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Interdisciplinary Research at the University of Illinois at Chicago: A Campus-wide Survey of Climate, Obstacles and Opportunities

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A Campus-wide Survey of Climate, Obstacles and Opportunities

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With assistance from Faculty, Graduate Students and Academic Professionals affiliated with the

Interdisciplinary Center for Research on Violence University of Illinois at Chicago

Mission Statement

UIC 2010 Seed Grant funds will be used to support Center-related activities that together will develop the necessary infrastructure to promote and support ongoing interdisciplinary work in the area of violence. In addition we aim to go beyond our current membership to bring together practitioners, policy makers, and other UIC researchers dedicated to preventing violence in Chicago and beyond. By collaborating with community partners, the relevance and immediate impact of the Center's research will be greatly enhanced.

The UIC Center for Research on Violence is being proposed to better understand and address the problems that violence creates for individuals, families, and communities. The proposed Center will explore violence from an ecological perspective, focusing on systems' responses and community factors relevant to the maintenance and prevention of violence. This perspective is broad enough to encompass the different theoretical approaches currently used by Center members while also allowing for the broadening of perspectives. To this end, the mission of Center will be to create a truly collaborative environment, which promotes the interdisciplinary generation, diffusion, and utilization of knowledge in the study and prevention of violence. In pursuing its mission, the Center will undertake several projects that together will create an infrastructure to promote the kinds of interdisciplinary investigations that are needed to have an impact upon the fields of criminal justice, social work, psychology, public health, occupational therapy, African-American studies, gender studies, healthcare, etc. as they relate to violence and its prevention.

EXECUTIVE SUMMARY

Introduction

In a joint report by the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine (NAS/NAE/IOM, 2005), interdisciplinary research is defined as:

"…a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice." (p. 2)

In recent years, the administration, faculty and research professionals at the University of Illinois at Chicago have shown considerable interest in facilitating interdisciplinary research on campus. Beginning in 2006, the Office of the Provost and the Office of the Vice Chancellor for Research provided seed funding for the creation of several interdisciplinary research (IDR) centers on campus to encourage interdisciplinary and transdisciplinary scholarship and education. This study is a product of one of those centers – the UIC Interdisciplinary Center for Research on Violence.

The study was undertaken with three primary objectives: (1) to assess the IDR climate and level of interest on the UIC campus; (2) to identify any perceived obstacles to successful IDR initiatives; and (3) to make policy recommendations that might facilitate the growth of IDR. In April and May of 2006, an online survey of UIC faculty and research professionals was conducted. A total of 457 UIC employees completed the online survey. This report focuses on the 325 respondents (71.1%) who are faculty members and administrators. To adjust for known biases in patterns of non-response, the sample was weighted by gender and college counts to reflect their true representation in the UIC faculty population.

The results indicate that roughly 8 out of 10 respondents are affiliated with a unit that is currently involved in interdisciplinary research (IDR) activities (78%), and a similar percentage claimed to have been personally involved in IDR (81%). Those experiences, then, form the basis of the opinions and evaluations reported here.

UIC Supportiveness of Interdisciplinary Research

UIC's "general supportiveness of IDR" was measured using an 11-point scale employed in previous research by NAS/NAE/IOM (2005). Universities and associations surveyed in those studies yielded average scores of approximately 7 on the 0-to-10 scale, where 10 indicates that your institution is very "IDR friendly." UIC faculty tended to rate UIC supportiveness or friendliness for IDR in the range of approximately 5.5 on the same scale. As might be expected, UIC administrators gave UIC slightly higher than average ratings on IDR friendliness, while UIC center directors, who "live and breathe" research, gave UIC slightly lower than average ratings.

While these early data suggest that the IDR climate at UIC may not be quite as favorable as the climate in other universities across the nation (perhaps because senior administrators were over-represented in other survey samples), UIC faculty and administration are nonetheless very enthusiastic about the *potential* benefits of IDR. More than 9 out of 10 respondents felt that IDR holds considerable promise for advancing our understanding of complex phenomenon and for solving pressing societal problems. Furthermore, UIC faculty members were strongly supportive of creating a more IDR-friendly environment.

Obstacles to Interdisciplinary Research at UIC

Notwithstanding their favorable attitudes toward IDR, the UIC faculty identified numerous barriers or obstacles to full-scale transformation to an IDR-friendly environment. The top five institutional barriers identified by faculty were the following:

Top Five UIC Institutional Barriers to Interdisciplinary Research

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1. *A lack of incentives for units or faculty to get involved in IDR*

2. *Different cultures within traditional disciplines that hinder cooperation between units*

3. *Lack of administrative and budgetary support for IDR activity*

4. *Different customs about sharing indirect costs that hinder cooperation between units*

5. *Lack of IDR structures to support IDR activity*

Respondents also expressed their opinions about possible barriers to professional development at UIC for those who are interested in pursuing IDR. The top five barriers identified were:

Top Five UIC Barriers to Professional Development in IDR

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1. *Joint hires having to serve two bosses and doing "double duty"*

2. *IDR applicants for tenure-track positions having difficulty finding departments where they "belong"*

3. *Inadequate co-mentoring of junior IDR faculty*

4. *Home units being unqualified to evaluate the scholarship of IDR faculty*

5. *Inadequate training for IDR grad students and post-docs*

In their Own Words

The online survey included a few open-ended questions to allow respondents to talk about IDR in their own words and to provide a more in-depth look at experiences (both positive and negative) with IDR on campus. Respondents were asked to give examples of IDR problems they were able to successfully overcome and others where they were unsuccessful. The most common problem they had successfully addressed was building collaborative relationships, despite numerous obstacles to cooperation. The most common IDR problem respondents had been unable to overcome was finding adequate budgetary or financial support for their efforts. When asked to think of a noteworthy IDR success story on campus, the most common response was the creation of new IDR research centers and teams.

Conclusions and Recommendations

The overall picture that emerges from this UIC campus-wide survey is that (1) IDR is a pervasive practice that has already touched the lives of most UIC faculty in one way or another; and that (2) faculty members across all colleges are very favorably disposed to the idea of interdisciplinary research and would like to see more of it. Having said that, the survey respondents also (3) identified a number of serious obstacles and challenges to the full-scale adoption of IDR as a way of doing business on campus, and (4) endorsed a number of suggestions and models for exemplary practice. Their top 10 recommendations are listed below. Each recommendation has the support of at least 80% of the faculty; many have the support of 90% or more. These recommendations are at a relatively abstract level, and could be implemented in a variety of ways across the units of the university. We encourage UIC administrators to begin a formal dialogue about the meaning of these suggestions and possible mechanisms for supporting IDR on campus.

