

**Purdue's Engineer of 2020  
2009-2010 Seed Grant Program  
Purdue University**

**Project Title:**

Assessing Engineer of 2020 Attributes through Transformative Global Experiences

**Total Budget Requested:** \$39,574.23

**Target Attribute(s) to be studied/implemented:**

*At least two or more of the following, dependent on intermediate findings:*

Abilities

work effectively in diverse and multicultural environments

work effectively in the global engineering profession

Knowledge Areas

open-ended design and problem skills

Qualities

ethically responsible in a global, social, intellectual, and technological context

adaptable in a changing environment

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## **A. Project Description**

### **Objective of the Study**

Many educational institutions are proactively responding to the challenges of globalization, and Purdue is no exception. Specific objectives noted in the university's new strategic plan include: "expand[ing] pathways to global education," "developing successful global citizens and leaders," "prepar[ing] graduates for a dynamic global workplace," and "graduating students with global credentials" (Purdue University, 2008). The plan also calls for expanded student participation in a range of "transformational learning opportunities," including those with global dimensions.

For more than a decade, influential stakeholders have similarly urged universities to cultivate a new generation of "global engineers" who are prepared to practice effectively in an increasingly diverse, interconnected, and rapidly changing world (Boeing, 1997; Brown, 1993; Katehi, 2005; "Newport Declaration," 2008). ABET's EC2000 accreditation criteria, established in 1997, also lends support to this movement by requiring that graduates "understand the impact of engineering solutions in a global and societal context" (Accreditation Board, 1997). Purdue's College of Engineering has adopted even more ambitious goals via its Engineer of 2020 initiative, which features a number of target graduate attributes with an explicit global dimension. The College has also tentatively emphasized producing "graduates [who are] effective in global context" as one of its three strategic goals for 2009-2013.

Many strategies have emerged for providing global education and enhancing the attainment of related attributes (Downey, et al., 2006; Parkinson, 2007). At Purdue, for example, the Global Engineering Program (GEP) and Global Engineering Alliance for Research and Education (GEARE) give students opportunities to study, work, volunteer, and intern abroad, and participate in multi-national design projects. Many students also "engage the global" through coursework, interactions with faculty and peers, team projects, membership in student organizations, and independent travel. Expanding student involvement in these and other kinds of global experiences – while simultaneously finding ways to integrate these experiences into the curriculum – remains an important objective, both at Purdue University and beyond.

As Purdue's strategic plan also makes clear, demonstrating the effectiveness of programs and nurturing a "culture of assessment" are also pivotal facets of the university's continuous improvement. The College's current draft plan similarly stresses the importance of measuring the impacts of new programs and strategies. Hence, scaling up global education in line with university and college goals demands thorough and rigorous evaluations of associated initiatives.

Ongoing efforts to evaluate a variety of global initiatives at Purdue have already helped generate sponsored research, research publications, and ambitious spin-off projects. Yet those who wish to assess something as multifaceted as global engineering education still face numerous challenges. To date, much research in this area has involved in-depth studies of existing programs, making it difficult to generalize findings. Other studies have examined specific attributes, including global competency, global awareness, and language proficiency.

Administrators and funding agencies continue to seek innovative new strategies for evaluating global engineering education, including assessment instruments that are portable, rigorous, and scalable. The present study responds to these needs by asking: How do we measure the ways in which global educational experiences prepare future engineers to be "effective in global context"? To address this research question, we propose that global engineering education

is best viewed in terms of its potential to provide students with *transformative learning experiences* involving multiple developmental stages.

Given this framing, we can identify and analyze some of the key strands or dimensions of these transformative experiences. The study proposed here is focused on examining how such experiences support student achievements related to Engineer of 2020 target attributes such as:

- work effectively in diverse and multicultural environments
- work effectively in the global engineering profession
- open-ended design and problem skills
- ethically responsible in a global, social, intellectual, and technological context
- adaptable in a changing environment

The more specific objective of this project is to develop and pilot two assessment instruments for global engineering education, each designed to measure the attainment of at least two of the Engineer of 2020 attributes. The design of these instruments will be informed by: a) transformative learning theory, and b) empirical findings about student participation in long term and short term global experiences abroad.

### **Background Literature and Theoretical Framework**

As summarized by Lohmann, Rollins, and Hoey (2006), ongoing efforts to assess global education have primarily focused on study abroad, with particular emphasis on evaluating program logistics and student satisfaction. These authors point to a continued dearth of research on student learning, career impacts, and intercultural proficiency. They summarize: “Largely absent are rigorous methods for assessing foreign language ability or competencies specifically related to professional practice within the academic discipline” (p. 125). As another administrator laments: “It is so hard to get global engineering programs established that assessment gets neglected” (Devon, 2005, p. 3).

Lohmann et al. have responded with a comprehensive assessment strategy for Georgia Tech’s International Plan, based on four measurable facets of global competence: foreign language proficiency, comparative global knowledge, intercultural assimilation, and disciplinary practice in a global context. While ambitious, Georgia Tech’s efforts are both tailored to local needs and primarily focused on global competency. Their assessment instruments are still being developed, and the extent to which they will be validated and/or shared is not yet clear. Ongoing efforts to study Purdue’s GEARE program have similarly emphasized global competency, assessed through student questionnaires, individual interviews, and focus groups (Allert and Atkinson, 2005; Allert, Atkinson, Groll, and Hirleman, 2007).

Administrators at many institutions are also using the Intercultural Development Inventory (IDI) to evaluate student gains related to global competency, especially via the Intercultural Development Inventory (IDI) (Allert and Atkinson, 2005; Demetry, 2007; Mayhew, Eljamal, Dey, and Pang, 2005; Widmann and Vanasupa, 2008). The IDI is based on the Developmental Model for Intercultural Sensitivity (DMIS), which provides a framework for understanding how individuals experience cultural difference, ranging from denial at one end of the spectrum to full cultural “integration” at the other. The IDI is standardized, validated, and widely used, making it easy to administer and suitable for comparative research. But while IDI is effective for assessing general cross-cultural sensitivity, the proprietary instrument can be costly, is not readily modifiable, and is not specifically tailored to assess the professionalism of “global engineers.” We see our efforts as distinct from IDI but complimentary, because it may be possible for us to perform cross-correlation with IDI.

