

Vita

Date Prepared: October 23, 2017
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Education

1969	BA	Sociology	University of Massachusetts at Amherst
1972	MA	Speech Pathology/Audiology	University of Massachusetts at Amherst
1975	PhD	Speech Pathology	Syracuse University

Doctoral Training

08/74-09/75	Fellow	Speech Pathology	Mayo Clinic Rochester, MN
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Faculty Academic Appointments

09/75-06/77	Assistant Professor	Communication Sciences	University of Vermont
08/78-06/79	Assistant Professor	Communication Sciences	University of New Hampshire
09/77-05/95	Associate Professor	Department of Communication Studies	Emerson College
09/85- 05/90	Associate Professor (visiting)	Department of Communication Science and Disorders	University of Massachusetts

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Professor
(visiting),
University
of
Massachuse
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09/86-05/95	Assistant Professor	Otology and Laryngology	Harvard Medical School
09/96-	Associate Professor	Otology and Laryngology	Harvard Medical School
09/97-	Professor	Communication Science and Disorders	MGH Institute of Health Professions

Appointments at Hospitals/Affiliated Institutions

05/77 -	Associate Scientist	Otolaryngology	Boston Children's Hospital
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Other Professional Positions

2002-	Director		Monarch School for Children
2006 - 2010	Director, Model Autism Program (MAP)		Model Autism Program Boston Public Schools

Major Administrative Leadership Positions

Local

1977-1991	Director, Speech Pathology & Audiology, Developmental Evaluation Clinic	Boston Children's Hospital
1985-2005	Director, Communication Enhancement Center	Boston Children's Hospital
2005-	Director, Center for Communication Enhancement	Boston Children's Hospital

Committee Service

Local

2000-2014	Clinical Operations Committee	Boston Children's Hospital Member
2010-2014	Research Operations Committee	Boston Children's Hospital Member
2010-	ORL Finance Committee	Boston Children's Hospital Member
2011-2013	Virtual Autism Center	Boston Children's Hospital Ad hoc Advisory Committee
2013-	Autism Spectrum Center	Boston Children's Hospital Executive Committee
2012-2016	Hearing Technology Center (Revisited)	Boston Children's Hospital Ad hoc Member

Regional

1983-1984	Committee Member on Adaptive Equipment Services	Massachusetts Department of Mental Retardation Member
1996-1997	Advisory Board	New England Center for Children Member
2015-	Deans Advisory Board	School of Public Health

2017 -	Board of Directors	University of Massachusetts Amherst Cerebral Palsy Association New York, New York
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National and International

1980-1982	Ad hoc Committee on Non-Speech Communication	American Speech-Language-Hearing Association Chairman
1983-1984	Committee on Augmentative Communication	American Association on Mental Deficiency Chairperson
1991-1992	Consensus Validation Project	National Institute on Disability and Rehabilitation Research Panel Member
2012-2015		Chairperson
2016-	Board of Directors	ALL Foundation
2017-	Ad hoc Committee on Facilitated Communication (FC) and Rapid Prompting Method (RPH)	American Speech-Language-Hearing Association

Professional Societies

1970-	American Speech-Language-Hearing Association	Member
1981-1984		Chairperson, Committee on Non-Speech Communication
1996-1997		Committee Member, Speech-Language Pathology 2000
1980-1990	Northeast Communication Enhancement Group	Member
1982-1984	American Association on Mental Deficiency	Member
1983-1984	Speech Pathology	Chairperson, American Association on Mental Deficiency, Northeast Region
1988-1989	United States Society for Augmentative and Alternative Communication	Member
1983-1991	International Society on Augmentative and Alternative Communication	Co-Chair, Committee on Public Awareness Founding Member
1983 - 1985		Vice President for Conventions, Conventions and Scientific Meetings

1991-1994	Massachusetts Speech-Language-Hearing Association	Co-Chair, Third International Conference on Augmentative and Alternative Communication
2012-2012		Member
		Member, Committee on Creation of Position Paper on Facilitated Communication

Editorial Activities

Other Editorial Roles

1981-1982	Consultant	Journal of the Association of the Severely Handicapped
1982 - 2002	Editorial Board Member	Exceptional Parent Magazine
1985-1987	Editorial Board Member	Language, Speech & Hearing Services
1992-1994	Editorial Board Member	American Journal Speech & Language Pathology
1994-1996	Editorial Board Member	AAC: Augmentative and Alternative Communication
2012-	Ad hoc Reviewer	Journal of Autism and Developmental Disabilities