Top Recommendations

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1. *UIC should foster a collaborative environment that supports IDR*

2. *UIC should support interdisciplinary education and training for graduate students*

3. *UIC should provide seed money for IDR projects*

4. *PIs should build networks with researchers in other disciplines*

5. *UIC should support flexible cost-sharing policies that support IDR*

6. *Departments should recognize and reward faculty for IDR work*

7. *Funding agencies should provide more support for IDR*

8. *Professional societies should promote a mutual understanding of disciplinary methods, languages, and cultures*

9. *Instructors should develop curricula that incorporate interdisciplinary concepts*

10. *Graduate students should explore ways to broaden their experiences by gaining requisite knowledge in one or more fields outside their primary field*
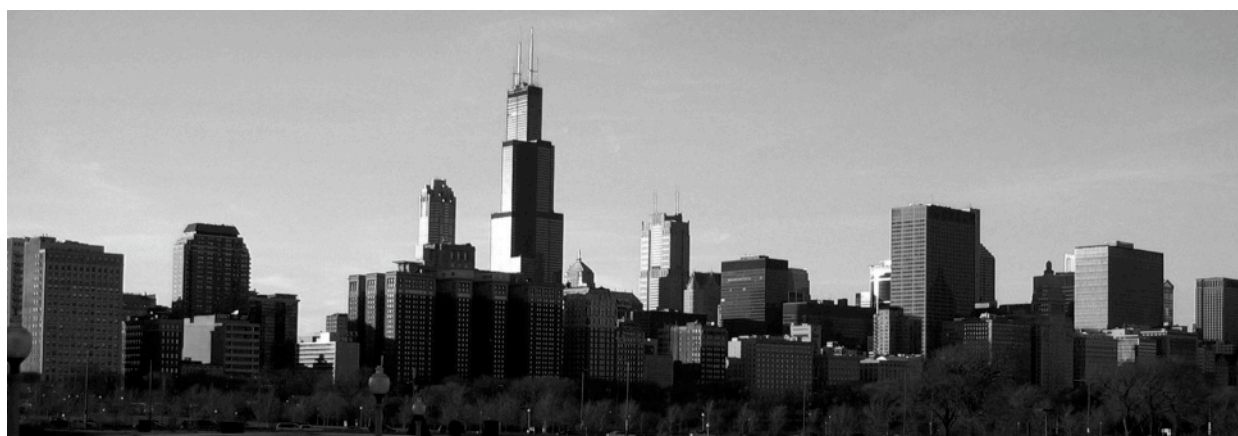
"We are not students of some subject matter, but students of problems. And problems may cut right across the borders of any subject matter or discipline." (Karl Popper).

In a recent joint report, Facilitating Interdisciplinary Research, the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine describe interdisciplinary research (IDR) as potentially, "one of the most productive and inspiring of human pursuits—one that provides a format for conversations and connections that lead to new knowledge" (NAS/NAE/IOM, 2005, p. 1). The report described IDR as not only valuable, but urgent and vital for addressing the scientific and sociocultural challenges of our time. Similarly, in a recent report from the Carnegie Foundation for the Advancement of Teaching, Envisioning the Future of the Doctorate, Elkana (2006) states that "many of the most important new ideas and new discoveries [occur] at the border between neighboring disciplines and very rarely at the center of well-defined areas of knowledge" (p. 78). Elkana further argues that standard academic training prepares scholars only for "normal science" and not for innovation or paradigm shifts. According to the NAS/NAE/IOM report (2005), students are strongly attracted to IDR, particularly as it is applied to questions of social importance. An interdisciplinary perspective, then, is widely recognized as essential for advancing current scientific and technological research, and for the development of the researchers of the future. Consistent with this recognition, the University of Illinois at Chicago (UIC) has further strengthened its existing strong institutional commitment to IDR by providing startup funding for five interdisciplinary research centers, beginning in 2006.

Work occurring at "the interfaces and frontiers" of multiple disciplines holds great promise, but multiple, significant challenges and obstacles need to be acknowledged and addressed if that promise is to be met. Popper notwithstanding, most academic researchers are, in fact, "students of some subject matter," rather than of problems. Urgent calls for advancing IDR have been heard for at least three decades, and yet real progress in academia has been slow. (Industry, by contrast, has widely adopted IDR as a working strategy, and there is much to be learned from this experience.)

In this report, we summarize discussions of both the potential for, and the challenges associated with, IDR as they have been identified on national and international levels, and then present the results of a survey of UIC faculty, administrators, academic professionals and graduate students which was designed to clarify the present situation on the campus, and to elaborate hopes, visions and concerns related to IDR going forward.

The Importance of IDR

The NAS/NAE/IOM (2005) working group offered the following working definition of IDR:

Interdisciplinary research (IDR) is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or field of research practice. (p. 26)

As this definition clarifies, interdisciplinary research does not involve merely persons of multiple disciplines working together on a project, but rather an integration of disciplinary frameworks and methods—which requires learning at least parts of one or more other disciplines.

IDR is often described is as a problem-focused, rather than a discipline-centered, process. As many contemporary problems in a world characterized by complexity and globalization extend beyond the boundaries of any discipline, work to address those problems must also do so. The UIC Interdisciplinary Center for Research on Violence is an example. It is clear that violence emerges from a transactional matrix of biology, learning and life experience, social and institutional responses, and larger socio-cultural forces. Understanding and influencing the issues of violence therefore requires not only knowledge of multiple levels, but of their essential relatedness—a prototypical case for IDR.

The NAS/NAE/IOM report (2005) identified four major "drivers" of IDR in the current climate:

- *The inherent complexity of nature and of society.* Nature, of course, has always been complex; answering questions of contemporary science, however, requires increasing attention to that complexity. The International Geosphere-Biosphere Program (http://www.igbp.kva.se/) offers an example of both the need and potential for the integration of multiple disciplines to even approach understanding of the phenomena of interest to each of those disciplines. While human societies were once relatively simple and discrete, out of globalization and advancing technology has emerged a socio-cultural world in which actions may reverberate through both human society and the natural world (the "flat world" phenomenon, limited though that perspective may be). Single disciplines simply cannot adequately model such realities.

- *The drive to explore basic research problems at the interfaces of disciplines.* As discussed by FIDR, the most interesting scientific questions often occur on the boundaries between disciplines, or "in the white spaces on organizational charts." Ecology and economics, for example, have birthed ecological economics; social science, systems theory and behavior analysis have produced applied cultural analysis; genomics, epidemiology, structural biology, and many other life sciences require interdisciplinary knowledge to formulate their basic questions as well as to begin to pursue answers to those questions.

- *The need to solve societal problems.* Contemporary human society is embedded in and relies on science and technology to function; at the same time, such technology can create additional and often serious problems that, in turn, call for additional science and technology. In many cases, our social, institutional, and governmental solutions raise ethical and legal questions and require additional cautionary or critical analyses. Many of the most urgent societal problems—HIV/AIDS, cancer, poverty, violence, among many others—are precisely the kinds of issues for which IDR is required.

- *The stimulus of generative technologies.* Emerging generative technologies may themselves produce opportunities to "transform existing disciplines and generate new ones." Examples from the NAS/NAE/IOM report include the internet, new initiatives in "cyberinfrastructure," and dramatically expanding uses for magnetic resonance imaging. There are many others as well; for example, the use of Kohonen self-organizing neural networks has great potential in areas like identifying nonlinear contingencies shaping patterns of complex social behavior, developing market strategies, and diagnostics.

An obvious question, given its evident importance and these powerful drivers, is why IDR is not much more common in academic research settings, and what steps can be taken to advance such work. Among the challenges and obstacles that have been identified are some that are largely conceptual, and some involving practical and institutional matters, as discussed below.

