

## **CLINT ALAN BOWERS**

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### **EDUCATION**

- Ph.D. (1987), Clinical/Community Psychology, University of South Florida, Tampa, Florida
- M.A. (1984), Clinical/Community Psychology, University of South Florida, Tampa, Florida.
- B.S. (1981), Psychology, University of South Carolina, Columbia, South Carolina.

### **UNIVERSITY TEACHING**

#### **Positions Held:**

##### University of Central Florida

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| 2003-present | <b>Professor of Psychology</b>           |
| 1997-2003    | <b>Associate Professor of Psychology</b> |
| 1994-1997    | <b>Assistant Professor of Psychology</b> |
| 1992-1994    | <b>Adjunct Instructor of Psychology</b>  |

##### Rollins College (9/88 - 5/92)

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| 1988-1992 | <b>Adjunct Instructor of Psychology</b> |
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##### University of South Florida (9/85 - 5/86)

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| 1985-1986 | <b>Adjunct Instructor of Psychology</b> |
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#### **Courses Taught:**

**University of Central Florida**

General Psychology (undergraduate)  
 Research Methods (undergraduate)  
 Abnormal Psychology (undergraduate)  
 Advanced Research Methods (graduate – Master’s)  
 Advanced Research Methods (graduate – Doctoral)  
 Research Planning Seminar I (graduate)  
 Research Planning Seminar II (graduate)  
 Psychological Assessment (graduate)  
 Professional Development Seminar (graduate)  
 Undergraduate Independent Study: Personality and Performance; Community Psychology;  
 Team Performance in Sports  
 Graduate Independent Study: Human Performance in Automated Systems; Team Performance;  
 Tactical Decision Making; Aviation Decision Making  
 Directed Research (average of 12 undergraduate and graduate students per year)

**Rollins College**

Research Methods (undergraduate)  
 Abnormal Psychology (undergraduate)  
 Community Psychology (undergraduate)  
 Psychological Testing (undergraduate)  
 Team Performance (undergraduate)

**University of South Florida**

General Psychology (undergraduate)  
 Developmental Psychology (undergraduate)

**Dissertation and Theses Committees:**

**Honors Thesis Committees**

1994	Marci Bruce (Chair) [completed]
1995	Melissa Freeman (Chair) [completed]
1996	Anita Norton [completed]

**Master's Thesis Committees**

1993 - 1995	Stacey Manning [completed]
1994 - 1995	Michelle Munzenmeyer [completed]
1994 - 1996	Elizabeth Blickensderfer [completed]
1994 - 1996	Marnie Boyd (Chair) [completed]
1994 - 1996	Tracy Burbine (Chair) [completed]
1994 - 1996	Kelly Dockery (Chair) [completed]
1994 - 1996	Evelyn Hernandez (Chair) [completed]
1994 - 1996	Sean Jennings (Chair) [completed]
1994 - 1996	Aimee Levine (Chair) [completed]
1994 - 1997	Rebecca Hochreiter [completed]
1995 - 1997	Jennifer Irvin [completed]
1995 - 1997	Lindsay Kennedy [completed]
1995 - 1997	Scott MacGregor [completed]
1995 - 1997	Catherine Price [completed]
1995 - 1997	Sandra Sellin-Wolters (Chair) [completed]
1995 - 1998	Elizabeth Muniz (Co-Chair) [completed]
1995 - 1998	Ian Redshaw [completed]
1995 - 1998	Lori Rhodenizer (Chair) [completed]
1996 - 1999	Kathy Lee (Chair) [completed]
1996 - 1999	Andy Phillips [completed]
2000 - 2001	Jennifer Vogel (Chair) [completed]
2000 - 2001	Jan Murray [completed]
2001- present	Jacqueline Alfonso [in progress]
2002 – present	Kia Asberg (Chair) [in progress]

**Completed Master's Theses Directed**

Boyd, M. L. (1996). Factors influencing compliance with breast self-examinations.

Burbine, T. (1996). The identification of variables which moderate stress in parents of children with autism.

Dockery, K. T. (1996). Patterns of symptoms that determine the differential diagnoses of ADD: A policy capturing study.

Hernandez, E. (1996). Stress and coping among gays, lesbians, and bisexuals: Development of a social support scale.

Jennings, S. P. (1996). Situational accurate versus inaccurate response of internal versus external locus of control for alcoholics and controls.

Levine, A. (1996). Risk of eating disorders in athletes: A meta-analytic review. Unpublished master's thesis, University of Central Florida, Orlando.

Sellin-Wolters, S. (1997). Factors influencing the efficacy of academic mentoring programs.

Muniz, E. (1998). Development of a objective measure of situation awareness.

Rhodenizer, L (1998). Supporting decision making through enhanced displays.

Vogel, J. J., (2001). Cerebral lateralization of spatial abilities: A meta-analysis.

### **Dissertation Committees**

1993 - 1995	Julie Urban (Co-Chair) [completed]
1993 - 1995	Jeanne Weaver (Co-Chair) [completed]
1995 - 1997	Florian Jentsch (Chair) [completed]
1995 - 2000	Paul Kline [completed]
1996 - 2002	Amy Barlow Graft(Chair) [completed]
1997 - 2000	Katrina Ricci (Co-Chair) [completed]
1999 – 2001	Lori Van Duyne (Co-Chair) [completed]
1999 – present	Jim Pharmer (Co-Chair) [in progress]
1999 – present	Laura Milham (Chair) [in progress]
2000 – present	Jim Hitt (Co-Chair) [in progress]
2001 – present	Haydee Mesa (Co-Chair) [in progress]
2002 – present	Christopher Myers (Co-Chair) [in progress]
2002 – 2004	Jason Kring [completed]
2003 – present	Tiffany Linkovich [in progress]
2003 – present	Iris Cruz [in progress]
2004 – present	Jennifer Vogel (Florida State University)
2004 – present	Eleni Kring [in progress]

### **Completed Dissertations Directed**

Urban, J. (1995). The effects of task differentiation and status on the performance, communication, and perceptions of teams.

Weaver, J. L. (1995). The impact of individual differences on state anxiety and performance in teams exposed to stressors.

Jentsch, F. G. (1997). Development and testing of a metacognitive training intervention for prospective airline first officers.

Van Duyne, L. R. (2001). Sequencing process and outcome feedback: Investigating the role of goal orientation during skill acquisition.

Graft, A. B. (2002). Designing for noncompliance: The importance of experience and the cost of non-compliance.

## **RESEARCH EXPERIENCE**

University of Central Florida (8/04 – present)

Position: **Associate Dean of Research, Academic Promotion, and Technology**

Duties: Responsible for development and administration of college research policy; administer overhead funds; college liaison to university centers and institutes; UCF representative to the Florida Hospital UCF Gala Endowment; administer college research awards programs; mentor and instruct faculty in research matters.

University of Central Florida (8/02 – 8/04)

Position: **Assistant Dean of Research, College of Arts and Sciences**

Duties: Responsible for development and administration of college research policy; administer overhead funds; college liaison to university centers and institutes; UCF representative to the Florida Hospital UCF Gala Endowment; administer college research awards programs; mentor and instruct faculty in research matters.

University of Central Florida (8/01 – 8/02)

Position: **Assistant to the Dean for Research**

Duties: Assisted CAS faculty in the preparation of grant materials; oversight of CAS overhead funds; UCF liaison to Florida Hospital Gala Endowment; CAS representative to UCF centers and institutes; advising Dean in research policy and practices.

NAWCTSD/FAA/UCF Partnership for Aviation Team Training Research (6/97-present)

Position: **Lead Scientist**

Duties: Senior scholar and administrative coordinator of a \$1,200,000 collaborative research effort. Responsible for obtaining contracts and grants to fund the center,

supervising a multidisciplinary staff of Ph.D.'s and graduate students, collaborating with government and industry scientists, and reporting to the chair of the psychology department.

University of Central Florida (3/95-present)

Position:     **Director, Team Performance Laboratory**

Duties:       Laboratory director and principal investigator of a university laboratory dedicated to research in team processes and performance. Responsible for obtaining contracts and grants to support the laboratory, supervising technical aspects of the research, supervising a staff of graduate students, programmers and administrative employees, managing research projects, developing and managing budgets, presenting results to the contracting agencies, and reporting to the chair of the psychology department.

University of Central Florida (8/93 - 3/95)

Position: **Associate Research Scientist and Associate Director, Team Performance Laboratory**

Duties: Laboratory manager and principal investigator of a university laboratory dedicated to research in team processes and performance. Responsible for obtaining contracts and grants to support the laboratory, supervising technical aspects of the research, supervising a staff of graduate students, programmers and administrative employees, managing research projects, and presenting results to the contracting agencies.

