CURRICULUM VITAE FOR DR MILDRED L.G. SHAW

2023

Summary

Mildred Shaw is Professor Emerita of the University of Calgary, having retired in December 1999 as Industrial Research Chair in Software Engineering and Professor in the Department of Computer Science at the University of Calgary.

She was previously Professor in the Department of Computer Science, Associate Dean in the Faculty of Education, and member of the Faculty of Graduate Studies in Psychology at York University in Toronto.

She is author or editor of 5 books on aspects of computing and psychology, and has published a wide range of papers on human factors in computing, over 250 in refereed books, journals and conference proceedings.

Her research interests are mainly in the area of human and organizational aspects of knowledge and requirements engineering, their modeling and support through advanced information systems. Her research activities include: developments in, and applications of, requirements engineering; software process engineering; personal construct psychology; automation of repertory grid techniques and analysis; the study and improvement of human-computer interaction; knowledge engineering for expert systems; the system-theoretic modelling of the interaction between personal models of the world and social determinants; and applications of knowledge engineering methodologies and tools to requirements engineering and collaborative learning.

She has developed a range of interactive computer programs based on personal construct psychology in widespread use internationally in knowledge engineering, management, clinical and educational studies.

She has consulted widely for industry and government agencies on computer-based problem-solving techniques, including the development of networked participant systems.

She has a first degree in mathematics, a masters in computer science and a doctorate on computer-based systems for knowledge elicitation.

She is a Fellow of the Institute of Mathematics and its Applications, and has been a Fellow of the British Computer Society, an Associate of the British Psychological Society, a Member of the American Psychological Association, and a Member of the Association for Computing Machinery.

Name: Mildred Louise Gill Shaw

Citizenship: U.K. and Canadian.

Career

2017 Honorary Degree, Roehampton University
2000- Professor Emerita, University of Calgary
1986-1999 University of Calgary, Alberta, Canada,
Professor, Dept. of Computer Science,
1996-2001 Industrial Research Chair in Software Engineering,
1998 Member of Faculty of Science Promotions Committee.
1997- Member of Board of Directors of University Technologies International Inc.,
1997-98 Member of Engineering Faculty Appointments Committee for Head of Electrical and Computer Engineering Department,
1996- Member of University Market Supplement Panel,
1996-98 Department of Computer Science Graduate Director/Coordinator,
1996 Co-Chair of the President's Celebration of Excellence Committee,
1996-98 Member of Computer Science Department Executive Committee,
1996-98 Member of Computer Science Department Appointments Committee,
1996-98 Member of Electrical and Computer Engineering Department Appointments Committee,
1996-98 Member of Biology Department Appointments Committee,
1996-98 Member of Faculty of Education Tenure and Promotions Committee,
1996-97 Member of University Annual Report Design Team,
1995-98 Member of Faculty of Science Awards Committee,
1995 Member of Joint CPSC and ENEL Appointments Committee,
1994-98 Member of Faculty of Science Appeals Committee,
1994 Member of Computer Science Department Appointments Committee,
1994 Member of Faculty of Science Tenure and Promotions Committee,
1994-96 Member of Faculty of Science Executive Committee,
1993 Member of University Committee for AGT Distinguished Visitors,
1994-95 Member of Departmental Curriculum Committee,
1992-93 Member of Faculty of Science Scholarly Integrity Committee,
1992-93 Member of Faculty Selection Committee, Department of Biology,
1990-91 Member of General Faculties Council,
1990-91 Member of Faculty of Science Tenure Committee,
1990-91 Member of Faculty of Science Appointments Committee,
1990-91 Member of Department of Educational Psychology Appointments Committee,
1989-90 Member of General Faculties Council Committee on Affiliation of Institutions of Higher Learning with the University of Calgary,
1989-90 Member of University Research Grants Committee,
1989-90 Chairperson of Faculty of Science Women in Science Committee,
1988-90 Member of Faculty of Science Appeals Committee,
1989-90 Member of Faculty Selection Committee, Department of Biology,
1988-89 Member of Faculty Search Committee, Faculty of Education,
1987-88 Member of University Research Policy Committee,
1988 Chartered Psychologist, UK

1985-86 University of Calgary, Alberta, Canada,
Adjunct Professor, Dept. of Computer Science

1984-86 York University, Toronto, Canada,
Professor, Dept. of Computer Science,
Associate Dean, Faculty of Education,
Member of Calumet College Computer Board,
Chairman of Computer Science Tenure and Promotions Committee,
Member of Computer Science Research Committee,
Chairman of Faculty of Education Curriculum Committee,
Member of Faculty of Education Executive and Planning Committee,
Member of Faculty of Education Petitions and Awards Committee,
Member of Faculty of Education Admissions Committee,
Member of Faculty of Education Student Advising Committee,
Member of Faculty of Education Search Committee,
Member of Faculty of Education Computers Across the Curriculum Committee,
Member of University Calendar Committee,
Member of Academic Computer Users' Committee,
Member of Senate Curriculum Committee,
Member of Senate.

1982-84 York University, Toronto, Canada,
Associate Professor, Dept. of Computer Science,
Member of Calumet College Computer Board,
Member of Computer Science Tenure and Promotions Committee,
Department of Computer Science Service Course Director,
Member of Computer Science Executive Committee,
Member of Faculty of Arts Curriculum Committee.

1980-82 Guy's Hospital,
Honorary Research Psychologist in Guy's Hospital Medical School.

1975-78 Brunel University, U.K.,
Ph.D. on Interactive Computer Programs for Developing Personal Models of the World.

1975 University of London
Diploma in Education.

1972-82 Middlesex Polytechnic, London, U.K.,
Senior Lecturer in Education/Mathematics and Computer Science,
Study Area Co-ordinator for Mathematics and Computer Science,
Member of B.Ed. Boards of Studies and Examination Boards,
Member of Academic Committee Sub-Committee for Research Degrees,
Member of London University Institute of Education Computing Committee.

1971-72 University of London Institute of Computer Science,
M.Sc. Computer Science.

1967-71 Birkbeck College, University of London,
B.Sc. Mathematical Sciences, Upper Second.

1967 Mathematical Association
Diploma in Teaching of Mathematics and Advanced Statistics.

1966-71 Assistant Teacher in Comprehensive School,
London Borough of Waltham Forest.

1963-66 Southlands College, University of London,

Teachers Certificate (three-year) with distinction.

1959-63 Thistley Hough School for Girls, Stoke-on-Trent.

1956-59 Grange Girls Grammar School, Bradford.

Editorships

1994- Journal of Constructivist Psychology,
Hemisphere Publishing Company,
Member of the Editorial Board.

1989- Applied Intelligence: The International Journal of Artificial Intelligence, Neural Networks, and Complex Problem-Solving Technologies,
Kluwer Academic Publishers,
Member of the Editorial Board.

1989- Knowledge Acquisition: An International Journal,
Academic Press,
Member of the Editorial Board.

1987-93 International Journal of Personal Construct Psychology,
Hemisphere Publishing Company,
Member of the Editorial Board.

1987- Counselling Psychology, Quarterly, U.K.
Carfax Publishing Company,
Member of the Editorial Board.

1980- International Journal of Human-Computer Studies,
Academic Press,
Member of the Editorial Board.

Referee for

Institute of Electrical Engineers Electronic Letters, U.K.
Fuzzy Sets and Systems, West Germany
British Journal of Medical Psychology, U.K.
Contemporary Psychology: A Journal of Reviews, USA
International Journal of Man-Machine Studies, U.K.
Applied Intelligence, USA
Counselling Psychology, Quarterly, U.K.
Cognitive Science
International Journal of Personal Construct Psychology, USA
IEEE Software, USA
IEEE Expert, USA
IEEE Transactions on Systems, Man and Cybernetics, USA
IEEE Transactions on Knowledge and Data Engineering, USA
ACM Transactions on Information Systems, USA
Intelligent Systems Methodology Conference, USA
Fuzzy Information Processing Conference, USA
NATO Advanced Workshops
National Science Foundation, USA
Natural Sciences and Engineering Research Council of Canada
Social Sciences and Humanities Research Council of Canada
International Joint Conference on Artificial Intelligence
AAAI Knowledge Acquisition for Knowledge Based Systems

Membership of Professional Institutions

Fellow of the Institute of Mathematics and its Applications
Fellow of the British Computer Society
Associate of the British Psychological Society
Member of the American Psychological Association
Member of the Association of Computing Machinery
Member of the Canadian Information Processing Society (CSCSI)
President of the North American Personal Construct Network

Research Funding

National Sciences and Engineering Research Council of Canada

1997-2001	Research grant $29,000 per annum
1995	Equipment grant $37,000 (joint with B.R.Gaines) Collaborative Networking: for multimedia conferencing equipment to support distributed collaborative research.
1984-97	Research grant $25,000 per annum
1988	Equipment grant $53,880 (joint with B.R.Gaines and I.H. Witten)
1985	Equipment grant $38,000 (joint with B.R.Gaines)
1983-84	Operating grant $20,000

Federal Government

1987-89	Knowledge Engineering Project $530,000 (joint with B.R. Gaines, L.Katz, J. Vickers)

Industrial Research Chair in Software Engineering

1996-2001	$75,000 per annum
1998	ARIS Toolset, 5 copies $60,000
1998	IBM Object on Campus, site license $60,000
1998	Object Technologies Inc., 10 copies, $22,500
1998	Gemstone, $25,500
1998	International Databases Inc., graduate award $10,000 for 6 months
1998-99	Isotel Research Ltd: graduate award $15,000 for 1 year
1998-2000	Smart Technologies Inc. graduate award $56,000 for 2 years

LEE3

1998-99	$63,000

Founding member of MACI (Multimedia Advanced Computation Infrastructure)
Share of $2,000,000

Teaching

Graduate courses:

Software Process Management - the analysis of software process maturity models from repeatability, though definition and management to optimization.

Software Quality Management - the analysis nalysis of applicable quality measures for software processes, the role of reviews, metrics, and tools for the automatic derivation of quantitative measures.