Challenges and Obstacles to IDR

There is wide recognition that bringing together researchers whose work is grounded in widely disparate epistemologies, methodologies, and disciplinary or professional cultures can be difficult, and may require substantial "extra time for building consensus and for learning new methods, languages, and cultures." Providing for that extra time may present funding challenges, as noted by the NAS/NAE/IOM report. The issues run deeper than funding, however. Excellence in research often requires strong commitments to particular perspectives and approaches which successful researchers are unlikely to abandon without convincing grounds. A willingness to move toward IDR is only likely to emerge when researchers become involved in a highly productive interdisciplinary community and culture over a period of time, one that allows for easy communication across traditional disciplinary boundaries.

Further challenges to advancing IDR can include numerous institutional barriers, ranging from traditional recruiting practices to a lack of incentives for units or faculty to get involved in IDR. Unfortunately, our knowledge of both successful and problematic IDR activities, as well as the barriers to IDR, is quite limited because of the small body of research on this subject. The present report seeks to address this knowledge gap, particularly for the UIC environment, although the results may have implications elsewhere.

The context and rationale for this study were explained by e-mail to UIC faculty and research professionals:

"The Office of the Provost and the Office of the Vice Chancellor for Research are considering the creation of several interdisciplinary research (IDR) centers on campus to encourage cross-disciplinary scholarship and education. To enhance the planning process for new IDR centers, we are seeking to learn more about the current state of interdisciplinary research at UIC and identify the institutional and academic issues that presently mitigate interdisciplinary work. To assist in this analysis we are asking faculty and research professionals to complete an online survey designed to capture your opinions and experiences regarding interdisciplinary research at UIC."

This study was undertaken with three primary objectives: (1) to assess the IDR climate and level of interest on the UIC campus; (2) to identify any perceived obstacles to successful IDR initiatives; and (3) to make policy recommendations that might facilitate the growth of IDR at UIC.

STUDY METHODOLOGY

Survey Development

The online survey (Appendix A) was developed by the authors with input from faculty, graduate students, and academic professionals who participate in the Interdisciplinary Center for Violence Research. The content of the survey was influenced by the report, Facilitating Interdisciplinary Research (NAS/NAE/IOM, 2005). The instrument measured respondents' demographics, general attitudes and beliefs about IDR, opinions about whether IDR should be encouraged at UIC, views about the role of external entities in shaping IDR (e.g. publication outlets, funding sources, professional associations), barriers to IDR at UIC, and evidence of success and failure in IDR programs or initiatives on campus. Drafts of the survey were pilot tested online and revised by the authors. Two primary response formats were used in the survey: For attitudinal items, respondents were given a 5-point Likert scale: Strongly agree, agree, neutral, disagree or strongly disagree. For assessing barriers to IDR, respondents were given a 4-point scale: very big problem, big problem, some problem, or no problem (A fifth option was "does not apply to us"). A standard 11-point scale was employed to measure respondents' ratings of UIC's "general supportiveness of IDR," with 0 indicating an "IDR-hostile" environment and 10 indicating "IDR-friendly." Respondents were also given open-ended questions to provide examples of IDR success and failure, as well as their thoughts about the "greatest challenge or obstacle" to this approach in the future within the UIC environment.

Human Subjects Protection

The final survey instrument and methodology for this project was submitted to UIC's Institutional Review Board for approval. Members of the IRB reviewed and approved the research protocol under expedited review procedures (Protocol #2006-0291).

Informed consent procedures were carefully respected throughout the survey process. Potential respondents were assured that their individual responses would be kept confidential, and that only aggregate data would be reported. They were reminded that their participation was voluntary; that they were free to withdraw at any time; and that they could skip any question for which they did not feel comfortable providing an answer.

Target Population and Survey Distribution

The population of interest was primarily members of the faculty at UIC, especially those involved in organized research. Others involved in organized research, such as graduate students, post-docs, and academic professionals, were also designated as a target audience. However, a list of persons involved in organized research does not exist. Therefore, the survey was distributed widely, at the expected cost of non-response from persons not involved in organized research.

In April, 2006, the survey was distributed by e-mail to the list of "Deans, Directors, and Department Heads" on campus with the request that they complete the survey and forward our e-mail to researchers within their units. (Appendix B). The letter explained the purpose of the study, as well as the voluntary nature of participation, and provided the URL where the survey could be accessed. On May 6, 2006, the survey was distributed by mass e-mail to all faculty, graduate students, academic professionals, and others at UIC. On May 15, 2006, a follow-up mass e-mail was sent reminding potential respondents

about the survey and encouraging them to participate (Appendix C). We acknowledge and thank the Office of the Vice Chancellor for Research and the Office of the Provost for assisting us by providing access to email lists, although the cover letters were sent by the principal investigators and not by the administration.

So that all respondents began the survey "on the same page," they were given a standard definition of interdisciplinary research (IDR) used by the National Academy of Sciences:

> "Interdisciplinary Research [IDR] is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice." (NAS/NAE/IOM, 2005, p. 2)

Survey Population and Response Rates

A total of 457 UIC employees completed the online survey. Of these, 325 respondents (71.1%) were faculty members. Because the other subgroups did not participate in sufficient numbers to provide stable estimates (e.g., only 28 graduate students), the analyses reported here focus on the faculty population. Data supplied by the Office of Access and Equity (September, 2006) indicate that the total UIC faculty head count is 2,172, including tenured, tenure-track and nontenured faculty with 50% or greater FTE appointments. From this population, we determined that the overall response rate was 15% (325/2172).

As shown in Table 1, regular faculty comprised roughly three-fourths of this sample, while administrators and center directors accounted for the remaining quarter. Both males and females were well represented in the sample, and respondents reported wide variation in their years of service at UIC.

Table 1
Faculty Sample Characteristics

Position at UIC	% of Sample	Years at UIC	% of Sample
Faculty	74.2	*Less than 5 years*	30.9
Administrator	18.8	*5-10 years*	26.9
Center Director	7.1	*11-15 years*	12.0
Gender		*16-20 years*	9.9
Female	44.9	*21-25 years*	9.6
Male	55.1	*26-30 years*	4.6
		More than 30 years	6.2

As shown in Table 2, all colleges were represented in the sample, although some colleges, such as Medicine, produced a larger percentage of the total sample. In general, the survey sample resembled the larger population, although some differences were noted with respect to faculty gender (e.g. 45% of the sample vs. 38% of the population was female), and colleges were unevenly represented. Hence, the sample was weighted to compensate for these factors and minimize bias in the estimate of how UIC faculty, as a whole, views IDR on campus.

Table 2
Respondents by College

	Response Rate	Percentage of Sample
Applied Health Sciences	0.28	5.9
Architecture & The Arts	0.09	1.5
Business Administration	0.09	2.8
Dentistry	0.19	6.8
Education	0.16	3.1
Engineering	0.25	9.3
LAS – Humanities	0.08	7.1
LAS – Natural Sciences	0.10	4.0
LAS – Social Sciences	0.33	8.6
Medicine	0.11	22.5
Nursing	0.18	6.2
Pharmacy	0.14	3.7
Public Health	0.38	8.6
Social Work	0.32	2.5
CUPPA	0.11	2.2
Other		4.9

Weighting of Survey Responses

To adjust for the known biases in non-response, the sample was weighted by gender and college counts to reflect their true representation in the UIC faculty population. Using faculty counts in a college-by-gender table, the weight applied to any cell was computed as the expected proportion within the total UIC population divided by the observed proportion within the total sample. Hence, the weighting process provided some guarantee that females, males, and colleges were weighted to reflect their representation within the UIC faculty population. The one exception to the process of weighting by College is that the College of Liberal Arts and Sciences is treated here as three separate units or colleges (Humanities, Social Sciences, and Natural Sciences), and weighted accordingly to reflect those differences.

