

## **IOWA STATE UNIVERSITY REVIEW: PROGRAM FOR WOMEN IN SCIENCE AND ENGINEERING**

On February 10 and 11, 2005, an external review team visited Iowa State to evaluate the Program for Women in Engineering and Science (PWSE). The external review team included:

- Sherry E. Woods, EdD
  - Director of Special Projects, College of Engineering, The University of Texas at Austin
  - Past President, WEPAN (Women in Engineering Programs & Advocates Network)
- Barbara Bogue, MSc
  - Associate Professor of Engineering Science and Mechanics and Women in Engineering, The Pennsylvania State University
  - Past Director, Penn State Women in Engineering Program
- Cinda-Sue Davis, PhD
  - Director of Women in Science and Engineering Program, University of Michigan

This report will address three key areas: (1) responses to questions outlined prior to the visit in the Program Self Study by the PWSE staff and Advisory Board; (2) emerging issues and challenges facing PWSE and ISU related to mission, objectives and institutional practices; and (3) recommendations for PSWE and ISU to consider for clarifying and rethinking PWSE's mission, key objectives and next steps. In addition, we will comment on the overall review process.

Our comments are based on the written program materials received prior to the visit (including the PWSE Program Self Study), additional materials requested (and received) by the ERT during the visit, and information gained from meeting with various PWSE constituents during the two-day visit. (See the attached agenda.)

### **PART ONE: PRE-VISIT QUESTIONS IDENTIFIED BY PWSE STAFF AND ADVISORY BOARD**

Prior to the visit, we received a detailed, well written Program Self Study document which outlined six questions for us to address.

#### **1. How effectively does PWSE fulfill its mission and objectives?**

**OBSERVATION:** Two concerns emerged regarding the PWSE mission and objectives. First, the stated PWSE mission does not align with the first two corresponding objectives. As stated, the mission of PWSE is, "...to encourage women in girls of all ethnic backgrounds to pursue careers" in STEM fields. This statement reflects a student services model; that is, the primary purpose of PWSE is to offer activities that will persuade girls and young women to pursue STEM careers. Yet, the first two key objectives deal specifically with increasing the numbers of women enrolling in and graduating from STEM fields at ISU. These two objectives reflect a broader mission that would require an institutional change model and require different strategies than traditional student support activities.

Second, as we met with faculty, staff, students and advisory Board members, it became clear that this mismatch of mission and stated or perceived objectives was also voiced by these constituents. When asked, “What do you believe is the mission of PWSE?” the responses from constituents varied significantly. Perhaps the most telling response came from a constituent who responded that while the University sees the mission as increasing numbers, she believed PWSE existed to support students at ISU and to educate girls and young women about STEM careers.

These concerns aside, we believe PWSE is effectively meeting its mission, as stated, to encourage girls and young women to pursue STEM and to provide support and professional development opportunities for STEM females at ISU. Overall, we were very impressed by the scope and quality of programs that address key objectives 3 – 8.

### **RECOMMENDATION:**

After reviewing the written materials and visiting with numerous constituents, we strongly recommend that PWSE review its mission statement and key objectives. Until the mission is clearly delineated and understood by key stakeholders, it is difficult to adequately assess the effectiveness of PWSE.

## **2. How does PWSE compare to programs at peer institutions?**

**OBSERVATION:** Each member of the external review team has directed programs comparable to PWSE at leading public institutions. In addition, we have each served on the Board of Directors of WEPAN (Women in Engineering Programs & Advocates Network), the national organization whose mission is to be a catalyst for change in promoting the success of women in the engineering profession. From our collective viewpoints, the PWSE at ISU is an outstanding program that compares well with peer institutions and is very deserving of the national recognition it has received. We identified the following strengths and concerns:

### **Strengths:**

- Scope and quality of programs given limited number of professional staff; *(PWSE programs target thousands of pre-college constituents, almost 3,000 students from five colleges, 59 departments and are administered by four PWSE staff)*
- Long standing outreach programs that are well respected within Iowa’s K-12 community
- Outstanding implementation of ISU WISE Living and Learning Communities
- Strong leadership of PWSE Director Karen Zunkel and the outstanding commitment of the PWSE staff
- Staff qualifications are outstanding and well-suited to current mission; adaptable to changes in mission.
- Demonstrated commitment to the PWSE at the University Provost level, including stable funding source and allocation of expanded PWSE office space
- Enthusiastic ISU community support for cross campus collaborations
- Enthusiastic Advisory Board support

Concerns:

- PWSE scope may be too large; may result in inefficient use of resources/staff expertise and staff burnout
- The unstated but assumed expectation that PWSE staff will continue legacy outreach programs undermines PWSE's ability to undertake new initiatives

**RECOMMENDATION:**

The PWSE is an exceptional program with a national, state and local reputation for excellence; yet, given the scope and demand of current PWSE programming, two issues should be addressed: (a) the prioritization of PWSE activities; and (b) the potential for staff burnout. As a way to ensure its record for excellence, we recommend that PWSE make clarifying its mission and key objectives a top priority. Overall clarification of mission and goals will drive (and prioritize) the program focus and scope, allowing PWSE to make effective mission-driven decisions on which programs to continue, discontinue, or pass on to more appropriate units.

**3. How well does PWSE meet the needs of pre-college and undergraduate STEM students?**

**OBSERVATION:** The formative feedback provided in the PWSE Self Study revealed that pre-college and undergraduate constituents enjoy and value PWSE activities. When visiting with PWSE staff and undergraduate student constituents in person, we also determined that PWSE staff promotes continuous improvement by soliciting and using constructive feedback to improve programs. Although a concern was voiced by both PSWE staff and ISU undergraduates that little or no programming targeted upper level or transfer students, we were unable to determine if this represented a true need or simply a desired addition to the PSWE portfolio of activities.

Our inability to determine this reflects an overarching concern regarding the assessment processes employed by PWSE and ISU. Although it is important to determine if participants “liked” a particular activity or program, we believe the lack of summative assessment using longitudinal enrollment and retention data seriously impairs the decision making process of the organization. The enrollment, retention and graduation data provided in the Self Study were insufficient and difficult to interpret. Additional data were provided at the time of the visit, but it was clear that these data were not routinely provided by ISU. In addition, our impression from talking with PWSE and other ISU staff is that these data, while available in theory, were difficult to obtain in practice and that PWSE may be assessed a fee by ISU for customized data reports.

**RECOMMENDATION:**

We strongly encourage the PWSE to work with the Provost's Office to determine specific data reports that should be generated on a regular (by semester or annually), no-cost basis to PWSE. In our opinion, specific reports are needed regarding enrollment, retention and graduation and that all data points should be major-specific, disaggregated by gender and ethnicity. Until these data are available, programming decisions cannot be data-driven and

necessarily will be made on current formative assessments that provide only limited perspective on program impact.

**4. What impact is PWSE having on helping ISU reach institutional mission/goals?**

**OBSERVATION:** The proposed 2005 – 2010 ISU Strategic Plan broadly defines diversity as a key objective. In addition, Provost Allen indicated that increasing enrollment is a top ISU priority. Given these two priorities along with ISU's institutional focus on engineering, science and technology, PWSE plays a critical role in promoting ISU's mission and goals. As an arm of the Provost's office and given its excellent staff, performance and reputation, PWSE is positioned to take a leadership role in driving University based efforts to achieve more diversity. The caveat is that this is dependent on PWSE and the Provost's Office first clarifying PWSE mission and University expectations.

**RECOMMENDATION:**

See Parts 2 and 3 of this report, which address emerging issues and recommendations for PWSE and ISU.

**5. Is PWSE efficiently using resources? Does PWSE have the necessary resources to meet expectations today and in the future?**

**OBSERVATION:** With respect to efficient use of resources, it was clear that PWSE uses its resources judiciously. At the same time, we were unable to assess if PWSE is making the best use of available resources to achieve its goals. Our inability to assess this is due to the previously mentioned mismatch between the stated mission and two of the key objectives. For instance, if a priority of PWSE is to directly increase the numbers of women entering STEM majors at ISU, then allocating \$57K and large portions of staff time on career conferences which target middle school girls may not be the best allocation of human and financial resources. On the other hand, if outreach is a primary goal of PWSE, then allocating those funds to reach 2,400 students at a cost of \$24/student is an excellent use of resources. The latter depends, however, on gathering better assessment data, including tracking for entry into a STEM career and post-surveys, to determine whether the activity meets an outreach objective.