Managing the Software Engineering Research Process - research methods for software engineering in an industrial setting.

Trends in Software Engineering - recent developments in various areas of software engineering.

Requirements Engineering - the elicitation, modeling, expression and validation of requirements.

Managing the Software Lifecycle - applications of requirements engineering to the management of the lifecycle of software development from requirements elicitation through analysis, design, coding, testing, enhancement and reuse

Cognitive Processes in Artificial Intelligence - a research course on the foundations of cognitive science and its applications

Artificial Intelligence - a research course on knowledge acquisition, knowledge representation and machine learning

Undergraduate courses:

Software Engineering - the analysis, design, implementation and testing of systems and project management issues

Human-Computer Interaction - the design, implementation and evaluation of systems involving complex human-computer interfaces

Advanced Information Systems - applications of artificial intelligence, expert systems and new technologies in enterprise modeling

Artificial Intelligence - artificial intelligence techniques and current research papers, LISP and PROLOG, natural language interaction, expert systems.

Service courses:

Introduction To Computers - the use of personal computers for elementary programming, word processing, spreadsheets, and data base packages

Information and the Individual - a course designed to show the importance of human-computer interaction in current software;

Introduction To Computer Use - a service course for economics and business majors developed to make use of personal computers.

Graduate Supervision

Supervisor of:

Daniela Herlea, current Ph.D. candidate (Calgary, Computer Science)
John Aldwinckle, current Ph.D. candidate (pt time) (Calgary, Computer Science)
John Frankovitch, current M.Sc. candidate (Calgary, Computer Science)
David Lam, current M.Sc. candidate (Calgary, Computer Science)
Natalie Ng, current M.Sc. candidate (Calgary, Computer Science)
Daniela Herlea, received M.Sc. 1997 (Calgary, Computer Science)
Stuart Morse, received M.Sc. 1996 (Calgary, Computer Science)
Kwang Sim, received doctorate 1995 (Calgary, Computer Science)
Shauna Hoar, received M.Sc. 1993 (Calgary, Computer Science)
Daniel Jaliff, received M.Sc. 1992 (Calgary, Computer Science)
Kwang Sim, received M.Sc. 1992 (Calgary, Computer Science)

Member of Supervisory Committees of:

Connie Guss, current Ph.D. candidate (Calgary, Civil Engineering)
Margo Mayo, current Ph.D. candidate (Calgary, Educational Psychology)
Gail Kopp, current Ph.D. candidate (Calgary, Educational Psychology)
Lee Chen, received doctorate 1997 (Calgary, Computer Science)
Eileen Donahough, received doctorate 1995 (Calgary, Educational Psychology)
John Begoray, received doctorate 1994 (Calgary, Educational Psychology)
Mengchi Liu, received doctorate 1992 (Calgary, Computer Science)
Sherry Winthrope, received M.A. 1986 (York, Psychology)
Robert Stevens, received M.A. 1985 (York, Psychology)
Christopher Mullaley, received doctorate 1985 (Toronto, O.I.S.E.)
Catherine Classen, received M.A. 1984 (York, Psychology)

Examiner for:

Deborah Richardson, received doctorate 1998 (The University of New South Wales, Australia)
Xiaoming Li, received M.Sc. 1997 (Calgary, Computer Science)
Francisco Maturana, received doctorate 1997 (Calgary, Manufacturing Engineering)
Drew Lapsley, received M.Sc. 1996 (Calgary, Computer Science)
David Astells, received M.Sc. 1994 (Calgary, Computer Science)
Wayne Hammond, received M.Sc. 1993 (Calgary, Educational Psychology)
Monika Rieger, received M.Sc. 1991 (Calgary, Geography)
Karen Dutton-Marion, received doctorate 1988 (Calgary, Geography)
David Maulsby, received M.Sc. 1988 (Calgary, Computer Science)
Deborah Leishman, received M.Sc. 1988 (Calgary, Computer Science)
Robert Jansen, received doctorate 1988 (CSIRO, Australia)
Laura Winer, received doctorate 1986 (Concordia, Education)

Industry Consultancy

1985-86 Alberta Research Council
1979-82 Macmillan Stewart Ltd., Industrial Psychologists.
1979-82 Food Drink and Tobacco Industry Training Board.
1979 Air Transport and Travel Industry Training Board, training division.
1978-79 Furniture and Timber Industry Training Board.
1978-82 Director of Personal Construct Services Ltd., a company formed to provide software and consultancy to commerce and industry.
1978 System Research (project on decision-making in complex systems)
1977 Marks and Spencer (project on quality control in knitwear).
1976-78 Admiralty Marine Technology Establishment Applied Psychology Unit,
self-organization in learning;
provision and application of software for HP and Wang computers.
1976-77 ICI Paints Division (project on staff appraisal).
1976 ICL Management (project on selection of observers in assessment centres.
1976 Wiggins Teape (project on effective management).

Interactive Knowledge Elicitation Programs

1995- Development of a suite of computer programs for requirements engineering from a diverse group of users operating over the World Wide Web.

1985- Development of a suite of computer programs for group problem solving using a network of interactive workstations to elicit expertise on a topic and then explore agreement and understanding between members of the group.

1975- Development of a suite of computer programs for interactive elicitation of psychological construct structures for use in management, quality control, psychiatry and education. These programs are now in use by psychologists and management consultants internationally and I have joint research activities with many of them on the application of the programs to psychological, psychiatric and management studies.

Users include over 90 institutions and companies in the United Kingdom, 50 institutions and companies in the United States, 30 institutions and companies in Australia, 15 institutions and companies in Canada, and over 30 other institutions and companies worldwide. These include institutions and companies in Ireland, Portugal, Norway, Finland, Sweden, Denmark, Italy, Switzerland, Israel, Netherlands, Germany, New Zealand, Hong Kong and Malaysia. In the past few years there have been users from many other countries accessing the programs on the web.

Research and Industrial Links

Completed work is reflected in published papers listed below; current projects on requirements engineering; computer contributions to Cognitive Science; user-friendly communication with computers; logical analysis of personal construct structures; conversational techniques for person-computer interaction; and knowledge engineering for expert systems including validation issues and problems with multiple experts; cognitive support tools for GDSS.

My research activities throughout my career have been concerned with the human-technology interface and the development of methodologies and tools for modeling it through the elicitation of conceptual and organizational models. For my doctoral research I developed an operational cognitive modeling system based on the axiomatic structure of Kelly's personal construct psychology and implemented this in interactive computer programs that elicited and analyzed the conceptual structures of individuals and organizational groups. The evaluation of this system involved field studies with ICI and with the manufacturers supplying Marks and Spencer in order to study problems of personnel selection and manufacturing quality control. Over the years I have collaborated with many research groups internationally to port the tools I developed to operate on successive generations of computers, and to support their application in a wide range of applications from manufacturing and management to education and clinical psychology.

In the 1980s my research group proposed that these tools be used for knowledge engineering in the development of knowledge-based or "expert" systems, and demonstrated their use in knowledge elicitation for the development of accounting systems. This proposal and demonstration aroused major industrial interest and resulted in a fruitful period of collaboration with Boeing Computer Services, Neuron Data, and other industrial research groups in the late 1980s that generated a new family of knowledge modeling tools based on my original design.

Because of the demands of practical knowledge engineering we extended the methodologies and tools to support knowledge management at every stage of the modeling process: from hypermedia systems to handle a large and heterogeneous collection of knowledge sources in a range of media; through knowledge structuring using repertory grid and concept mapping techniques deriving from personal construct psychology; to knowledge formalization using semantic networks and terminological logics resulting in computational knowledge structures. Even though these methodologies and tools were originally targeted on knowledge-based system development, it was clear to me from my previous studies with industry that they could be used for organizational studies and knowledge management even when the target was not to build an artificial intelligence system.

At the University of Calgary I am not only involved in cognitive science, human-computer interaction and artificial intelligence, but also became responsible for the required course on software engineering. Since the syllabus already encompasses the technicalities of algorithms, programming, and so on, the focus of this course is on the management of software manufacturing processes, the specification of requirements, the definition of a system satisfying these specifications, and the evaluation of the system against the requirements. It became clear to me that much of the research on knowledge engineering was directly applicable to problems of requirements elicitation and tracking, and to the modeling of software manufacturing processes. One of my masters students investigated the use of knowledge modeling in software maintenance and in my senior undergraduate course on advanced information systems I

introduce students to the conceptual modeling tools and provided them for use in their own project specifications. Similarly, in my graduate teaching I tutor students in the use of the tools to frame their research requirements and to model the differential understanding of their research topics with students and faculty in their research groups. I also undertook longitudinal studies of the knowledge processes involved in other technical research groups in the university.

Much of my research was undertaken within the Knowledge Science Institute (KSI) which was established at the University of Calgary in 1985 with a mandate to study the knowledge economy and knowledge processes in science and engineering. My colleague in the KSI, Dr Brian Gaines, has close links with the Division of Manufacturing Engineering (DME) at the University of Calgary, and he has collaborated with Dr Douglas Norrie of the DME in the application of the knowledge management methodologies and tools to the management of the research of an international project on Intelligent Manufacturing Systems (IMS) that involves 31 organizations in 14 different countries. My original research studies included group knowledge elicitation and modeling tools, and we have previously developed groupware versions of the knowledge modeling tools and applied them to the coordination of various knowledge engineering and manufacturing processes. The international structure of the IMS project made it important that these tools be made available over the Internet, and much of our research in the past several years has been concerned with re-engineering them to operate in client-server mode over the World Wide Web. There are security problems in operating through the web, and one of my graduate students developed an administrative system for the Faculty of Kinesiology as part of his masters research that explicitly addresses the security issues. Web servers and browsers now offer a highly cost-effective client-server technology which addresses security issues.