Along related lines, Del Vitto (2008) proposes assessing the attainment of “cultural intelligence” among participants in global engineering education, while Grudzinski-Hall et al. (2007) are now working to assess the development of Lehigh engineering students as “global citizens.” In addition, Downey et al. (2006) have developed a scenario-based instrument designed to evaluate global competency by measuring the perceived ability of students to define and solve problems in diverse and multicultural environments. Qualitative student responses are scored using a simple scale indicating levels of achievement (inadequate, needs improvement, etc.). While the generalizability of this instrument is limited because it was developed to evaluate specific course-level learning objects, we expect to build on this research.

Yet in contrast to prior work, we propose using transformative learning theory to approach and evaluate global educational experiences in a more holistic manner. In summary, transformative learning occurs when an individual experiences a fundamental change in their perspective or outlook, including how they understand and view themselves and others in the world (Mezirow). While much work in this area has focused on adult education, a handful of researchers have started to apply this framework to cultural competency training and global education (Maltbia and Wasserman, 2007; Selby, 2000). We posit that viewing graduate education from a transformative learning perspective can help us: a) better understand how transformative experiences improve student attainment of multiple graduate attributes, and b) redesign and enhance global experiences in ways that maximize their transformative potential.

### **Evaluation Plan, including Approach, Implementation, and Methods**

*Phase 1: How does global education promote transformative learning and attainment of 2020 attributes?*

(May 2009 to September)

During this phase we will conduct interviews and focus groups with at least 20-25 engineering students and three faculty members. The qualitative data collected during this phase will help us determine how global educational experiences: a) involve transformative learning, and b) improve attainment of select Engineer of 2020 attributes.

Our recruitment efforts will focus on individuals who are or have been involved with GEARE and GEP at Purdue. We will seek a diverse population, especially by seeking a pool of individuals with experiences in a variety of program types (e.g. short-term and long-term; internship, study abroad, field strips, service learning, global design teams, etc.) and locations (e.g. developed and developing countries).

Initial exploratory questions for focus groups and interviews will focus on student attainment of 5-7 of the Engineer of 2020 attributes, including those identified above. However, conversations will not be limited to these attributes, and interviewers will work to identify instances of transformative learning. Interviews with faculty will be performed first, in part to solicit their help in refining our exploratory questions and selecting key attributes. Focus groups and interviews will be recorded and transcribed, with participant permission and in accord with human subjects requirements. Interviewers/facilitators will take reflective notes during and after all interviews and focus groups.

*Phase 2: Which 2020 attributes were identified, how are they related, and how can they be assessed?*

(October 2009 to December 2009)

Constant comparative method (Strauss and Corbin, 1998) will be used to analyze data collected during Phase 1. Using an open coding method, the researchers will iteratively develop a set of categories and codes to distinguish which segments of the transcripts are relevant to specific Engineer of 2020 target attributes. Systematically analyzing the coded data will allow us to: a) determine the most common target attributes discussed by participants, b) gauge mechanisms and levels of attainment for each attribute, and c) understand how specific attributes are both related to one another and linked to transformative learning.

Results from Phase 1 will be used to develop two new assessment tools, each designed to measure competency related to two 2020 target attributes. The target attributes will be selected based on frequency of occurrence in Phase 1 data and how they compliment one another. The development of the assessment instruments will be guided by the following criteria:

- Portability: the instruments can be used to evaluate different types of global experiences.
- Scalability: the instruments and scoring system must easily scale to larger populations.
- Rigor: the instruments must have the potential to reach high levels of reliability and validity.
- Useful: the instruments must be practically useful and beneficial for existing programs.

A wide variety of assessment instruments have been used to evaluate global engineering education, including: electronic portfolios, reflective writing, standardized survey instruments, focus groups, interviews, self-reports, and satisfaction inventories (Lohmann, Rollins, and Hoey, 2006). Our criteria will likely favor mixed quantitative-qualitative and/or short qualitative survey instruments. As a progress check, we will ask at least two outside researchers with expertise in global engineering education to review our instruments, and we will revise the instruments according to their feedback.

*Phase 3: Are the developed instruments portable, scalable, rigorous, and useful?*

(January 2010 to May 2010)

Assessment tools developed during Phase 2 will be piloted with select engineering students who are participating in a variety of global experiences of one semester or shorter duration during Fall 2009 and/or Spring 2010. The target population will be identified with the assistance of the GEP and GEARE programs. We will solicit a diverse population of potential respondents, while also identifying distinct clusters of respondents whose participation can help us validate the instrument across similar populations. All qualitative responses will be coded and cross-checked by two researchers until they meet or exceed 90% accuracy, and all quantitative responses will be validated using appropriate statistical methods. Similarities and differences across diverse respondent groups will be closely examined. Our findings will be used to refine and finalize these instruments for use by other programs and with larger populations.

### **Example Implementation Scenario**

Phase 1 interviews reveal that global experiences have pushed many students to grapple with ethical issues and be adaptable in changing environments. Based on these findings, during Phase 2 we develop a scenario-based assessment instrument that probes how different kinds of global experiences enhance student attainment of two specific 2020 attributes: a) adaptable in a changing environment, and b) ethically responsible in a global context. Pilot data collected using

this instrument during Phase 3 would help us better understand how certain kinds of global experiences provide participants with opportunities to become more flexible *and* more principled professionals. Findings could also be cross-compared with other data collected from these same respondents – such as demographic information or IDI results – and then used to enhance programs to improve student attainment of the identified attributes.

### **Dissemination Plan**

During Phase 3, the PI will present a seminar on the findings from Phase 1 and instruments developed during Phase 2. To improve outreach to potential users of the instrument, the seminar will be promoted via GEP and Engineering Education. Our results will also be presented at relevant national meetings – such as the American Society for Engineering Education Annual Conference, Association of International Educators, and Annual Colloquium on International Engineering Education – and we will develop at least one journal article based on the proposed research. Regular project updates and an overall summary of our findings will also be disseminated via GlobalHUB ([globalhub.org](http://globalhub.org)), a virtual organization and web site that serves students and faculty who are involved in global engineering education.