In terms of adequacy of resources for PWSE to meet expectations, we believe that the support provided by the Provost's Office (approximately 52% of the annual budget) is critical and should be continued. By providing a relatively stable funding base, the Provost's Office ensures that PWSE staff time is being used to serve constituents versus being consumed by time intensive fund raising. We also commend the Provost's Office for the allocation of renovated office space for PWSE and believe this expanded suite of offices will enhance PWSE's presence on campus and access to students.

**RECOMMENDATION:**

In line with previous recommendations to clarify mission and key objectives, we are encouraging PWSE and the Provost's Office to conduct an analysis of PWSE activities that

link PWSE mission/objectives with impact, resources required and cost per student served. If an activity can not be directly tied to a positive impact on key objectives, then revamping or discontinuing the activity should be considered. Regardless of how many constituents are served, PWSE must avoid “confusing activity with results.” If the University’s priority for PWSE is to increase enrollment and graduation numbers, we are encouraging PWSE to adopt a data-driven model, using recruitment, retention and graduation statistics to drive its decision-making process. The use of human resources is a key concern. Given the breadth of the current program, PWSE staff is doing a very competent job but the risk of burnout is great; the workload needs to be rationalized. Further, the current constellation of activities and staff hours available does not allow for adequate assessment and collection of data.

## **6. What impact is PWSE having on Iowa?**

OBSERVATION: Except for the formative feedback regarding the value of programs to individual participants, we did not have adequate information to make an informed assessment of PWSE’s impact on Iowa.

## **PART TWO: EMERGING ISSUES AND CHALLENGES FACING PWSE AND ISU RELATED TO MISSION, OBJECTIVES AND INSTITUTIONAL PRACTICES**

Two external drivers loom large as factors in ISU and PWSE strategic planning and in the definition of the PWSE mission:

- Demand for increasing total ISU enrollment given recent decline in enrollments nationally and in Iowa
- Commitment to increasing the numbers of women at ISU undertaking and succeeding in STEM curricula.

Both goals are implicit in the ISU Proposed 2005-2010 Strategic Plan and explicit in the anticipated Capital Campaign. They are also consistent with the expressed goal proposed by the Provost of having ISU become a national leader in attracting women into STEM careers as a part of a “modern day Land Grant challenge.”

The two are intertwined: increasing the numbers of women who enter the University to study and persist in STEM fields can, if new target audiences are reached, increase the number of students matriculating overall. This is not an automatic relationship; targeting programs to the right audiences becomes a critical part of reaching desired outcomes. To do that, “good data” (i.e., meaningful reports provided on a regular and “as needed” basis) are required.

Beyond the demands of demographics, attracting women into STEM fields addresses national competitiveness needs as well as social needs. As noted by Vice Provost Holger, the failure to recruit and retain women in STEM amounts to “cutting out half of the talent pool”. All Land Grant and Research 1 Institutions face these common external environmental factors in their efforts to increase the participation of underrepresented populations (including women) in STEM: declining enrollments, very competitive recruiting, and a pervasive lack of understanding of benefits of engineering education.

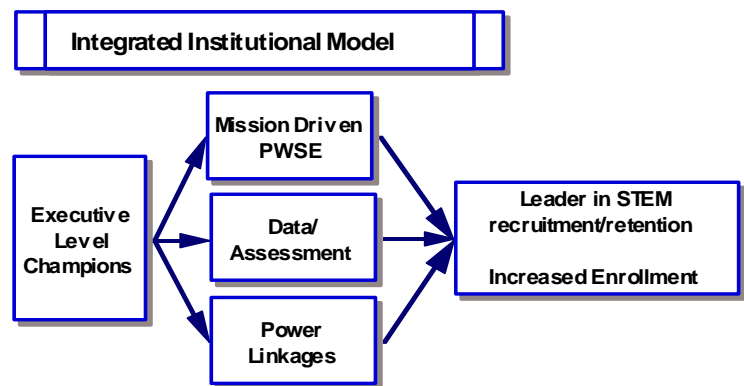
BEST (<http://www.bestworkforce.org/>), a prestigious public-private partnership building a stronger, more diverse U.S. workforce in science, engineering and technology, states the demographic imperative in this way:

- The U.S. S&E workforce draws on a narrow and declining segment of our population.
- U.S. student interest in many technical disciplines is far off peak levels of the 1980s.
- The international component of the U.S. technical workforce has increased steeply.
- The United States is not keeping pace with the growth of international S&E capacity.

The problem of diversifying STEM at the University level is multidimensional and, as such, requires a multidimensional response. Programs like PWSE face a huge challenge and are too frequently tasked to meet the challenge without adequate resources, upper administration support and effective collaboration with other key players in the institution.

For real progress, an **integrated institutional model** is required; this approach will drive a major change in:

- Understanding of all main players, including a familiarity with the goals as well as the research underpinning them and the real benefits to all if achieved;
- Commitment of all players, from the entering first year student to the Provost and President.



Questions relevant to development of an integrated institutional model are:

- What are the climate issues for students and faculty in STEM areas?
- How can a comprehensive strategy to address gender issues be developed at ISU?
- How can expectations and accountability be implemented for all gatekeepers related to achievement in STEM departments, at all levels from students to department chairs?
- How can the various key players and initiatives (including minority initiatives) that impact STEM recruiting, persistence and achievement be coordinated for a “full court press?”

**RECOMMENDATIONS:**

Accordingly, the team lays out three primary recommendations for future actions:

1. Clarify and articulate a PWSE mission that aligns with the University mission and goals/objectives with desired outcomes; Gain general awareness and agreement among all players on the range and need for the mission.

To achieve STEM recruitment, retention and development objectives, both the University and PWSE need to be clear on what those are. The current mission, as stated and implemented, is a student services model. PWSE is doing an excellent job with that model, but it is inherently limited. (It should be noted that current PWSE retention activities appear to be successful in increasing retention and should be maintained to maintain that achievement.)

If the overarching goal is to increase recruitment and graduation in STEM fields for women at ISU, the mission needs to reflect an **integrated institutional model** that addresses defined challenges in a comprehensive way and leads to significant and sustainable change. To achieve real progress beyond the *status quo*, the University must address larger issues of climate and opportunity with regard to STEM issues. As stated previously, PWSE is well positioned within the Provost's Office to take a leadership role in driving university based efforts to achieve this goal.

Factors to be considered in this process are:

- Should PWSE undertake “outreach” or “recruitment” activities? The goal of increased recruitment would indicate the latter.
- Is the allocation of resources - both monetary and staffing – in line with what is required for achieving specific goals?

2. *Develop appropriate and more easily accessed data and disseminate these data among the general ISU population to build a strong knowledge base and a data-driven mission and goals.*

Collection and dissemination of institutional and national data and the development of a focused, mission based program are inextricably interlinked. An understanding of the data should be part of mission development just as the mission helps to identify which data need to be developed.

In a research institution the linkages between data (including demographic and outcomes data), research in STEM gender issues, policies and initiatives must be obvious to all players. The underlying issue is that decisions cannot be data driven if appropriate data are not available. To understand what the national and local issues are, what proven best practices are among similar programs, and which local activities are productive and viable and to develop the initiatives and activities to achieve desired outcomes, good data are essential. There are three main components:

- Institutional data on recruitment and retention by cohort and unit and comparative national data as well as information on specific populations and/or situations should be available upon request, regarded as an institutional norm; it should be broadly disseminated so that the basic issues and challenges are generally understood among the ISU community. These data reports should be provided by the institution as a matter of course to underpin data-based and -driven decisions.
- Assessment data on specific key activities and initiatives should be collected, disseminated and used to revise and prioritize activities and set policy. Good assessment is based on identification of objectives, but also on available resources including staff, funding and expertise. The PWSE staff have good assessment

capabilities, but the group is currently so occupied with continuing to support legacy programs as they develop and offer new activities that there is little to no time to develop and implement good assessment practices.