The University of Calgary has established an Industrial Research Chair to undertake research in Software Engineering/Manufacturing, aimed at strengthening the software manufacturing capabilities of Alberta and Canada. The Chair is held in the Department of Computer Science, in the Faculty of Science, and collaborates with the Department of Electrical and Computer Engineering, in the Faculty of Engineering. I am the first holder of this Chair. Funds and infrastructure support for the Chair and related research costs (including additional personnel, student scholarships, and equipment) are provided by Motorola Inc., Computing Devices Canada, Perigon Solutions Inc., Nortel Networks, the Alberta Provincial Government (Department of Economic Development and Tourism), and the University of Calgary. Alberta has developed a major industry in software manufacturing, with some 2000 companies addressing worldwide software markets. The research mandate describes programs to support the improvement of software manufacturing processes of major significance to Alberta industry. The chairholder and the associated replacement faculty and research staff form the nucleus of a group that fosters interaction between academia and industry in the area of software manufacturing.

A program of research has been developed in consultation with the industrial sponsors that addresses the highest priority issues foreseen for the software industry over the next decade. It focuses on the need for repeatable, defined, managed and optimized software manufacturing processes throughout the software manufacturing life cycle from requirements to replacement. The main objectives and activities of the Chair are:

- To establish research and graduate training activities at the University of Calgary that will develop highly qualified personnel in industrial software manufacturing.
- To establish an organizational infrastructure at the University of Calgary supporting a long-term program of university-industry collaborative research on software manufacturing.

- To establish a centre of excellence at the University of Calgary in research and development concerned with the knowledge flows and processes underlying the software manufacturing lifecycle.
- To undertake fundamental research on requirements elicitation, specification and tracking methodologies in an industrial setting.
- To undertake fundamental research on modeling and tracking software manufacturing processes in an industrial setting.
- To develop knowledge-level workflow tools applicable to requirements engineering and software manufacturing processes.
- To evaluate the methodologies and tools in industrial software organizations.

The Chair mandate can be seen in detail at http://ksi.cpsc.ucalgary.ca/SERN/ChairMandate.html.

Books

Mancuso, J.C. & Shaw, M.L.G. (1988). Eds. **Cognition and Personal Structure: Computer Access and Analysis**. New York: Praeger Press.

Gaines, B.R. & Shaw, M.L.G. (1984). **The Art of Computer Conversation**. New York: Prentice Hall.

Shaw, M.L.G., Ed. (1981). **Recent Advances in Personal Construct Technology**. London: Academic Press.

Shaw, M.L.G. & McKnight, C. (1981). **Think Again**. New York: Prentice Hall.

Shaw, M.L.G. (1980). **On Becoming A Personal Scientist: Interactive Computer Elicitation of Personal Models Of The World**. London: Academic Press.

Invited Tutorials

Shaw, M.L.G. (1995) Tutorial on Requirements Elicitation. **British Computer Society**, Imperial College, London, UK.

Shaw, M.L.G. (1990) Tutorial on Artificial Intelligence and Knowledge Acquisition. **1990 Summer Computer Simulation Conference**, Calgary, Alberta, Canada.

Shaw, M.L.G. & Boose, J.H. (1989) Knowledge Acquisition. **Eleventh International Joint Conference on Artificial Intelligence (IJCAI '89)**, Detroit, Michigan, USA.

Shaw, M.L.G. & Gaines, B.R. (1989) Knowledge Acquisition Methodologies. **Second International Symposium on Expert Systems in Business, Finance and Accounting**, Newport Beach, Calif., USA.

Shaw, M.L.G. (1989) Knowledge Acquisition: The State of the Art. **International Colloquium on Cognitive Science in Organizations (ICO '89)**, Quebec City, Canada.

Shaw, M.L.G. & Gaines, B.R. (1989) Knowledge Acquisition: Some Foundations, Manual Methods and Future Trends. **Third European Knowledge Acquisition for Knowledge-Based Systems Workshop (EKAW '89)**, Paris, France.

Shaw, M.L.G. (1987) Knowledge Support Systems. **Society for Computer Simulation Multiconference (MULTI '87)**, San Diego, California, USA.

Papers in Refereed Journals

Gaines, B. R. and Shaw, M. L. G. (2012). Computer aided constructivism. **Constructivist Methods** Caputi, P., Viney, L. L., Walker, B. M. and Crittenden, N., eds., pp. 183-222. Wiley, New York.

Shaw, M. L. G. and Gaines, B. R. (2005). Expertise and expert systems: emulating psychological processes. **The Essential Practitioner's Handbook of Personal Construct Psychology** Fransella, F., ed, pp. 87-94. Wiley, Chichester, UK.

Gaines, B. R. and Shaw, M. L. G. (2001). Human-computer interaction in online communities. **Journal of Research and Practice in Information Technology** 33, 3-15.

Gaines, B. R. and Shaw, M. L. G. (2001). WebGrid-III: Access to distributed knowledge modeling tools through the web. **Proceedings of IJCAI2001 Workshop on Effective**

Interactive Artificial Intelligence Resources Greiner, R., ed, pp. 17-22. AAAI, Menlo Park, CA.

Damian, D. E. H., Eberlein, A., Woodward, B., Shaw, M. L. G. and Gaines, B. R. (2001). An empirical study of facilitation of computer-mediated distributed requirements negotiations." **Proceedings. Fifth IEEE International Symposium on Requirements Engineering**.

Shaw, M. L. G. and Gaines, B. R. (2000). Learning environments for meta-competencies in software engineering. **Proceedings of International Conference on Mathematics / Science Education and Technology 2000**, pp. 356-362. Association for the Advancement of Computing in Education (AACE).

Herlea Damian, D. E., Eberlein, A., Shaw, M. L. G. and Gaines, B. R. (2000). The effects of communication media on group performance in requirements engineering. **Proceedings. 4th International Conference Requirements Engineering.**

Damian, D. E. H., Eberlein, A., Shaw, M. L. G. and Gaines, B. R. (2000). Using different communication media in requirements negotiation**. IEEE Software** 17, 28-36.

Shaw, M. L. G. and Gaines, B. R. (1999). Modeling the social practices of users in Internet communities. **UM99: User Modeling: Proceedings of the Seventh International Conference** Kay, J., ed, pp. 77-86. Springer, New York.

Gaines, B.R. & Shaw, M.L.G. (1999) Embedding formal knowledge models in active documents. **Communications of the ACM, 42,** 57-63 January).

Gaines, B.R., Chen, L.L.-J. & Shaw, M.L.G. (1997) Modeling the human factors of scholarly communities supported through the Internet and World Wide Web**. Journal American Society Information Science, 48,** 987-1003.

Gaines, B.R. & Shaw, M.L.G. (1997) Knowledge acquisition, modeling and inference through the World Wide Web. **International Journal of Human-Computer Studies 46**(6), 729-759 (June).

Shaw, M.L.G. & Gaines, B.R. (1996). Requirements acquisition. **Software Engineering Journal, 11**(3), 149-165.

Gaines, B.R. & Shaw, M.L.G. (1995) WebMap: concept mapping on the web. **World Wide Web Journal 1**(1) 171-183.

Gaines, B.R. & Shaw, M.L.G. (1995) Concept maps as hypermedia components. **International Journal of Human-Computer Studies 43** (3), 323-361.

Shaw, M.L.G. (1994) A methodology for sharing personal construct systems. **International Journal of Constructivist Psychology, 7**(1)**,** 35-51.

Shaw, M.L.G. (1994). Women, scholarship and information technology: a post-modern perspective. **Transactions of the Royal Society of Canada** pp.113-131. Ottawa, Canada.

Gaines, B.R. & Shaw, M.L.G. (1993). Knowledge acquisition tools based on personal construct psychology. **Knowledge Engineering Review, 8**(1), 49-85.

Gaines, B.R., Shaw, M.L.G. & Woodward, J.B. (1993). Modeling as a framework for knowledge acquisition methodologies and tools. **International Journal of Intelligent Systems.** 8(2) 155-168.

Gaines, B.R. & Shaw, M.L.G. (1993). Eliciting knowledge and transferring it effectively to a knowledge-based system. **IEEE Transactions on Knowledge and Data Engineering. 5**(1) 4-14.

Gaines, B.R., Rappaport, A. & Shaw, M.L.G. (1992). Combining paradigms in knowledge engineering. **Data and Knowledge Engineering, 9,** 1-18.

Shaw, M.L.G. & Gaines, B.R. (1992). Kelly's "Geometry of psychological space" and its significance for cognitive modeling. **New Psychologist**, 21-31.