Honors and Prizes

1989	Fellow	American Speech-Language-Hearing Association	Association Distinction
1989	Finalist	Smithsonian Institution Computerworld	Technology Innovation
1992	Isbelle and Leonard Goldenson Award	United Cerebral Palsy Association	Research in Medicine and Technology
1993	Pioneer Award	Massachusetts Federation of the Council for Exceptional Children	Technology in Clinical Practice
1995	Kleffner Clinical Achievement Award	Massachusetts Speech-Language-Hearing Association	Technology Achievement
2002	Teacher of the Year	MGH Institute of Health Professions	Recognition as Teacher
2017	The Honors of the Association	American Speech-Language-Hearing Association	Highest Honor of the Association
2015	Chair	Center for Communication Enhancement Endowed Chair, Boston Children's Hospital	Endowed Chair
2017	Significant Contributions Award to the fields of Public Health and Health Sciences	School of Public Health and Health Sciences University of Massachusetts	Alumni Award

Report of Funded and Unfunded Projects

Funding Information

Past

- 1990-2004 Massachusetts Assistive Technology Partnership
H224100036-96 TECH ACT PI
PI
The two primary goals of this federal grant initiative included: establish public policy regarding assistive technology for citizens of Massachusetts and provide training in the use of assistive technology.
- 1992-1994 Computer Voice Recognition by Dsyarthric Speakers with Cerebral Palsy
United Cerebral Palsy
PI
The primary goal of this grant was to determine the effectiveness of voice recognition for individuals with dsyarthric speech.
- 1998-2002 Rehabilitation Engineering Research Center on Communication Enhancement (RERC)
H133E98006 NIDRR
co-PI
The overall goals of this federal project were to connect clinical centers and academia with their counterparts in business and industry with computer and mechanical engineers and with people who ultimately will use it. My specific contribution was to establish technology based communication solutions for persons on the autism spectrum.
- 2002-2003 The Internet as a Service Delivery Medium for Assistive Technology
Deborah Munroe Noonan Memorial Fund
Project PI
The goal of this fund was to promote interaction between Communication Enhancement staff and a child's professional team. Also to implement customization of a student's software at a remote site.
- 2004-2006 Caroline Bass Fund
Project Director
The overall goal of this privately funded initiative was to create computer applications for persons who are deaf and hard of hearing.
- 2006-2007 Caroline Levine Charitable Trust Fund
Project Director
The outcome of this grant was the creation of the Puddingstone Place Software for children.
- 2008 New Cassel Foundation
Project Director
The overall goal of this grant was to teach language concepts using technology.
- 2008 Newman's Own Foundation.
PI
The goal of this grant was to advance work to create a state-of-the-art technology for children.

Current

- 2006-2012 CVS/Caremark Charitable Trust Grant

- PI (\$500,000)
The aim of this project is to create a virtual world where children with complex communication sensory intellectual and learning problems can acquire skills and experience interaction not possible through training venues.
- 2009-2012 The Camille Belknap Fund
PI (\$225,000)
The major goal of this fund is to be utilized for the clinical instruction and technology development for persons with autism spectrum disorders and other developmental disabilities.
- 2009-2013 Rehabilitation Engineering Research Center on Communication Enhancement (RERC)
H133E080011 NIDRR
co-PI
The RERC is a NIDRR funded project aimed at exploring augmentative and alternative Communication systems and devices for persons with complex communication impairments. Part of this effort was the creation and evaluation of the latest technologies, products and methods to benefit persons with autism. This includes the development of a virtual learning environment (*Puddingstone Learning Adventure*) and apps of handheld media devices (e.g., M-STARR).
- 2010-2013 Do animations facilitate symbol understanding in children with autism?
H133G100187 NIDRR
co-PI
This project explores the development of graphic symbol set and delivery system for children with autism. It also includes systematic study of the efficacy of these graphics as a language alternative.
- 2010-2014 The Camille Belknap Fund
PI (\$25,000)
Additional contribution to The Camille Belknap Fund

Report of Local Teaching and Training

Teaching of Students in Courses

HMS/HSDN/DMS Course

1994	Michael J. Bresnan Child Neurology Course 1 st year medical students	Harvard Medical School Single Presentation
1997-2008	Courses: Augmentative Communication Graduate Course	MGH Institute of Health Professions 28 hours per year
1997-2001	Communication Disorders and Autism Graduate students	MGH Institute of Health Professions 28 hours per year
1997- 2012	Motor Speech Disorders Graduate Course	MGH Institute of Health Professions 28 hours per year
2010 -	Autism Seminar Graduate Course	MGH Institute of Health Professions 28 hours per year