Close Encounters with IDR

To a large extent, the online survey focused on the faculty's perceptions, attitudes, and beliefs about interdisciplinary research, but these responses were derived from real life encounters with IDR on campus rather than vague conceptions of what it might entail. Specifically, roughly 8 out of 10 respondents stated that they are affiliated with a unit that is currently involved in IDR activities (78%), and a similar percentage claimed to have been personally involved in IDR activities (81%). So, IDR is alive and well on the UIC campus, and we suspect that these experiences played an important role in shaping the opinions and evaluations reported below.

General Supportiveness for IDR: UIC versus Other Campuses

The first task for respondents was to provide an overall rating of UIC's "general supportiveness of IDR" using an 11-point scale employed in previous work. By using this standardized measure, we were able to compare UIC with other groups surveyed by NAS/NAE/IOM (2005). The results in Table 3 show that other samples, which represent numerous universities and associations across the country, gave average scores with means of approximately 7 on the 0-to-10 scale, where 10 indicates that the respondent's institution is very "IDR friendly." In 2006, our survey revealed that UIC faculty tended to rate UIC supportiveness or friendliness in the range of approximately 5.5 on this same scale. UIC administrators gave UIC slightly higher than average ratings on IDR friendliness, while UIC center directors, who "live and breathe" research, gave UIC slightly lower than average ratings.

Table 3
General Supportiveness of Interdisciplinary Research (IDR)
Comparison of UIC Results with Other Studies

Based on your personal experience, rate [current institution] on general supportiveness of interdisciplinary research [IDR] using a scale from 0 [IDR-hostile] to 10 [IDR-friendly].	**Mean**	**Standard Deviation**
National Academies Study (NAS/NAE/IOM, 2005)		
Convocation Survey	7.74	2.07
Individual Survey	7.25	2.31
Provost Survey	7.24	1.70
University of Illinois at Chicago (UIC) Study		
Faculty, Administrators & Directors (n=321)	5.45	2.38
Faculty	5.44	2.46
Administrators	5.71	2.14
Center Directors	4.88	2.12

All results for UIC are based on weighted samples

Why UIC was rated lower than other institutions on overall supportiveness of IDR is impossible to determine with any certainty, given that the results could be heavily skewed by sample selection and by time (2 years difference). Our best guess is that the samples and accompanying biases are quite different. UIC's sample is the most general, seeking participation from all faculty on campus. The "convocation survey" was administered to a self-selected sample of persons who attended the original national workshop on IDR in 2004. The "individual survey" sought responses from a wide range of university and non-university institutions (e.g. professional societies, NGOs, and participants in known IDR programs), while the "provost survey" was distributed to provosts and vice-chancellors. The authors of the NAS/NAE/IOM report (2005) admit that all three surveys were heavily biased toward persons holding senior positions.

Nevertheless, these findings provide some context in which UIC can be situated. While the UIC results should be viewed as somewhat encouraging, even the favorable views of UIC administrators (mean = 5.71) were noticeably lower than ratings from senior officials at other institutions. Colleges within UIC showed some variation in their supportiveness of IDR (see Table 4), with the College of Applied Health Sciences and the College of Nursing reporting the most IDR-friendly environments. These college-level ratings, however, should be viewed with caution because of the relatively small sample sizes.

Table 4
Institutional Supportiveness of IDR by College
(0-10 scale)

	Mean		Mean
Applied Health Sciences	6.25	*LAS – Social Sciences*	5.72
Architecture & The Arts	5.57	*Medicine*	5.10
Business Administration	5.19	*Nursing*	6.19
Dentistry	5.88	*Pharmacy*	5.35
Education	4.87	*Public Health*	5.70
Engineering	4.76	*Social Work*	5.70
LAS – Humanities	5.52	*Urban Planning and Public Affairs*	5.93
LAS – Natural Sciences	5.40		

General Beliefs and Attitudes about Interdisciplinary Research (IDR)

While the IDR climate at UIC may not compare favorably with other institutions, faculty and administration nonetheless remain quite enthusiastic about the potential benefits of IDR. As shown in Table 5, more than 9 out of 10 respondents felt that IDR holds considerable promise for advancing our understanding of complex phenomenon and for solving pressing societal problems.

Table 5 The Promise of Interdisciplinary Research	% Agree or Strongly Agree
IDR holds considerable promise for advancing our understanding of complex social and physical phenomenon	93.3
IDR holds considerable promise for advancing solutions to pressing social and physical problems in society	90.0

Expectations for Institutional and Departmental Responses

When assessing UIC in particular, faculty members were strongly supportive of creating a more IDR-friendly environment. At the institutional level (Table 6), more than 90% want UIC to build a collaborative environment where IDR is supported through interdisciplinary graduate education and seed money for projects. Opinions about IDR education for undergraduates were more mixed, but still very positive on the whole.

At the departmental level (Table 7), faculty members were slightly less enthusiastic about reforms that would support IDR, but still, a large majority endorsed the idea that faculty should be rewarded for participating in IDR activity; that departments should have a strategic plan or vision regarding IDR; and that departments should devote more resources to IDR.

Expectations for External Entities

Respondents were also queried about whether funding agencies, journal editors and professional associations should encourage IDR in various ways. As shown in Table 8, faculty want funding agencies to provide more dollars for IDR and to rethink the peer review process in favor of IDR. They also want journal editors and professional societies to encourage the publication of IDR studies and to make a special effort to promote mutual understanding of disciplinary methods, languages and cultures. The idea of more interdisciplinary journals received only mixed support.

Expectations for PIs, Instructors and Students

Faculty expressed their expectations for various actors in the IDR environment (Table 9). Their primary expectation for principal investigators is that they will build networks with researchers in other disciplines. For instructors, the hope is that they will develop curricula that incorporate IDR concepts. Students, both graduate and undergraduate, were encouraged to seek out IDR experiences and coursework.