### **Intellectual Merit, Broader Impacts, and Future Funding**

This project is novel because it: a) approaches global education through the more holistic lens of transformative learning theory, b) uses preliminary research to establish links between global education and specific attributes rather than making *a priori* assumptions about these links, and c) proposes the development and use of instruments that can be used to assess and relate multiple attributes.

The PI has demonstrated an ability to conduct rigorous research and attract external funding. The study proposed here is highly complimentary to his involvement as co-PI on NSF DUE-0752915 (“Global Competency in Engineering Education, Workshop at the National Academy of Engineering”) and his planned participation in a February 2009 workshop on assessment strategies for service learning. The PI also has appropriate training in interviewing techniques and quantitative and qualitative methods.

Co-PI expertise includes extensive first-hand experience developing, administering, evaluating, and participating in a wide variety of global engineering programs. Co-PI Evangelou also brings relevant expertise in the areas of educational theory and focus groups.

To enhance the broader impact of this research, we will promote the wider use of our assessment instruments by making them available on GlobalHUB, including via a web-based survey and scoring tool. This strategy will dramatically improve our ability to collect data from multiple programs at multiple institutions, including to perform large-scale comparative analysis.

Findings from the proposed seed grant activities represent a first step toward the development and validation of multiple rigorous assessment instruments that can be used to evaluate and continuously improve global engineering education at Purdue and other institutions. One key goal of this research is to nurture productive cycles of research and development, where rigorous assessment is used to both improve our understanding of global engineering education and enhance our ability to cultivate engineering graduates who excel and thrive in global contexts.

## B. Detailed Project Timeline

<b>Phase 1 (May-September 2009)</b>	<b>Phase 2 (October-December 2009)</b>	<b>Phase 3 (January-May 2010)</b>
<ul style="list-style-type: none"> <li>• Hire GRA</li> <li>• Develop advertisements to attract student participants</li> <li>• Invite participation of relevant faculty as interviewees</li> <li>• Develop exploratory questions for interviews with faculty</li> <li>• Perform interviews with faculty</li> <li>• Develop exploratory questions for focus groups and interviews with students</li> <li>• Perform focus groups and interviews with students</li> <li>• Hire UGTA</li> <li>• Transcribe all transcripts and interviewer notes</li> </ul>	<ul style="list-style-type: none"> <li>• Categorize and code all collected data</li> <li>• Develop first assessment instrument and solicit expert feedback</li> <li>• Develop second assessment instrument and solicit expert feedback</li> <li>• Revise instruments as needed based on expert feedback</li> <li>• Identify and prepare suitable platform(s) for piloting the instruments (paper and/or web-based)</li> <li>• Present seminar on Phase 1 and Phase 2 results</li> <li>• Summary of intermediate results posted on GlobalHUB</li> </ul>	<ul style="list-style-type: none"> <li>• Identify target populations for instrument pilots</li> <li>• Collect data</li> <li>• Code and analyze qualitative results, as needed</li> <li>• Statistical analysis of quantitative results, as needed</li> <li>• Revise instruments based on analysis of pilot results</li> <li>• Final summary and revised assessment instruments posted on GlobalHUB</li> </ul>



### C. Personnel Requirements

Please indicate the portion of FTE that each faculty member will dedicate to the project

Faculty member	Summer 09	Fall 09	Spring 10
Brent K. Jesiek	10%	10%	5%
Demetra Evangelou	10%	5%	5%
Dianne Atkinson	5%	10%	5%
Yating Chang	5%	5%	5%
E. Daniel Hirleman	5%	5%	5%

### D. Budget

The budget worksheet is provided to assist you in developing your budget. You may fill this out and paste it directly into your proposal.

Faculty/Staff Member Funding			
Please indicate the funding (dollars and time) you are requesting for the grant for this project)			
Faculty/Staff Name:	Grant funds requested		
	% Time	Fringe Benefits	\$\$
Brent K. Jesiek	25%	\$766.05	\$2021.25
Demetra Evangelou	20%	\$649.85	\$1714.62
Dianne Atkinson	15%	\$313.02	\$948.55
Subtotal Faculty/Staff Funding			\$6413.34

Graduate Student Funding				
Type of position	Grant funds requested			
	% Time	Insurance + Fee Remit	Fringe Benefits	\$\$
GRA TBD	50%	\$8072.13	\$563.96	\$22,500.00
Subtotal Graduate Student Personnel				\$31,136.09

Undergraduate Student Funding			
Please indicate the student resources (funding and time) you are requesting from the grant for this project.			
Type of position	Grant funds requested		
	Hrs/week	Fringe Benefits	\$\$
Transcriber (to transcribe audio recordings from interviews and focus groups)	120 hrs at \$10/hr	\$124.80	\$1324.80
Participation stipend	25 students total, for 2 hours each, at \$10 per hour		\$500.00
Subtotal Undergraduate Student Personnel			\$1824.80

**Equipment & Software Funding**

*Please list all specialized equipment and software required for the project. (Do not include standard computer equipment and commonly-available software, e.g. Microsoft Office, Microsoft Windows). Mark whether any of the equipment or software is provided by the department. (Note that only 10% of the funds can be used to purchase equipment and it needs to be dedicated to the goals of the project.)*

Name of Equipment	Funds Requested
Digital audio recorder and microphone	\$200.00
<b>Subtotal Equipment</b>	<b>\$200.00</b>
Name of Software	
<b>Subtotal Software</b>	<b>\$0.00</b>
Other miscellaneous items (Computer media, cables, etc)	
<b>Subtotal Software</b>	<b>\$0.00</b>
Other expenses	
<b>Subtotal other expenses</b>	<b>\$0.00</b>
<b>BUDGET TOTAL</b>	<b>\$39,574.23</b>

## **E. Budget Justification**

Total budget request for the proposed project is \$39,574.23.

