty mentors experience positive outcomes including personal satisfaction, fulfillment, and reputational gains for talent development.

Other studies showed, however, that mentoring comes at a cost to faculty members. Schwartz (2012) studied pairs of faculty mentors/students in STEM fields and determined that faculty members struggled with the affective and monetary impact of their work. Buddie and Collins (2011) found that, while many of the best practices in the literature address the issues that might improve the undergraduate research experience for students, more institutional support is needed to help faculty mentors manage the associated challenges such as time and funding.

In perhaps the largest study of faculty mentors of undergraduate researchers to date, Eagan et al. (2011) analyzed data from nearly 5,000 science faculty members to determine how institutional contexts and individual factors influenced faculty decisions to serve as mentors. They concluded that “without tangible incentives to create research opportunities many faculty [sic] may decide to involve undergraduate students in research projects solely as a result of good organizational citizenship behavior” (p. 173). The pool of faculty members intrinsically motivated to take on the additional work of mentoring undergraduate researchers, scholars, and artists is limited; and, as institutions seek to develop and sustain more robust undergraduate research programs, campus leaders will need to generate wide support among faculty members by linking incentives and behaviors.

Given the importance of institutional context and associated supports, it is possible that institutional differences such as resources and mission influence the infrastructures that support this high impact practice. Structures such as undergraduate research offices and incentives may be more prevalent in baccalaureate institutions, given their focus on undergraduate teaching. However, the converse may be true – that public research institutions are more likely to have the financial resources and organizational capacity to support such structures and rewards, thus making the presence of undergraduate research offices greater at this institutional type. We know of no research that has considered the role of institutional type in shaping internal and external messaging about faculty mentorship of undergraduate research, scholarship, and creative work.

Institutional Websites and Communication Networks

The earliest studies of college and university websites date to the 1990s, and they focused on the functionality and design of such digital spaces (Hossler 1999; Williams 2000). Pooch and

Lefond's study (2001) of how prospective students used websites in the process of selecting and applying to post-secondary institutions underscores the importance of content related to the admissions process and the overall environment of the school, the architecture of the website and its ease of navigation, and a focus on the users' interests. As digital technologies expand, research continues to emerge about how post-secondary institutions may build relationships with prospective students (see for example, McAllister 2012).

Taking a more expansive approach, Middleton et al. (1999) urged institutional leaders to recognize the importance of using websites to communicate not only with prospective students and other external constituencies, but also internal audiences including the faculty and staff. In her study of 40 college and university websites, Meyer (2008a) traced how websites address multiple audiences, including current and prospective students, faculty and staff, alumni, potential donors, and others. She characterized the website of a college or university as the "virtual face" that it chooses to present to "its virtual visitors, which makes it an important window into the institution, a clue to its priorities, and evidence of how it wishes to be seen" (2008b, p. 178). Research by Saichaie and Morphey (2014) suggested that institutional websites may represent complex institutional compromises as they seek to present the most appealing image possible.

These studies provide a foundation on which to understand the importance of and connection between institutional websites and aspirations as communicated through internal and external messaging. While heeding the cautionary notes of Wilson and Meyer (2009) and Saichaie and Morphey (2014) that websites may not fully represent the reality of the faculty experience, we observe that they are perhaps the single greatest source of communication about an institution's priorities and programming to diverse stakeholders.

Promotion and Tenure and Undergraduate Research

Ernest Boyer's 1990 Carnegie Report, *Scholarship reconsidered: Priorities of the professoriate* initiated scholarly conversations about faculty roles, responsibilities, and rewards. *Scholarship reconsidered* urged postsecondary institutions to re-conceptualize the evaluation of faculty members and promotion and tenure processes around four critical domains: discovery, integration, application, and teaching. Several researchers have documented the impact of *Scholarship reconsidered* and assessed its implementation in a variety of institutional contexts (Griffin 2012; Hutchings et al. 2011; O'Meara 2005). In general, these studies point toward the importance of administrative leadership as institutions undertake the challenging work of revising evaluation policies. The rewards of such efforts, however, can be significant; O'Meara noted that the revision of these policies resulted in greater attention to undergraduate learning. Yet, there is little research that delves into how the work of mentoring undergraduate researchers, scholars, and artists is addressed in promotion and tenure policies.