Table 6 Expected Institutional Responses to IDR	% Agree or Strongly Agree
UIC should foster a collaborative environment that supports IDR	94.0
UIC should support interdisciplinary education and training for graduate students	91.6
UIC should provide seed money for IDR projects	90.5
UIC should support flexible cost-sharing policies that support IDR	89.6
UIC should explore alternative administrative structures or business models to facilitate IDR across traditional organizational boundaries	88.3
UIC should support team teaching credit for faculty involved in IDR courses	88.1
UIC should provide incentives for faculty to participate in IDR	85.3
UIC should develop joint programs with industry, government and/ or nongovernmental organizations to encourage IDR	82.5
UIC should support interdisciplinary education and training for undergraduate students	77.0

Table 7 Expected Departmental Responses to IDR	% Agree or Strongly Agree
Departments should recognize and reward faculty for IDR work	87.8
Departments at UIC should have a strategic plan or vision about future IDR activities and programs	78.6
Departments should increase resources to support IDR activity	75.7

Table 8 Expected External Responses to IDR	% Agree or Strongly Agree
Funding Agencies:	
Funding agencies should provide more support for IDR	85.6
Funding agencies should redesign their peer review criteria to make them more appropriate for IDR	81.6
Funding agencies should rethink funding allocation priorities	72.2
Journal Editors:	
Journal editors should actively encourage the publication of IDR studies	79.4
Journal editors should employ more reviewers with IDR experience	75.2
Journal editors should create special IDR issues or sections	62.6
Professional Societies:	
Professional societies should promote a mutual understanding of disciplinary methods, languages, and cultures	85.6
Professional societies should build partnerships with each other to facilitate IDR	80.7
Professional societies should encourage changes to the peer review process to support IDR publications	71.6
National Academies' assessments of doctoral programs that rank university departments should include their contribution to IDR	71.4
Professional societies should support more interdisciplinary journals	64.4

Table 9 Expectations for PIs, Instructors and Students	% Agree or Strongly Agree
Principal Investigators	
PIs should build networks with researchers in other disciplines	91.6
PIs should engage in team-building activities that facilitate IDR	77.5
PIs should state research goals that involve IDR activities	74.7
Instructors	
Instructors should develop curricula that incorporate interdisciplinary concepts	84.5
Instructors should provide students with opportunities to engage in IDR activities	81.9
Instructors should take part in teacher-development courses on interdisciplinary topics	66.4
Students & Post-docs	
Graduate students should explore ways to broaden their experience by gaining "requisite" knowledge in one or more fields outside their primary field	83.3
Undergraduate students should seek out interdisciplinary experiences, such as courses that span more than one discipline	75.0
Post-docs should be encouraged to find a post-doc institution or mentor that is favorable to IDR	66.3

Barriers to Professional Development in IDR at UIC

Respondents were asked to consider a wide range of possible barriers or obstacles to IDR at the University of Illinois at Chicago. For each, they were asked to rate it on a 4-point scale from "Very big problem" to "No problem." First, respondents were asked about possible barriers to professional development at UIC for those who are interested in pursuing IDR. Table 10 shows the top five barriers according to faculty respondents. Topping the list was faculty concern about joint hires having to serve "two bosses" and do "double duty." Certainly, the issue of joint appointments can be problematical in the current environment, where departments are separate silos, each with their own culture and norms. Meeting expected roles and responsibilities can be crucial when departments make decisions about promotion and tenure, raises, teaching assignments, and other matters. Other concerns on the top-five list also focus on departmental issues and raise questions about whether junior faculty and graduate students with IDR interests will be adequately supervised, mentored and supported, in order to create a feeling of belonging. Otherwise, retention rates will be low.

Table 10 Top Five UIC Barriers to Professional Development in IDR	% Big or Very Big Problem
1. Joint hires having to serve two bosses and do "double duty"	56.8
2. IDR applicants for tenure-track positions having difficulty finding departments where they "belong"	49.5
3. Inadequate co-mentoring of junior IDR faculty	46.4
4. Home units being unqualified to evaluate the scholarship of IDR faculty	42.1
5. Inadequate training for IDR grad students and post-docs	35.2

Institutional Barriers to IDR

Respondents were asked to consider a wide range of potential institutional barriers or challenges to IDR at UIC. The top five problems are listed in Table 11. Two themes emerge here—the lack of incentives and the presence of disincentives. In terms of the former, faculty report a general lack of inducements, including budgetary support and cost sharing, that would motivate either units or individual faculty members to get involved in IDR activities. In terms of disincentives, respondents report the existence of strong traditional disciplines with distinct cultures that prohibit or hinder cooperation between faculty and units.

Table 11 Top Five UIC Institutional Barriers to IDR	% Big or Very Big Problem
1. A lack of incentives for units or faculty to get involved in IDR	54.6
2. Different cultures within traditional disciplines that hinder cooperation between units	53.2
3. Lack of administrative and budgetary support for IDR activity	52.2
4. Lack of IDR structures to support IDR activity	47.9
5. Different customs about sharing indirect costs that hinder cooperation between units	47.5

Factors Predicting Supportiveness, Barriers and Institutional Change

Multivariate regression analyses were conducted to determine whether demographic characteristics and IDR experiences and beliefs would predict (1) how respondents feel about UIC's general supportiveness of IDR (Table 12), (2) whether they perceive large barriers to IDR on campus (Table 13), and (3) how strongly they encourage UIC to purse institutional changes to facilitate IDR (Table

14).[1] Responses from all participants, including faculty, administrators, center directors, academic professionals, graduate students and post docs, were used in the multivariate analyses (N = 469). Because it was not possible to collect the necessary information for weighting the non-faculty responses, the results for the multivariate analyses are all based on unweighted data.

The results indicate that center directors, when compared to non-center directors, view UIC as significantly less supportive of IDR, even after controlling for demographic characteristics, involvement in IDR and attitudes about IDR. Center directors also perceive significantly larger barriers to achieving IDR than their counterparts. Because center directors are involved in all aspects of the research process on a daily basis (from proposal development to final reports), their opinions are likely to be grounded in extensive experience on campus.

Respondents who feel that IDR holds considerable promise for advancing solutions to pressing social and physical problems in society were significantly more likely to report that UIC provides a more IDR-friendly environment than persons holding less favorable views of IDR's promise.   Nevertheless, these same optimistic respondents also saw more barriers to IDR on campus and were more inclined to endorse a wide range of institutional changes to reduce or eliminate these barriers.

Others who encouraged UIC to pursue the changes necessary to support IDR were more likely to be personally involved in IDR and have fewer years at UIC.

Table 12
Regression Results for Predictors of Perceived UIC Supportiveness of IDR

	B	SE	Beta	t-value
Male	-.05	.23	-.01	-.22
Years at UIC	-.04	.07	-.03	-.55
Administrator	.39	.28	.08	1.38
Center Director	-1.04*	.52	-.11	-1.99
Academic Professional	.46	.31	.07	1.51
Personally involved in IDR activities	-.53	.29	0.10	-1.81
Unit involved in IDR activities	.19	.29	.04	.67
High promise for IDR	.38*	.17	.11	2.92

*p<.05

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[1] General supportiveness was a single 11-point scale as described previously (higher scores indicating that UIC is seen as a more IDR-friendly campus). The Barriers Index includes 20 items reflecting a wide range of possible barriers to IDR (higher scores indicating that barriers are perceived as a bigger "problem") and the Change Index included nine items reflecting a wide range of possible institutional changes at UIC that one might endorse to support IDR (higher scores indicating a stronger endorsement of changes at UIC to enhance IDR). Both the Barriers and Change Indices exhibited strong internal consistency, with Alphas of .94 and .90 respectively.