University of Central Florida (10/89 - 7/93)

Position: **Assistant Director, Team Performance Laboratory**

Duties: Responsible for planning and administering a program of research to determine the variables that have an impact on human performance and training. Specific areas of interest included role of communications in complex team performance. Duties included: conceptualization of research problems; experimental design and execution; data analysis; manuscript preparation; laboratory management and supervision of six doctoral students.

Naval Training Systems Center (5/92 - 8/92; 6/93 - 8/93)

Position: **Summer Faculty Research Fellow**

Duties: Participated in a research fellowship sponsored by the American Society for Engineering Education. Collaborated with government scientists on research projects related to the assessment and training of aircrew coordination.

**EDITOR/REVIEWER ACTIVITY**

Editorial Board, Journal of Psychology: Interdisciplinary and Applied, 1999-present.

Editorial Board, Human Factors, 2000 - present

Editorial Board, Advances in Human Performance and Cognitive Engineering Research (Book Series), 2000 - present

Guest Editor, International Journal of Aviation Psychology special issue on simulation and training, 1997

Guest Editor, Military Psychology special issue on team performance, 1996.

Reviewer, Oxford University Press

Reviewer, Allyn & Bacon Publishers

Reviewer, APA Books

Reviewer, Lawrence Erlbaum Associates

Reviewer, Military Psychology

Reviewer, Human Factors

Reviewer, International Journal of Aviation Psychology

Reviewer, International Journal of Industrial Ergonomics

Reviewer, Group Dynamics: Theory, Research, and Practice

Reviewer, Special issue of International Journal of Engineering Design and Automation on applications of cognitive psychology to system design

Reviewer, American Psychological Association Annual Meeting, 1995-1997

Reviewer, Human Factors and Ergonomics Society Annual Meeting, 1994 - present

Reviewer, Southeastern Psychological Association 1993 Annual Meeting

## **HONORS/AWARDS**

UCF Human Factors Student Chapter Professor of the Year Award

UCF Research Incentive Award

UCF College of Arts and Sciences Distinguished Researcher Award

Fellow, American Psychological Association, Division of Applied Experimental and Engineering Psychology.

Faculty Advisor, 1995 UCF Minority Research Fellowship Awardee.

Faculty Advisor, 1993 SEPA/CEPO Student Research Awardee



American Society for Engineering Education Summer Faculty Research Fellow, 1992, 1993.

Walter E. Barden Distinguished Teaching Award Finalist, Rollins College, Hamilton Holt School, 1990, 1991.

Letter of Commendation, Naval Hospital, Orlando, Florida, 1989 (Recognition for innovative clinical practice).

## PROPOSAL REVIEWS

United States Air Force Office of Scientific Research grant program for basic behavioral science research, 1997

National Defense Science and Engineering Grant program, 1995, 1996

South Carolina Experimental Program to Stimulate Competitive Research, 1996

## PUBLICATIONS

### Books

**Bowers, C. A.**, Salas, E., & Jentsch, F. (Eds.) (In preparation). High-tech teams: Making effective teams with people, computers, and networks. Washington, DC: APA Books.

Salas, E., **Bowers, C. A.**, & Edens, E. (Eds.) (2001). Applying resource management in organizations. Mahwah, NJ: Lawrence Erlbaum Inc.

### Journal Articles [Students in italics]

*Cuevas, H. M.*, Fiore, S. M., **Bowers, C. A.**, & Salas, E. (2004). Fostering constructive cognitive and metacognitive activity in computer-based complex task training environments. Invited paper to appear in Computers in Human Behavior, 20, 225-241.

*Hoelt, R.M.*, Jentsch, F.G., *Harper, M.E.*, *Evans, A.W.*, **Bowers, C.A.**, & Salas, E. (2003). TPL-KATS - concept map: a computerized knowledge assessment tool. Computers in Human Behavior, 19 (6), 653-657.

*Vogel, J.*, **Bowers, C.**, *Meehan, C.*, *Hoelt, R.*, & Bradley, K. (2004). Virtual reality for life skills education: Program evaluation. Deafness and Education International, 6(1), 39-50.

*Vogel, J., Bowers, C. A., & Vogel, D.* (2003). Cerebral lateralization of spatial abilities: A meta-analysis. Brain and Cognition, *52*(2), 653-657.

**Bowers, C. A., Hitt, J. M., Hoefl, R. M., & Dunn, S.** (2003). Training evaluation as a model for evaluating clinical services: Why clinicians should not toss this special issue in the trash. Military Psychology, *15*(1), 17-24.

**Bowers, C., Jentsch, F., & Salas, E.** (2003). CRM training in the New Environment: Challenges for flight crew training after September 11, 2001. International Journal of Applied Aviation Studies.

Fiore, S. M., Salas, E., *Cuevas, H. M., & Bowers, C. A.* (2003). Distributed coordination space: Toward a theory of distributed team performance. Theoretical Issues in Ergonomics Science, *4*, 340-363.

*Evans, A. W., III, Hoefl, R. M., Jentsch, F., & Bowers, C.* (2002). Can a picture save a thousand words? Comparisons of textual vs. pictorial organization. Manuscript submitted to Human Factors.

*Harper, M.E., Jentsch, F., Berry, D., Lau, H.C., Bowers C., & Salas, E.* (2002). TPL-KATS – Card Sort: A tool for assessing structural knowledge. Manuscript submitted for publication, Behavior Research Methods, Instruments, and Computers.

*Harper, M.E., Jentsch, F., Borjesson, W., Evans, A.W., III, Hitt, J.M., II, Bowers, C., & Salas, E.* (2002). Psychometrics of elicitation techniques for structural knowledge. Manuscript submitted for publication, Cognitive Technology.

*Hoefl, R. M., Jentsch, F., Berry, D., Lau, H. C., Evans, A. W., III, Bowers, C., & Salas, E.* (2002). TPL-KATS - Concept Map: A practical knowledge elicitation tool. Manuscript submitted for publication, Behavior Research Methods, Instruments, and Computers.

Salas, E., *Milham, L. M., & Bowers, C. A.*, (In press). Training evaluation in the military: Misconceptions, opportunities and challenges. Military Psychology.

Salas, E., *Wilson, K.A., Burke, C.S. & Bowers, C.A.* (In press). Implementing crew resource management (CRM) Training: Myths to avoid. Ergonomics in Design.

**Bowers, C. A., Pharmer, J., & Salas, E.** (2001). When member homogeneity is needed in work teams: A meta-analysis. Small Group Research, *31*, 305-327.

Dunn, M. E., *Burbine, T., Bowers, C. A., & Dunn, S. T.* (2001). The identification of variables which moderate stress in parents of children with autism. Community Mental Health Journal, *37*, 39-52.

Jentsch, F., **Bowers, C. A.**, & Salas, E. (2001). What determines whether observers recognize targeted behaviors in modeling displays? Human Factors, 43(3), 496-507.

Salas, E., Burke, C.S., **Bowers, C.A.** & *Wilson, K.* (2001). Team training in the skies: Does CRM training work? Human Factors, 43, 641-674. .

**Bowers, C.**, & Jentsch, F. (2000). Book review: Handbook of Aviation Human Factors. Personnel Psychology 53(2), 466-469.

**Bowers, C. A.**, *Price, C.*, LaBarba. R. C., Cannon-Bowers, J., *Borjesson, W.*, & *Vogel, J.* (2000). Decision making in dual-task environments: Analysis of hemispheric competition effects. Perceptual & Motor Skills, 91, 237-245.

*Rhodenizer, L.*, Jentsch, F., & **Bowers, C.** (2000). An application of exploratory sequential data analysis to emergency service dispatch. Ergonomics in Design, 8, 24-28.

Salas, E., **Bowers, C.**, & *Rhodenizer, L.* (2000). The design and delivery of CRM training: Exploring available resources. Human Factors., 42, 490-511.

**Bowers, C. A.** & Jentsch, F. G. (1999). Team training success stories. Military Training Technology, April.

*Irvin, J.*, **Bowers, C. A.**, & Dunn, M. (1999). Efficacy of relapse prevention: A meta-analytic review. Journal of Consulting and Clinical Psychology, 67, 563-570.

Jentsch, F., *Barnett, J.*, **Bowers, C. A.**, & Salas, E. (1999). Who's Flying this Plane Anyway? What Mishaps Tell us about Crewmember Role Assignment and Aircrew Situation Awareness. Human Factors, 41, 1-14.

*Rhodenizer, L. G.*, **Bowers, C. A.**, *Pharmer, J. A.*, & *Gerber, T. N.* (1999). HF competencies part I: Who are we and what do we do? Human Factors and Ergonomics Society Bulletin, 42(5), 1-4.