In 2011, the *CUR Quarterly*, published by the Council for Undergraduate Research, focused on undergraduate research, scholarship, and creative work and promotion and tenure processes. Authors from a range of institutions and disciplines shared accounts of how the work of mentoring undergraduate researchers enters into annual evaluation of faculty. The work of mentoring undergraduate researchers can confound the traditional division of faculty responsibilities into research, teaching, and service (Ronnenberg and Sadowski 2011; Vaughan 2011), thus highlighting several critical issues including how to count a co-authored, peer-reviewed publication with an undergraduate researcher or a secured grant to cover the expenses of undergraduate researchers. The contributors raised questions about disciplinary

differences in the work of mentoring undergraduate researchers, which can affect how such work is then factored into promotion and tenure decisions (Vaughan 2011). Institutional differences, as well as disciplinary differences, may also affect such recognition.

Undergraduate research, scholarship, and creative work are very important activities that support the learning and advancement of undergraduate students. Through membership in CUR and public messages via institutional websites, administrators and campus leaders communicate their commitment to encouraging and supporting student engagement. Yet, much less attention is given to how such aspirations compare with the resources and recognition provided to the faculty mentors who facilitate these kinds of experiences for undergraduates, particularly with regard to faculty evaluation procedures. We now provide an overview of the conceptual framework that guided our research – policy analysis.

Conceptual Framework: Policy Analysis and Policy as Networked Discourse

There is a strong tradition of policy analysis within colleges and universities as a method of comparing institutional claims to the realities of institutional practices. Allen et al. (2010) gave considerable attention to the potential of critical examinations of policy as a strategy for identifying assumptions and shaping practices. Fugazzotto's (2009) analysis of the relationship between mission statements as abstract indicators of institutional culture and space allocations as structural sources of evidence about institutional values called to light administrative opportunities to improve the alignment of both cultural and structural expressions of the institutional mission. Similarly, Morphew and Hartley (2006) conducted a thematic analysis of nearly 300 institutional mission statements as public indicators of their values and purposes.

More specifically, there is precedent for conducting policy analysis about faculty experiences and outcomes related to the promotion and tenure process. The American Council on Education (Helms 2015) recently released its assessment of promotion and tenure guidelines in regard to the inclusion (or lack of inclusion) of globally focused evaluation criteria, despite the fact that institutional mission statements increasingly emphasize global or international education. We know of no studies, however, that have explored the alignment between public statements of value for undergraduate research, scholarship, and creative work and policies for evaluating faculty members' engagement.

Our focus in this continued line of inquiry (Baker et al. 2015) turned towards understanding if and to what degree a disconnect exists between messages about the importance of URSCW and available resources and incentives, particularly for faculty members. We hypothesized that there would be dissonance in aspirations versus actual practice related to undergraduate research, scholarship, and creative work. Such dissonance, for example, could be the result of institutional pressure from campus leaders and administrators to offer undergraduate research experiences given the known benefits to students, despite the lack of financial resources to support faculty members who engage in such programming. Or it could be the case that programming is created in order to offer a variety of experiential offerings, but policy fails to keep up with actual practice (see Table 1 for a list of Hypotheses).

A college or university website is a rich, multi-layered, multi-modal text that communicates vital information to prospective and current students, faculty, staff, and other stakeholders. Through the policy decisions an institution makes about website content, it is also constructing a particular campus reality and particular identities for campus constituents. We thus offer not only a quantitative analysis of how a sample of postsecondary institutions represents the work

Table 1 Hypotheses

H1a: Public research institutions are more likely than baccalaureate institutions to have a URO (Undergraduate Research Office)/Undergraduate Research Programming.
H1b: Institutions with larger enrollments are more likely than smaller institutions to have a URO.
H2a: Institutions with larger enrollments are more likely to have UROs with student incentives than institutions with smaller enrollments.
H2b: Institutions with larger enrollments are more likely to have UROs with faculty incentives than institutions with smaller enrollments.
H3a: Institutions with larger enrollments are more likely to have UROs with greater resources for students than institutions with smaller enrollments.
H3b: Institutions with larger enrollments are more likely to have UROs with greater resources for faculty than institutions with smaller enrollments.
H4: Teaching focused institutions are more likely than public research universities to include mentoring undergraduate research in their promotion and tenure evaluation criteria.

of faculty mentors, but also consider how the policies embodied in evaluative documents define the role of the faculty involved in this activity.

