

## I/UCRC Literature Themes 1980 – 2009

This document categorizes the I/UCRC research posted on the NCSU Evaluator web site by theme. That this document is a preliminary classification of this literature designed to highlight this body of research.

### "How to" Guides/Best Practices

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Becker, A.	1984	A guide to Industry-University Cooperative Research Center planning meetings.	Chicago: Ann Becker & Associates, Inc.
Geisler, E.	2003	Benchmarking interorganisational technology cooperation: The link between infrastructure and sustained performance	International Journal of Technology Management; 2003, Vol. 25 Issue 8, p675
Gray, D.O. & Walters, S.G.	1998	Managing the Industry/University Cooperative Research Center: A Guide for Directors and Other Stakeholders.	Columbus, OH: Battalle.
Santoro, M. & Betts, S.	2002	Making industry-university partnerships work.	Research Technology Management, 45(3), 42-46.
Santoro, M. & Gopalakrishnan, S.	2000	The institutionalization of knowledge transfer activities within industry-university collaborative ventures.	Journal of Engineering and Technology Management, 17(3-4), 299-319.
Tornatzky, L. G., Hetzner, W.A., Eveland, J.D., Schwarzkopf, A. & Colton, R.M.	1982	University-industry cooperative research centers: A practice manual.	Washington, D.C.: National Science Foundation, Productivity Improvement Research Section.
Walters, S.G.	1991	Managing the international aspects of industry/university cooperation.	TIMS/ORSA Joint National Meeting, TIMS College on Innovation Management and Entrepreneurship: Nashville, TN.

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## Innovation and Technology Transfer

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Burger, R., Cole, S., & Burnett, Jr., C.	1982	Analysis of the NSF's university-industry cooperative research centers experiment: An effort to stimulate university-industry cooperative research in solving R&D problems in American industry.	In R. M. Colton (Ed.), Analyses of five NSF experiments to stimulate increased technological innovation in the private sector. Washington D.C.: National Science Foundation.
Colton, R.M.	1982	Analyses of five NSF experiments to stimulate increased technological innovation in the private sector.	Washington D.C.: National Science Foundation.
Colton, R.M.	1981	National Science Foundation Experience with University-Industry Centers for Scientific Research and Technological Innovation (An Analysis of Issues, Characteristics and Criteria for Their Establishment)	Technovation. Amsterdam: Aug 1981. Vol. 1, Iss. 2; pg. 97, 12 pgs
Geisler, E.	1995	Industry-university technology cooperation: A theory of inter-organizational relationships	Technology Analysis & Strategic Management, 7(2), 217-229.
Geisler, E., Furino, A., & Kiresuk, T.J.	1991	Toward a conceptual model of cooperative research: Patterns of development and success in university-industry alliances.	IEEE Transactions on Engineering Management, 38; (2),136-145.
Geisler, E., Furino, A., Kiresuk, T.J.	1990	Factors in the success or failure of Industry-University Cooperative Research Centers.	Interfaces 20(6), 99-109.

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Gray, D.O. and Koester, N. (Eds.)	1985	Proceedings of the 1984 National Science Foundation Conference on Industrial Science and Technological Innovation: Converting U.S. scientific leadership into technological leadership. Vol. 4.	Raleigh, North Carolina: North Carolina State University.
Gray, D.O. Behrens (Gidley), T. R. & Oldsman, E.	1997	Industry-university linkage mechanisms in the United States	In Brimble, P. Ed), Modalities of University-Industry Cooperation in the Asia Pacific Economic Cooperation Region (pp. 136-141). Bangkok, Thailand: Ministry of University Affairs. [Full papers were disseminated electronically]
Gray, D.O., Hetzner, W., Eveland, J.D., and Gidley (Behrens), T.R.	1986	NSF's Industry-University Cooperative Research Centers Program and the innovation process: Evaluation-based lessons.	In Gray, D.O., Solomon, T., Hetzner, W. (Eds.), Technological innovation: Strategies for a new partnership pp. 175-193. Amsterdam: North Holland, Series in Management Sciences and Systems.
Gray, D.O., Johnson, E.C., Gidley (Behrens), T.R.	1986	Industry-university projects and centers: An empirical comparison of two federally funded models of cooperative science.	Evaluation Review, Vol. 10, No. 6, 776-793
Gray, D.O. & Sundstrom, E.	2009	Multi-level evaluation of cooperative research centers: Team science in service of team science	Paper presented at the 7th Triple Helix International Scientific Conference, Glasgow : Scotland : UK : 17-19 June 2009