Dr. Brent Jesiek (25% of one month summer salary) will be responsible for overall management of the project, including supervision of the GRA and UGTA. Dr. Demetra Evangelou (20% of one month summer salary) will be responsible for planning and overseeing the focus group sessions and evaluating the results. Dr. Dianne Atkinson (15% of one month summer salary) will serve as a liaison with students and faculty in the GEARE program, especially to oversee interviews, focus groups, and assessment pilots.

One graduate student will be hired as a GRA, for one year, to support all aspects of this project, including collecting and analyzing data from interviews, focus groups, and assessment pilots. This student will also assist with categorizing and coding data collected during Phase 1, developing assessment instruments during Phase 2, administering the assessment instrument pilot during Phase 3, writing up results, and posting relevant materials on GlobalHUB.

One undergraduate student will be hired on an hourly basis to transcribe audio recordings and notes from interviews and focus groups.

Participation stipends are requested for students who participate in interview and/or focus group sessions during Phase 1. In addition to compensating students for their time, we anticipate the stipend will improve both participation rates and quality of participation.

We request funding for a high-quality digital audio recorder and microphone, for use during interview and focus group sessions.

## F. References

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## **Brent K. Jesiek**

### **Education:**

Michigan Tech	B.S.	1998	Electrical Engineering
Virginia Tech	M.S.	2003	Science and Technology Studies
Virginia Tech	Ph.D.	2006	Science and Technology Studies

### **Professional Appointments:**

2008-	Assistant Professor, Schools of Engineering Education and Electrical and Computer Engineering, Purdue University
2007-2008	Postdoctoral Fellow, Science and Technology Studies, Virginia Tech
2006-2008	Manager, Center for Digital Discourse and Culture, Virginia Tech
2002-2007	Instructor, Science and Technology Studies, Virginia Tech
2004-2006	Fellow, Graduate Education Development Institute, Virginia Tech
2003-2004	Graduate Assistant, Graduate Education Development Institute, Virginia Tech
2001-2002	Graduate Teaching Assistant, Science and Technology Studies, Virginia Tech
1998-2000	Programmer/Analyst, East Jordan Iron Works, East Jordan, Michigan

### **Related Publications:**

Lucena, Juan, Gary Downey, Brent Jesiek, and Sharon Ruff. "Competencies Beyond Countries: The Re-Organization of Engineering Education in the United States, Europe, and Latin America." Forthcoming October 2009 in *Journal of Engineering Education*.

Downey, Gary L., Juan C. Lucena, Barbara Moskal, Thomas Bigley, Chris Hays, Brent Jesiek, Liam Kelly, Jane Lehr, Jonson Miller, Amy Nichols-Belo, Sharon Ruff, and Rosamond Parkhurst. (April 2006). "The Globally Competent Engineer: Working Effectively with People Who Define Problems Differently." *Journal of Engineering Education*, 95(2).

### **Other Significant Publications:**

Jesiek, Brent K., Lynita K. Newswander, and Maura Borrego. "The Objectives, Identities, and Infrastructures of Engineering Education Research: Field, Community, or Discipline?" Forthcoming January 2009 in *Journal of Engineering Education*.

Jesiek, Brent K., and Jeremy Hunsinger. (2008). "The April 16 Archive: Collecting and Preserving Memories of the Virginia Tech Tragedy." In Ben Agger and Timothy W. Luke (Eds.), *There is a Gunman on Campus: Tragedy and Terror at Virginia Tech* (pp. 185-206). Lanham, MD: Rowman and Littlefield.

Moore, Anne H., Shelli B. Fowler, Brent K. Jesiek, John F. Moore, and C. Edward Watson. "Engaged Development 2.0: Focus on Faculty, Staff and Student Learning." (April 2008). Research Bulletin from the EDUCAUSE Center for Applied Research <<http://connect.educause.edu/node/46519>>.

Jesiek, Brent K. (2006, December). "The Sociotechnical Boundaries of Hardware and Software: A Humpy Dumpty History." *Bulletin of Science, Technology, and Society*, 26(6): 497-509.

Jesiek, Brent K. (October 2003). "Democratizing Software: Open Source, the Hacker Ethic and Beyond." *First Monday*, 8(10). URL: [http://www.firstmonday.org/issues/issue8\\_10/jesiek/](http://www.firstmonday.org/issues/issue8_10/jesiek/)

**Synergistic Activities:**

- Actively involved with building of GlobalHUB (<http://www.globalhub.org/>), a virtual organization and hub designed to serve students and faculty involved in global engineering education.
- Invited to participate in a February 2010 NSF-supported workshop on assessment strategies for service learning.
- Former instructor and current content developer for Engineering Cultures, an undergraduate elective course at Virginia Tech that is designed to enhance global competency.
- Co-authoring a chapter, with Kacey Beddoes, on “Development, Competitiveness, and Globalization: Historical Perspectives on the International Dimensions of American Engineering Education,” to be included a planned edited volume on global engineering education.
- Web editor for International Network for Engineering Studies (INES).
- Member of relevant professional organizations, including IEEE and ASEE.

**Collaborators and Other Affiliations:***Collaborators:*

Maura Borrego, Virginia Tech  
Cordelia Brown, Purdue University  
Yating Chang, Purdue University  
Gary L. Downey, Virginia Tech  
Demetra Evangelou, Purdue University  
Shelli Fowler, Virginia Tech  
E. Daniel Hirlleman, Purdue University  
Jeremy Hunsinger, Virginia Tech  
Juan Lucena, Colorado School of Mines  
Tim Luke, Virginia Tech  
Krishna Madhavan, Clemson University  
Anne Moore, Virginia Tech  
Mourad Ouzzani, Purdue University  
Johannes Strobel, Purdue University

*Graduate Advisor:*

Gary L. Downey, Virginia Tech

## Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Brent K. Jesiek	Other agencies (including NSF) to which this proposal has been/will be submitted.
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Support:	<input checked="" type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title:				
Global Competency in Engineering Education: Emergence, Strategies, and the Problem of Scale				
Source of Support: NSF DUE, CCLI Phase 2				
Total Award Amount: \$71,890		Total Award Period Covered: 10/01/07 – 09/30/09		
Location of Project: Virginia Tech, Blacksburg, VA				
Person-Months Per Year Committed to the Project.		Cal:	Acad: 1	Sumr:

Support:	<input checked="" type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title:				
Expanding Global Engineering Education Research Collaboration				
Source of Support: NSF DUE, CCLI Phase 1				
Total Award Amount: \$150,001		Total Award Period Covered: 03/15/08 – 02/28/10		
Location of Project: Virginia Tech, Blacksburg, VA				
Person-Months Per Year Committed to the Project.		Cal:	Acad: 1	Sumr:

Support:	<input type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:

Support:	<input type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:

Support:	<input type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.