The Study

We followed Iverson's (2012) example of discursive policy analysis to explore normative frameworks, assumptions in language, and limits to policy effectiveness. For our purposes, institutional web pages about undergraduate research and corresponding offices and statements about recognizing and rewarding faculty work in evaluation guidelines comprised the discourse of focus for this analysis. Referring not to websites and faculty handbooks but to the similar document of a university student handbook, Iverson (2012) explained, "[It] is at once a written document that reflects a given reality, an archival 'snapshot' yet it also contributes to producing a given campus reality..." (p. 154).

Krippendorff (2013) defined content analysis as "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use." (p. 24). He advocated for the technique as an unobtrusive research strategy that allows for the handling of potentially large volumes of unstructured content as data in ways that are context-sensitive. He also emphasized the value of content analysis not only to provide new insights about a topic but also to inform related practice and action. It is a method that can be useful in documenting and making meaning of potential differences (Krippendorff 2013) – in this instance, the differences between public institutional messages about the value of faculty engagement in undergraduate research and those communicated directly to the faculty through evaluation documents.

Sample and Selection Criteria

We randomly selected 100 colleges and universities (50 baccalaureate institutions, 50 public research universities) from the 2015 Council of Undergraduate Research (CUR) membership list ($N=546$). Data collection and analysis occurred between July and November, 2015. These schools, by virtue of their membership, have indicated their

support of CUR's goal and mission of promoting high-quality undergraduate student-faculty relationships around collaborative research and scholarship. We copied and pasted the member institutions in an excel spreadsheet and numbered each school 1–546. The second author generated random numbers using www.random.org. The colleges and universities matching the random numbers were selected until we identified 50 public research institutions and 50 baccalaureate institutions. We relied on the Carnegie Classification system to confirm institutional categorizations. Tables 2 and 3 lists the institutions included in this analysis.

Data Collection

We sought to determine the extent to which institutions' internal and external messages about their commitment to undergraduate research, scholarship, and creative work align with policy and practice related to faculty evaluation and recognition for mentoring. We applied Krippendorff's (2013) content analysis process, which includes unitizing, sampling, recording/coding, reducing, inferring, and narrating. We first *unitized* the information to be treated as data (i.e., the collection and organization of information as collected from websites) including references to faculty engagement in undergraduate research in (a) promotion and tenure documents and (b) top search results within institutional websites for the term "undergraduate research." We then identified our *sampling* technique, as described above, and limited the sample to 100 randomly selected institutions from the Council for Undergraduate Research membership list. Next, we *recorded and coded* the data as identified in the unitizing stage into the database for each institution included in the sample. Through independent analysis, interrater reliability, checks and research team meetings, we developed and refined our data *reduction* strategy and applied that strategy to populating the database. Finally, the completion of the database allowed us to *infer* meaning from our results and *narrate* those inferences as responses to our guiding research questions.

Data Sources and Variables

We relied on CUR's (2012) *Characteristics of Excellence in Undergraduate Research* (COEUR) to identify best practices that support and sustain highly effective undergraduate research to guide our variable selection. The 9 variables included in our study are as follows:

UR Office According to COEUR (2012), the most highly successful undergraduate research programs are associated with a central office of undergraduate research which serves as the clearing house for campus-wide undergraduate research activities. We identified such a presence by finding an actual office/campus address and a full time director of undergraduate research.

Top 3 Link Search We searched main page institutional web pages for "undergraduate research" and recorded the top 3 "hits" resulting from that search. Given the lack of precedent or resources for best practices in web page content analysis, we determined that publicly available institutional information about undergraduate research would be likely to appear in the top 3 search results for a given search term.