*Rhodenizer, L. G.*, **Bowers, C. A.**, *Pharmer, J. A.*, & *Gerber, T. N.* (1999) Human factors competencies, part II. Human Factors and Ergonomics Society Bulletin, 42(10), 1-5.

Salas, E., Prince, C., **Bowers, C. A.**, Stout, R. J., & Cannon-Bowers, J. A. (1999). A methodology for enhancing crew resource management training. Human Factors, 41, 161-172.

Bear, M. & **Bowers, C. A.** (1998). Using a nursing framework to measure client satisfaction with a nurse-managed clinic. Public Health Nursing, 15, 50-59.

**Bowers, C. A.**, Jentsch, F. G., Braun, C. C., & Salas, E. (1998). Studying communication patterns among aircrews: Implications for team training. Human Factors, 40, 672-679.

**Bowers, C. A., Jentsch, F., & Salas, E.** (1998). On learning to play with other kids' toys: A response to Sanderson and Benda. Human Factors, 40, 685-687.

**Bowers, C. A., Martin, L., & Price, C.** (1998). Dual-task performance and the lateralization of spatial orientation: Artifact of test selection? Journal of General Psychology, 125, 5-16.

**Bowers, C. A., Thornton, C., Braun, C., Morgan, B. B., Jr., & Salas, E.** (1998). Automation, task difficulty, and aircrew performance. Military Psychology, 10, 259-274.

Cannon-Bowers, J. A., Rhodenizer, L., Salas, E., & **Bowers, C. A.** (1998). A framework for understanding the conditions of practice and their impact on learning. Personnel Psychology, 51, 291-320.

Cannon-Bowers, J. A., Salas, E., Blickensderfer, E., & **Bowers, C. A.** (1998). The impact of cross-training and workload on team functioning: A replication and extension of initial findings. Human Factors, 40(1), 92-101.

Jentsch, F. & **Bowers, C. A.** (1998). Evidence of the validity of low-fidelity simulations in aircrew coordination research and training. International Journal of Aviation Psychology, 8, 243-260.

Rhodenizer, L., **Bowers, C. A.**, & Bergondy, M. (1998). Team practice schedules; What do we know? Perceptual and Motor Skills, 87, 31-34.

Salas, E., **Bowers, C. A.**, & Rhodenizer, L. (1998). It's not how much you have but how you use it: Towards a rational use of simulation in aviation training. International Journal of Aviation Psychology, 8, 197-208.

Jentsch, F. G., **Bowers, C. A.**, Compton, D., Navarro, G., & Tait, T. (1996). "Team-Track:" A tool for investigating tracking performance in teams. Behavior Research Methods, Instruments, & Computers, 28, 411-417.

Munzenmeyer, M., Blau, B., McGuire, J., **Bowers, C.A.**, & Mills, H. (1996). Brief therapy: Training attitudes and practices in applied master's programs. Journal of Psychological Practice, 2, 25-33.

Rhodenizer, L., Peppler-Swope, M., & **Bowers, C. A.** (1996). Toward enhanced training in the communication center. Emergency Medical Services, 25, 66-69.

Urban, J. M., Weaver, J. L., **Bowers, C. A.**, & Rhodenizer, L. (1996). Naturalistic team decision making: Effects of structure and workload on team processes and performance. Human Factors, 38, 300-311.

Weaver, J. L., **Bowers, C. A.**, & Morgan, B. B., Jr. (1996). The effect of individual differences on anxiety and team performance. Journal of the Washington Academy of Science, 84, 68-93.

**Bowers, C. A.**, Deaton, J., Oser, R., Prince, C., & Kolb, M. (1995). The impact of automation on aircrew communication and decision making performance. International Journal of Aviation Psychology, 5(2), 145-167.

Salas, E., **Bowers, C. A.**, & Cannon-Bowers, J. A. (1995). Preface to the special issue. Military Psychology, 7, 53-54.

Salas, E., **Bowers, C. A.**, & Cannon-Bowers, J. A. (1995). Military team research: 10 years of progress. Military Psychology, 7, 55-76.

Urban, J. M., **Bowers, C. A.**, Monday, S. D., & Morgan, B. B., Jr. (1995). Workload, team structure, and communication in effective team performance. Military Psychology, 7, 123-135.

Weaver, J. L., **Bowers, C. A.**, Salas, E. & Cannon-Bowers, J. A. (1995). Networked simulations: New paradigms for team performance research. Behavior Research Methods, Instruments and Computers, 27, 12-24.

**Bowers, C. A.**, Baker, D. P., & Salas, E. (1994). The importance of teamwork in the cockpit: The utility of job/task analysis indices for training design. Military Psychology, 6, 205-214.

**Bowers, C. A.**, Morgan, B. B., Jr., Salas, E. & Prince, C. (1993). Assessment of coordination demand for aircrew coordination training. Military Psychology, 5, 95-112.

**Bowers, C.A.**, Salas, E., Prince, C., and Brannick, M. (1992). Games teams play: A methodology for investigating team coordination and performance. Behavior Research Methods, Instruments and Computers, 24, 503-506.

**Bowers, C.A.**, & LaBarba, R. C. (1991). Secondary task assessment of workload: Neuropsychological considerations for applied psychology. Perceptual and Motor Skills, 73, 487-496.

**Bowers, C.A.**, & LaBarba, R. C. (1988). Sex differences in the lateralization of spatial abilities: A spatial component analysis of extreme group scores. Brain and Cognition, 8, 165-177.

LaBarba, R.C., **Bowers, C.A.**, Kingsberg, S.A., & Freeman, G. (1987). The effects of concurrent vocalization on foot and hand motor performance: A test of the functional distance hypothesis. Cortex, 23, 301-308.

Kingsberg, S.A., LaBarba, R.C., & **Bowers, C.A.** (1987). Sex differences in lateralization for spatial abilities. Bulletin of the Psychonomic Society, 25, 247-250.

**Bowers, C.A., & Gesten, E. L.** (1986). Social support as a buffer of anxiety: An experimental analogue. American Journal of Community Psychology, 14, 447-451.

Carlson, D. B., LaBarba, R.C., Sclafani, J. D., & **Bowers, C.A.** (1986). Cognitive and motor development in infants of adolescent mothers: A longitudinal analysis. International Journal of Behavioral Development, 9, 1-13.

## **Chapters**

**Bowers, C., & Jentsch, F.** (in press). Team workload analysis. In N. Stanton et al. (Eds.), Handbook of Ergonomics and Human Factors Methods. London: Taylor & Francis.

**Bowers, C., & Jentsch, F.** (2004). Engineered experiences for scaled worlds: An example from aviation. In: S. G. Schiflett, L. R. Elliott, E. Salas, & M. D. Covert (Eds.), Scaled Worlds: Development, Validation, and Application. Aldershot, UK: Ashgate.

*Cuevas, H. M., Fiore, S. M., Salas, E., & Bowers, C. A.* (2004). Virtual teams as sociotechnical systems. In S. H. Godar & S. P. Ferris (Eds.), *Virtual and collaborative teams: Process, technologies, and practice*. Hershey, PA: Idea Group Publishing.

Jentsch, F., *Hoefl, R.*, Fiore, S., & **Bowers, C.** (2002). 'A Frenchman, a German, and an Englishman...': Training Teams across Cultures". Submitted to: Series: Advances in Human Performance and Cognitive Engineering Research. Amsterdam, NL: Elsevier Science.

Jentsch, F., *Hitt, J. M., II*, & **Bowers, C.** (2001). Applying an information-processing model to "automation" problems: It's not all automation. Advances in Human Performance and Cognitive Engineering Research. Amsterdam, NL: Elsevier Science.

**Bowers, C., & Jentsch, F.** (2001). Use of commercial, off-the-shelf, simulations in team research. In E. Salas (Ed.), Advances in Human Performance and Cognitive Engineering Research, Vol. 1 (pp. 291-315). Amsterdam, NL: Elsevier Science.

**Bowers, C., Jentsch, F., & Morgan, B. B., Jr.** (In press). Team performance. In W. Karkowski (Ed.), The International Encyclopedia of Ergonomics and Human Factors. London: Taylor and Francis.

**Bowers, C., Jentsch, F., & Salas, E.** (In press). Aircrew competencies. In D. Andrews & H. O'Neil (Eds.), Aircrew Training Methods and Assessment. Mahwah, NJ: Lawrence Erlbaum Associates.

**Bowers, C. A., Weaver, J. L., & Salas, E.** (2001). Understanding the impact of stress on team performance. In P. A. Hancock & P. A. Desmond (Eds.), Stress, workload, and fatigue: Theory, research, and practice. Mahwah, NJ: Lawrence Erlbaum Associates.