**Demetra Evangelou**  
Department of Engineering Education  
701 W. Stadium Avenue  
Purdue University  
West Lafayette, IN 47907-2081  
evangeloud@purdue.edu

**A. Professional Preparation:**

Northeastern Illinois University	Psychology	B.A.	1983
University of Illinois at Urbana-Champaign	Education	M.Ed.	1985
University of Illinois at Urbana-Champaign	Education	Ph.D.	1990

**B. Appointments**

*Present-2006* Assistant Professor, Department of Engineering Education  
*2005-2006* Visiting Assistant Professor, Department of Engineering Education  
*2005-2006* Visiting Assistant Professor, Department of Industrial Technology  
*2004-2005* Clinical Assist. Professor, Department of Child Development and Family Studies  
*2001-2003* Research Coordinator, Quality in Child Care Outcomes, Purdue University  
*2000-2003* Visiting Assistant Professor, Department of Child development and Family Studies, Purdue University  
*1997-2000* Lecturer, Adjunct, Department of Educational Studies, Purdue University

**Positions at Other Institutions**

*2003-2004* Associate Professor (Tenured), Department of Early Childhood Education, University of Thessaly, Volos, Greece  
*2003-2004* Associate Director, EDURIT (Center for Educational Research and In-Service Training), Kryopigi, Greece  
*2003-2004* Director, Early Childhood Lab School, University of Thessaly, Volos, Greece  
*1994-1995* Lecturer, Child Development and Family Studies, Purdue University  
*1992-1996* Lecturer (Tenure-Track), Aristotle University of Thessaloniki, Greece  
*1993-1993* Visiting Lecturer, Department of Early Childhood Education, Democritus University of Thrace, Greece.  
*1990-1992* Visiting Lecturer, Department of Early Childhood Education, Aristotle University of Thessaloniki, Greece.

### **C. Publications**

*The Case of Mixed-Age Groups in Early Childhood Education*, Katz\*, L.G., Evangelou\*, D., Hartman, J.A., Monograph of the National Association for the Education of Young Children, Washington, DC, 1989 (150 pages). Sixth printing.

*Research Perspectives on Early Childhood Education in Greece*, Evangelou D.\*  
Cortesi-Dafermou, H., *Contemporary Perspectives in Early Childhood Education*, Information Age Publishing, pp 119-135, 2005.

*Culture and the Greek Kindergarten Curriculum*, Evangelou\*, D., *Journal of Early Child Development and Care*, Vol. 123, pp 31-46, 1996.

Conference Proceedings (with Review) *Precursors to Engineering Thinking*, Sean Brophy, Demetra Evangelou, Paper accepted at the ASEE Conference in Hawaii, 2007

*Quality Measures: Sufficient to Capture Quality in Early Childhood Settings*, Soo-Young Hong, James Elicker, Carolyn Clawson, Demetra Evangelou. Society for Research in Child Development, March 29-April 1, Boston MA. 2007.

*The Role of Extracurricular Activities in the Education of Engineers*, Odesma Darlymple and Demetra Evangelou, 9<sup>th</sup> International Conference on Engineering Education, San Juan PR, July23-28 2006.

*Global, Process, and Structural Quality and Child Development Outcomes in Child Care for Low Income Working Families*, Jim Elicker, Soo Young Hong, Carolyn Clawson, Demetra Evangelou

*Greek Teachers Evaluate their Training Retrospectively*. Demetra Evangelou, Rena Sivropoulou, Hara Cortessis-Dafermou. Paper presented at the 14<sup>th</sup> European Early Childhood Education Research Association, Reykjavik, Iceland, August 2006.

### **D. Funded Research Activities**

*First Year Engineering Students* : Decision Making , Purdue Research Foundation

*Precursors to Engineering Thinking*, INSPIRE YES Seed Grant. AN investigation of Preschool Children's Spontaneous Design Activities. With Sean Brophy.

*Community Child Care Project*, US Department of Health and Human Services, Research Collaborator, 2000-2003, (total \$1.1M). Major responsibilities: Research method planning, subject recruitment and coordination, training of field researchers, data analysis, reporting coordination.

*Preschool Curriculum Evaluation Research*, US Department of Education, Curriculum Specialist, 2002-2003, (total \$800K). Major responsibilities: Research method

development, teacher support, fidelity testing of experimental pedagogy, coordination of Milwaukee School District participating teachers.

***E. Other Activities***

- 1) Invited Respondent to the NAE workshop of the Committee Understanding and Improving K-12 Engineering Education in the United States, 2007
- 2) Coordinator SIG on Research in Teacher Education, The European Early Childhood Research Association (ECEERA) 2004.
- 3) Advisory Board Member of the *Conceil Europeen EADAP* (Society for the Advancement of Child Development), Athens, Greece, ongoing
- 4) Consultant, *The Bernard Van Leer Foundation, Hague, The Netherlands*
- 5) Deputy National Coordinator, Preprimary Study: International Association for the Evaluation of Educational Achievement (IEA) 1992-1994
- 6) Reviewer, Journal of Early Childhood Research and Practice
- 7) Reviewer, European Early Childhood Research Journal
- 8) Graduate Students (Ph.D.) Currently Supervised: Odesma Dalrymple, Ida Ngambeki and Katerina Bagiati

## Current and Pending Support

**(See GPG Section II.D.8 for guidance on information to include on this form.)**

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.			
Investigator: Demetra Evangelou, Co-PI	Other agencies (including NSF) to which this proposal has been/will be submitted.		
Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Implicit and Explicit Structure of Research in Life Science and Engineering			
Source of Support: NIH Total Award Amount: \$1,489,341.00      Total Award Period Covered: 7-09 to 6-13 Location of Project: Purdue University Person-Months Per Year Committed to the Project.      Cal:      Acad:      Sumr: 2wk			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: INSPIRE			
Source of Support: INSPIRE (Purdue University) Total Award Amount: \$TBD      Total Award Period Covered: 8-08 to 7-09 Location of Project: Purdue University Person-Months Per Year Committed to the Project.      Cal:      Acad: 10%      Sumr: 2wk			
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title:			
Source of Support: Total Award Amount: \$      Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project.      Cal:      Acad:      Sumr:			
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title:			
Source of Support: Total Award Amount: \$      Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project.      Cal:      Acad:      Sumr:			
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title:			
Source of Support: Total Award Amount: \$      Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project.      Cal:      Acad:      Sumr:			
*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.			