Table 2 List of institutions

Baccalaureate institutions	Public research universities
Agnes Scott College	Andrews University
Allegheny College	Case Western Reserve University
Augustana College (Illinois)	Clemson University
Augustana College (South Dakota)	Dartmouth College
Austin College	DePaul University
Beloit College	East Tennessee State University
Bryn Mawr College	Florida International University
California Maritime Academy	Florida State University
Carleton College	George Mason University
Centre College	George Washington University
College of the Holy Cross	Georgia Southern University
Concordia College - Moorhead	Indiana State University
Doane College	Indiana University of Pennsylvania
Eastern Mennonite University	Kansas State University
Emory and Henry College	Miami University of Ohio
Goucher College	Michigan State University
Guilford College	Montana State University
Hampden-Sydney College	North Dakota State University
Hendrix College	Northern Illinois University
High Point University	Oakland University
Hobart & William Smith Colleges	Purdue University Main Campus
Illinois College	Texas A & M University
Indiana University Kokomo	Texas Christian University
Johnson C. Smith University	University of Alabama at Birmingham
Kenyon College	University of Alabama in Huntsville
LaGrange College	University of Alaska Fairbanks
Lawrence University	University of Arizona
Lewis & Clark College	University of Arkansas
Macalester College	University of Cincinnati Main Campus
Maryville College	University of Florida
Montana Tech of The University of Montana	University of Georgia
Northwest Christian University	University of Iowa
Randolph - Macon College	University of Kentucky
Rhodes College	University of Maine
Saint Anselm College	University of Memphis
Shaw University	University of Missouri - Columbia
Siena College	University of Montana
Southwestern University	University of Nevada Las Vegas
Susquehanna University	University of North Carolina at Greensboro
Taylor University	University of North Texas Dallas
Texas Lutheran University	University of Oklahoma Norman Campus
Trinity College	University of South Alabama
United States Military Academy at West Point	University of South Carolina - Columbia
University of Maine at Farmington	University of South Dakota

Baccalaureate institutions	Public research universities
University of Maine at Fort Kent	University of Texas at Arlington
University of Wisconsin - Parkside	University of West Florida
Virginia Military Institute	University of Wisconsin - Madison
Wellesley College	Wake Forest University
Westminster College	Washington State University
Willamette University	West Virginia University

Faculty Incentives We searched the undergraduate research office main page for mention of faculty incentives. According to COEUR (2012), such support should include faculty startup funding that “is commensurate with institutional expectations” (p. 11) to support scholarly activity and engagement with undergraduate research. We classified and coded faculty incentives in one of two ways: monetary (i.e., startup funds, salary support) and time (i.e., course release).

Student Incentives We searched the undergraduate research office main page for details about student incentives. Funds to support dissemination are critical to a robust undergraduate research enterprise, and those institutions which do provide such support (to at least one conference per year) are categorized as having exemplary undergraduate research programs (COEUR 2012). We classified and coded student incentives in one of three ways: monetary (i.e., salary), housing (i.e., summer on campus housing), and dissemination (i.e., funds to support conference travel).

Faculty Resources We searched undergraduate research office main pages for links to faculty resources given that such supports are critical to encouraging faculty engagement in undergraduate research (COEUR, 2012). We classified and coded faculty resources in one of two ways: mentoring (i.e., mentoring guides) and student supports (i.e., how to engage undergraduates in research).

Student Resources We searched undergraduate research office main pages for links to student resources. We classified and coded student resources in one of three ways: writing (i.e., writing guide, proposal preparation), research (i.e., how to develop a research question), and presentation/dissemination (i.e., how to present your research).

Mentoring Recognition We searched the URO Main page and main institutional web page for “Mentoring Award” directly connected to undergraduate research experiences.

We also included two broad categories of variables for comparative purposes.

Table 3 URO and institution type

	Baccalaureate	Public research
N	42	19
Y	8	31

Institutional Type Based on findings of undergraduate research experiences, institutional context is an important factor (Eagan et al. 2011). We therefore included public research universities and baccalaureate institutions for comparative purposes in our sample.

Enrollment Enrollment data were collected from the Carnegie Classification of Institutions of Higher Education Website (<http://carnegieclassifications.iu.edu>).

Data Analysis

We reviewed faculty handbooks, institutional bylaws, evaluation guidelines and criteria, and any related documents available online which outlined the faculty evaluation process and criteria at the institutional and divisional levels. To ensure consistency, we relied on the institutional level evaluation and promotion and tenure criteria for the purposes of our analysis. We searched for the explicit mention of “mentoring undergraduate research” in the evaluation criteria. The data were analyzed in the *R* statistical package (R Core Team 2015). Frequencies and Chi-squared equations were calculated to answer the research questions and test hypotheses.