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Johnson, E. & Tornatzky, L.G.	1981	Academia and industrial innovation. In G. Gold (Ed.) Business and education: Towards new alliances.	San Francisco: Jossey-Bass.
National Science Foundation	1982	University-industry research relationship: Myths, realities & potentials.	Fourteenth annual report of the National Science Board. Washington D.C.: Gov. Printing Office.
Russo, J.A & Herrenkohl, R.C.	1991	Transferring information from research centers to companies. Unpublished technical report submitted to National Science Foundation.	Lehigh University, Lehigh, P.A.
Russo, J.A & Herrenkohl, R.C.	1990	Factors affecting the transfer of technology from industry/university cooperatives to sponsoring companies.	The Journal of Technology Transfer, 15(3), 21-28.
Russo, J.A & Herrenkohl, R.C.	1990	Tracking the transfer of information from I/UCRCs to sponsoring companies. Unpublished technical report submitted to National Science Foundation.	Lehigh University, Lehigh, P.A.
Santoro, M.	2000	Success breeds success: The linkage between relationship intensity and tangible outcomes in industry-university collaborative ventures.	Journal of High Technology Management Research, 11(2), 255-273.
Santoro, M. & Gopalakrishnan, S	2001	Relationship dynamics between university research centers and industrial firms: Their impact on technology transfer activities.	Journal of Technology Transfer, 26(1), 163-171.

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Scott, C.S.	1994	Understanding technology transfer in NSF Industry/University Cooperative Research Centers: Interview transcripts and aggregated descriptive statistics.	Unpublished technical report submitted to NSF. University of Washington, Seattle, WA
Steenhuis, H.J. & Gray, D.O.	2006	The university as the engine of growth: An analysis of how universities can contribute to the economy.	International Journal of Technology Transfer and Commercialisation , 5(4), 421-432.
Tansik, D.A.	1989	Strategic perspectives on technological transfer: A call for collaborative research.	Journal of Technology Transfer, 14(3-4), 14-18.
Tansik, D.A.	1980	An Analysis of stages in the acquisition of product innovation.	Proceedings of the 1980 Technology Transfer Society International Symposium, 9-14.
Tansik, D.A. & Wolf, G.	1986	Entrepreneurial roles in the process of technological innovation. pp 115-127).	In Libecap, G.D. (Ed.), Advances in the study of entrepreneurship, innovation, and economic growth. Vol. I: Entrepreneurship and innovation: The impact of venture capital in the development of new enterprise. Greenwich, CT: JAI Press.
Tansik, D.A., Browning, W.C., Hurd, P.D., Bootman, J.L. & McGhan, W.F.	1984	Diffusion of innovation: Computer technology in hospital pharmacy.	American Journal of Hospital Pharmacy, 41(11), 2343-2347.

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Tornatzky, L.G., Waugaman, P., & Gray, D.O.	2002	Innovation U.: New university roles in a knowledge economy.	Research Triangle Park, NC: Southern Growth Policy Board.
Tornatzky, L.G., Waugaman, P.G., & Gray, D.O.	1999	Industry-university technology transfer: Alternative models of policy, program and practice.	Research Triangle Park, NC: Southern Technology Council.

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### **Center-level Administration and Management**

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Bryant, J.L.	2008	Effects of leader relationship quality (LMX), supervisor support, and upward influence in National Science Foundation Industry/University Cooperative Research Centers	Dissertation submitted to Old Dominion University.
Davis, D. D., & Bryant, J. L.	(in press)	Leader-member exchange, trust, and performance in National Science Foundation Industry/University Cooperative Research Centers.	Journal of Technology Transfer
Davis, D. D., & Bryant, J.L.	2009	Trust and Leadership (LMX) in National Science Foundation Industry/University Cooperative Research Centers	Paper presented at the annual meeting of the Society for Industrial and Organizational Psychology, New Orleans.
Steenhuis, H.J. & Gray, D.O.	2006	Cooperative research and technology dynamics: The role of research strategy development in NSF Science and Technology Centres.	International Journal of Technology Transfer and Commercialisation , 5(1-2), 56-78.