*Oser, R. L., Salas, E., Merket, D. C. & Bowers, C. A.* (2001). Applying resource management in naval aviation: A methodology and lessons learned. In E. Salas, C. Bowers, & E. Edens (Eds.), Improving Teamwork in Organizations: Applications of Resource Management Training. Mahwah, NJ: Lawrence Erlbaum Associates.

Salas, E., **Bowers, C. A.**, & Edens, E. (2001). An overview of resource management in organizations: Why now? In E. Salas, C. Bowers, & E. Edens (Eds.), Improving Teamwork in Organizations: Applications of Resource Management Training. Mahwah, NJ: Lawrence Erlbaum Associates.

Salas, E., **Bowers, C. A.**, & Edens, E. (2001). Research and practices of resource management in organizations: Some observations. In E. Salas, C. Bowers, & E. Edens (Eds.), Improving Teamwork in Organizations: Applications of Resource Management Training. Mahwah, NJ: Lawrence Erlbaum Associates.

Salas, E., Cannon-Bowers, J. A., *Rhodenizer, L.*, & **Bowers, C. A.** (1999). Training in Organizations: Myths, Misconceptions, and Mistaken Assumptions. In G. Ferris (Ed.), Research in personnel and human resource management. Greenwich, CT: JAI Press.

**Bowers, C. A.**, Morgan, B. B., Jr., & *Blickensderfer, E. L.* (1998). Team coordination in air traffic control. In M. W. Smolensky and E. S. Stein (Eds.), Human factors in air traffic control. Orlando, FL: Academic Press.

**Bowers, C. A.**, *Braun, C. C.*, & Morgan, B. B., Jr. (1997). Team workload: Its meaning and measurement. In M. T. Brannick, E. Salas, and C. Prince (Eds.), Team performance assessment and measurement: Theory, research, and applications. New York: Lawrence Erlbaum.

*Weaver, J. L.* & **Bowers, C. A.** (1997). Motivation in teams. In M. M. Beyerlein, D. A. Johnson, & S. T. Beyerlein (Eds.), Advances in Interdisciplinary Studies in Work Teams, Vol.4. Greenwich, CT: JAI Press.

**Bowers, C. A.**, *Oser, R.*, Cannon-Bowers, J. A., & Salas, E. (1996). Team performance in automated systems, directions for future research. In R. Parasuraman & M. Mouloua (Eds.), Automation and Human Performance: Theory and applications. New York: Lawrence Erlbaum Associates.

**Bowers, C. A.**, *Weaver, J. L.*, & Morgan, B. B., Jr. (1996). Moderating the performance effects of stress. In J. E. Driskell & E. Salas (Eds.), Stress and human performance. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

**Bowers, C.**, *Jentsch, F.*, & Salas, E. (1995). Studying automation in the lab - Can you? Should you? In N. McDonald, N. Johnston, & R. Fuller (Eds.), Applications of Psychology to the Aviation System, pp. 281- 286. Aldershot, UK: Avebury.

Urban, J. M., **Bowers, C. A.**, Cannon-Bowers, J. A., & Salas, E. (1995). The importance of team architecture in understanding team processes. In M. M. Beyerlein, D. A. Johnson, & S. T. Beyerlein (Eds.), Advances in Interdisciplinary Studies in Work Teams, Vol.2. Greenwich, CT: JAI Press.

**Bowers, C. A.**, Braun, C. C., & Kline, P. B. (1994). Communication and team situational awareness. In R. D. Gilson, D. J. Garland, & J. M. Koonce (Eds.), Situational Awareness in Complex Systems. Daytona Beach, FL: Embry-Riddle Aeronautical University Press.

Prince, C., **Bowers, C. A.**, & Salas, E. (1994). Stress and crew performance: Challenges for aeronautical decision making training. In A. N. Johnston, N. J. McDonald, & R. G. Fuller, (Eds.), Aviation psychology in practice, Aldershot, U. K.: Ashgate.

Rinalducci, E. J., Smither, J. A., & **Bowers, C. A.** (1993). The effects of age on vehicular control and other technological applications. In J. A. Wise, V. D. Hopkin, & P. Stager (Eds.), Verification and validation of complex systems: Additional human factors issues. Daytona Beach, FL: Embry-Riddle Aeronautical University Press.

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### **Technical Reports**

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### **Professional Presentations**

*Guthrie, J.W., Jr., Asberg, K., Bowers, C., Salas, E., & Jentsch, F. G.* (2004, August). Analysis of distributed team communications: Team performance and training. Poster presented at the 112<sup>th</sup> annual meeting of the American Psychological Association, Honolulu, HI.

*Guthrie, J. W., Jr., Priest, H. A., Asberg, K., Salas, E., & Bowers, C. A.* (2004, August). Development of COTS testbeds: Examining the performance of teams under stress. Paper presented at the 112<sup>th</sup> annual meeting of the American Psychological Association, Honolulu, HI.

*Vogel, J. J., Asberg, K., & Bowers, C.A.* (2004, August). Virtual reality education with special education populations. Paper presented at the 112<sup>th</sup> annual meeting of the American Psychological Association, Honolulu, HI.

*Priest, H. A., Burke, S., Salas, E., & Bowers, C.* (2004, August). What do we know about teams: A practical framework. Poster presented at the 112<sup>th</sup> annual meeting of the American Psychological Association, Honolulu, HI.

*Asberg, K., Bowers, C., & Salas, E.* (2004, February). Supportive Behavior, Frustration, and Mental Demand: Implications for Perceived and Actual Team Performance. Paper presented at the Swedish American Workshop for Simulation and Training (SAWMAS), Cocoa Beach, FL.

*Asberg, K., Vogel, J., Brown, P., & Bowers, C.* (2003, November). Stress and Social Support in Parents of Deaf and Hearing Impaired Children. Poster presented at the 37<sup>th</sup> Annual Convention of the Association for Advancement of Behavior Therapy, Boston, MA.

*Cuevas, H. M., Fiore, S. M., Bowers, C. A., & Salas, E.* (2003, August). Fostering constructive cognitive and metacognitive activity in computer-based training environments. In H. Emurian (chair), Multidisciplinary perspectives on human-computer interaction. Symposium presented at the 111<sup>th</sup> Annual Convention of the American Psychological Association, Toronto, Canada.

*Hoefl, R. M., Evans, A. W., III, Jentsch, F., & Bowers, C.* (2003, August). Assessing how instructions and presentation can affect mental model elicitation. Paper presented at the Southeastern Psychological Association Annual Meeting, New Orleans, LA.

*Priest, H., Asberg, K., Milham, L., Burke, S., Bowers, C., & Salas, E.* (2003, October). The Impact of Workload on Team Process and Performance: A Comparison Within and Between Team Types. Poster presented at the MURI-OPUS Re-Authorization and Evaluation Meeting, Orlando, FL.

*Vogel, J., Asberg, K., Brown, P., & Bowers, C.* (2003, August). *Assessing Secure Attachment in Oral Deaf Children*. Poster presented at the 111<sup>th</sup> Annual Meeting of the American Psychological Association, Toronto, Canada.

*Hoelt, R. M., Vogel, J., & Bowers, C. A.* (2003, October). Kids get sick too: A proposed child simulator sickness questionnaire. Poster presented at the meeting of the Human Factors and Ergonomic Society, Denver, CO.

*Vogel, J., Bowers, C., & Brown, P.* (2003, November). Using Virtual Reality for Standardized Test Score Improvements: Program Evaluation. Poster presented at the meeting of the Association for Advancement of Behavior Therapy, Boston, MA.

**Bowers, C. A., Asberg, K., Milham, L. M., Burke, S. Priest, H., & Salas, E.** (2002, August). Combat readiness and fatigue: Laboratory investigation of teams. In P. Hancock (Chair), Combat Readiness and Fatigue, Symposium presented at the 110<sup>th</sup> Annual Convention of the American Psychological Association, Chicago, IL.

*Harper, M. E., Evans, A. W., III, Dew, R., Jentsch, F. G., & Bowers, C. A.* (2002, August). Computerized concept mapping validation: Is computerized mapping the same as manual concept mapping? Poster presented at the 110th Annual Convention of the American Psychological Association, 2002, Chicago, IL.

*Vogel, J. J., Meehan, C., Hoelt, R., Bradley, K., & Bowers, C. A.* (2002, August). Virtual reality for life skills education: Teacher's evaluation, poster presented at the 110<sup>th</sup> Annual Convention of the American Psychological Association, Chicago, IL.

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*Van Duyne, L. R., Smith-Jentsch, K., & Bowers, C. A.* (2002, April). The relationship between feedback, state goal orientation, and performance. Paper presented at the 17<sup>th</sup> Annual Conference of the Society of Industrial and Organizational Psychology, Toronto, Ontario, Canada.