National

2011	Enhancing communication through visual support and technology within a visually immersive environment. Speech-language pathologists & undergraduate students	The Central New York Speech-Hearing Association Workshop
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International

2010-2011	Augmentative and Alternative Communication Graduate students	King Saud University 30 hours per semester
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Clinical Supervisory and Training Responsibilities

1977-2006	Ambulatory Otolaryngology-Center for Communication Enhancement Clinic Preceptor/ Boston Children's Hospital	One half session per week
1977-	Ambulatory Otolaryngology-Center for Communication Enhancement Ongoing Consultation/ORL Residents and Fellows Clinic Preceptor/Children's Hospital Boston	One half session per month
2006-	Ambulatory Otolaryngology-Center for Communication Enhancement Clinic Preceptor/ Boston Children's Hospital	One half session per week

Laboratory and Other Research Supervisory and Training Responsibilities

1977-	Supervision of Graduate interns Boston Children's Hospital	Biweekly mentorship for Six months
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Formal Teaching of Peers (e.g., CME and other continuing education courses)

1986	Clinical and Educational Use of the Micro-Computer for Children with Developmental Disabilities University of Puerto Rico	Single Presentation San Juan
1986	Augmentative Communication Services for Children: Evaluation of Readiness and Intervention Procedures University of Puerto Rico	Single Presentation San Juan
1987	Voice System Computer Based Applications for People with Severe Writing Impairments	Single Presentation Miami

	University of Miami	
1991	Meeting the Challenge of Persons with Multiple	Single Presentation
1991	Diagnoses: Focus on Communication	Waltham
	Walter E. Fernald School	
1991	Integrating Sign Language into a Computerized AAC	Single Presentation
	Strategy	King of Prussia
	The Pennsylvania Assistive Device Center	
1991	A New Expressive Communication Strategy	Single Presentation
	Southwest Alternative Augmentative Conference	Snowmass
1991	Rate Acceleration: With and Without Technology	Single Presentation
	Southwest Alternative Communication Strategy	Snowmass
1992	When Technology Makes a Difference: Critical Issues	Single Presentation
	in Special Education	Braintree
	Massachusetts Information Technology Conference	
1992	Communication Technology for People with	Single Presentation
	Communication Disabilities	Toledo
	American Society for Engineering Education	
1994	Assistive Technology to Aid Communication	Single Presentation
	University of Puerto Rico	San Juan
1995	Alternative and Augmentative Communication	Single Presentation
	New England School Psychology Conference	Durham
2002	The Use of Visual Supports: Enhancing	Single Presentation
	Communication in Improving Problem Behaviors in	Washington, DC
	Children with Autism and Related Disorders	
	Rehabilitation Engineering and Assistive Technology	
	Society of North America	
2003	Using Technology to Enhance Communication of	Single Presentation
	Students with Autism	New York
	United Cerebral Palsy Association	
2004	AAC and Autism: Current Practice and Future	Single Presentation
	Directions	Los Angeles
	California State University Conference	
2006	Using the Procedural Knowledge Profile to ©	Single Presentation
	Establish Effective Communication Goals and	Miami
	Objectives	
	American-Speech-Hearing Association	
2006	Autism Society of American National Conference	Single Presentation
		Providence
2007	Using Observational Learning to Improve Language	Single Presentation
	Comprehension	Medfield Heights
	Annual Milestones Conference	
2007	Electronic Media as a Treatment Tool	Single Presentation
	Current Trends in Autism Conference	Boston
2009	Enhancing Communication in Autism through Visual	Single Presentation
	Supports and Technology	Fredonia

[Local Invited Presentations](#)

1987	Technology Can Lead to Employment Children's Hospital Boston	Single Presentation Boston
2000	Augmentative and Alternative Communication Children's Hospital Boston	Single Presentation Boston
2005	Forensic Speech Pathology	Single Presentation Boston
2011	Current Autism Treatment Models in the Center for Communication Enhancement Children's Hospital Boston	Single Presentation Boston
2012	Augmentative Communication Children's Hospital Boston	Single Presentation Boston
2015	Visual Immersion System for Persons with Autism Autism Spectrum Center Children's Hospital Boston	Two Presentations Boston

Report of Regional, National and International Invited Teaching and Presentations - Those presentations below sponsored by outside entities are so noted and the sponsor is identified.