Table 13
Regression Results for Predictors of Perceived Barriers to IDR

	B	SE	Beta	t-value
Male	-1.36	1.63	-.04	-.83
Years at UIC	-.16	.47	-.02	.34
Administrator	-3.66	3.00	-.10	-1.83
Center Director	8.00*	3.64	.12	2.19
Academic Professional	-.27	2.15	-.01	-.13
Personally involved in IDR activities	2.44	2.05	.07	1.19
Unit involved in IDR activities	-.72	2.01	-.02	-.36
High promise for IDR	4.67***	1.17	.20	4.00

***p<.001 *p<.05

Table 14
Regression Results for Predictors of
Endorsing Pro-IDR Changes at UIC

	B	SE	Beta	t-value
Male	.16	.41	.02	.40
Years at UIC	-.37**	.12	-.13	-3.18
Administrator	.06	.49	.01	.11
Center Director	.58	.91	.03	.63
Academic Professional	-.69	.53	-.05	-1.30
Personally involved in IDR activities	1.47**	.51	.13	2.87
Unit involved in IDR activities	-.32	.50	-.03	-.63
High promise for IDR	4.34***	.29	.59	15.00

***p<.001 **p<.01

IDR Problems and Success at UIC: Qualitative Responses

The online survey included four open-ended questions to allow respondents to reflect on IDR in their own words, and to provide a more in-depth look at experiences (both positive and negative) with IDR on campus. These qualitative data were analyzed and the top five themes to emerge from each question are summarized here.

Success in Addressing IDR Problems on Campus

Respondents were first asked, "[If] appropriate, please describe one example of an IDR problem which your unit was able to successfully address. Please indicate how it was resolved or improved and any 'lessons learned' that might benefit other units on campus." A total of 89 respondents answered this question. After content analysis, the following categories emerged as the five most common types of IDR problems that were successfully resolved:

- *Collaborations (31%):* Faculty and research staff reported how they were able to overcome the obstacles to collaboration problems and consequently, develop initiatives such as team teaching, co-authoring papers, working on joint research projects, conducting trainings, cross-listed courses and concentrations, and starting interdisciplinary centers/ clinics.

- *Financial (14%):* Respondents reported success in obtaining funds and grants for IDR projects and for faculty and support staff appointments. Others were able to overcome problems with having access to grant budget information and the ability to transfer funds to different units/ programs.

- *Individual Initiatives (13%):* Individual faculty members were credited as the prime mover in getting other individuals/ organizations to become involved in IDR research, to participate in team teaching, or to provide mentoring and funding.

- *Administrative Support (13%):* Respondents acknowledged that administrators provided assistance in establishing and sustaining IDR, IDR Centers, and team teaching initiatives.

- *Recruitment (7%):* Faculty reported success in single and joint hiring of IDR researchers and support staff that required the approval of more than one unit.

Lack of Success in Addressing IDR Problems on Campus

Respondents were also asked, "If appropriate, please describe one example of an IDR problem which your unit was <u>unable to successfully address</u>. Please indicate why, in your opinion, it remains a problem." A total of 95 individuals answered this question; the top five categories of responses were as follows:

- *Financial (22%):* Respondents were unable to solve budgetary constraints that contributed to a shortage of funding for academic staff, insufficient funding for research projects and conferences, low stipends, unwillingness to engage in cost sharing relating to IDR, and an inability to hire IDR researchers and RAs.

- *Lack of Administrative Support (22%):* Respondents report that deans have questioned the importance of IDR and that some department heads/chairs have strict ideas about what should be studied. The consequence is that IDR faculty feel they are required to do "double duty" to satisfy all parties. Also, open and covert hostility between units or between colleges has resulted in limited cooperation with grant proposals, despite faculty interest in collaboration.

- *Intellectual Credit (14%):* Respondents continue to report problems with intellectual credit. In some cases, instructors complain of not receiving credit for teaching interdisciplinary courses. In others, the intellectual credit for a grant proposal, as documented on the Proposal Approval Form (PAF), has gone entirely to the unit administering the grant and not to the other parties involved.

- *Lack of Appropriate Structures (9%):* A few respondents were troubled by the lack of bureaucratic mechanisms and procedures to resolve multi-unit problems. These problems range from the inability of departments to agree on the requirements for team teaching, to IDR centers failing to have guidelines to ensure quality work, to the inability of one unit to transfer computer equipment to another unit in a timely manner.

- *Communication Difficulties (9%):* Some noted "communication" problems in working across units and across the East and West campuses. "Communication" is a catch-all category that can include everything from physical proximity problems (inconvenient to have meetings) to hostilities between units/colleges that restrict meaningful communication.

Noteworthy IDR Success Stories on Campus

Survey respondents were asked, "Can you think of a noteworthy IDR success story on campus? If so, please describe briefly." Ninety-six (96) individuals responded to this question. The five most frequent categories of success with IDR were as follows:

- *Research Centers/ Teams (29%):* Various interdisciplinary research centers, teams and institutes were said to have noteworthy IDR success stories. The new centers started with 2010 Seed grants from the Provost and OVCR were given as examples of how faculty, research professionals, and outside partners have been able to work together to generate new ideas and new proposals for teaching, research and service. Other IDR units were also mentioned.

- *Inter-college Collaborations (19%):* Respondents reported successful IDR activities that involved individuals and departments within different UIC colleges.

- *Faculty-initiated Ventures (11%):* Some IDR success stories were simply the result of individuals or small groups of faculty deciding to work together on a project. These smaller arrangements have sometimes resulted in large success stories.

- *College Support (11%):* Opportunities to present research papers (especially students), to network, and to participate in interdisciplinary summer seminars were cited as college-level success stories.

- *Inter-department Collaborations (11%):* Respondents mentioned IDR activities engaged in by individuals belonging to different departments within specific UIC colleges.

Greatest Challenge or Obstacle to Future IDR

Finally, respondents were asked, "As you look ahead to a UIC environment that strives to increase the amount of IDR activities, what do you see as the greatest challenge or obstacle to the approach?" This question elicited the greatest number of responses (178); the top five categories identified were as follows:

- *Financial/ Budgetary Constraints (23%):* Budgetary or funding constraints were cited as the greatest future challenge to IDR success at UIC. Inadequate funding was viewed as the primary reason behind restrictions on hiring, inability to attend IDR conferences, inadequate stipends, and unwillingness to engage in cost sharing relating to IDR.

- *Lack of Communication (17%):* Communication obstacles include the inability to foster research programs with other departments; ignoring smaller departments; physical distance between colleges; inability to make contact with members in other departments, and hostility between departments. The mere process of coordinating a large grant proposal with multiple investigators in several locations can be overwhelming.

- *Lack of Support (15%):* This includes IDR being given a low priority in some departments, overall lack of incentives, and some disincentives for engaging in research with other units on campus or other universities.

- *Lack of Structure (15%):* This includes a lack of procedures and mechanisms to foster IDR and the presence of academic models that inhibit IDR.

- *Lack of Space and Time (13%):* Respondents are concerned about limited physical space within departments and colleges that can be designated for IDR activity. There is also the problem that researchers are unable to find the time to engage in IDR given their many other duties.

CONCLUSION AND RECOMMENDATIONS

The overall picture that emerges from this UIC campus-wide survey is that (1) IDR is a pervasive practice that has already touched the lives of most UIC faculty in one way or another; and (2) faculty members across all colleges are very favorably disposed to the concept of interdisciplinary research and would like to see more of it. Having said that, the survey respondents also (3) identified a number of serious obstacles and challenges to the full-scale adoption of IDR as a way of life on campus, and (4) endorsed a number of suggestions and models for exemplary practice. Some of their top overall recommendations are listed in Table 15.