Trustworthiness, Validity, and Reliability

To ensure trustworthiness, we relied on three techniques. First, the two lead authors coded two institutions (one public research university, one baccalaureate) separately. After recording and coding the variables listed above for the institutional websites, both authors discussed their codes and developed a training guide for the remaining authors. In-person training occurred with the entire team of authors simultaneously. As a team, we coded an institution together to ask questions and provide further clarification before coding remaining schools separately. Each author coded 20 institutions.

Second, we randomly selected 10 % ($n = 10$) of the institutions to be coded by a second rater. Interrater correlation was calculated to determine agreement. Seven variables had agreement at the level of .82 or higher. Student resources from a undergraduate research office had a .62 agreement. We determined there was an error in the coding for student resources and recoded that variable for all institutions to ensure that student resources were recorded only when they were provided by a undergraduate research office. The final correlations were between .82 and .91 for all variables, which indicated acceptable agreement (Cohen and Cohen 1983).

Third, given the pace at which institutional websites change, we took screen shots of each step to ensure consistency and accuracy between the time of data collection and future analyses. Screen shots also aided training as authors talked through interpretation and coding categories. All screen shots were saved in a shared Dropbox folder.

Limitations

As with any research, there are limitations worth noting. Given our desire to be as consistent as possible, we reviewed websites for *explicit* language only using a few key search terms such as “undergraduate research” when searching for undergraduate research offices or “mentoring undergraduate research” when reviewing evaluation criteria. It is possible that such search terms did not redirect us to the variables of interest at the

institutional level given that undergraduate research offices or evaluation criteria may be present on a divisional basis or undergraduate research may be decentralized at the departmental or even programmatic levels. We also note that faculty resources to support mentoring undergraduates, for example, may be located on an institutional resources page found under Academic Affairs, rather than on a website dedicated to undergraduate research. Lastly, we note generalizability may be an issue with other institutional types, particularly non-CUR members.

Findings

Our main aim in conducting this research was to examine the alignment between public statements of value for undergraduate research, scholarship, and creative work as communicated through institutional websites and policies for evaluating faculty members' engagement in such work through P&T criteria.

Undergraduate Research Office

Steps 1 and 2 of analysis focused on whether URSCW appeared in the top 3 links when we searched for “undergraduate research” on the main institutional web page. When reviewing such websites, 39 of the 100 institutions had an undergraduate research or undergraduate research office link appear in the top three hits. There was a significant difference by institutional type in favor of public research institutions $\chi^2 = 20.35$ ($df = 1$, $p = 6.467e-06$) being more likely to display such a hit.

As part of Step 3, we checked for the presence of an actual undergraduate research office (versus an undergraduate research web page). Forty-three institutions had an undergraduate research office, while 57 did not. We calculated a chi-square equation to determine if there was a relationship between having an undergraduate research office with institutional type (**H1a**). Public universities were significantly more likely to have an undergraduate research office compared to the baccalaureate institutions in our sample $\chi^2 = 19.75$ ($df = 1$, $p = 8.84e-06$).

Undergraduate enrollment was coded into ten categories based on the natural break in size. The categories were less than 1,000; 1,001–2,000; 2,001–3,000; 3,001–6,000; 6,001–10,000; 10,001–15,000; 15,001–25,000; 25,001–30,000; 30,001–40,000; and greater than 40,000. Chi-square calculations revealed that enrollment size was significantly related to having a URO (**H1b**), and this relationship was significant $\chi^2 = 25.746$, ($df = 9$, $p = 0.002248$). Post-hoc analysis revealed institutions with an enrollment from 10,000 to 30,000 were more likely than those institutions with lower (or greater) enrollments to have an undergraduate research office and were responsible for the significant finding.

Support for Students and Faculty

Institutions with larger student enrollments, as compared to those institutions with lower student enrollments, may have more resources to provide student and faculty incentives to participate in undergraduate research. However, Chi-squared analyses showed no significant difference between the institution's enrollment and undergraduate research

office incentives or resources for students or faculty. Between 75 and 95 % of the URO offices provided student incentives ($N=33$) such as grants and scholarships and other resources ($N=41$) including workshops on proposal preparation, writing guides, and presentations guides (see Fig. 1). Less attention was given to faculty members with just over 25 % of undergraduate research offices providing incentives for faculty ($N=12$) and only about 50 % of undergraduate research offices providing faculty resources ($N=23$), or awards regardless of institution enrollment (**H2a/H2b** and **H3a/H3b**). Thus, the hypotheses about institutional size and concomitant resources, incentives, and supports were not supported.