Regional

- 1986 Use of technology for persons with communication disorders/Invited Lecture
University of Rhode Island, Visiting Scholar Program, Kingston
- 1986 Access to communication innovations/Invited Lecture
Boston University, Boston
- 1986 Exploring possibilities for communication for severely handicapped and non-speaking people/Invited Lecture
Vermont Department of Mental Health, White River Junction
- 1987 Human factors for scientists with disabilities/Panel Participant
American Association for the Advancement of Science Annual Meeting, Boston
- 1989 Enhancing communication in the multi-handicapped person functioning in the 0-2 developmental range /Invited Lecture/Co-Presenter
Boston University Tenth Annual Communication Disorders Conference, Boston
- 1989 Augmented communication intervention: a clinical model/Invited Lecture/Co-Presenter
Boston University Tenth Annual Communication Disorders Conference, Boston
- 1989 Augmentative communication intervention: a clinical model/Invited Lecture/Co-Presenter
Braintree Hospital Tenth Annual Traumatic Head Injury Conference, Braintree
- 1989 Adaptive technology, today and tomorrow/Panel Participant
- 1994 Augmentative and alternative communication persons with traumatic brain injury/
Workshop
Northern New England School Psychology Conference, Durham
- 1995 Communication disorder assessment/Invited Lecture
Maine Department of Education, Division of Vocational Rehabilitation for the Blind and Visually Impaired, Portland
- 1995 Facilitated communication/Invited Lecture
Massachusetts Department of Mental Retardation and ARC, Boston
- 1997 Clinical ethical dilemmas facing speech-language pathologists and audiologists/Invited Lecture
Spaulding Rehabilitation Hospital, Boston

- 1997 The eye as an access and communication mode technology '97/Invited Lecture
Massachusetts Assistive Technology Program, Boston
- 1997 Assistive technology: progress and opportunities /Paper
The Engineering Innovation Show, Massachusetts Assistive Technology Program, Boston
- 1998 Diagnosed and undiagnosed childhood communication disorders and differences/
Invited Lecture
National Institute on Deafness and Other Communication Disorders, Boston
- 2006 Systematic use of video supports for persons with autism spectrum disorders/Invited
Lecture
New Hampshire Speech-Language-Hearing Association Spring Conference, Concord
- 2007 The visual immersion program for persons with autism spectrum disorders
Invited lecture/Co-Presenter
New Hampshire Speech-Language Hearing Association Spring Conference, Concord
- 2007 Electronic media as a treatment tool/Seminar
Current Trends in Autism Conference, Boston
- 2007 Say it with pictures: visual communication for persons with Autism/Panel Participant
Current Trends in Autism Conference, Boston
- 2008 Autism and augmentative communication/ Invited Lecture
Current Trends in Autism Conference, Burlington
- 2008 Teaching language concepts within the visual immersion program/Invited Lecture
Council for Exceptional Children Annual Conference, Boston
- 2008 What clinical experience tells us about visual process and learning with persons on the
autism spectrum/Invited Lecture, Learning and Brain Center, Boston
- 2012 Aligning the feature of mobile devices (family) with the characteristics of autism/Invited Lecture
Fifth Annual Leadership Conference, University of Massachusetts at Amherst
- 2017 Augmentative & Alternative Communication./Invited Lecture
Paper presented at
2017 KCNQ2 Cure Alliance Family & Professional Summit, Peabody

National

- 1980 Systems for non-speaking persons/Invited Lecture
The President's Committee on Mental Retardation, Washington, DC
- 1980 Perspectives in non-speech communication/Invited Lecture
Goldwater Memorial Hospital, New York
- 1981 Implications of augmentative communication in mental retardation/Invited Lecture
Albert Einstein College of Medicine, Bronx
- 1983 Factors influencing progress using communication aids vs. manual sign systems for
Children/Invited Lecture
Mount Sinai Medical School Conference on Communicative Disorders, New York
- 1986 Computer use in education and communication/Invited Lecture
Northwest Regional International Society for Augmentative and Alternative
Communication, Portland
- 1986 Augmentative and alternative communication/Invited Lecture
Teaching Research Division, Oregon State System of Higher Education
Monmouth
- 1986 Facts and fiction about augmentative and alternative communication/Plenary Talk
Virginia Department of Rehabilitation Services Conference, Fishersville
- 1986 State of the art in augmentative and alternative communication/Keynote Speaker