Gaines, B.R. & Shaw, M.L.G. (1992). Integrated knowledge acquisition architectures. **Journal for Intelligent Information Systems 1,** 9-34.
Shaw, M.L.G. & Woodward, J.B. (1990). Modeling expert knowledge. **Knowledge Acquisition: An International Journal,** 179-206.
Shaw, M.L.G. & Gaines, B.R. (1989) Comparing conceptual structures: consensus, conflict, correspondence and contrast. **Knowledge Acquisition: An International Journal, 1,** 341-363.
Shaw, M.L.G. (1989) Interactive elicitation and exchange of knowledge in group problem solving. **International Journal of Personal Construct Psychology, 2,** 215-238.
Shaw, M.L.G. & Woodward, J.B. (1988). Validation in a knowledge support system: construing and consistency with multiple experts. **International Journal of Man-Machine Studies, 29,** 329-350.
Shaw, M.L.G. (1988). An interactive knowledge-based system for group problem solving. **IEEE Transactions on Systems, Man, and Cybernetics, 18,** 610-617.
Shaw, M.L.G. & Gaines, B.R. (1987). KITTEN: Knowledge Initiation & Transfer Tools for Experts & Novices. **International Journal of Man-Machine Studies, 27**, 251-280.
Gaines, B.R. & Shaw, M.L.G. (1986). The changing technologies underlying computer-aided design. **Environment and Planning B: Planning & Design, 13**(4) 377-384.
Shaw, M.L.G. & Gaines, B.R. (1986). Interactive elicitation of knowledge from experts. **Future Computing Systems**, **1**(2), 151-190.
Gaines, B.R. & Shaw, M.L.G. (1986). A learning model for forecasting the future of information technology. **Future Computing Systems**, **1**(1), 31-69.
Gaines, B.R. & Shaw, M.L.G. (1986). Induction of inference rules for expert systems. **Fuzzy Sets and Systems**, **18**(3), 315-328 (April).
Gaines, B.R. & Shaw, M.L.G. (1986). Foundations of dialog engineering: the development of human-computer interaction part II. **International Journal of Man-Machine Studies**, **24**(1), 101-123 (February).
Gaines, B.R. & Shaw, M.L.G. (1986). From timesharing to the sixth generation: the development of human-computer interaction part I. **International Journal of Man-Machine Studies**, **24**(1), 1-27 (January).
Gaines, B.R. & Shaw, M.L.G. (1985). From fuzzy logic to expert systems. **Information Science**, **36**(1-2), 5-16 (July).
Shaw, M.L.G. & Gaines, B.R. (1982). Tracking the Creativity Cycle with a Microcomputer. **International Journal of Man-Machine Studies**, **17**(1), 75-85 (July).
Shaw, M.L.G. (1982). PLANET: some experience in creating an integrated system for repertory grid applications on a microcomputer. **International Journal of Man-Machine Studies**, **17**(3), 345-360.
Kevill, F., Shaw, M.L.G. & Goodacre, E. (1982). In-service diploma course evaluation using repertory grids. **British Educational Research Journal**, **8**(1), 1-12.
Pope, M.L. & Shaw, M.L.G. (1981). Personal construct psychology in education and learning. **International Journal of Man-Machine Studies**, **14**, 223-232.
Shaw, M.L.G. & Gaines, B.R. (1981). Recent advances in the analysis of a repertory grid. **British Journal of Medical Psychology**, **54**, 307-318.
Kevill, F. & Shaw, M.L.G. (1980). A repertory grid study of staff/student interactions. **Psychology Teaching**, **8**(1), 29-36.
Shaw, M.L.G. (1980). Acquisition of personal knowledge. **International Journal of Policy Analysis and Information Systems (Special Issue on Knowledge Acquisition and Induction)**, **4**, 401-429.

Shaw, M.L.G. (1980). The analysis of a repertory grid. **British Journal of Medical Psychology**, **53**, 117-126.
Gaines, B.R. & Shaw, M.L.G. (1980). New directions in the analysis and interactive elicitation of personal construct systems. **International Journal of Man-Machine Studies**, **13**, 81-116.
Shaw, M.L.G. & McKnight, C. (1980). ARGUS: a program to explore intra-personal personalities. **International Journal of Man-Machine Studies**, **13**, 59-68.
Shaw, M.L.G. (1979). Conversational heuristics for eliciting shared understanding. **International Journal of Man-Machine Studies**, **11**, 621-634.
Shaw, M.L.G. (1979). Personal learning through the computer. **Computers and Education, 4**(3), 267-272.
Shaw, M.L.G. & Thomas, L.F. (1979). Extracting an education from a course of instruction. **British Journal of Educational Technology**, **10**(1), 5-17.
Shaw, M.L.G. & Thomas, L.F. (1978). FOCUS on education: an interactive computer system for the development and analysis of repertory grids. **International Journal of Man-Machine Studies**, **10**, 139-173.

Papers in Refereed Conference Proceedings and Books

Jacobsen, D.M., Wijngaard, N.J.E., Kremer, R., Shaw, M.L.G. & Gaines, B.R**. The Comparative Evaluation of Classroom and Distance Sections of an Industrial Software Engineering Graduate Course**. Paper to be presented at M/SET 99: International Conference on Mathematics/Science Education & Technology March 1-4 1999, San Antonio, Texas.

Wijngaard, N.J.E., Jacobsen, D.M., Kremer, R. & Shaw, M.L.G**. The Learning Web: A Technical Evaluation of WebCT in Concurrent Classroom and Distance Education Sections of a Software Engineering Graduate Course**. Paper submitted to the World Conference on Educational Multimedia/Hypermedia & Educational Telecommunication, June 19-24, 1999, Seattle, Washington.

Jacobsen, D.M., Wijngaard, N.J.E., Kremer, R. & Shaw, M.L.G**. The Learning Web: A Comparison of Learning Environments in Concurrent Classroom and Distance Education Sections of a Software Engineering Graduate Course**. Paper submitted to the World Conference on Educational Multimedia/Hypermedia & Educational Telecommunication, June 19-24, 1999, Seattle, Washington.

Kremer, R., Jacobsen, D.M., Wijngaard, N.J.E. & Shaw, M.L.G**. The Learning Web: The Instructor's Experience In Concurrent Classroom and Distance Education Sections of a Software Engineering Graduate Course**. Paper submitted to the World Conference on Educational Multimedia/Hypermedia & Educational Telecommunication, June 19-24, 1999, Seattle, Washington.

Gaines, B.R., Jacobsen, D.M., Kremer, R., Shaw, M.L.G. & Wijngaard, N.J.E. (authors alphabetical). (1998). **The Comparative Evaluation of a Classroom and Distance Industrial Software Engineering Graduate Course**, TeleLearning 1998 - Building Global Telelearning Communities, November 14 - 17, 1998, Vancouver, British Columbia.

Gaines, B.R., Kremer, R. & Shaw, M.L.G. (authors alphabetical). (1998). **An Interacting Team Approach to Collaborative Learning with Large Undergraduate Software Engineering**

Classes Using the Web, TeleLearning 1998 - Building Global Telelearning Communities, November 14 - 17, 1998, Vancouver, British Columbia.

Gaines, B.R. & Shaw, M.L.G. (1998). Developing for web integration in Sisyphus-IV: WebGrid-II experience. Gaines, B.R. & Musen, M. (Eds) **Proceedings of the Eleventh Knowledge Acquisition for Knowledge-Based Systems Workshop.** pp.SIS-3: 1-12. Banff (April).

Shaw, M.L.G. & Gaines, B.R. (1998). WebGrid-II: developing hierarchical knowledge structures. Gaines, B.R. & Musen, M. (Eds) **Proceedings of the Eleventh Knowledge Acquisition for Knowledge-Based Systems Workshop.** pp.SIS-7: 1-15. Banff (April).

Shaw, M.L.G. & Gaines, B.R. (1998). A research-based masters program in the workplace. **Proceedings of WCCCE '98: Western Canadian Conference on Computing Education.** http://panache.cs.ubc.ca/wccce/program98/mildred/mildred. html. Vancouver (May).

Gaines, B.R. & Shaw, M.L.G. (1998). Socio-cultural implcations of personal construct psychology. **Proceedings of NAPCN98: Constructivism in Psychology and the Human Sciences.** Denton, Texas (June).

Shaw, M.L.G. & Gaines, B.R. (1998). Using WebGrid-II to support exchange and comparison of construct systems in communities on the World Wide Web**. Proceedings of NAPCN98: Constructivism in Psychology and the Human Sciences.** Denton, Texas (June).

Herlea, D.E., Shaw, M.L.G. & Gaines, B.R. (1998). Locales for requirements engineering. **IT & NOWS: Information Technologies and Knowledge Systems: Proceedings of the XV IFIP World Computer Congress.** Vienna & Budapest, 245-258.

Shaw, M.L.G. & Gaines, B.R. (1997). Collaboration and negotiation through the learning web. Müldner, T. & Reeves, T.C. (Eds.) **Proceedings of ED-MEDIA/ED-TELECOM 97: World Conference on Educational Multimedia/Hypermedia and Telecommunications**. pp 1390-1391. Charlottesville, VA: Association for the Advancement of Computing in Education (June).

Herlea, D.E., Shaw, M.L.G. & Gaines, B.R. (1997). The learning web in the workplace. Müldner, T. & Reeves, T.C. (Eds.) **Proceedings of ED-MEDIA/ED-TELECOM 97: World Conference on Educational Multimedia/Hypermedia and Telecommunications**. pp 461-466. Charlottesville, VA: Association for the Advancement of Computing in Education (June).

Shaw, M.L.G. and Gaines, B.R. (1997). Using the web to support cooperative learning in software engineering. Tsiknis, G.K., Ed. **Proceedings of WCCCE'97: 2nd Western Canadian Conference on Computing Education.** pp. 63-72. Nanaimo, BC: Malaspina College.

Gaines, B.R. & Shaw, M.L.G. (1997). Institutional transformation to a learning web. Müldner, T. & Reeves, T.C. (Eds.) **Proceedings of ED-MEDIA/ED-TELECOM 97: World Conference on Educational Multimedia/Hypermedia and Telecommunications**. pp 384-389. Charlottesville, VA: Association for the Advancement of Computing in Education (June).

Gaines, B.R. & Shaw, M.L.G. (1996). WebGrid: Knowledge modeling and inference through the World Wide Web. Gaines, B.R. & Musen, M. (Eds) **Proceedings of the Tenth Knowledge Acquisition for Knowledge-Based Systems Workshop**. pp.65-1-65-14. Banff (November).

Gaines, B.R. and Shaw, M.L.G. (1996) A networked, open architecture knowledge management system. Gaines, B.R. & Musen, M. (Eds) **Proceedings of the Tenth Knowledge Acquisition for Knowledge-Based Systems Workshop**. pp. 45-1-45-22. Banff (November).

Gaines, B.R., D.H. Norrie, Lapsley, A.Z. and Shaw, M.L.G. (1996) Knowledge Management for Distributed Enterprises. Gaines, B.R. & Musen, M. (Eds) **Proceedings of the Tenth**

Knowledge Acquisition for Knowledge-Based Systems Workshop. pp. 37-1-37-18. Banff (November).

Shaw, M.L.G. and Gaines, B.R. (1996). WebGrid: knowledge elicitation and modeling on the web. Maurer, H., Ed. **Proceedings of WebNet'96**. pp. 425-432. Charlottesville, VA, Association for the Advancement of Computing in Education.

Gaines, B.R., Shaw, M.L.G. and Chen, L.L.-J. (1996). Utility, usability and likeability: dimensions of the net and web. Maurer, H., Ed. **Proceedings of WebNet'96**. pp. 167-173. Charlottesville, VA, Association for the Advancement of Computing in Education.