*Scielzo, S., Fiore, S. M., Samman, S. N., Cuevas, H. M., Bowers, C. A., & Salas, E.* (2002, August). Effects of multimedia on knowledge acquisition. Paper presented at the 110<sup>th</sup> Annual Convention of the American Psychological Association, Chicago, IL.

**Bowers, C. A., Evans, A. W., Harper, M., & Jentsch, F.** (2002, March). Assisting emergency responders. In P. Hancock & J. Weaver (Co-Chairs), Human Factors and Counter-terrorism. Symposium presented at the 38<sup>th</sup> Meeting of the Southeastern Psychological Association, Orlando, FL.

**Bowers, C. A., Asberg, K., Burke, C.S., & Salas, E.** (2002, March). Challenges and considerations in development of a team-based testbed to examine the impact of stress on cognitive readiness and team performance. Paper presented at the Contemporary & Emerging Issues in Human Factors, Engineering and Military Psychology Conference, Ft. Belvoir, VA.

Burke, C. S., Milham, L. M., Salas, E., **Bowers, C. A.** & Fowlkes, J. (2002, March). The impact of stress on team adaptability within military forces. Paper presented at the Contemporary & Emerging Issues in Human Factors, Engineering and Military Psychology Conference, Ft. Belvoir, VA.

*Samman, S.N., Torrez, L.I., Sims, V.K., Bowers, C.A., & Salas, E.* (2001, August). Increasing Performance in a highly Immersive Virtual Environment. Paper presented at the 109<sup>th</sup> Annual Convention of the American Psychological Association, San Francisco, CA.

*Wilson, K.A., Burke, C.S., Salas, E., & Bowers, C.A.* (2001, August). Does CRM Training Transfer to the Cockpit?: Methodological Observations. Paper presented at the 109<sup>th</sup> Annual Convention of the American Psychological Association, San Francisco, CA.

*Hitt II, J. M., Jentsch, F., & Bowers, C. A.* (2001, March). Conceptual knowledge of flight management system (FMS) capabilities: An ATC perspective. Paper presented at the 11<sup>th</sup> International Symposium on Aviation Psychology, Columbus, OH.

Salas, E., **Bowers, C. A.**, *Vogel, J., Meehan, D., & Bradley, K.* (2001, January). Simulation and training: Lessons learned for special needs education. Paper presented at the Virtual Reality Education for Assisted Learning Symposium, Orlando, FL.

*Hitt II, J. M.*, Jentsch, F., **Bowers, C. A.**, & *Oser, R.* (2000, October). An information processing model approach to identifying training issues for advanced aviation automation. Paper presented at Human Performance, Situation Awareness, and Automation: User-centered Design for the New Millenium, Savannah, GA.

Jentsch, F., *Hitt II, J. M.*, *Agliata, D.*, *Milham, L.*, *Evans, A. W.*, & **Bowers, C. A.** (2000, October). Theoretical limits of card-sorting as a mental model assessment tool. Paper presented at Human Performance, Situation Awareness, and Automation: User-centered Design for the New Millenium, Savannah, GA.

Jentsch, F., *Hitt, J.*, **Bowers, C.**, & Salas, E. (2000, August). Studying Conceptual Knowledge of Vertical-Flight-Path Guidance. In P. Ikomi (Chair) Modeling Knowledge and Performance in the Aviation Domain. Symposium presented at the 108<sup>th</sup> Annual Convention of the American Psychological Association. Washington, D.C.

*Hitt II, J. M.*, *Milham, L.*, Jentsch, F., & **Bowers, C. A.**, (2000, August). Understanding understanding: Comparisons between assessment methods of knowledge structures. Paper to be presented at the 108<sup>th</sup> Annual Meeting of the American Psychological Association, Washington, DC.

*Rhodenizer, L.*, *Pharmer, J. A.*, & **Bowers, C. A.** (2000, August). A factor-analytic approach to knowledge areas used in human factors positions. Paper presented at the International Ergonomics Association XIVth Triennial congress and Human Factors and Ergonomics Society 44<sup>th</sup> Annual Meeting, San Diego, CA.

*Rhodenizer, L.*, *Pharmer, J.*, **Bowers, C. A.**, & *Mesa, H.* (2000, August). An analysis of critical incident reports from a 911 center. Poster presented at the International Ergonomics Association XIVth Triennial congress and Human Factors and Ergonomics Society 44<sup>th</sup> Annual Meeting, San Diego, CA.

**Bowers, C. A.** & Jentsch, F. (2000, April). Designing scenarios to support the training of autoflight skills. Paper presented at the Airline Transport Association 1<sup>st</sup> Annual Meeting on Autoflight Training, Denver, CO.

*Cuevas, H. M.* & **Bowers, C. A.** (2000, April). Effects of a force-feedback steering wheel in a driving simulation task. Poster presented at the 1<sup>st</sup> Annual Florida Human Factors and Ergonomics Student Meeting, Orlando, FL.

Jentsch, F., *Berry, D.*, Dougherty, B., *Ho, R.*, & **Bowers, C.** (1999, November). RRLOE/RRLOS System Update. Paper presented at the 1999 ATA AQP LOS Focus Group Meeting, September 1999, Vancouver, British Columbia.

*Rhodenizer, L.*, **Bowers, C. A.**, Burroughs, W., Cannon-Bowers, J. A., & Salas, E. (1999, October). The use of 2-D and 3-D displays for training a formation detection task. Poster presented at the 43<sup>rd</sup> Annual Meeting of the Human Factors and Ergonomics Society, Houston, TX.

Jentsch, F., **Bowers, C.**, & Salas, E. (1999, July). Metacognitive training for real-world tasks. Presented at the III<sup>rd</sup> Conference of the Society for Applied Research in Memory and Cognition (SARMAC), Boulder, Colorado.

Jentsch, F., *Berry, D.*, Dougherty, B., **Bowers, C.** (1999, May). Rapidly Reconfigurable Line-Oriented Evaluation Tool System Update. Presented at the 1999 Air Transport Association/Advanced Qualification Program (ATA/AQP) Conference, Honolulu, Hawaii.

*Pharmer, J. A.*, *Rhodenizer, L.*, **Bowers, C. A.**, & Bergondy, M. (1998, October). Display augmentation techniques for formation detection training. Poster presentation at the 42<sup>nd</sup> Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.

*Rhodenizer, L.*, *Pharmer, J. A.*, **Bowers, C. A.**, & Bergondy, M. (1998, October). The use of augmentation in modeling displays. Presentation presented at the 42<sup>nd</sup> Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.

*Rhodenizer, L.*, *Pharmer, J. A.*, **Bowers, C. A.**, & Bergondy, M. (1998, August). The impact of display augmentation during training. Paper to be presented at the 106<sup>th</sup> Annual Meeting of the American Psychological Association, San Francisco, CA.

Stout, R.J., Salas, E., *Merket, D.C.*, & **Bowers, C. A.** (1998, May). Successes in using low-cost simulation for training military aviation teams. Paper presented at the Annual Meeting of the Royal Aeronautical Association, London, England.

**Bowers, C. A.** & Jentsch, F. G. (1998, April). Using low fidelity simulation in a training program for junior first officers. Paper presented at the International Training Equipment Conference, Lausanne, Switzerland.

**Bowers, C. A.**, Morgan, B. B., Jr., & *Pharmer, J.* (1998, April). Selecting team members: Should we be on "crews control?" In R. Klimoski (Chair), When is a work team a crew – and does it matter? Symposium presented at the Annual Meeting of the Society for Industrial/Organizational Psychology, Dallas, TX.

Boyd, M. L., Borjesson, W., & **Bowers, C. A.** (1998, March). Factors influencing compliance with breast self-examination. Poster presented at the 44<sup>th</sup> Annual Meeting of the Southeastern Psychological Society, Mobile, AL.

Gerber, T., Jackson, S. L., & **Bowers, C. A.** (1998, March). College students sexual behavior in response to AIDS. Poster presented at the 44<sup>th</sup> Annual Meeting of the Southeastern Psychological Society, Mobile, AL.

Bear, M & **Bowers, C. A.** (1998, February). Using a nursing framework to measure client satisfaction in a nurse-managed clinic. Paper presented at the 1998 Southern Nursing Research Society Conference, Fort Worth, TX.

Prince, C., Jentsch, F. G., & **Bowers, C. A.** (1997, September). Research on low fidelity training devices for CRM. Paper presented at the Royal Aeronautical Society Conference on Simulation and Training, London, England.

Irvin, J. E., **Bowers, C. A.**, & Dunn, M. E. (1997, August). Efficacy of relapse prevention: A meta-analytic review. Poster presented at the 104<sup>th</sup> Annual meeting of the American Psychological Association, Chicago, IL.