Recognition in Promotion and Tenure

Our analysis of promotion and tenure guidelines revealed that only 14 institutions explicitly mentioned “mentoring undergraduate research” in any evaluation criteria regardless of institutional type (see Table 4), and there was no statistical difference by institution type (**H4**). When “mentoring undergraduate research” was listed in promotion and tenure documents, it was most often categorized under teaching. We conducted a post-hoc analysis to determine if institutions with undergraduate research offices were more likely to explicitly mention “mentoring undergraduate research” in their promotion and tenure documents, and the answer was no.

Finally, we noted language in promotion and tenure evaluation criteria that mentioned mentoring, though not explicitly in the context of undergraduate research. Twenty of the 100 institutions in our sample included some mention of mentoring (see Table 4). Sample statements included “Teaching includes supervising directed inquiries, honors projects and/or other forms of student research or creative activity,” “Teaching: one-on-one in research, independent study, cooperative education, internships and practica,” and “Teaching is not limited to classroom instruction, but includes activities such as supervising, mentoring, and advising students.” All mentions of mentoring, outside of the context of undergraduate research, were listed under the “Teaching” category in promotion and tenure criteria.

Discussion

Undergraduate research has been increasingly embraced by colleges and universities as a high impact practice; yet it requires a significant investment on behalf of the institution as campus

Fig. 1 Percentage of URO offices providing student and faculty incentives and resources

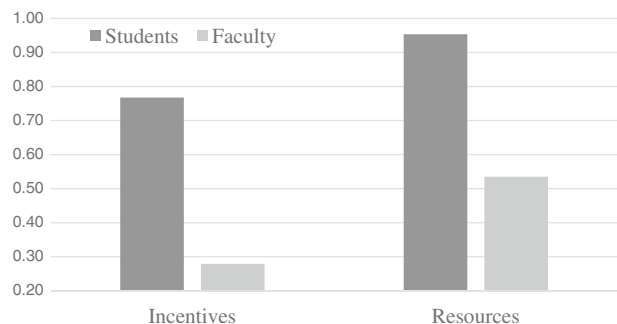


Table 4 Number of institutions that mention mentoring undergraduate research or mentoring in promotion and tenure guidelines

	Category			
	Total	Teaching	Research	General mention
Mentoring undergraduate research	14	10	3	1
Mentoring students (not in UR)	20	20	0	0

leaders and administrators create the necessary infrastructures and incentives to support such activities. However, we find that the reality of the necessary support has yet to catch up with institutional aspirations, thus resulting in different audiences receiving different messages – the increased offerings of undergraduate research opportunities and the associated supports and incentives for students far outweigh those made available to faculty members as evidenced by information communicated through institutional websites and evaluation policies and criteria. Additionally, our findings reveal that, while the institutions in our study have aspirations to promote and engage undergraduates in research, this aspiration has yet to translate fully into creating the infrastructures and subsequent changes to evaluation policies needed to support the faculty members who engage in these activities. We agree with O’Meara et al. (2015), who noted that the promotion and tenure process, as a part of the larger reward system present in higher education institutions, reflects institutional values, aspirations, privileges, and power structures. What we found, at the time of this study, in the promotion and tenure policies related to undergraduate research, scholarship, and creative work, has failed to keep up with practice, at least for the institutions included in our study.

Implications for Research

We believe that the findings from our study contribute to research about undergraduate research, scholarship, and creative work and the use of institutional websites as an important window into understanding aspirations versus actual practice. First, our study is the first of which we are aware that has investigated how institutions communicate with faculty about the importance of URSCW, how institutional policies support or impede faculty involvement in such practices, and how participation is factored into faculty evaluation systems. Consistent with the work of Schwartz (2012) and Buddie and Collins (2011), our findings indicate that faculty who participate in undergraduate research, scholarship, and creative work may do so despite a lack of institutional support. We agree, however, with Eagan et al. (2011) that change needs to occur as campus leaders increase their expectations about the types and amount of undergraduate research experiences made available to students, which ultimately impacts academic work and faculty responsibilities. Successful mentoring relationships require training, support, and recognition for both individuals involved. We wonder if more faculty members might engage more students if there were institutional support such as a centralized Office of Undergraduate Research that provides programming or resources to help faculty develop the intellectual and affective competencies to serve as mentors as well as material incentives such as stipends and recognition through faculty evaluation policies.