Table 15 Top Recommendations	% Agree or Strongly Agree
UIC should foster a collaborative environment that supports IDR	94.0
UIC should support interdisciplinary education and training for graduate students	91.6
PIs should build networks with researchers in other disciplines	91.6
UIC should provide seed money for IDR projects	90.5
UIC should support flexible cost-sharing policies that support IDR	89.6
Departments should recognize and reward faculty for IDR work	87.8
Funding agencies should provide more support for IDR	85.6
Professional societies should promote a mutual understanding of disciplinary methods, languages, and cultures	84.5
Instructors should develop curricula that incorporate interdisciplinary concepts	83.3
Journal editors should actively encourage the publication of IDR studies	79.4

These recommendations are general in nature and therefore could be implemented in a variety of ways. At the abstract level, such recommendations are easy to support, but both the detailed results reported here and other literature regarding IDR suggest the depth of the challenges. Some of the suggestions emerging from the data are relatively straightforward. Faculty and other researchers naturally call for additional funding, both internal and external, but providing carefully targeted seed money appears to be a practical and promising step. Addressing some of these recommendations -- for example the development of flexible cost-sharing arrangements -- will require changes of policies and procedures that may initially be controversial in some quarters. Other recommendations -- for example fostering a university-wide collaborative environment supportive of IDR and expanding interdisciplinary education and training -- are likely to require inclusive strategic planning involving administrators at multiple levels, as well as faculty and researchers. A university-wide culture valuing openness to and respect for the methods, languages and cultures of other disciplines likely can only emerge as the result of

carefully planned and well-supported opportunities and incentives for interdisciplinary exposure and collaboration, both formal and informal. Prejudicial attitudes toward other disciplines, or toward other groups in general, are often the result of a lack of exposure to, and ignorance of, "outsiders." Hence, opportunities for cross-disciplinary interaction, dialogue, and exchange of ideas should yield a greater appreciation of group differences and the scholarly value inherent in these differences. Enhanced communication is the key to successful IDR.

The type of strategic planning noted above, to have an impact, will need to result in the establishment of specific supports for shifting cultural practices on a day-to-day basis within multiple units. In some cases relatively discrete steps -- for example Colleges bringing in noted scholars from their own disciplines with demonstrated success in interdisciplinary scholarship for colloquia, or changes in promotion and tenure language -- may result in meaningful progress toward an IDR-friendly environment. In others, however, a thoughtful collaborative process from which a shared vision and detailed strategic plan emerges will certainly be required if genuine institution-wide commitment to IDR is to be realized.

We encourage UIC administrators to explore the meaning of these data, and to begin a formal dialogue from which a strategy to establish mechanisms for supporting IDR on campus can be elaborated. Given the high level of faculty and administrative support reported here, UIC has the capacity to become a model for interdisciplinary education and scholarship.

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APPENDIX A. ONLINE SURVEY ━━━━━━━━━━━━━━━━━━━━━━━━━━━

ONLINE SURVEY OF UIC FACULTY AND ADMINISTRATORS

Instructions: Interdisciplinary Research (IDR) can be a challenge for students, postdoctoral scholars, faculty, and administrators. The purpose of this survey is to query UIC faculty and administrators about their opinions of, and experiences with, IDR. Individual responses will be kept confidential and any reported findings will be aggregated to clusters of academic units (e.g. the social sciences), to the college level, or to UIC. The findings from this study will be made available to the UIC community and should help to identify issues and problems facing IDR activities on campus.

So that everyone is on the same page, we begin with the National Academy of Sciences (2004) definition of IDR: "Interdisciplinary Research [IDR] is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice."

Your participation in this project is voluntary and you are free to withdraw at any time.

If you do not feel comfortable answering a question, you may skip that question and go on to the next.

I have read the above information. By clicking on the "next" button below, I agree to participate in this research.

What best describes your position at UIC?
> Faculty
> Academic professional
> Post-doc
> Other _____

In what college are you located?
> Applied Health Sciences
> Architecture and the Arts
> Business Administration
> Education
> Engineering
> Graduate College
> Honors College
> Liberal Arts and Sciences
> Medicine
> Nursing
> Pharmacy
> Public Health
> Social Work
> Urban Planning & Public Affairs
> Other (please specify):

In which department(s) or unit(s) is your position budgeted?

Do you currently hold an administrative position at this time?
>Yes
>No

What is your administrative position
>Dean
>Dept Head

What is your current position/title?
>Dean
>Department Head
>Department Chair
>Center Director
>Other (please specify):

In what field did you receive your highest degree?

How many years have you been at UIC?

>Less than 5 years
>5 to 10 years
>11 to 15 years
>16 to 20 years
>21 to 25 years
>26 to 30 years
>More than 30 years

What is your race/ethnicity?
>Black/African American
>Hispanic or Latino/Latina
>Middle Eastern
>South Asian/Indian Subcontinent
>Native American/Indian or Inuit
>Filipino
>Korean
>Vietnamese or Cambodian
>Chinese
>Other East Asian
>White/Caucasian
>Other (please specify):

What is your gender?
>Female
>Male

1. **Based on your personal experience, rate UIC on general supportiveness of interdisciplinary research [IDR] using a scale from 0 [IDR-hostile] to 10 [IDR-friendly].**

     0 [IDR-hostile]
     1
     2
     3
     4
     5
     6
     7
     8
     9
     10 [IDR-friendly]

Opinions about Interdisciplinary Research (IDR)

The following questions seek your opinions about interdisciplinary research (IDR) at UIC and the extent to which it should be encouraged. Please indicate whether you agree or disagree with each of the following statements.

2. **General Opinions about IDR**

Interdisciplinary research (IDR) holds considerable promise for advancing our understanding of complex social and physical phenomenon	Strongly Agree Agree Neutral
IDR holds considerable promise for advancing solutions to pressing social and physical problems in society	Disagree Strongly Disagree

3. **Institutional Responses to IDR**

UIC should foster a collaborative environment that supports IDR	Strongly Agree Agree Neutral Disagree Strongly Disagree
UIC should explore alternative administrative structures or business models to facilitate IDR across traditional organizational boundaries	
UIC should provide incentives for faculty to participate in IDR	
UIC should provide seed money for IDR projects	
UIC should develop joint programs with industry, government and/or nongovernmental organizations to encourage IDR	
UIC should support interdisciplinary education and training for undergraduate students	
UIC should support interdisciplinary education and training for graduate students	
UIC should support team teaching credit for faculty involved in IDR courses	
UIC should support flexible cost-sharing policies that support IDR	

4. **Departmental Responses to IDR**

Departments at UIC should have a strategic plan or vision about future IDR activities and programs	Strongly Agree
	Agree
Departments should recognize and reward faculty for IDR work	Neutral
	Disagree
Departments should increase resources to support IDR activity	Strongly Disagree

5. **Funding Agencies**

Funding agencies should provide more support for IDR	Strongly Agree
	Agree
Funding agencies should redesign their review criteria to make them more appropriate for IDR	Neutral
	Disagree
Funding agencies should rethink funding allocation priorities	Strongly Disagree

6. **Journal Editors**

Journal editors should actively encourage the publication of IDR studies	Strongly Agree
	Agree
Journal editors should employ more reviewers with IDR experience	Neutral
	Disagree
Journal editors should create special IDR issues or sections	Strongly Disagree