Rhodenizer, L., **Bowers, C. A.**, Bergondy, M. L., & Martin, M. K. (1997, August). Highlighting in multimedia training improves performance. Paper presented at the 105<sup>th</sup> Annual Meeting of the American Psychological Association, Chicago, IL.

Blickensderfer, B., Cannon-Bowers, J., **Bowers, C. A.**, & Salas, E. (1997, July). Preparing teams for stressful environments. Paper to be presented at the 1<sup>st</sup> Regional Congress of Psychology for Professionals in the Americas. Mexico City, Mexico.

Salas, E., Cannon-Bowers, J. A., Rhodenizer, L., & **Bowers, C. A.** (1997, July). Erroneous assumptions about training: Where scientists can help practitioners. Paper to be presented at the 1<sup>st</sup> Regional Congress of Psychology for Professionals in the Americas. Mexico City, Mexico.

White, B. & **Bowers, C. A.** (1997, May). Rapidly reconfigurable LOE event set methodology. Paper presented at the ATA/AQP working group meeting, St. Louis, MO.

Irvin, J. E., Jentsch, F. G., **Bowers, C. A.**, Jensen, B. J., & McGuire, J. (1997, April). Antecedents of learned helplessness deficits: The impact of motivation on cognitive processing. Poster presented at the 43<sup>rd</sup> Annual Meeting of the Southeastern Psychological Association, Atlanta, GA.

Jentsch, F., Irvin, J., **Bowers, C.**, Smith-Jentsch, K., & Salas, E. (1997, April). What determines whether observers recognize targeted behaviors in videotaped modeling displays? Paper presented at the 1997 Annual Meeting of the Society for Industrial/Organizational Psychology, St. Louis, MO.

*Kennedy, L. P., McGuire, J., Bowers, C. A., & Smither, J. (1997, April). Gender differences in academic procrastination: Multidimensional perfectionism, self-esteem, and depression. Poster presented at the 43<sup>rd</sup> Annual Meeting of the Southeastern Psychological Association, Atlanta, GA.*

*Levine, A., Bowers, C. A., McGuire, J., & Thomas, M. (1997, April). The prevalence of eating disorders among athletes: A meta-analytic review. Poster presented at the 43<sup>rd</sup> Annual Meeting of the Southeastern Psychological Association, Atlanta, GA.*

*Muniz, E. J., Stout, R. J., Bowers, C. A., & Salas, E. (1997, March). A methodology for measuring team situation awareness. Paper presented at the 18th Annual Industrial/Organizational Psychology-Organizational Behavior Graduate Student Conference, Roanoke, VA.*

*Jentsch, F., Bowers, C. A., & Salas, E. (1996, November). Development of CRM training and practice tools for diverse crew roles. Paper presented at the 1996 Flight Crew Training Conference, Orlando.*

*Jentsch, J. & Bowers, C. A. (1996, August). Developing a framework to study automation effects. Paper presented at the 104<sup>th</sup> Annual Meeting of the American Psychological Association, Toronto.*

*Price, C., LaBarba, R. C., Cannon-Bowers, J. A., & Bowers, C. A. (1996, August). Decision making in a dual task environment Poster presented at the 104<sup>th</sup> Annual Meeting of the American Psychological Association, Toronto.*

*Rhodenizer, L., Peppler-Swope, M. D., Brophy, J. C. , & Bowers, C. A. (1996, August). A factor analytic assessment of attitudes in emergency services communication centers. In A. Andre (Chair), Division 21 Student Research Symposium. Symposium presented at the 104<sup>th</sup> Annual Meeting of the American Psychological Association, Toronto.*

*Cannon-Bowers, J. A., Salas, E., Bowers, C. A., & Rhodenizer, L. (1996, April). Conditions of practice: Optimizing learning and performance. Paper presented at the Annual Meeting of the Society for Industrial and Organizational Psychology, San Diego.*

*Martin, L. & Bowers, C. A. (1996, March). Gender differences in the lateralization of spatial orientation: Artifact of test selection? Poster presented at the annual meeting of the Southeastern Psychological Association, Norfolk, VA.*

*Munzenmeyer, M., Blau, B., McGuire, J., Bowers, C.A., & Mills, H. (1996, March). Brief therapy: Training attitudes and practices in applied master's programs. Poster presented at the annual meeting of the Southeastern Psychological Association, Norfolk, VA.*

*Rhodenizer, L., Peppler-Swope, M., & Bowers, C. A.* (1996, March). Toward enhanced training in the communication center. Paper presented at the annual meeting of the Southeastern Psychological Association, Norfolk, VA.

Prince, C., **Bowers, C. A.**, *Jentsch, F.*, & Salas, E. (1995, November). Team situational awareness: Many paths to a destination. Paper presented at the International Conference on Experimental Analysis and Measurement of Situation Awareness, Daytona Beach, FL.

*Hernandez, E., Dockery, K., Bowers, C. A., & Jentsch, F.* (1995, August). Pilot personality, automation, and performance. Paper presented at the 103rd Annual Meeting of the American Psychological Association. New York.

Smither, J. A., **Bowers, C. A.**, & Tucker, R. (1995, August). Caregivers in the 21<sup>st</sup> century: Implications for the use of technology for an aging population. Workshop presented at the 1995 Florida Aging Network Conference.

*Navarro, G., Smither, J. A., & Bowers, C. A.* (1995, October). Gender differences in multiple task performance among the young and old. Poster presented at the 39<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society. San Diego, CA.

Prince, C., *Jentsch, F.*, **Bowers, C. A.**, & Salas, E. (1995, August). Links between aircrew coordination and decision making: Crew coordination behaviors before and after a critical decision situation. Paper presented at the Pennsylvania State University/Office of Naval Research Workshop on the Human-System Interface to an Integrated Diagnostic System in a High Stress Environment. Washington, DC.



*Urban, J. M. & Bowers, C. A.* (1995, August). Toward optimizing the performance of product structure teams. In J. A. Cannon-Bowers & C. A. Bowers (Co-chairs), Team training and performance research. Symposium presented at the 103rd Annual Meeting of the American Psychological Association. New York.

*Weaver, J. L., Mourra, K. A., Bowers, C. A., & Morgan, B. B., Jr.* (1995). Self control and perceived control: Effects on team performance and anxiety. Paper presented at the Third Interdisciplinary Conference on Occupational Stress and Health. Washington, DC.

*Morgan, B. B., Jr., Bowers, C. A., & Jentsch, F. J.* (1994, July). Issues in the performance of heterocultural teams. In M. Kaplan (Chair), Cultural Ergonomics. Symposium presented at the 23rd International Congress of Applied Psychology, Madrid.

*Urban, J. M., Bowers, C. A., Salas, E., & Cannon-Bowers, J. A.* (1994, June). Designing team architectures to facilitate effective team processes. Paper presented at the 1994 University of North Texas Symposium on Work Teams, Denton, TX.

*Jentsch, F., Navarro, G. & Bowers, C. A.* (1994, April). Feedback and performance trade-offs in a team task. Poster presented at the 14th Biennial USAF Academy Conference on the Applied Behavioral Sciences, Colorado Springs, CO.

*Lee, K. M., Hurley, H. R., Weaver, J. L., & Bowers, C. A.* (1994, April). The role of social support and cohesion in times under stress: Psychological and performance effects. Poster presented at the 40th Annual Meeting of the Southeastern Psychological Association, New Orleans, LA.

*Navarro, G., Jentsch, F., & Bowers, C. A.* (1994 April). Does feedback necessarily improve performance? Poster presented at the 14th Biennial USAF Academy Conference on the Applied Behavioral Sciences, Colorado Springs, CO.

*Salas, E., Bowers, C. A., Braun, C. C., & Jentsch, F.* (1994, April). The development of team process: An empirical investigation. Paper presented at the Ninth Annual Meeting of the Society for Industrial and Organizational Psychology, Nashville, TN.

*Weaver, J. L., Bowers, C. A., & Morgan, B. B., Jr.* (1994, April). TANDEM: An empirical test of time pressure and ambiguity as task parameters. Paper presented at the 14th Biennial USAF Academy Conference on the Applied Behavioral Sciences, Colorado Springs, CO.

*Prince, C., Bowers, C. A., & Salas, E.* (1994, March). Stress and crew performance: Challenges for aeronautical decision making training. Invited address presented at the 21st Western European Association of Aviation Psychologists Conference. Dublin, Ireland.

*Holmes, B. E., Braun, C. C., & Bowers, C. A.* (1993, October). Mental models: A longitudinal study. Poster presented at the 37th Annual Meeting of the Human Factors Society, Seattle, WA.

**Bowers, C. A., Monday, S. D., Morgan, B. B., Jr., & Urban, J. M.** (1993, August). Communication training for effective team performance. In J. A. Cannon-Bowers (Chair), Training teams: Research and applications. Symposium presented at the 101st Annual Meeting of the American Psychological Association, Toronto.