- Literature and research on STEM and educational issues should underpin all initiatives and programming.

All aspects of collection, dissemination and understanding of data are critical to achieve the PWSE mission, but clearly the program as it is currently configured cannot be responsible for all. The job is too large, and the knowledge should be disseminated rather than isolated in one unit. Again, an integrated approach is needed.

*3. Power linkages—linkages that are proactive, dynamic and championed from the top—are required to achieve a true integrated institutional approach.*

The key issue is to coordinate standing units (such as Admissions), existing initiatives (such as the Task Force on Women in Faculty) and proposed new initiatives to insure that all address identified ISU strategic goals. If there are overlaps, they should be intentional and productive. Training, so that all key players understand the mission and relevant data, is essential.

Currently there is an apparent disconnect between PWSE and other key player units. Examples include the exclusion of PWSE from the ADVANCE planning committee; the expressed intention of the College of Engineering to create a separate Women in Engineering Program without integrating mission and objectives into those of PWSE; lack of apparent collaboration with efforts to recruit minority students; and the lack of focused materials and presentations in the Admissions Office - or even awareness of the need for such materials - to recruit girls into STEM departments.

PWSE needs to be more proactive in establishing linkages, but to do this effectively will require planning, support and championing from upper level administration. The external Advisory Board is a potentially powerful link that has yet to be adequately tapped. The group is well-connected and energetic. As with all linkages, adequate education on the mission and data (as broadly defined above) are critical to realize the full potential of this group in terms of expertise and as potential catalysts for external funding.

All three recommendations - mission, data and linkages - are essential for reaching larger STEM goals. The STEM pipeline provides an excellent example of how the three recommendations interlink. It is generally understood that to bring more women into STEM careers (mission), institutions must reach down to pre-college levels, with the belief that for such activities to be effective, they should target girls before they reach middle school; however, statistics and the literature (data) indicate that the pipeline is not clogged at that level. There are currently more girls than boys taking higher level math and an equal number are taking physical sciences (<http://nces.ed.gov/pubs2005/equity/>). This would indicate the need to create an integrated effort to recruit high school girls who have the preparation to pursue STEM degrees but who do not choose to do so (linkages).

## **PART 3: RECOMMENDATIONS FOR PSWE AND ISU TO CONSIDER FOR CLARIFYING AND RETHINKING PWSE'S MISSION, KEY OBJECTIVES AND NEXT STEPS**

### **WISE Organizational Models: Challenges and Opportunities**

For a Women in Science and Engineering (WISE) Program to be successful, it is necessary to clearly define and articulate the mission and scope of the initiative. Will the program address issues along the entire STEM educational pipeline, from K-12 through graduate school? Will issues for women STEM faculty members be addressed? Will all STEM colleges and schools within the university be served? Is the purpose to encourage and support women in non-traditional fields or to actually increase the recruitment, retention, and graduation of women in STEM fields? Depending on the answers to the questions, there are multiple models for the development and implementation of gender equity programs in STEM fields. Each model has advantages and challenges.

#### **Student Services Model**

PWSE at ISU most closely resembles the student services model which strives to encourage and support girls and women, from middle school through at least the first two years of undergraduate classes. This centrally reporting unit develops and implements extensive K-12 outreach programs reaching thousands of middle school and high school girls annually. In addition, the program directs a comprehensive living-learning community across nine residence halls. PWSE serves the entire ISU STEM community but does not have direct or indirect reporting lines to individual schools or colleges. Many of the PWSE initiatives are legacy programs originating in the early years of the program; however, while there is significant community support and enthusiasm for these programs, the outcomes are not clear. The PWSE staff does an extraordinary job and is an outstanding example of a student services approach.