## **Biographical Sketch**

### **Dianne L. Atkinson**

Mechanical Engineering Building, 585 Purdue Mall, West Lafayette, Indiana 47907-2088  
email, [dla@purdue.edu](mailto:dla@purdue.edu), voice, 765.494.1363, fax 765.494.0539

## **Current Position**

Specialist, Technical and Professional Communications  
Purdue University School of Mechanical Engineering, West Lafayette, Indiana 47907-2088

## **Education**

Ph.D., Educational Psychology, Written Communication Focus, Purdue University; 1993  
M.S., Social Sciences, Research Methods Emphasis, Purdue University; 1970.  
B.S., Social Studies, Science Teaching Minor, Purdue University; 1968.

## **Fellowships**

Doctoral Program, David Ross Dissertation Research Fellowship  
Master's Program, National Defense and Education Fellowship  
CIC Scholar, University of Chicago

## **Professional Experience**

Presentations on instructional and curricular innovations: American Educational Research Association (AERA), National Council of Teachers of English (NCTE), American Society for Engineering Education; leadership on the Council for Programs in Technical and Scientific Communications (CPTSC) Executive Board and international annual conference host. Certified (June 2005) to administer Intercultural Development Inventory (IDI).

## **Assessment and Evaluation Projects**

Focus group methodology outcomes assessment for international experiential program with academic coursework and engineering internship components, Purdue School of Mechanical Engineering, Spring 2005, Fall 2005, Spring 2006, Fall 2006.

Item development, administration, baseline writing samples for new engineering students, Purdue School of Mechanical Engineering, continuing.

Meta-analysis of population of reported effectiveness comparisons, published 1982—1992, for three writing pedagogies, doctoral thesis Purdue University, 1993,

Program evaluation design for comparison group experimental trials, collaborative writing instructional treatment, 14 writing classrooms, 7 instructors; holistic ratings analysis for five-rater panel and 125-item scale, to develop 25-item scale for three-rater panel, Department of English, College of Liberal Arts, Purdue University, 1988.

## **Course Development Experience—Purdue School of Mechanical Engineering**

Global Engineering Professional Seminar, developed to focus on global competency in engineering communications, Fall 2006.

Mechanical Engineering Professional Seminar with communications focus developed for engineering students and required for graduation, Fall 1993.

## **Intercultural Program Development**

Intercultural teamwork course developed in collaboration with foreign language faculty, first version for on-site delivery in Germany, subsequent developments incorporated in on-site courses offered in China, 2004, 2006.

## **University Teaching Experience**

Technical and Professional Writing for Engineers, Professional Writing Program, Composition: Lecturer, 1979—1985, English Department, College of Liberal Arts, Purdue University. Writing courses: Professional Writing (reports, correspondence), Composition (expressive writing), Developmental Writing (intensive, pre-composition program); Wittenberg, Springfield, Ohio, Social Science Courses in research methods (qualitative, quantitative); courses in social psychology, including culture and cognition.

## **Selected Presentations and Publications**

“Improving Interrater Reliability,” with M. Murray, National Council of Teachers of English Conference on College Composition and Communication, Atlanta, March 1987.

“Developing Written Communication Skills in Small Groups,” American Education Research Association, New Orleans, April 1988.

“Evaluating Collaborative Assignments,” with M. Morgan and N. Allen, in Collaborative Technical Writing: Theory and Practice, R. Louth and A.M. Scott, Eds., The Association of Teachers of Technical Writing, 1989.

“A Quantitative Summation of CAI Research on Writing,” National Council of Teachers of English Conference on College Composition and Communication, Cincinnati, Ohio, March, 1992.

Engineering Design and Technical Communications,” Semi-annual Newsletter of the Council for Programs in Technical and Scientific Communications, Spring 1994.

“Technical Texts: Supporting the Student Designer,” National Council of Teachers of English Conference on College Composition and Communication, Nashville, Tennessee, March 1994.

“Getting Professional Cool with Hot Media: Teaching the Videotaped Interview,” Annual Conference American Society for Engineering Education, Washington, D.C., June 1986.

Communications Programs for Technical Professionals,” Council for Programs in Technical and Professional Communications, London 2000 Roundtable, London, UK, June 2000.

“One Size Doesn’t Fit All: Designing Communications Programs for Engineers” with J. Lax, American Society for Engineering Education Midwest Meeting, West Lafayette, Indiana, March 2001.

“Technical and Scientific Communication in Engineering: Intercultural Collaboration,” with C. Kaempf, Universität Karlsruhe, Germany, CPTSC Roundtable, June 2003, Milan, Italy.

“Fighting Writing: Winning Strategies,” Invited Lecture, Engineering Project in Community Service (EPICS), Purdue University College of Engineering, October 2004.

“Identifying Learning Outcomes of a Multi-Semester International Program with B. Allert, American Society for Engineering Education (ASEE), Frontiers in Education Annual Meeting, October 2005.

## **Current and Pending Grants**

None

## **Biographical Sketch**

Yating Chang, Assistant Director, Global Engineering Program – Chang's role as assistant director involves raising the participation and impact of global experiences undertaken by students in Purdue's College of Engineering. Chang has an MS Cross-Cultural Psychology and an Ed. D degree in Higher Education Administration at the Peabody College at Vanderbilt University in April 2007.