- Colorado Department of Education, Denver
- 1987 Communication as a bridge to independence/Plenary Talk
Penrose Hospital, Colorado Springs
- 1987 Dedicated and general purpose approaches to enhance spoken and written communication/Invited Lecture
Louisiana State University Medical Center, Shreveport
- 1987 Voice system computer based applications for people with severe writing impairments/Invited Lecture
Louisiana State University Medical Center, Shreveport
- 1988 Successful employment resulting from arch intervention strategies/Invited Lecture/
Co-Presenter
International Society for Augmentative and Alternative Communication, Biennial Conference, Anaheim
- 1988 Cognition and augmentative communication-a feature matching approach
Invited Lecture/Co-Presenter
Association for the Severely Handicapped Annual Convention, Washington DC
- 1989 Matching severely speech & writing impaired children and adults using technical intervention procedures/Plenary Talk
Dallas Easter Seal Society for Children, Dallas
- 1989 Augmentative communication/Invited Lecture
Howard University, Washington, DC
- 1989 Augmentative communication with persons functioning in the 0-2 year developmental level/Invited Lecture/Co-Presenter
American Speech-Language-Hearing Association Annual Convention, St. Louis
- 1992 The integration of communication devices into the classroom and the real world
United Cerebral Palsy Association of New York State, New York
- 1993 United Cerebral Palsy Association Telephone Conference: United Cerebral Palsy Research Update
- 1994 Validation procedures for facilitated communication/Invited Lecture
Conference for Disabled Persons Protection Commission, New York
- 1995 Assessment in augmentative and alternative communication: across the age span/
Invited Lecture/Co-Presenter
American Speech-Language-Hearing Association Annual Convention, Orlando
- 1996 Technology and persons with disabilities/Invited Lecture/Co-Presenter
California State University Annual Conference, Northridge
- 1996 Ethical and legal issue in facilitated communication/Paper
The International Conference on Mental Retardation, Washington, DC
- 1997 The knowledge navigator: a dynamic tool for creating instructional solutions/
Invited Lecture/Co-Presenter
California State University Annual Conference, Northridge
- 1997 Fads, bandwagons and data based approaches: can we tell the difference
Indiana Speech-Language-Hearing Association Convention, Indianapolis
- 1997 Feature matching approach to the selection of AAC devices and intervention strategies/Invited Lecture
Indiana Speech-Language-Hearing Association Convention, Indianapolis
- 1997 Selection of augmentative and alternative communication systems and strategies
Integration into the classroom/Invited Lecture
Pittsburgh
- 1997 Talking environments: a new graphical communication strategy, microcomputer

- Technology in special education and rehabilitation/Invited Lecture
Closing the Gap Annual Conference, Minneapolis
- 1998 Use of computerized graphical metaphor to facilitate word retrieval in aphasia/
Invited Lecture
American Speech-Language-Hearing Association Annual Convention, San Antonio
- 1999 Assistive technology: fads, fantasy and reality in the new millennium/Invited Lecture
Eleventh Wisconsin Conference on Augmentative Alternative Communication
and Assistive Technology, Eau Claire
- 2001 Supports to enhance communication and improving problem behaviors/
Paper/Invited Lecture/Co-Presenter
American Speech-Language-Hearing Association Annual Convention, New Orleans
- 2002 Autism and AAC: visual supports to enhance communication in autism and related
Disorders
Korneich Technology Center and RERC on Communication Enhancement,
Albertson
- 2002 Recognition theory and application for computer generated entities/Invited Lecture/
Co-Presenter
Southeast Regional Federal Labs Consortium Annual Conference,
Orlando
- 2002 The application of a new model of pattern recognition for movement analysis
and speech recognition/Paper/Co-Presenter
Assistive Technology Industry Annual Conference, Orlando
- 2002 Investigation into the use of intelligent agents in children evidencing
autism/Invited Lecture/Co-Presenter
- 2002 A comprehensive look at visual supports for persons with autism spectrum
Disorder/Invited Lecture/Co-presenter
Summit Educational Resources, Getzville
- 2002 The internet as a service delivery medium for assistive technology/Invited Lecture
American Speech-Language-Hearing Association Annual Conference, Chicago
- 2003 Using automatic voice recognition with people with dysarthric speech/
Invited Lecture/Co-Presenter
Assistive Technology Industry Conference, Orlando
- 2004 A comprehensive model for use of visual supports for persons on the autism
Spectrum/Invited Lecture
Behavior Strategies Second Annual Autism Conference, Columbus
- 2004 Assistive technology lecture: challenges to the federal laboratory/Invited Lecture/
Co-Presenter
Federal Laboratory Consortium for Technology Transfer, Orlando
- 2004 Monarch national language curriculum generalization of concepts/Invited Lecture/
Co-Presenter
American-Speech-Language Hearing Association Annual Convention, Philadelphia
- 2005 Managing autism outcomes: the participation, accuracy and independence
scales/Invited Lecture/Co-Presenter
American Speech-Language-Hearing-Association Annual Convention, San Diego
- 2005 Electronic screen media for persons with autism spectrum disorders/Invited Lecture/
Co-Presenter
American Speech-Language-Hearing Association Annual Convention, San Diego
- 2005 Video technology for the language instruction for ASD/Invited Lecture