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Tornatzky, L.G., Lovelace, K., Gray, D.O., Geisler, E.	1999	Promoting the success of industry/university research centers: The role of leadership.	Industry & Higher Education, 13, 101-111.
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**Descriptive/Narrative**

Behrens (Gidley), T.R.	1986	University/Industry cooperative research centers: An empirical investigation of theoretical and operational relations.	Unpublished master's thesis. Department of Psychology, North Carolina State University, Raleigh, N.C.
Eveland, J.D.	1985	Communication networks in university/industry cooperative research centers.	Washington, D.C.: National Science Foundation.
Eveland, J.D., & Hetzner, W.A.	1982	University/Industry cooperative research centers: Dimensions of initial development.	San Diego, CA: National Science Foundation.
Eveland, J.D., Hetzner, W.A., & Tornatzky, L.	1984	Development of university-industry cooperative research centers: Historical profiles.	Washington D.C.: National Science Foundation.
Maugh, T.H.	1985	Technology centers unite industry and academia.	High Technology, 5(10), 48-52.
Steenhuis, H. & Gray, D.O.	2005	Strategic decision making in public funded innovative organizations: An exploratory study.	International Journal of Technology Transfer and Commercialisation, 4(2), 127-147.

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Swartzel, K.R. & Gray, D.O.	1988	Industry-University cooperative research in agriculture and food science: North Carolina State University's Center for Aseptic Processing and Packaging Studies.	Food Technology, 42, 96-98.
Walters, S.G.	1984, 2nd ed.	Development of industry/university cooperative research centers: Historical profiles.	Eveland, J.D., Hetzner, W., Tornatzky, L.G., et. al. Washington, D.C.: National Science Foundation. pp. 37-42.

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### **Sponsorship**

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Gray, D.O. & Steenhuis, H.	2003	Quantifying the benefits of participating in an industry university research center: An examination of research cost avoidance.	Scientometrics, 58(2), 281-300.
Gray, D.O., Rudolph, J. and Lindblad, M.	2001	Industry-university research centers: A multivariate analysis of member retention.	Journal of Technology Transfer, 26(3), 247-254.
Russo, J.A.	1987	University/Industry Cooperative Research Centers: An examination of two factors that influence sponsor satisfaction.	Unpublished master's Thesis. Lehigh University, Lehigh, P.A.
Santoro, M. & Chakrabarti, A.	2001	Corporate strategic objectives for establishing relationships with university research centers.	IEEE Transactions on Engineering Management, 48(2), 157-163.

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**Faculty**

Coberly (Meagher), B.M.	2004	Faculty satisfaction and organizational commitment with industry-university research centers.	Unpublished doctoral dissertation. Department of Psychology, North Carolina State University, Raleigh, N.C.
Coberly (Meagher), B.M.	2002	Faculty outcomes from industry-university collaboration.	Unpublished master's thesis. Department of Psychology, North Carolina State University, Raleigh, N.C.

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**Students**

Behrens (Gidley), T.R.	1989	Industry funded research and graduate engineering education: A national survey of chemical and electrical engineering students.	Unpublished doctoral thesis. Department of Psychology, North Carolina State University.
Behrens (Gidley), T.R. & Gray, D.O.	2001	Unintended consequences of cooperative research: Impact of industry sponsorship on climate for academic freedom and other graduate student outcomes.	Research Policy, 30(2), 179-199.
Behrens (Gidley), T.R. & Gray, D.O.	1998	Cooperative research and academic freedom: An empirical assessment of the impact of industry sponsorship on graduate student outcomes [abstract].	In Leydesdorff, L. & Etzkowitz, H. Eds). A triple helix of university-industry-government relations: The future location of research? (pp. 33-35). Purchase, NY: Science Policy Institute.

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Schneider, J.	2007	A multivariate study of graduate student satisfaction and other outcomes within cooperative research centers.	Unpublished master's thesis. Department of Psychology, North Carolina State University, Raleigh, N.C.
Scott, C.S.	1990	A national follow-up study of graduates of NSF IUCRCs 1989-90). Unpublished technical report.	Washington University, Seattle, Washington.
Scott, C.S. & Schaad, D.C.	1992	Industry perceptions of ERC graduates.	Unpublished technical report submitted to NSF. University of Washington, Seattle, WA.