*Weaver, J. L. & Bowers, C. A.* (1993, March). The effect of self-efficacy and gender on spatial task performance. Paper presented at the 39th Annual Meeting of the Southeastern Psychological Association, Atlanta, GA.

**Bowers, C. A., Braun, C., & Morgan, B. B., Jr.** (1992, September). Workload and team performance. Invited presentation to the University of South Florida Workshop on Team Performance Measurement, Tampa, FL.

*Kline, P. B., Urban, J. M., Bowers, C. A., & Morgan, B. B. Jr.* (1992, August). Team performance and communication in a synthetic work paradigm. Poster presented at the Centennial Meeting of the American Psychological Association, Washington, DC.

Thornton, C., *Braun, C., Bowers, C. A., & Morgan, B. B., Jr.* (August, 1992). The use of low fidelity simulation to investigate team performance. Poster presented at the Centennial Meeting of the American Psychological Association, Washington, DC.

Rinalducci, E. J., Smither, J. A., & **Bowers, C. A.** (1992, July). The effects of age on vehicular control and other technological applications. Paper presented at the NATO Advanced Study Institute on Validation and Verification of Complex & Integrated Human-Machine Systems, Vimeiro, Portugal.

**Bowers, C. A., Urban, J. M., & Morgan, B. B., Jr.** (1992, May). A synthetic work study of hierarchical team decision making: Preliminary results. In D. R. Ilgen (Chair), Team decision making research and theory. Symposium presented at the Seventh Annual Meeting of the Society for Industrial and Organizational Psychology, Montreal.

*Adkins-Holmes, C., Morgan, B. B., Jr., Burroughs, W. A., & Bowers, C.A.* (1992, March). An analysis of job performance requirements in terms of teamwork behavior. Poster presented at the 38th annual meeting of the Southeastern Psychological Association, Knoxville, TN.

*Weaver, J. L., Bowers, C.A., & Morgan, B. B., Jr.* (1992, March). The assessment of attitudes toward crew coordination and their relationship to team performance. Paper presented at the 38th annual meeting of the Southeastern Psychological Association, Knoxville, TN.

Morgan, B. B., Jr., **Bowers, C.A.,** Salas, E., & Cannon-Bowers, J. (1991, April). Applying learning principles to team performance. In E. Salas (Chair), Methods and tools for understanding teamwork: Research with practical implications. Symposium presented at the meeting of the Society for Industrial and Organizational Psychology, St. Louis, MO.

*Urban, J. M., Bowers, C.A., Franz, T., & Morgan, B. B., Jr. (1991, March). A comparison of behavioral observations and subjective evaluations in the assessment of aircrew communications. Poster presented at the 37th annual meeting of the Southeastern Psychological Association, New Orleans, LA.*

Morgan, B. B., Jr., & **Bowers, C.A.** (1991, January). Teamwork stressors: Implications for team decision making. Invited presentation in Team decision making in organizations. Conference co-sponsored by the University of Maryland and the Society for Industrial and Organizational Psychology, University of Maryland, College Park.

**Bowers, C.A.** & Gesten, E. L. (1985, March). Social support and anxiety: An experimental analogue. Paper presented at the 31st annual meeting of the Southeastern Psychological Association, Atlanta, GA.

**Bowers, C.A.,** Gesten, E. L., O'Horo, M., Gonzalez, D., Rosenthal, K., & Friedrich, M. (1984, March). The development of a children's social support scale. Poster presented at the 30th annual meeting of the Southeastern Psychological Association, New Orleans, LA.

Gesten, E. L., O'Horo, M., **Bowers, C.A.,** Rosenthal, K., Gonzalez, D., & Friedrich, M. (1984, March). Identifying the correlates of positive mental health: A multimodal analysis of 3rd and 6th graders' skills, traits, and behaviors. Paper presented at the 30th annual meeting of the Southeastern Psychological Association, New Orleans, LA.

Marcotte, A. C., **Bowers, C. A.,** & Wu, S. (1984, March). Smokey and the band-aid: An investigation of helping behavior as a function of cost of responding and mood in citizen's band radio requests. Poster presented at the 30th annual meeting of the Southeastern Psychological Association, New Orleans, LA.

### **Sessions Chaired**

Promoting education with synthetic learning environments. 112<sup>th</sup> Annual Meeting of the American Psychological Association, Honolulu, HI.

Technology: Friend or Foe? Implications of technology for team performance. 98<sup>th</sup> Meeting of the Southeastern Psychological Association, Orlando, FL.

George E. Briggs Dissertation Award Address. Invited address presented at the 105<sup>th</sup> Annual Meeting of the American Psychological Association, Boston, MA.

Developing aviation training: Science and practice issues. Symposium presented at the Ninth International Symposium on Aviation Psychology, Columbus, OH.

Tools for the cognitive analysis of human-machine interactions. Demonstration session presented at the 40<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, PA.

Stress and individual differences in performance. Paper session presented at the 39<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society. San Diego, CA.

Training potpourri: Needs assessment, virtual reality, and team training. Paper session presented at the 39<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society (Co-Chair). San Diego, CA.

Team training and performance research. Symposium presented at the 103rd Annual Meeting of the American Psychological Association. New York.

Improving the utility of instructional texts. Invited address at the 103rd Annual Meeting of the American Psychological Association. New York.

Training: Myths, realities, and opportunities. Invited address at the 103rd Annual Meeting of the American Psychological Association. New York.

Data-Based Training Studies. Paper session at the 38<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society. Nashville, TN.

Training for Team Coordination and Decision Making Effectiveness: Theory, Practice, and Research Directions. Symposium presented at the 37th Annual Meeting of the Human Factors Society, Seattle, WA.

Training Issues in Aviation. Paper session presented at the 37th Annual Meeting of the Human Factors Society, Seattle, WA.

Progress in Team Decision Making Research. Poster session presented at the 100th Annual Meeting of the American Psychological Association, Washington, DC.

Automation and Performance. Paper session presented at the annual meeting of the Western European Association of Aviation Psychologists. Dublin, Ireland.

### **Colloquia/Invited Addresses**

**Bowers, C. A., Jentsch, F., Evans, A.W., Harper, M., & Hoefft, R.** (2002, February). Modeling team performance: Beliefs and Behaviors. Invited address at IOOB 2002, Tampa, FL.

**Bowers, C. A. & Mesa, H.** (1999, August). Applying applied psychology to psychologists: How division 21 can help the APA. Presidential address to division 21 of the American Psychological Association, Boston, MA.

**Bowers, C. A., Jentsch, F. G., & Salas, E.** (1997, March). Solving the puzzle of teamwork in the cockpit: Using multiple perspectives to describe the problems. Invited address given to the Asian Flight Crew Training Conference, Kowloon, Hong Kong.

**Bowers, C. A.** (1996, March). Integrating clinical and applied psychology. Invited colloquium to the students of the University of South Florida, Tampa, FL.

**Bowers, C. A. & Weaver, J.** (1996, March). Individual differences and team performance: Recent findings. Invited address given to the Annual Mid-Year Meeting of the American Psychological Association Division of Applied Experimental and Engineering Psychology. Washington, DC.

**Bowers, C.A.** (1994, February). Improving team decision making: Research results and possible interventions. Invited colloquium presented to the Psychology Department, University of Central Florida, Orlando, FL.

## FUNDED RESEARCH

Fiore, S. M., Jentsch, F., **Bowers, C.A.**, & Salas, E. (2003 May). Training Perceptual Processes for Superior Threat Identification by Airport Security Persons (\$70,000) Transportation Safety Authority.

Fiore, S. M., Jentsch, F., Salas, E., & **Bowers, C. A.**, (2002, May). Research investigating the optimal sequence for learning macro-spatial knowledge in a distributed geographical system (\$47,418), STRICOM.

Jentsch, F., Fiore, S. M., Salas, E., & **Bowers, C. A.** (2002, May). Research for an augmented learning system for the interpretation of non-verbal cues (\$75,000), STRICOM.

**Bowers, C. A., & Vogel, J.** (2002, April). Support for scenario development for a virtual reality system for deaf children (\$5000), Veridian Information Systems.

Fiore, S. M., Jentsch, F., **Bowers, C. A.**, & Salas, E. (2002, April). Training Perceptual Processes for Superior Threat Identification by Airport Security Personnel (\$140,000), Federal Aviation Administration.

Salas, E., Fiore, S. M., Truman-Davis, B., Jentsch, F., & **Bowers, C. A.** (2002, March). Developing, Testing, and Validating Instructional Models for Advanced Distributed Learning Systems (\$179,000), STRICOM.