Shaw, M.L.G. and Gaines, B.R. (1996). Distributed knowledge modeling through the World Wide Web. **AAAI-96 Workshop:Internet-Based Information Systems.** pp.103-112. Menlo Park, California, AAAI.

Shaw, M.L.G. and Gaines, B.R. (1996). Participatory design and validation of knowledge-based systems through the web. **AAAI-96 Workshop: Validation and Verification of Knowledge-Based Systems and Subsystems.** pp.135-144. Menlo Park, California, AAAI.

Gaines, B.R., Norrie, D.H. & Shaw, M.L.G. (1996). Foundations for the learning web. Carlson, P. & Makedon, F. (Eds.) **Proceedings of ED-TELECOM 96: World Conference on Educational Telecommunications**. pp 109-114. Charlottesville, VA: Association for the Advancement of Computing in Education (June).

Gaines, B.R. & Shaw, M.L.G. (1996). Implementing the learning web. Carlson, P. & Makedon, F. (Eds.) **Proceedings of ED-TELECOM 96: World Conference on Educational Telecommunications**. p 359. Charlottesville, VA: Association for the Advancement of Computing in Education (June).

Shaw, M.L.G. & Gaines, B.R. (1996). Experience with the learning web. Carlson, P. & Makedon, F. (Eds.) **Proceedings of ED-TELECOM 96: World Conference on Educational Telecommunications**. pp 320-325. Charlottesville, VA: Association for the Advancement of Computing in Education (June).

Gaines, B.R. & Shaw, M.L.G. (1995). Knowledge acquisition and representation techniques in scholarly communication. **Proceedings SIGDOC'95: ACM 13th Annual International Conference on Systems Documentation**. pp.197-206. New York: ACM Press.

Shaw, M.L.G. & Gaines, B.R. (1995) Comparing constructions through the web. **Proceedings of CSCL95: Computer Supported Cooperative Learning.** pp.300-307. Mahwah, NJ: Lawrence Erlbaum.

Gaines, B.R. & Shaw, M.L.G. (1995) Collaboration through concept maps. **Proceedings of CSCL95: Computer Supported Cooperative Learning.** pp.135-138. Mahwah, NJ: Lawrence Erlbaum.

Shaw, M.L.G. & Gaines, B.R. (1995) Knowledge and requirements engineering. Gaines, B.R. & Musen, M. (Eds) **Proceedings of the Ninth AAAI Knowledge Acquisition for Knowledge-Based Systems Workshop.** pp.44-1-44-22. Banff (February).

Shaw, M.L.G. and Gaines, B.R. (1994). Requirements acquisition. **Proceedings of Requirements Elicitation for Software-Based Systems**,. Keele, UK.

Gaines, B.R. and Shaw, M.L.G. (1994). Using knowledge acquisition and representation tools to support scientific communities. **AAAI'94: Proceedings of the Twelfth National Conference on Artificial Intelligence.** pp.707-714. Menlo Park, California, AAAI Press/MIT Press.

Gaines, B.R. and Shaw, M.L.G. (1994). Concept maps indexing multimedia knowledge bases. **AAAI-94 Workshop: Indexing and Reuse in Multimedia Systems**. pp.36-45. Menlo Park, California, AAAI.

Shaw, M.L.G. and Gaines, B.R. (1994). Knowledge support systems for constructively channeling conflict in group dynamics. **AAAI-94 Workshop: Models of Conflict Management**. pp.107-116. Menlo Park, California, AAAI.

Gaines, B.R. and Shaw, M.L.G. (1994). The production of multimedia publications. **Proceedings IPPC'94: IEEE Professional Communication Society Conference**. pp.298-303.. New York: IEEE Press.

Gaines, B.R. and Shaw, M.L.G. (1994). Knowledge acquisition and representation techniques in scholarly communication. **Proceedings SIGDOC'94: ACM 1994 SIGDOC Conference.**pp.251-260. New York: ACM Press.

Shaw, M.L.G. and Gaines, B.R. (1994). Active documents combining multimedia and expert systems. **Proceedings SIGDOC'94: ACM 1994 SIGDOC Conference. New York: ACM Press.**

Woodward, J.B. & Shaw, M.L.G. (1994). Cognition support tools for knowledge acquisition. Gaines, B.R. & Musen, M.A. (Eds) **Proceedings of the Eighth AAAI Knowledge Acquisition for Knowledge-Based Systems Workshop.** pp. 13-1 — 13-20, Banff, Canada.

Shaw, M.L.G., Gaines, B.R. & Linster, M. (1994). Supporting the knowledge engineering life cycle. Bramer, M.A. & Macintosh, A.L., Eds. **Research and Development in Expert Systems XI** pp.73-86. Oxford: SGES Publications.

Shaw, M.L.G. & Gaines, B.R. (1993). Group knowledge elicitation over networks. Bramer, M.A.& Macintosh, A.L., (Eds) **Research and Development in Expert Systems X.** 43-62. Oxford: BHR Group.

Shaw, M.L.G. & Gaines, B.R. (1993). Personal construct psychology foundations for knowledge acquisition and representation. Aussenac, N., Boy, G., Gaines, B., Linster, M., Ganascia, J.G. & Kodratoff, Y. (Eds) **Knowledge Acquisition for Knowledge-Based Systems.** 256-276. Berlin: Springer.

Shaw, M.L.G. & Gaines, B.R. (1993) A methodology for analyzing terminological and conceptual differences in language use across communities. Kohler, R.& Rieger, B.B., (Eds) **Contributions to Quantitative Linguistics,** Netherlands: Kluwer, 91-138.

Gaines, B.R. & Shaw, M.L.G. (1993) Open architecture multimedia documents. **Proceedings First ACM International Conference on MultiMedia,** pp 137-146. Anaheim (August).

Gaines, B.R. & Shaw, M.L.G. (1993) Supporting the creativity cycle through visual languages. **AAAI Spring Symposium: AI and Creativity.** pp. 155-162. Stanford (March).

Shaw, M.L.G. & Gaines, B.R. (1992). RepGrid-Net: Combining conceptual modeling with electronic mail to provide group decision support. Gaines, B.R., Musen, M.A. & Boose, J.H. (Eds) **Proceedings of the Seventh AAAI Knowledge Acquisition for Knowledge-Based Systems Workshop.** Banff (October).

Gaines, B.R. & Shaw, M.L.G. (1992). KWrite: Incorporating active knowledge bases in multi-media documents. Gaines, B.R., Musen, M.A. & Boose, J.H. (Eds) **Proceedings of the Seventh AAAI Knowledge Acquisition for Knowledge-Based Systems Workshop.** Banff (October).

Shaw, M.L.G. & Gaines, B.R. (1992). Knowledge modeling for software design. **Proceedings of the AAAI Workshop on Automating Software Design.** pp.134-138. San Jose, California (July).

Sim, K. & Shaw, M.L.G. (1992). KLOKE: a KL-ONE knowledge editor. **Proceedings of the AAAI Workshop on Knowledge Representation Aspects of Knowledge Acquisition.** pp.147-155. San Jose, California (July).

Gaines, B.R. & Shaw, M.L.G. (1992). A knowledge acquisition architecture unifying the different stages of knowledge representation. **Proceedings of the AAAI Workshop on Knowledge Representation Aspects of Knowledge Acquisition.** pp.35-43. San Jose, California (July).

Gaines, B.R. & Shaw, M.L.G. (1992). Managing quality assurance in integrated knowledge acquisition and performance systems. **Proceedings of the AAAI Workshop on Knowledge-Based Systems Verification, Validation and Testing.** San Jose, California (July).

Shaw, M.L.G. & Gaines, B.R. (1992) Kelly's psychological geometry as an intensional logic of knowledge representation. **AAAI Spring Symposium: Cognitive Aspects of Knowledge Acquisition.** pp. 203-211. Stanford (March).

Shaw, M.L.G. & Gaines, B.R. (1992). The synthesis of knowledge engineering and software engineering. Loucopulos, P. (Ed.). **Advanced Information Systems Engineering: 4th International Conference CAiSE92 Manchester, UK, May 1992 Proceedings**. pp.208-220. Berlin: Springer.

Gaines, B.R., Linster, M. & Shaw, M.L.G. (1992). An integrated knowledge support system. **Proceedings of the International Conference on Fifth Generation Computer Systems,** Tokyo: ICOT 1157-1164.

Shaw, M.L.G. & Gaines, B.R. (1992). On the relationship between repertory grid and term subsumption knowledge structures: theory, practice and tools. Bramer, M.A.& Milne, R.W., (Eds) **Research and Development in Expert Systems IX.** Cambridge: University Press, 126-144.

Gaines, B.R. & Shaw, M.L.G. (1992). Documents as expert systems. Bramer, M.A.& Milne, R.W., (Eds) **Research and Development in Expert Systems IX.** Cambridge: University Press, 331-349.

Woodward, J.B., Shaw, M.L.G.& Gaines, B.R. (1992). The cognitive basis of knowledge engineering. Schmalhofer, F., Strube, G.& Wetter, Th.(eds.) **Contemporary Knowledge Engineering and Cognition** Springer-Verlag: Heidleberg 191-218.

Gaines, B.R. & Shaw, M.L.G. (1991) Foundations of knowledge acquisition. Matoda, H., Misoguchi, R., Boose, J.H. & Gaines, B.R. (Eds) **Knowledge Acquisition for Knowledge-Based Systems.** Tokyo:IOS Press 3-24.

Shaw, M.L.G. (1991). Personal construct psychology as a foundation for cognitive and computational knowledge representation. **Proceedings of Ninth International Congress on Personal Construct Psychology**. Albany, New York.

Shaw, M.L.G. & Gaines, B.R. (1991). Extending electronic mail with conceptual modeling to provide group decision support. **COCS'91: Proceedings of Conference on Organizational Computing Systems**. pp.153-158. ACM Press (November).

Shaw, M.L.G. & Gaines, B.R. (1991). Using knowledge acquisition tools to support creative processes. Boose, J.H. & Gaines, B.R. (Eds) **Proceedings of the Sixth AAAI Knowledge Acquisition for Knowledge-Based Systems Workshop.** Banff (October).