7. **Principal Investigators and Team Leaders**

PIs should engage in team-building activities that facilitate IDR	Strongly Agree
	Agree
PIs should state research goals that involve IDR activities	Neutral
PIs should build networks with researchers in other disciplines	Disagree
	Strongly Disagree

8. **Educators/Instructors**

Instructors should develop curricula that incorporate interdisciplinary concepts	Strongly Agree
	Agree
Instructors should take part in teacher-development courses on interdisciplinary topics	Neutral
	Disagree
Instructors should provide students with opportunities to engage in IDR activities	Strongly Disagree

9. **Students**

Undergraduate students should seek out interdisciplinary experiences, such as courses that span more than one discipline	Strongly Agree
	Agree
Graduate students should explore ways to broaden their experience by gaining "requisite" knowledge in one or more fields outside their primary field	Neutral
	Disagree
	Strongly Disagree
Postdocs should be encouraged to find a postdoc institution or mentor that is favorable to IDR	

10. **Professional Societies and Associations**

Professional societies should support more interdisciplinary journals	Strongly Agree
	Agree
Professional societies should build partnership with each other to facilitate IDR	Neutral
	Disagree
Professional societies should promote a mutual understanding of disciplinary methods, languages, and cultures	Strongly Disagree
Professional societies should encourage changes to the peer review process to support IDR publication	
National Academies' assessments of doctoral programs that rank university departments should include their contribution to IDR	

Obstacles to Interdisciplinary Research (IDR) at UIC

Below is a list of possible IDR problems or obstacles that you may have encountered, or heard that others have encountered, at UIC. Please rate each of the problems listed below (from "very big problem" to "no problem at all") as you, or others you know, have experienced them at UIC.

11. **Barriers to Professional Development**

Graduate admissions committees not being supportive of applicants with degrees in other disciplines	Strongly Agree
	Agree
Fewer fellowships or grants available to IDR grad students and postdocs	Neutral
	Disagree
Inadequate training for IDR grad students and postdocs	Strongly Disagree
IDR grad students and faculty having difficulty generating enough publications within a short time period	
IDR applicants for tenure-track positions having difficulty finding departments where they "belong "	
Departments unwilling to participate in joint hiring	
Joint hires having to serve two bosses and do "double duty "	
Inadequate co-mentoring of junior IDR faculty	
IDR faculty feeling pressure to teach outside their home unit	
Home units being unqualified to evaluate the scholarship of IDR faculty	
IDR not being rewarded by professional societies	
Senior faculty members not being supportive of IDR	
Faculty not making an effort to include outside practitioners in the research process	

Please rate each of the problems listed below (from "very big problem" to "no problem at all") as you, or others you know, have experienced them at UIC.

12. **Institutional Barriers**

Administrators unable to see the "return on investment" for their unit	Strongly Agree
Academic systems that do not support the hiring of IDR faculty	Agree
Academic systems that do not support IDR activity when granting promotion and tenure	Neutral Disagree Strongly Disagree
Different cultures within traditional disciplines that hinder cooperation between units	
Different customs about sharing indirect costs that hinder cooperation between units	
Different customs about intellectual credit for grant proposals that hinder cooperation between units	
Different customs about credit on multi-author papers that hinder cooperation between units	
A lack of incentives for units or faculty to get involved in IDR	
A lack of incentives for units or faculty to work with outside agencies or practitioners	
A shortage of evaluation research showing the measurable benefits of IDR	
Long startup times associated with IDR	
Lack of IDR structures to support IDR activity	
Lack of IDR classes/ majors	
Lack of IDR internships	
Lack of space for IDR activity	
Lack of administrative and budgetary support for IDR activity	
Lack of opportunity to interact with specialists in other units	
General lack of departmental support	
General lack of college support	
General lack of central administration support	

13. **If appropriate, please describe one example of an IDR problem which your unit was <u>able to successfully address</u>. Please indicate how it was resolved or improved and any "lessons learned" that might benefit other units on campus.**

14. **If appropriate, please describe one example of an IDR problem which your unit was <u>unable to successfully address.</u> Please indicate why, in your opinion, it remains a problem.**

15. **Can you think of a noteworthy IDR success story on campus? If so, please describe briefly.**

16. **As you look ahead to a UIC environment that strives to increase the amount of IDR activities, what do you see as the greatest challenge or obstacle to this approach?**

17. **Are any units that you oversee currently involved in interdisciplinary research activities?**
    Yes
    No
    Don't know

APPENDIX B. EMAIL COVER LETTER

Dear colleagues:

In concert with the UIC 2010 Interdisciplinary Seed Grant program, the Office of the Provost and the Office of the Vice Chancellor for Research are supporting the creation of several interdisciplinary research (IDR) centers on campus to encourage cross-disciplinary scholarship and education. To enhance the planning process for new IDR centers, we are seeking to learn more about the current state of interdisciplinary research at UIC and identify the institutional and academic issues that presently mitigate interdisciplinary work.

To assist in this analysis we are asking you, as an administrator, and other members of your college, department or center, to complete an online survey designed to capture your opinions and experiences regarding interdisciplinary research at UIC (see survey link below). *We are asking you to please forward this message to all faculty within your purview, as well as graduate students, post-docs and academic professionals who may have opinions about doing research at UIC.*

This survey should take 8 to 10 minutes of your time and should be completed as soon as possible. Your participation in this survey is voluntary, but we are hoping for a strong response rate so that the results will represent the views of all units and colleges on the UIC campus. Details about particular departments or individuals will be treated as confidential and all reported findings would be aggregated to a higher unit of analysis (e.g. clusters of departments or colleges).

To complete the on-line survey, click here:
http://survey.cc.uic.edu/idr.htm.

This survey project has received IRB approval. If you have any questions about the survey itself, please contact us at 312-355-2469 or dennisr@uic.edu.

Thank you in advance for your cooperation.

Sincerely,

Dennis P. Rosenbaum, Principal Investigator, Survey Project on Interdisciplinary Research
Sarah E. Ullman, Lead Principal Investigator, UIC Interdisciplinary Violence Prevention Research Center

APPENDIX C. EMAIL FOLLOW-UP LETTER ▬▬▬▬▬▬▬▬▬

Dear colleague:

Recently you received an invitation to complete the online survey about interdisciplinary research on campus. If you have already completed the survey, thank you for your quick response. If not, please take a few minutes to complete the survey. This is your last opportunity.

This survey is only for faculty, academic professionals, postdocs and graduate students who are, or have been, engaged in research at UIC. Your views about research are important to us and will help to shape future research collaborations at UIC. All responses are voluntary and will be kept confidential. Results will be reported only in the aggregate and will be made available in the fall.

Here is your link to the survey:

http://survey.cc.uic.edu/idr.htm.

Thank you in advance for voicing your opinion. Please do not hesitate to contact us if you have questions.

Dennis Rosenbaum, Professor and PI, Online Survey dennisr@uic.edu, 5-2469
Sarah Ullman, Professor and PI, Interdisciplinary Violence Center

Note - If the above link does not work, copy and paste the following URL into your web browser:
http://survey.cc.uic.edu/idr.htm