There are some strategies that could be used to improve the current PWSE approach that, if employed, could make incremental improvements in the day to day operations and outcomes of the program. These consist of the following:

- Evaluation and assessment of programmatic activities. Currently most programmatic initiatives are assessed using an evaluation survey following the activity (although focus groups have been conducted for “Taking the Road Less Traveled Career Conferences”). More extensive evaluation (including recruitment data, pre- and post-activity surveys that go beyond formative items for both teachers and students, mapping of any follow up activities in the participating schools, etc.) could determine which of the K-12 programs are the most effective, allowing PWSE to focus on those activities and discontinue less effective efforts.
- Creation of and access to institutional data. Another important tool for strategic decisions making is student data. Longitudinal tracking of K-12 participants would show which students remain in STEM fields and which do not. Climate studies and

retention data could show which undergraduate majors are problematic for women and where the bottlenecks are. Then PWSE resources could be directed to problem areas. All of this requires access to existing institutional data, disaggregated by gender, race, and field of study. It also may require the development of new institutional data sets for precollege participants in Iowa State PWSE activities.

- Programmatic interventions based on current research findings. The national research on gender issues in STEM education is extensive. Programmatic offerings must constantly be measured against the current research to verify that efforts and resources are being used strategically.

The student services model supports and encourages girls and women in STEM fields. To sustain this model, it is important that programmatic efforts be based on the current research findings in the field and be evaluated constantly. Access to institutional data is a vital component of this effort. Careful strategic planning of programs maximizes the results obtained within the resources of staff and budget available. It must be emphasized, however, that this model has serious limitations. It is doubtful that these efforts, even if refined and improved, will ever significantly increase the number of women entering and pursuing STEM degrees at ISU. Yet an argument can be made that to maintain retention gains, it is necessary to maintain prioritized activities (identified through assessment).

Another traditional student services model has been to house Women in Engineering programs within a college of engineering and comparable Women in Science programs within science colleges. This allows the program greater access to students, faculty and staff within that college. Program staff are also staff members within that particular college with all the advantages, including access to faculty and resources. But the college-based program loses the critical central administration resources. In addition, since many undergraduate students take courses, including important gateway courses, in colleges other than their own, important connections between colleges can be lost in this model of separate college-based programs.

### **Integrated Institutional Model**

If the purpose of a WISE Program is to actually increase the number of women graduating with STEM degrees, then it is necessary to undertake a more integrated institutional approach. It is unreasonable to expect that a single program, nonaligned with any school or college and with no faculty connections, can substantively investigate the root causes of the problem, implement change (both within and outside of the classroom), evaluate the outcomes, and serve as advocates all within a vacuum. In an integrated institutional change model, the entire institution (the university) assumes responsibility for gender equity in STEM fields and works together to insure that all of its students have access to and success in non-traditional fields. The WISE program serves as a collaborating catalyst for this activity, coordinating efforts and consulting with units. The degree of integration depends on a number of things, not the least of which is the culture and commitment of the institution itself. As a result, there could be a variety of models. What they have in common are linkages between academic units, central administration, student support offices, development offices, research units, admissions

offices, institutional data offices, and other relevant university units. The degree of these linkages and their integration depends on the university itself.

A central reporting line, such as that at ISU, has many advantages, not the least of which is the visible commitment of the university leadership to WISE issues. It can provide resources such as connections to development opportunities, state and federal government offices, and various centrally organized university committees. It can also lead to accountability from the top down. For instance, the Provost's Office can establish criteria (and meaningful consequences) that will make Deans accountable for increasing faculty diversity. The university level Admission Office can be held accountable for implementing recruitment practices that maximize efforts to recruit a diverse student body.

Other connections within an integrated institutional model are equally important. Access to institutional data, as mentioned above, is critical. What are the retention rates for women in the various STEM majors offered at the university? Are there gender gaps in graduation rates in STEM fields or is it strictly an issue of recruitment of women into these fields? Are there differences between departments? Are there certain introductory "gateway" courses that are problematic for women or students of color, in terms of both achievement and retention? Data driven programmatic efforts are more strategic and acceptable to faculty and administration in STEM fields.