Shaw, M.L.G. & Gaines, B.R. (1991). Group decision support systems for knowledge based systems development. pp.1-13. **Proceedings of the Fourth International Symposium on Expert Systems in Business, Finance and Accounting.** Los Angeles (October).

Shaw, M.L.G. & Gaines, B.R. (1991). Mapping creativity with knowledge support tools. **Proceedings of the AAAI Workshop on Creativity: Models, Methods and Tools.** pp.32-45. Anaheim, California (July).

Shaw, M.L.G. & Gaines, B.R. (1991). Integrating knowledge acquisition techniques with electronic mail to provide knowledge support systems for group collaboration. **Proceedings**

of the AAAI Workshop on Knowledge Acquisition: From Science to Technology to Tools. pp.16-28. Anaheim, California(July).

Shaw, M.L.G. & Gaines, B.R. (1991). Group decision support for the verification and validation process. **Proceedings of the AAAI Workshop on Knowledge-Based Systems Verification, Validation and Testing.** pp.48-55. Anaheim, California (July).

Shaw, M.L.G. & Gaines, B.R. (1991). Supporting personal networking through computer networking **Proceedings of CHI'91: Human Factors in Computing Systems**. pp.437-438. New York: ACM Publications.

Shaw, M.L.G. & Gaines, B.R. (1991). Integration of knowledge acquisition techniques within a group decision support systems framework. **Proceedings of the Fifth European Workshop on Knowledge Acquisition for Knowledge-Based Systems (EKAW'91).** pp.5-1-5-15. Crieff, Scotland (June).

Shaw, M.L.G. & Gaines, B.R. (1991). Knowledge support systems: integrated knowledge acquisition and expert systems. Hamza, M.H., Ed. **Proceedings of the IASTED International Symposium on Computers, Electronics, Communication and Control.** pp.170-173. Anaheim: Acta Press.

Shaw, M.L.G. & Gaines, B.R. (1990). Integration issues in knowledge support environments.. Hamza, M.H., Ed. **Proceedings of the Sixth IASTED International Conference.** Los Angeles (December) 23-26.

Gaines, B.R., Rappaport, A. & Shaw, M.L.G. (1990) A knowledge support system integrating knowledge acquisition, hypermedia, database and expert system technologies. **Proceedings of the Fifth Annual AI Systems in Government.** Washington (May).

Shaw, M.L.G. & Gaines, B.R. (1990). Computer support of a conversation-theoretic methodology. Gilbert, N., Ed.. **Proceedings of the AAAI Workshop on Complex Systems, Ethnomethodology and Interaction Analysis.** pp.57-67. Boston (July).

Gaines, B.R., Rappaport, A. & Shaw, M.L.G. (1990). Integrating hypermedia, database and expert system technologies in knowledge acquisition. **Proceedings of the Third International Symposium on Expert Systems in Business, Finance and Accounting.** Los Angeles (September).

Shaw, M.L.G. & Gaines, B.R. (1990). Sharing accounting expertise. **Proceedings of the Third International Symposium on Expert Systems in Business, Finance and Accounting.** Los Angeles (September).

Gaines, B.R. & Shaw, M.L.G. (1990) Cognitive and logical foundations of knowledge acquisition. Boose, J.H. & Gaines, B.R. (Eds) **Proceedings of the Fifth AAAI Knowledge Acquisition for Knowledge-Based Systems Workshop.** Banff (November).

Shaw, M.L.G. & Gaines, B.R. (1989). Extensions to knowledge acquisition methodologies and tools. Hamza, M.H., Ed. **Proceedings of the Sixth IASTED International Conference.** pp.76-79. Los Angeles (December).

Shaw, M.L.G. & Woodward J.B. (1989). Mental models in the knowledge acquisition process . **Proceedings of AAAI Workshop on Knowledge Acquisition for Knowledge-Based Systems**. Banff, 29-1 — 29-24.

Gaines, B.R., Rappaport, A. & Shaw, M.L.G. (1989). A heterogeneous knowledge support system. Boose, J.H. & Gaines, B.R., Eds. **Proceedings of the Fourth AAAI Knowledge Acquisition for Knowledge-Based Systems Workshop.** pp.13-1-13-20. Banff (October).

Gaines, B.R. & Shaw, M.L.G. (1989) Comparing the conceptual systems of experts**. Proceedings of the Eleventh International Joint Conference on Artificial Intelligence**, Detroit, Michigan, USA, 633-638.

Shaw, M.L.G. & Gaines, B.R. (1989) Eliciting and comparing the conceptual structures of experts and end-users**. Proceedings of the Third International Workshop on Computer-Aided Software Engineering, (CASE '89)**, London, UK, 220-228.

Shaw, M.L.G. & Gaines, B.R. (1989) A grid-based tool for knowledge acquisition**. Proceedings of the Eleventh International Joint Conference on Artificial Intelligence, Workshop on Knowledge Acquisition**, Detroit, Michigan, USA, 19-22.

Shaw, M.L.G. (1989) A grid-based tool for knowledge acquisition: validation with multiple experts. **ACM SIGART, 108,** 168-169.

Gaines, B.R. & Shaw, M.L.G. (1989) Automating software design for knowledge-based systems**. Proceedings of the Eleventh International Joint Conference on Artificial Intelligence, Workshop on Automating Software Design**, Detroit, Michigan, USA, 92-99.

Shaw, M.L.G. (1988). A framework for knowledge acquisition from more than one experts. **Proceedings of the Third IASTED International Conference,** Los Angeles, 19-22.

Shaw, M.L.G. (1988). Validation in a knowledge acquisition system with multiple experts. **Proceedings of the International Conference on Fifth Generation Computer Systems,** Tokyo, Japan, 1259-1266.

Shaw, M.L.G. (1988). Problems of validation in a knowledge acquisition system using multiple experts. **Proceedings of the European Knowledge Acquisition Workshop,** GMD-Studien Nr 143, Bonn, W. Germany, 5-1—5-15.

Shaw, M.L.G. (1988). Knowledge acquisition techniques for knowledge-based systems. **Proceedings of the Seventh Biennial Conference of the Canadian Society for Computational Studies of Intelligence**, Toronto, 169-176.

Shaw, M.L.G., Bradshaw, J.M., Gaines, B.R. & Boose, J.H. (1988). Rapid prototyping techniques for expert systems. **Proceedings of the Fourth IEEE Conference on Artificial Intelligence Applications**, San Diego, Calif.

Shaw, M.L.G. (1988). Knowledge acquisition techniques for expert systems. Henson, T., Eds. **Artificial Intelligence and Simulation: The Diversity of Applications**, San Diego, California: Society for Computer Simulation, 19-24.

Shaw, M.L.G. & Mancuso, J.C. (1988). Modeling cognitive processes. Mancuso, J.C. & Shaw, M.L.G., Eds., **Cognition and Personal Structure: Computer Access and Analysis.** New York: Praeger, 13-26.

Mancuso, J.C. & Shaw, M.L.G. (1988). A constructivist perspective on assessing personal cognitive structures. Mancuso, J.C. & Shaw, M.L.G., Eds., **Cognition and Personal Structure: Computer Access and Analysis.** New York: Praeger, 1-12.

Shaw, M.L.G. & Gaines, B.R. (1988). PLANET: A computer-based system for Personal Learning, Analysis, Negotiation and Elicitation Techniques. Mancuso, J.C. & Shaw, M.L.G., Eds., **Cognition and Personal Structure: Computer Access and Analysis.** New York: Praeger,.27-65.

Shaw, M.L.G. (1987). Knowledge support systems. Luker, P.A. & Birtwistle, G., Eds. **Simulation and AI**, 18(3), 58-63, San Diego, California: Society for Computer Simulation.

Shaw, M.L.G. & Gaines, B.R. (1987). An interactive knowledge elicitation technique using personal construct technology. Kidd, A., Ed. **Knowledge Elicitation for Expert Systems: A Practical Handbook**. Plenum Press, 109-136.

Shaw, M.L.G. (1987). A knowledge system for group learning and decision making. **Proceedings of the International Conference on Computer assisted Learning in Post-Secondary Education.** Calgary, Alberta: University of Calgary, 197-203.

Shaw, M.L.G. (1987). Interactive elicitation and exchange of knowledge. **Proceedings of Seventh International Congress on Personal Construct Psychology**. Albany, New York (Aug).

Shaw, M.L.G. (1987). Conversational computer technology in personal construct psychology. **Proceedings of Western Psychological Association Annual Conference,** Long Beach, California.

Gaines, B.R. & Shaw, M.L.G. (1987). Knowledge support systems. **ACM MCC-University Research Symposium.** Austin, Texas: MCC. 47-66.

Shaw, M.L.G. & Gaines, B.R. (1986) Cognitive foundations of knowledge-based systems. **Proceedings of the First International Conference on Future Advances in Computing,** Christchurch, New Zealand, (February).

Shaw, M.L.G. & Gaines, B.R. (1986) Fifth generation computers as the next stage of a new medium. **Proceedings of National Computer Conference, 55**, Arlington, Virginia: AFIPS Press, 479-485.

Shaw, M.L.G. (1986). Knowledge engineering techniques. **Proceedings of AUTOFACT'86**. Dearborn: Michigan. Society of Manufacturing Engineers, 8-79—8-96..

Shaw, M.L.G. (1986). Techniques for knowledge acquisition and transfer . **Proceedings of AAAI Workshop on Knowledge Acquisition for Knowledge-Based Systems**. Banff, 39-0—39-13.

Shaw, M.L.G. (1986). Knowledge science - towards the prosthetic brain. **Proceedings of 1986 International Conference on Systems, Man and Cybernetics**. Vol. IEEE 86CH2364-8. Atlanta (October).

Shaw, M.L.G. (1986). PCS: a knowledge-based interactive system for group problem solving. **Proceedings of 1986 International Conference on Systems, Man and Cybernetics**. Vol. IEEE 86CH2364-8. Atlanta (October).