Salas, E., Fiore, S. M., & **Bowers, C. A.** (2001, November). Integrating Knowledge Acquisition and Measurement Strategies in Adaptive Distributed Training Systems (\$378,000), Air Force Office of Scientific Research.

Salas, E., Francheschini, R., & **Bowers, C. A.** (2001, April). Acquisition of a team data visualization device (\$154,500), BP/UCF.

Salas, E. & **Bowers, C. A.** (2000, October). Towards a science of distributed team training (\$50,000), Aptima, Inc..

**Bowers, C. A.** & Fiore, S. M. (2000, September). Supporting knowledge acquisition through enhanced displays (\$339,000). NAWCTSD.

Salas, E. & **Bowers C. A.** (2000, August). Investigation of data visualization and team process (\$65,000), Group for Organizational Effectiveness.

**Bowers, C. A.** & Salas, E. (1999, October). Training automation skills in commercial aviation (\$1,189,000), Federal Aviation Administration.

**Bowers, C. A.** (1999, May). The nature of automation skills. (\$125,000), NAWCTSD.

Jensen, B. J. & **Bowers, C. A.** (1998, June). Personal assistant program evaluation. (\$3,089), Center for Independent Living.

**Bowers C. A.**, Baker, D. P. & Jentsch, F. (1997, June). Investigations of aviation team performance: Analysis, measurement and training (\$1,200,000), Federal Aviation Administration.

**Bowers, C. A.** (1997, May). Visual technologies for the acquisition of team skills. (\$225,000), NAWCTSD.

Baker, D. P. & **Bowers, C. A.** (1996, November). Assessing team skill competencies: An investigation of air traffic control tower cab teams (\$61,005), NAWCTSD.

**Bowers, C. A.** & Baker, D. P. (1996, August). Situation awareness in teams (\$29,982), NAWCTSD.

**Bowers, C. A.**, Brophy, J.C., & *Rhodenizer, L.* (1995, June). Optimizing the performance of 911 dispatch teams. (\$7,500) UCF.

Smither, J. A., **Bowers, C. A.**, & Tucker, R. D. (1995, June). Equipment for FFAST Satellite Center. (\$17,864), Florida Dept. of Elder Affairs.

Smither, J. A., **Bowers, C. A.**, & Tucker, R. D. (1995, June). FAAST Satellite Center. (\$23,083), Florida Dept. of Elder Affairs.

**Bowers, C. A.** (1995, March). The nature of practice. (\$145,000), NAWCTSD.

**Bowers, C. A.** (1995, January). Automation and aviation decision making. (\$74,988), NAWCTSD.

**Bowers, C. A.** (1994, May). The role of feedback in aviation decision making. (\$44,483), NAWCTSD.

**Bowers, C. A.** (1993, September). Support for research in distributed team decision making. (\$26,117), NAWCTSD.

**Bowers, C. A.** (1993, September) Development of a methodology to evaluate V-22 aircrew coordination behaviors and performance (\$56,967), NAWCTSD.

**Bowers, C. A.** (1993, May). Indices for recurrency training in ACT. (\$49,972), NAWCTSD.

**Bowers, C. A.** & Morgan, B. B., Jr. (1992, September). Team Research and Training: Review of Last Ten Years (\$10,298), Army Research Institute.

Wieder-Hatfield, D., Morgan, B. B., Jr., & **Bowers, C.A.** (1992, July). Development of an Interdepartmental Program for the Study of Communication in Collaborative Decision Making Processes (\$5,000), UCF.

**Bowers, C.A.**, (1991, August). Exercise Development Research for Aircrew Coordination Training (\$114,000), NAWCTSD.

Morgan, B. B., Jr., & **Bowers, C.A.** (1990, December). Crew Coordination Training Research for Advanced Technology Aircraft (\$180,000), NAWCTSD.

Morgan, B. B., Jr. & **Bowers, C. A.** (1989, April) Studies of Hierarchical Team Decision Making (\$689,668), Office of Naval Research.

## SERVICE

### UNIVERSITY SERVICE

2003 Chair, Physics Chair Search

2002 Chair, Search Committee for Assistant Director of Digital Evidence, National Center for Forensic Science

2000 – present	<u>Member, Graduate Fellowship Committee</u>
2000	<u>Member, Search Committee, Vice President for Graduate Studies</u>
1999 - 2001	<u>Member, University Research Council</u>
1996 - 1997	<u>Reviewer, University of Central Florida In-House Research Award</u>



**COLLEGE SERVICE**

2001 - 2002	<u>Assistant to the Dean for Research</u>
2000 – 2002	<u>College Promotion and Tenure Committee</u>

**DEPARTMENT SERVICE**

2002	<u>Chair, Annual Evaluation Committee</u>
2002	<u>Chair, Search Committee, Assistant Research Scientist</u>
2001	<u>Annual Evaluation Committee</u>
1997	<u>Clinical Assistant Professor Search Committee</u>
1998-2000	<u>Coordinator, Ph.D. Program in Human Factors Psychology</u>
1996 – 1998	<u>Clinical Psychology Ph.D. Proposal Subcommittee</u>
1996 - 1999	<u>Student Human Factors Society Faculty Advisor</u>
1995 - 1996	<u>Clinical Associate Professor Search Committee</u>
1995 - 1996	<u>Psi Chi Faculty Advisor</u>
1995 - 1996	<u>Faculty Mentor, UCF Research Incentive Graduate Minority Fellowship Program</u>
1995 - 1996	<u>Clinical Assistant Professor Search Committee</u>
1995 - 1997	<u>Department Space Committee (Chair)</u>
1995 - 1998	<u>Chair's Advisory Committee</u>
1994 - 1996	<u>Clinical Internship Coordinator</u>
1994 - present	<u>Human Factors Comprehensive Exam Committee</u>
1993 - present	<u>Clinical Faculty Committee</u>
1993 - present	<u>Human Factors Faculty Committee</u>

1993 - present      Human Participants Review Committee

## PROFESSIONAL MEMBERSHIPS AND SERVICE

American Psychological Association (Fellow)

**Member, Scientific Advisory Committee**, 1999 - present

**Reviewer**, 1995 APA Dissertation Award.

*Division 19 - Military Psychology* (Member)

*Division 21 - Applied Psychology* (Fellow)

**President-Elect**, 1997

**Member, Annual Meeting Program Committee** 1994-1996

**Program Chair**, 1996 Annual Meeting

**Member at Large**, 1996-1997

Human Factors Society (Member)

**Chair, National Program Committee**, 1998-2000

**National Program Committee**, 1995-1997

**Reviewer for Special Issue on Training**, Human Factors, 1990-91

**Reviewer for Special Issue on Naturalistic Decision Making**, Human Factors, 1993-1994

*Training Technical Group* (Member)

**Chair**, 1996-1997

**Chair-Elect**, 1995

**Program Chair**, 1993 Annual Meeting

**Reviewer**, 1992-1996 Annual Meetings

*Personality and Individual Differences Technical Group* (Member)

**Program Chair**, 1995, 1996 Annual Meetings

*Central Florida Chapter*

**Board of Directors**, 1991-92

**Newsletter Editor**, 1990-91

1995 - 1996      External Reviewer, University of Idaho, Promotion to Full Professor

## SERVICE TO K-12 SCHOOLS

1989 – 1996, 1999	<u>Judge, Orange County Regional Science and Engineering Fair</u>
1996	<u>Judge, Florida State Science and Engineering Fair</u>
2002	<u>Judge, Florida Hospital Oncology Research Award, Orange County</u>
2002	<u>Judge, Florida Hospital Oncology Research Award, State of Florida</u>
2002	<u>Mentor, ASPIRE program (high school internship program).</u>

## CLINICAL EXPERIENCE

### Psychological Associates of Central Florida (10/95 -12/96)

Position: Psychologist

Duties: Full responsibility for intellectual and personality assessments of children and adults. Duties include administration, scoring, and interpretation of psychological testing results.

### United States Navy (11/87 - 9/89)

Position: Staff Clinical Psychologist, Naval Hospital, Orlando, Florida

Rank: Lieutenant (O-3)

Duties: Full responsibility for the administration of a crisis intervention clinic for Naval Recruits. Duties included assessment, treatment, and disposition of child and adult patients; supervision of para-professional staff; coordination of patient care with supervising commands; on-call consultation to hospital emergency room and other medical professionals. Also provided consultation and treatment for patients on the hospital's inpatient ward, and outpatient psychotherapy to other Naval personnel. Collateral duties included: periodic administration of Naval Hospital during non-business hours; Head, Collection Agent Audit Board; Supervisor of Command Drug and Alcohol Program Administrator; Consulting Psychologist, Naval Hospital Child Abuse Subcommittee.

## LICENSURE

Licensed Psychologist in Florida (License number PY0004141)