Integration of the WISE mission into other University offices can also be highly effective. For example, admissions officers who are aware of gender issues in STEM education can become highly effective recruiters of girls to both the university as well as science or engineering disciplines. They will also reach far more potential students than WISE program staff. Academic advisors also need to be cognizant of gender issues in course taking patterns and how women attribute their success or failure. Collaborations between WISE offices and faculty in the social science or education fields will provide opportunities for interesting and relevant research and evaluation opportunities.

The challenge in a central reporting line is that connections to the various schools and colleges, with their resources and most importantly faculty, are extremely limited. Exclusively reporting units can be marginalized because they do not have access to college resources, are not held accountable to college administrators and typically are not included in college planning. Consequently, there is no *mutual* accountability between the WISE program and the STEM academic infrastructure of the university.

### **An Example of a WISE Organizational Structure within an Integrated Institutional Approach**

Within the last six years, the University of Michigan has developed a highly integrated institutional model. The UM WISE Program Director reports centrally to the Associate Vice-President for Research. The Office of the Vice-President for Research reports to the Provost Office, so the WISE Program falls within the organizational structure of the Provost. Approximately 40% of the program's funding comes from the Vice-President for Research budget. In addition, the WISE Program Director has an indirect reporting line to an Associate

Dean within the College of Engineering and an Associate Dean within the College of Literature, Science, and the Arts (LS&A). Approximately 40% of the WISE budget comes from engineering and 20% from LS&A.

The UM-WISE Program has two offices: one within engineering on north campus and one within LS&A on central campus. There are two assistant WISE Program Directors – one of whom is also Director of the Women in Engineering Office and the other Director of the Women in Science Office. Each office director works full-time within that office while the overall program director divides her time between the two offices.

This reporting arrangement has proven to be highly flexible. The two assistant directors work full time in their respective offices and oversee the day-to-day operations of the college based programs. They have access to college-based resources such as college development offices, media and marketing offices, faculty, staff, and various student organizations. The WISE program director is free to develop collaborations between other university offices, schools, and colleges such as the School of Education, the Office of Student Services, and the Center for Research on Learning and Teaching. She serves on many university committees, such as undergraduate management teams, educational advisory boards to NSF funded research centers, curriculum committees, and the university ADVANCE Program.

This model has several advantages. The WISE staff can concurrently meet the needs of individual schools and colleges while at the same time provide a big picture view of educational gender equity issues within the larger university community. There is little duplication of effort. This organizational model permits the program to look at gender equity along the entire educational pipeline, from K-12 through graduate school. WISE has access to resources and connections in all the schools and colleges as well as the central administration. This is unusual in large decentralized universities. The program has great visibility and is clearly modeled as being a catalyst and consultant for gender equity issues within the university, not a marginalized office which will “fix” the problem on its own.

In sharing this model, we are not necessarily recommending that ISU change its current PWSE reporting structure; however, we are recommending that serious thought be given to this model as a way to meet re-defined mission and objectives and certainly before the College of Engineering establishes a separate Women in Engineering Program.

## **CONCLUDING REMARKS**

We are encouraging PWSE and ISU to address three main issues:

1. Mission clarification
2. Data collection, assessment and dissemination practices
3. Role of “top – down” power linkages across ISU to promote results

PWSE is an outstanding program in terms of promoting engineering as a career option and meeting the support needs of current STEM females at ISU. What remains to be determined is whether the PWSE mission and current configuration is well integrated into the University mission and outcomes expectations. If the primary objectives of PWSE are to increase the

numbers of female STEM students enrolling and graduating from ISU are the primary objectives, we encourage PWSE and the Provost to consider an integrated institutional approach for reaching these goals.

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## **ASSESSMENT OF THE OVERALL REVIEW PROCESS**

In various capacities, each member of the review team has previously served in advisory capacities on review teams. We were impressed by the entire process. The pre-visit materials, including the Self Study, were received well in advance. The Self Study was well written and organized. Any additional requests we made to Karen Zunkel were handled promptly and thoroughly. The visit agenda included a wide range of constituents, and we especially appreciated the flexibility of the PWSE to accommodate last minute changes to the agenda. The accommodations were excellent, and all the site logistics ran smoothly. Overall, we were impressed by the professionalism of the PWSE staff and warm reception we received from all members of the ISU community with whom we met.