Shaw, M.L.G. (1986). A cognitive science analysis of expert systems and simulation. **Proceedings of JSST Conference on Recent Advances in the Simulation of Complex Systems**. Tokyo. (July).

Gaines, B.R. & Shaw, M.L.G. (1986). Knowledge engineering for an FMS advisory system. Lenz, J.E., Ed. **Proceedings of 2nd International Conference on Simulation in Manufacturing**. 51-61. Bedford, UK: IFS Conferences (June).

Gaines, B.R. & Shaw, M.L.G. (1986). Steps toward knowledge science. **Proceedings of NAPCN Second Biennial Conference,** 73-82. Banff, Alberta (June).

Shaw, M.L.G. & Gaines, B.R. (1986). A framework for knowledge-based systems unifying expert systems and simulation. Luker, P.A. & Adelsberger, H.H., Eds. **Intelligent Simulation Environments**, 17(1), 38-43, La Jolla, California: Society for Computer Simulation, (January).

Shaw, M.L.G. & Gaines, B.R. (1986) A cognitive model for intelligent information systems. Davies, R., Ed. **Intelligent Information Systems: Progress and Prospects.** Chichester, UK: Ellis Horwood, 238-258.

Shaw, M.L.G. & Gaines, B.R. (1986) Advances in interactive knowledge engineering. Bramer, M.A., Ed. **Research and Development in Expert Systems III.** Cambridge: University Press, 111-122.

Shaw, M.L.G. (1986). Epistemological hierarchies in knowledge and expert systems. van Gigch, J.P., Ed. **Decision Making About Decision Making: Metamodels and Metasystems**. Cambridge, Massachusetts: Abacus Press, 185-198.

Gaines, B.R. & Shaw, M.L.G. (1986). Foundations of logic and reasoning in knowledge-based systems. Bezdek, J., Ed. **Analysis of Fuzzy Information II: Artificial Intelligence and Decision Systems.** Boca Raton, Florida: CRC Press,.3-28.

Shaw, M.L.G. & Gaines, B.R. (1986). Knowledge engineering tools for expert systems. Mitra, G., Ed. **Computer Models for Decision Making**. Amsterdam: North-Holland, 147-163.

Gaines, B.R. & Shaw, M.L.G. (1985). Systemic foundations for reasoning in expert systems. Gupta, M.M., Kandel, A., Bandler, W. & Kiszka, J.B., Eds. **Approximate Reasoning in Expert Systems**. 271-281. Amsterdam: North-Holland.

Gaines, B.R. & Shaw, M.L.G. (1985). Foundations of expert systems. Kacprzyk, J. & Yager, R.R., Eds. **Management Decision Support Systems Using Fuzzy Sets and Possibility Theory**. 3-24. Rheinland: ISR Interdisciplinary Systems Reserch, Verlag TUV.

Shaw, M.L.G. & Gaines, B.R. (1985). Systemic principles for human-computer interaction. Banathy, B.H., Ed. **Systems Inquiring: Theory, Philosophy, Methodology**. pp. 377-386. Seaside, California: Intersystems Publications.

Gaines, B.R. & Shaw, M.L.G. (1985). Epistemological foundations of information technology. Banathy, B.H., Ed. **Systems Inquiring: Theory, Philosophy, Methodology**. pp. 387-396. Seaside, California: Intersystems Publications.

Gaines, B.R. & Shaw, M.L.G. (1985). Three world views and system philosophies. Banathy, B.H., Ed. **Systems Inquiring: Theory, Philosophy, Methodology**. pp. 244-252. Seaside, California: Intersystems Publications.

Gaines, B.R. & Shaw, M.L.G. (1985). Expert systems and simulation. Birtwistle, G., Ed. **AI, Graphics and Simulation**, 95-101 (January). La Jolla, California: Society for Computer Simulation.

Shaw, M.L.G. (1985). Communities of knowledge. Landfield, A., Ed. **Anticipating Personal Construct Psychology.** 25-35. Lincoln: University of Nebraska Press.

Shaw, M.L.G. (1985). Engineering knowledge-based systems: the transfer of expertise. **Electronicom'85**, **IEEE 85CH2238-4**, 402-405. Toronto.

Shaw, M.L.G. & Gaines, B.R. (1985). Knowledge engineering for expert systems. **Proceedings COMPINT'85**, **IEEE 85CH2136-O**, 45-49. Montreal.

Gaines, B.R. & Shaw, M.L.G. (1985). The infrastructure of fifth generation computing. **Proceedings COMPINT'85**, **IEEE 85CH2136-O**, 747-751. Montreal.

Shaw, M.L.G. & Gaines, B.R. (1985). Some perspectives on knowledge engineering for expert systems and simulation. **Proceedings of Workshop on Coupling Symbolic and Numerical Computing in Expert Systems**. 151-158. Bellevue, Washington: Boeing Computer Services.

Shaw, M.L.G. & Gaines, B.R. (1985). The construction of expertise. **Proceedings of Sixth International Congress on Personal Construct Psychology**. Cambridge, UK.

Gaines, B.R. & Shaw, M.L.G. (1985). Information-theoretic analysis of construct systems. **Proceedings of Sixth International Congress on Personal Construct Psychology** Cambridge, UK.

Shaw, M.L.G. & Gaines, B.R. (1985). Developments in dialog engineering. **Proceedings of National Computer Conference**, **54**, 493-499. Arlington, Virginia: AFIPS Press.

Gaines, B.R. & Shaw, M.L.G. (1985). Foundations of human-computer interaction. **Proceedings of CIPS/ACI CONGRESS 85**. pp. 384-388. Montreal: Canadian Information Processing Society (June).

Shaw, M.L.G. (1985). Knowledge engineering for expert systems. Shackel, B., Ed. **Human-Computer Interaction - INTERACT'84: Proceedings of the IFIP Conference**. pp. 489-493. Amsterdam: North-Holland.

Gaines, B.R. & Shaw, M.L.G. (1985). Dialog shell design. Shackel, B., Ed. **Human-Computer Interaction - INTERACT'84: Proceedings of the IFIP Conference**. pp. 629-634. Amsterdam: North-Holland.

Gaines, B.R. & Shaw, M.L.G. (1984). Logical foundations of expert systems. **Proceedings of IEEE International Conference on Systems, Man and Cybernetics**, 238-247 (October). Halifax, Nova Scotia.

Shaw, M.L.G. & Gaines, B.R. (1984). Applications of personal construct theory to expert systems. **Proceedings of Personal Construct Network Conference** (June). Cincinnati.

Gaines, B.R. & Shaw, M.L.G. (1984). Emotion: a systemic development of the personal construct model. **Proceedings of Personal Construct Network Conference** (June). Cincinnati.

Shaw, M.L.G. & Gaines, B.R. (1984). Fifth generation computers as the next stage of a new medium. **Proceedings of National Computer Conference**, **53**, 445-451. Arlington, Virginia: AFIPS Press.

Shaw, M.L.G. & Gaines, B.R. (1984). Some experience in eliciting knowledge structures for expert systems. Smith, A.W., Ed. **Proceedings of the Society for General Systems Research International Conference**. pp. 605-614. California: Intersystems.

Gaines, B.R. & Shaw, M.L.G. (1984). Hierarchies of distinctions as generators of system theories. Smith, A.W., Ed. **Proceedings of the Society for General Systems Research International Conference**. pp. 559-566. California: Intersystems.

Shaw, M.L.G. (1984). Interactive knowledge elicitation. **Proceedings of CIPS SESSION 84**. pp. 202-208. Calgary: Canadian Information Processing Society (May).

Shaw, M.L.G. & Gaines, B.R. (1984). Deriving the constructs underlying decision. Zimmermann, H.J., Zadeh, L.A. & Gaines, B.R., Eds. **Fuzzy Sets and Decision Analysis**. **TIMS Series Studies in the Management Sciences**, **20**, 335-355. Amsterdam: North-Holland.

Gaines, B.R. & Shaw, M.L.G. (1983). Dialog engineering. Sime, M. & Coombs, M.J., Eds. **Designing for Human-Computer Interaction**. pp. 23-53. London: Academic Press.

Shaw, M.L.G. & Gaines, B.R. (1983). Computer systems in the knowledge environment: a new medium. Lasker, G., Ed. **The Relation Between Major World Problems and Systems Learning**. pp. 35-41. Kentucky: Society for General Systems Research.

Gaines, B.R. & Shaw, M.L.G. (1983). Is there a knowledge environment?. Lasker, G., Ed. **The Relation Between Major World Problems and Systems Learning**. pp. 27-34. Kentucky: Society for General Systems Research.

Shaw, M.L.G. & Gaines, B.R. (1983). Eliciting the real problem. Wedde, H., Ed. **Adequate Modelling of Systems**. pp. 100-111. Berlin: Springer Verlag.

Shaw, M.L.G. & Gaines, B.R. (1983). A computer aid to knowledge engineering. **Proceedings of British Computer Society Conference on Expert Systems**, 263-271 (December). Cambridge.

Shaw, M.L.G. (1983). Individuals form communities -- communities form individuals. **Proceedings of Fifth International Congress on Personal Construct Psychology**. Boston.

Shaw, M.L.G. & Gaines, B.R. (1983). Does the human component in a network have a protocol?. **Proceedings of International Electrical, Electronics Conference and Exposition**, **IEEE 83CH1955-4**, 546-549.

Gaines, B.R. & Shaw, M.L.G. (1982). The human protocol. **IEEE Compcon 82** (September).

Gaines, B.R. & Shaw, M.L.G. (1982). Analysing analogy. Trappl, R., Ricciardi, L. & Pask, G., Eds. **Progress in Cybernetics and Systems Research**. Vol. IX, pp. 379-386. Washington: Hemisphere.