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### **Industry**

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Geisler, E.	2001	Explaining the generation and performance of inter-sector technology cooperation: A review of the literature.	Technology Analysis & Strategic Management, 13, 2; 195-206.
Geisler, E. & Drago, W.	1996	Managing professionals in interorganizational cooperative research alliances	Engineering Management Journal, 8(4), 43-50.
Santoro, M. & Chakrabarti, A.	1999	Building industry-university research centers: Some strategic considerations.	International Journal of Management Reviews, 1(3), 225-244.
Santoro, M. & Chakrabarti, A.,	2002	Firm size and technology centrality in industry-university interactions.	Research Policy, 31(7), 1163-1180.

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Tarant, S.	2004	The role of organizational boundary spanners in industry/university collaborative relationships.	Unpublished doctoral dissertation. Department of Psychology, North Carolina State University, Raleigh, N.C.
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**Program-level Administration and Management**

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Furino, A. (Ed.)	1988	Cooperation and Competition in the Global Economy: Issues and Strategies: Overview/Emerging Policies and Strategies.	Cambridge, MA: Ballinger Publishing Co.
Goodridge, L., Keef, K.	1991	An investigation of structural design factors related to the increased efficacy and economic benefits of Tie arrangements between I/UCRCs having NSF funding.	Washington, D.C.: National Science Foundation.
Goodridge, L.E. & Keef, K.	1989	An investigation of the structural factors influencing the efficacy and economic benefits of Tied IUCRCs having NSF funding.	Unpublished technical report, Alfred University, Alfred, N.Y.
Gray, D. O., Stewart, M., Gidley (Behrens), T.R., and Blakley, C.S.	1991	Self-sustaining industry-university centers: Is there life after NSF funding?	Washington, D.C.: National Science Foundation.
Gray, D.O. and Gidley (Behrens), T.R.	1987	Evaluation of the NSF University-Industry Cooperative Research Centers: Descriptive and correlative findings.	(Report P.T. 34,04 K.W. 1000000 0600000) Washington, DC: National Science Foundation.

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Gray, D.O., Gidley (Behrens), T.R., & Koester, N.H.	1988	Evaluation of the NSF Industry/ University Cooperative Research Centers: Longitudinal Analyses of Outcome and Process	(Report No. PT 04 KW 1107000). Washington. DC: National Science Foundation.
Hetzner, W.A., Gidley (Behrens), T.R., & Gray, D.O.	1989	Cooperative research and rising expectations: Lessons from NSF's Industry/University Cooperative Research Centers.	Technology in Society, 11(3), 335-345.

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### Evaluation

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Geisler, E.	2000	The Metrics of Science and Technology	Westport, CT: Greenwood Publishing Group.
Gray, D.O.	2008	Making Team Science Better: Applying Improvement-Oriented Evaluation Principles to Evaluation of Cooperative Research Centers	NEW DIRECTIONS FOR EVALUATION, no. 118, Summer 2008
Gray, D.O.	2000	Government-sponsored industry- university cooperative research: An analysis of cooperative research center evaluation approaches.	Research Evaluation, 9(1), 57-67.
Gray, D.O.	1997	Establishing system-wide evaluations: Program-centered evaluation and the National Science Foundation's Industry- University Cooperative Research Centers.	In Shapira, P. & Youtie, J. (Eds.), Manufacturing Modernization: Learning from evaluation practices and results. Atlanta: GA: Georgia Tech University.
Gray, D.O.	1997	National Science Foundation's Industry-University Cooperative Research Center Evaluation: A program-centered approach.	In Rood, S. (Ed.), Technology Transfer: How do we know what works? Washington, DC: National Technology Transfer Center.

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Meyer, D.C. & Scott, C.S.	2009	Understanding the Value of Industry/University Cooperative Research Center (I/UCRC) Sponsor Exit Interviews: Data Collection, Analysis, and Evaluation	Unpublished technical report submitted to NSF. Boise State University, Boise ID.
National Science Foundation Evaluation Project	1997	Evaluator's handbook: National Science Foundation Industry-University Cooperative Research Centers Program (Rev. ed.).	Raleigh, NC: North Carolina State University.
Sundstrom, E.	2009	Team science in cooperative research centers: Emerging research agenda	Paper presented at the 7th Triple Helix International Scientific Conference, Glasgow : Scotland : UK : 17-19 June 2009

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