As the Study Abroad Coordinator at Western Kentucky University from 2001-2006, she drove a 3X increase in global educational experiences, working with a predominately local/in-state student population that does not have a natural inclination for study abroad (many being the first in their family to attend college). This work experience has become her focus and engagement of under-represented population in Education Abroad. At her current position, Chang works to promote global education to engineering majors – another group of underrepresented study population in study abroad. During her career at Purdue University, the number of engineering major participating in overseas study increased from 86 to 224. Her main responsibilities include engagement of both students and faculty members at Purdue University to embrace global engineering mindsets and practice. She has served as the program chair for the NSF Grantee Conference of International Research and Engineering Education (IREE) for 2007-2008

Chang is a committee member of the Sub-Committee of Underrepresentation in Education Abroad in Education Abroad of NAFSA: Association of International Educators. Concurrently, she serves as the 2008 network leader of the International Education Leadership Development network of NAFSA. She has organized conference and workshop sessions on media relations for international educators, ethics in study abroad programs, and on the different approaches required when advising Chinese-origin students from different countries. She serves on the Board of Trustees (2002-06) of the Cooperative Center for Study Abroad, as Fulbright Advisor, and as a Selection Panelist for the Gilman International Scholarship Program.

Born in Taiwan, grew up in Singapore, Chang has traveled to 26 different countries.

## **Current and Pending Grants**

None



## EDWIN DANIEL HIRLEMAN JR.

Professor and William E. and Florence E. Perry Head, Mechanical Engineering, Purdue University  
585 Engineering Mall, W. Lafayette IN, 47907-2088

Voice: (765) 494-5688 FAX: (765) 494-0539 [hirleman@purdue.edu](mailto:hirleman@purdue.edu)

**Professional Preparation:** Purdue University Mechanical Engineering BSME, w/ Highest Distinction, 1972  
Purdue University Mechanical Engineering MSME, 1974  
Purdue University Mechanical Engineering Ph.D., 1977

### Appointments:

2008 - Guest professor, Shanghai Jiao Tong University, China  
2007 - Founding Director, GlobalHUB.org, Engineering Virtual Organization (NSF EVO)  
2005 - 2008 Founding (Interim) Director, Global Engineering Program, Purdue  
1999 - Professor and William E. and Florence E. Perry Head, Mech. Engineering, Purdue  
1999 - Professor of Electrical and Computer Engineering, by courtesy, Purdue University  
1995 - 1999 Associate Dean for Research, College of Engineering, Arizona State University  
1992 - 1999 Professor (affiliated), Electrical Engineering Department, Arizona State University  
1995 Acting Chair, Mech. and Aerospace Engineering Dept., Arizona State University  
1993 Alexander von Humboldt Fellow, Universität Karlsruhe, Germany  
1992 Visiting Professor, Chemical Engineering Dept., Tech. Univ. of Delft, Holland  
1989 - 1992 Vice-chair (Aero), Mech. and Aerospace Engrg. Dept., Arizona State University  
1988 - Professor, Mechanical and Aerospace Engineering, Arizona State University  
1982 - 1987 Associate Professor, Mech. and Aerospace Engineering, Arizona State University  
1977 - 1981 Assistant Professor, Mech. and Aerospace Engineering, Arizona State University  
1974 - 1975 Visiting Researcher, Technical University of Denmark, Copenhagen  
1973 - 1977 Teaching and Research Assistant, Mechanical Engineering, Purdue University  
1970 - 1977 Engineering Employment, Hughes Aircraft Company, Boeing Aircraft Co., and Atlantic Richfield Research Labs.

### Honors and Awards:

Hon. George Brown Award for International Scientific Cooperation, U.S. Civilian Research & Development Foundation (CRDF), Washington D.C., 2008.  
Fellow, Amer. Soc. of Mech. Engineers (ASME), cited for *Research & Dev. and Education*, 2007.  
Achievement Award, International Network for Engineering Education and Research (iNEER). Citation: *For development of programs for education of global engineers through comprehensive international experiences with international design team collaborations*, 2006.  
Team Award, College of Agriculture, for Biosensor Detection Team, with additional participation from Elec. and Comp. Engineering, Basic Medical Sciences, Veterinary Medicine, and Food Science, 2006.  
Team Excellence Award, Purdue College of Engineering, for Global Engineering Alliance for Research and Education, with participation from Foreign Languages & Literature in addition to Engineering, 2004.  
Alexander von Humboldt Fellow, 1993.  
Governor's Recognition Award (ASU Center for Solid State Electronics Res.), State of Arizona, 1993.  
Professor of the Year, Teaching Award given by ME Student Honor Society Pi Tau Sigma, 1982.  
College of Engineering Award for Significant Accomplishment in Research, 1980, Arizona State University.  
Howard Hughes Doctoral Fellowship, 1974-1976, National Science Foundation Graduate Fellowship, 1973-1977, Purdue Rhodes Scholar Nominee, 1972.