Shaw, M.L.G. & Gaines, B.R. (1982). Eliciting entailment. Trappl, R., Ricciardi, L. & Pask, G., Eds. **Progress in Cybernetics and Systems Research**. Vol. IX, pp. 425-435. Washington: Hemisphere.
Shaw, M.L.G. (1982). The extraction of personal meaning from a repertory grid. E.Shepherd & Watson, J.P., Eds. **Personal Meanings**. pp. 59-70. Wiley.
Pope, M.L. & Shaw, M.L.G. (1981). Negotiation in learning. H.Bonarius,R.Holland & Rosenberg, S., Eds. **Personal Construct Psychology : Recent Advances in Theory and Practice**. pp. 157-165. Macmillan Press.
Shaw, M.L.G. & Gaines, B.R. (1981). Exploring personal semantic space. Rieger, B., Ed. **Empirical Semantics II**. pp. 712-791. Bochum, West Germany: Studienverlag Brockmeyer.
Gaines, B.R. & Shaw, M.L.G. (1981). A programme for the development of a systems methodology of knowledge and action. Reckmeyer, W.J., Ed. **General Systems Research and Design: Precursors and Futures**. pp. 255-264. Society for General Systems Research.
Shaw, M.L.G. & Gaines, B.R. (1981). The personal scientist in the community of science. Reckmeyer, W.J., Ed. **General Systems Research and Design: Precursors and Futures**. pp. 59-68. Society for General Systems Research.
Gaines, B.R. & Shaw, M.L.G. (1981). Logical analysis of personal construct systems. **Proceedings of Fourth International Congress on Personal Construct Psychology**. Brock University, Canada.
Shaw, M.L.G. & Gaines, B.R. (1981). Comparison of techniques for analysing personal construct systems. **Proceedings of Fourth International Congress on Personal Construct Psychology**. Brock University, Canada.
Shaw, M.L.G. & Gaines, B.R. (1981). The personal computer and the personal scientist. **BCS'81: Information Technology for the Eighties**. pp. 235-252. London: Heyden Press for British Computer Society.
Shaw, M.L.G. & Gaines, B.R. (1980). Fuzzy entailment analysis. **Proceedings of the International Congress on Applied System Research and Cybernetics**. Acapulco.
Shaw, M.L.G. & Gaines, B.R. (1980). Fuzzy semantics for personal construing. **Systems Science and Science**. pp. 146-154. Kentucky: Society for General Systems Research.
Shaw, M.L.G. (1980). Two roles for the computer in cognisant systems. Trappl, R., Ed. **Progress in Cybernetics and Systems Research**. Vol. V, pp. 377-381. Halstead Press.
Shaw, M.L.G. & Gaines, B.R. (1979). Externalizing the personal world: computer aids to epistemology. **Improving The Human Condition: Quality and Stability in Social Systems**. pp. 136-145. Kentucky: Society for General Systems Research.
Shaw, M.L.G. (1979). Conversational heuristics. **General Systems Bulletin (Special Issue on Systems Research Movement)**, **IX**(3), 50-52.
Shaw, M.L.G. (1979). Conversational heuristics for enhancing personal understanding of the world. Gaines, B.R., Ed. **General Systems Research: A Science, A Methodology, A Technology**. pp. 270-277. Kentucky: Society for General Systems Research.
Shaw, M.L.G. (1978). Interactive computer programs for eliciting personal models of the world. Fransella, F., Ed. **Personal Construct Psychology 1977**. pp. 59-67. Academic Press.

Papers Presented at Refereed Conferences (not otherwise listed)

Shaw, M.L.G. (1997) Using grids to develop expert systems through the World Wide Web. **XII International Congress on Personal Construct Psychology**. Seattle, USA.

Shaw, M.L.G. (1997). Anticipations: Constructivism and the 21st century. **XII International Congress on Personal Construct Psychology**. Seattle, USA. Keynote Paper.
Shaw, M.L.G. & Gaines, B.R. (1995). Constructing the Web. **XI International Congress on Personal Construct Psychology**. Barcelona, Spain.
Shaw, M.L.G. (1994). Computer-mediated collaboration: a PCP approach. **Proceedings of NAPCN-94**. Indianapolis, USA.
Shaw, M.L.G. (1992). Supporting the creative process in a personal construct framework using repertory grid techniques and tools. **Proceedings of NAPCN Fifth Biennial Conference,** Seattle, Washington.
Shaw, M.L.G. (1990). Interactive elicitation and exchange of knowledge in group problem solving. **Proceedings of NAPCN Fourth Biennial Conference,** San Antonio, Texas (June).
Shaw, M.L.G. (1987). Issues in knowledge acquisition for knowledge-based systems. **Ninth Annual Cognitive Science Meeting,** Seattle, Washington.
Gaines, B.R. & Shaw, M.L.G. (1987). Knowledge support systems. **MCC-University Research Symposium,** Austin, Texas.
Shaw, M.L.G. & Chang, E. (1986). A participant construct system. **Proceedings of NAPCN Second Biennial Conference,** 131-140. Banff, Alberta (June).
Gaines, B.R. & Shaw, M.L.G. (1985). Creativity, values and the infrastructure of computing. **Research Workshop on Technology and Culture: Computers, Values and Creativity** (May). Ottawa.
Gaines, B.R. & Shaw, M.L.G. (1984). Principles of dialog engineering. **NATO Conference on Research Needs in User-Computer Interaction**. London, U.K..
Gaines, B.R. & Shaw, M.L.G. (1984). Foundations of logic and reasoning in knowledge-based systems. **FIP84: International Conference on Fuzzy Information Processing**. Hawaiian Islands.
Shaw, M.L.G. & Gaines, B.R. (1984). Fuzzy entailment analysis as a tool for knowledge engineering in expert systems. **FIP84: International Conference on Fuzzy Information Processing**. Hawaiian Islands.
Shaw, M.L.G. (1984). Personal Construct technology and the knowledge environment. **ASMER Segment on Expert Systems in GST, SGSR International Conference on GST**. New York.
Gaines, B.R. & Shaw, M.L.G. (1984). Expert systems: the substitution of knowledge for materials in world food production. **Abstracts of 150th Annual Meeting of the American Association for the Advancement of Science**, 80 (May). Washington: American Association for the Advancement of Science.
Gaines, B.R. & Shaw, M.L.G. (1983). Generating emotions in computer systems. **Abstracts of 149th Annual Meeting of the American Association for the Advancement of Science**, 103-104 (May).
Shaw, M.L.G. & McKnight, C. (1982). Repertory grid elicitation and analysis on a microcomputer. **20th Congress of Applied Psychology**. Edinburgh.
Shaw, M.L.G. & Gaines, B.R. (1982). The individual in the community. **Second Symposium on Personal Meanings.** Guys Hospital, London.
Shepherd, E. & Shaw, M.L.G. (1982). Spanning text. **First International Conference on Representing Understanding**. Guys Hospital London.
Shaw, M.L.G. (1982). Cognitive science, expert systems and conversational heuristics. **Plenary session of the International Conference on Systems Methodology and Twenty-Sixth Annual Meeting of the Society for General Systems Research**. Washington DC.

Shaw, M.L.G. & Gaines, B.R. (1982). Advances in systems methodology for exploring Popper's world 3. **International Conference on Systems Methodology and Twenty-Sixth Annual Meeting of the Society for General Systems Research**. Washington DC.
Shaw, M.L.G. (1982). Building subjectivity into the computer as a form of knowledge. **American Association for the Advancement of Science Annual Meeting, The Human Knowledge Process: An Evolutionary Dilemma**. Washington DC.
Shaw, M.L.G. (1981). The planet suite: programs for repertory grid elicitation and analysis. **Symposium on Automated Psychological Testing**. Royal Hospital and Home for Incurables, London.
Shaw, M.L.G. (1981). Subjectivity and objectivity in complex systems. **Workshop on Coping with Complexity in Systems**. Queen Mary College, London.
Shaw, M.L.G. & Pope, M.L. (1981). Education through negotiation. **Symposium on Computer Assisted Learning CAL81.** University of Leeds.
Shaw, M.L.G. (1980). Repertory grid techniques. **Personal Meanings: Guy's Hospital Symposium on Individual Frame of Reference**. London.
Shaw, M.L.G. (1980). Computer programs for the exploration of interactions within the individual and the group. **VII International Congress on Group Psychotherapy**. University of Copenhagen, Denmark.
Shaw, M.L.G. (1980). Extracting models for causes of engineering failure. **First Conference on the Nature and Source of Human Error**. Maine, U.S.A..
Gaines, B.R. & Shaw, M.L.G. (1980). Database dialectics. **Fourth European Congress on Operations Research**. Cambridge.
Shaw, M.L.G. & Gaines, B.R. (1979). Interactive psychological testing: computer language requirements. **London Conference of the British Psychological Society**. London.
Gaines, B.R. & Shaw, M.L.G. (1979). Decision: foundation and practice II. **Fourth European Conference on Decision Making in Complex Systems**. Richmond, Surrey.
Shaw, M.L.G. (1979). Foundations of personal construct theory. **Workshop on Discrete Systems and Fuzzy Reasoning.** Queen Mary College, London.
Pope, M.L. & Shaw, M.L.G. (1979). Negotiation in learning.**Third International Congress on Personal Construct Psychology**, Breukelen, The Netherlands.
Shaw, M.L.G. & McKnight, C. (1979). An exploration of intra-personal personalities. **Third International Congress on Personal Construct Psychology**. Breukelen, The Netherlands.
Shaw, M.L.G. (1979). Personal learning through the computer. **Symposium on Computer Assisted Learning CAL79.** University of Exeter.
Shaw, M.L.G. (1979). Conversational heuristics for enhancing personal understanding of the world. **Twenty-Third Annual North American Meeting of the Society for General Systems Research**. Houston, Texas.
Shaw, M.L.G. (1978). The psychophysics of the repertory grid. **Mathematical and Statistical Section of the British Psychological Society**. London.
Shaw, M.L.G. (1978). Decision making in complex systems. **Third European Conference on Decision Making in Complex Systems**. Richmond, Surrey.
Shaw, M.L.G. (1977). PEGASUS, an interactive computer program for eliciting a Kelly repertory grid. **Occupational Psychology Section of the British Psychological Society**. Brunel University.
Thomas, L.F., McKnight, C. & Shaw, M.L.G. (1976). Grids and group structure. **Social Psychology Section of the British Psychological Society**. University of Surrey.