Second, our findings revealed that the public research institutions in our sample were more likely to have undergraduate research office and undergraduate research appear in the top three hits when searching for that term. We found this finding interesting given that the emphasis of

teaching and working with undergraduates is perceived to be more predominant at baccalaureate institutions. Perhaps baccalaureate institutions believe they have such experiences infused throughout their educational offerings, thus removing the need for undergraduate research offices at this institutional type (Turner et al. 2008). Within the public research universities included in our sample, it appeared that the really large institutions (enrollment over 30,000) also did not have such structures. It might be the case that these institutions, given their size, decentralize undergraduate research leaving such experiences within honors colleges or academic departments.

Third, a strength of our study is that we relied on what institutions report they do rather than surveying individuals. Our findings support and extend research that relies on institutional websites as useful sources of data in that choices about what is (and is not) included provides a telling story to internal and external constituencies (Taylor and Morphew 2010). Our results align with the work of Saichaie and Morphew (2014) and Middleton et al. (1999) who showed that institutional websites convey important messages and an institutional image to external and internal audiences. Furthermore, they serve as the “virtual face” as colleges and universities seek to demonstrate to current and future students (and their parents) the value of their tuition dollars. The institutional websites we reviewed illustrated a clear focus on the student perspective. This movement is no doubt a result of and a response to research that highlighted the top five educational practices and the importance of those practices to student learning, particularly as a means of attracting and retaining underserved student populations (see for example, Brownell and Swaner 2009). However, our study advances the view that institutional policy and practice lags behind institutional aspirations related to undergraduate research scholarship, and creative work.

Implications for Practice

The results of this study may be valuable to directors of undergraduate research programs and other institutional stakeholders. We offer three recommendations to improve practice. First, institutions should consider convening a task force to revise faculty evaluation procedures and promotion and tenure criteria to acknowledge faculty members’ mentoring of undergraduate researchers. Such a recommendation is not novel, but we believe it serves as an important first step in aligning promotion and tenure systems with institutional priorities and the changing, dynamic nature of scholarship to account for the variety of ways scholarship is enacted (O’Meara et al. 2015). We recognize the challenges of changing such procedures, but surely CUR member institutions should value this aspect of faculty work more highly than non-member institutions. Despite the challenges, the importance of reconsidering promotion and tenure guidelines to acknowledge the work of mentoring undergraduate researchers cannot be underestimated. As Fairweather (2002) has argued, “the principal expression of academic values about faculty work lies in the promotion and tenure decision” (pg. 27).

Second, institutional leaders and directors of undergraduate research programs need to engage faculty members in strategic conversations about the types of support and recognition that mentors need when working with undergraduates. Very few of the websites analyzed linked faculty members to general resources and best practices in mentoring or strategies for mentoring students in under-represented groups, for example. This reality contributes to the ongoing conversation about the changing nature of faculty work (O’Meara et al. 2008; Simpson 1997) by shedding light on the disparities that exist as communicated through institutional websites, and in resources, incentives, and recognition available to students and

faculty members. Our research suggests that institutional leaders may wish to consider routing resources directly to faculty members in the form of stipends, honoraria, and travel funds as incentives and acknowledgement of their efforts.

Third, as we acknowledged in our “limitations” section, we only searched for explicit mention of undergraduate research, scholarship, and creative work search terms on the institutional websites. It is possible that faculty incentives and supports were more readily available at our sample institutions and that information was noted on other web pages or supported through other campus offices outside of undergraduate research. However, if that is the case, we argue that campus leaders and administrators need to ensure this information is more readily available to new and more senior faculty in the appropriate locations.

Conclusion

The Gallup-Purdue Index released in 2014 revealed that only 14 % of the 30,000 college graduates surveyed indicated they had contact with a professor who served as a mentor, caring about them as individuals, inspiring them to learn, and encouraging them to set lofty goals. Such data suggests that significant work lies ahead for leaders in higher education, especially as colleges and universities aspire to increase the availability and visibility of URSCW and the work that faculty do as mentors. Resources and policies, including promotion and tenure guidelines, need to be aligned so that faculty members are supported and recognized for their critical contribution to undergraduate research, scholarship, and creative work; and communication strategies in digital spaces should reinforce these efforts.

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