### **Publications (most closely related to the proposed project):**

1. E. D. Hirleman, D. Atkinson, E. A. Groll, J. Matthews, L. Xu, B. Allert, W. Hong, A. Albers, S. L. K. Wittig, Z. Q. Lin, and L. F. Xi, "GEARE: A Comprehensive Program for Globalizing Engineering Education," paper 2004-1195, 10 pages, *Proc. of the 2004 Amer. Soc. for Engineering Education Annual Conference*, 2004.
2. E. D. Hirleman, D. Atkinson, E. Groll, J. Matthews, C. Krousgrill, G. Chiu, P. Meckl, A. Bajaj, L. Xu, B. Allert, W. Hong, Albert Albers, N. Burkardt, Z. Q. Lin, L. F. Xi, S. L. K. Wittig, and K. Iyer, "Global Engineering Education via Integrated Study and Work Abroad", *Proceedings of International Conference on Engineering Education*, 8 pages, ICEE, 2006.
3. X. R. Zhang, T. S. Fisher, Y. C. Shin, and E. D. Hirleman and F. E. Pfefferkorn, "Integration of Microscale Fabrication in an Undergraduate Manufacturing Elective," *International Journal of Engineering Education*, V. 22, No. 2, pp. 343-349, 2006.
4. E. A. Groll, C. Krousgrill, P. Meckl, and E. Hirleman, "Experiences with Multinational and Multi-semester Design Team Projects", *Front. in Educ. 2006*, Paper 1016 Conf. Proceedings (CD), 2006.
5. B. I. Allert, D. L. Atkinson, E. A. Groll, and E. D. Hirleman, "Making the Case for Global Engineering: Building Foreign Language Collaborations for Designing, Implementing, and Assessing Programs," Vol 2, No. 2, *Online Journal of Global Engineering Education*, <http://digitalcommons.uri.edu/ojgee/>, 2007.
6. G. Chiu, E. A. Groll, and E.D. Hirleman, "The Purdue Global Engineering Alliance for Research and Education (GEARE) Program," *The Global Workforce: The Future of Technological Education*, Proceedings of ABET Annual Meeting, (CD-ROM), 6 pages, 2007.
7. E. O'Neill-Carrillo, L. Seijo, F. Maldonado, E.D. Hirleman, E. Martí, and A. Rivera, "Mentoring Interdisciplinary Service Learning Projects," Pages F4B-20 – F4B-25, *Front. in Educ. 2007*, 2007.
8. Y. Chang, D. L. Atkinson, and E. D. Hirleman, "International Research and Engineering Education: Impact and Best Practices, paper 228 CD Proceedings of ASEE 7th Global Colloquium on Engineering Education, Capetown, S. Africa, Oct 19-23, 2008.
9. M. Ouzzani, J. H. Bøhn, D. Dutta, E. A. Groll, E. D. Hirleman, and J. Lucena, "GlobalHUB: A Virtual Community For Global Engineering Education, Research, And Collaboration," Paper 245 in CD Proc. of ASEE 7th Global Colloquium on Eng. Educ., Capetown, S. Africa, Oct 19-23, 2008.
10. D. L. Atkinson, Y. Chang, E. A. Groll, E. D. Hirleman, and E. Nauman, "Coherence In Global Engineering Curriculum Design: Going Forward With What Works," Paper 243 in CD Proceedings of ASEE 7th Global Colloquium on Engineering Education, Capetown, S. Africa, Oct 19-23, 2008.

### **Synergistic Activities:**

1. Director, GlobalHUB, an NSF-funded Engineering Virtual Community (EVO) of scholars, practitioners, and students that advances global engineering and engineering education.
2. Steering Committee and Local Arrangements, *Curricular Innovations for Global Engineering Competency*, Tenth Annual Colloquium on International Engineering Education, Purdue University, West Lafayette, Indiana, November 1-4, 2007. Served on Steering Comm. for 4 previous Colloquia.
3. US Chair, Joint ASME-CMES Mech. Engineering Educ. Conference, Beijing, China, Mar 31-April 4, 2006. One of two Co-chairs (one from US, one from China) of conference with 300 attendees. Plenary presentations by: the Minister of Education of China; the President of the Chinese Acad. of Engrg. and the Chair of the Accreditation Taskforce of the Chinese Academy of Engineering.
4. Course Instructor, "Strategies to Reach Global Engineering Professional Competence", 8<sup>th</sup> International Colloquium on International Engineering Educ., Atlanta, Georgia, November, 2005.
5. Session Chair, NSF Workshop on Redefining Mechanical Engineering, responsible for session *Micro/Nanotechnology and Mechanical Engineering*. Results available as report *New Directions in Mechanical Engineering* which established recommendations for integrating emerging technologies into engineering curricula. [www.asme.org/education/enged/me2002/pdf/newdirectionsreport.pdf](http://www.asme.org/education/enged/me2002/pdf/newdirectionsreport.pdf) .

## Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.			
Investigator: Edwin Daniel Hirleman Jr.	Other agencies (including NSF) to which this proposal has been/will be submitted. None		
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: IREE Grantees Conference 2008 Source of Support: NSF Total Award Amount: \$49,880                              Total Award Period Covered: 09/15/2007-02/28/2008 Location of Project: Purdue University Person-Months Per Year Committed to the Project.                              Cal: 1.0              Acad: 0.0              Sumr: 0.0			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: IREE Grantees Conference 2007 Source of Support: NSF Total Award Amount: \$49,996                              Total Award Period Covered: 09/15/2007-02/28/2008 Location of Project: Purdue University Person-Months Per Year Committed to the Project.                              Cal: 1.0              Acad: 0.0              Sumr: 0.0			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Global-HUB: Virtual Community for Global Engineering Education, Research, and Collaboration Source of Support: NSF Total Award Amount: approx. \$190,000                              Total Award Period Covered: 10/15/2007-10/14/2009 Location of Project: Purdue University Person-Months Per Year Committed to the Project.                              Cal: 1.0              Acad: 0.0              Sumr: 0.0			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: GEARE: Global Engineering Alliance for Research and Education Source of Support: Various Industry and Private Sponsors Total Award Amount: approx. \$140,000/yr                              Total Award Period Covered: 07/01/2001-06/31/2008 Location of Project: Purdue University Person-Months Per Year Committed to the Project.                              Cal: 1.0              Acad: 0.0              Sumr: 0.0			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Optical Forward Scattering for Bacterial Colony Differentiation and Identification Source of Support: USDA Total Award Amount: \$249,884                              Total Award Period Covered: 2/1/07-1/31/09 Location of Project: Purdue University Person-Months Per Year Committed to the Project.                              Cal: 1.0              Acad: 0.0              Sumr: 0.0			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: BARDOT Technology Insertion Source of Support: USDA Total Award Amount: \$100,000                              Total Award Period Covered: 10/1/08-9/30/09 Location of Project: Purdue University Person-Months Per Year Committed to the Project.                              Cal: 0.0              Acad: 0.0              Sumr: 0.0			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Center of Excellence for Airliner Cabin Environment Research Source of Support: FAA Total Award Amount: \$1,256,189                              Total Award Period Covered: 1/1/05-12/31/07 Location of Project: Purdue University Person-Months Per Year Committed to the Project.                              Cal: 1.0              Acad: 0.0              Sumr: 0.0			
*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.			