- 2006 American Speech-Language-Hearing Association Annual Convention, San Diego
All things visual/Panel Discussion
Bellefaire JCB Conference, Shaker Heights
- 2006 AAC and autism: current practice and future directions/Invited Lecture/Co-Presenter
California State University Annual Conference, Los Angeles
- 2006 Practical applications of observation learning (video modeling) for improving
Learning and communication/Invited Lecture
Annual Milestones Conference, Cleveland
- 2006 Video technology for language instruction for children with ASD/Invited
Lecture/Co-Presenter
American Speech-Language-Hearing Association Annual Convention, Miami
- 2006 Access to AAC: present, past, and future/Invited Lecture
Twenty-First Annual International Technology Persons with Disabilities
Conference, Los Angeles
- 2007 Visual immersion program: visual communication for persons on the autism spectrum/
Invited Lecture/Co-Presenter
American Speech-Language-Hearing Association Annual Conference, Boston
- 2008 Applying the visual strengths of persons on the autism spectrum to communication
intervention/Invited Lecture
Michigan State University Annual Oyer Lecture, East Lansing
- 2008 Using technology to teach hard to learn language concepts to children on the autism
spectrum/Invited Lecture
Crossroads Conference on Communication Disorders, Purdue University, West Lafayette
- 2008 Teaching language concepts (TLC): language instruction for persons with
autism/Invited Lecture/Co-Presenter
California State University Annual Conference, Los Angeles
- 2008 Use of electronic media to promote acquisition of action verbs and
prepositions/Invited Lecture
Autism One Annual Conference, Chicago
- 2008 Applying the visual strengths of persons on the autism spectrum to
communication intervention/Invited Lecture/Visiting Professor
Graduate students, Michigan State University, Ann Arbor
- 2008 Video technology for language instruction for children with autism
spectrum disorder/Invited Lecture/Co-Presenter
American Speech-Language-Hearing Association Annual Convention, Chicago
- 2009 Use of electronic media to teach hard to learn language concepts for person with autism /
Invited Lecture
Pacific Rim Conference, Honolulu
- 2009 Using technology to educate persons with autism spectrum disorder: do professionals
get a passing grade/Invited Lecture
Pacific Rim Conference, Honolulu
- 2009 Does animation improve the acquisition of hard to learn language concepts/Invited Lecture
Milestones 2009 Autism/Asperger's Conference, Cleveland Heights
- 2009 Using technology to educate persons with autism spectrum disorder: do professionals
get a passing grade/Keynote Address
Behavior Analysis Association of Michigan, Eastern Michigan University, Ypsilat
- 2009 Animated versus static graphic symbols: effects on guessability, name agreement,
and identification

- Invited Lecture/Co-presenter
California State University Annual Conference, Los Angeles
- 2009 AAC update from the RERC on communication enhancement/Invited Lecture
Co-Presenter
Twenty-fourth International Conference on technology and persons with disabilities
Los Angeles
- 2009 Effects of animation on guessability & identification of graphic symbols/Invited Lecture
Co-Presenter
American Speech-Language-Hearing Association Annual Convention, New Orleans
- 2009 The efficacy of teaching language concepts to children with autism
Invited Lecture/Co-presenter
American Speech-Language-Hearing-Association Annual Convention, New Orleans
- 2009 The Future of Assistive Technology and Autism, Keynote Address, University of
Wisconsin, Milwaukee
- 2009 Does animation improve the acquisition of hard to learn language concepts?
Invited Lecture
Milestones Conference, Cleveland
- 2010 Emerging developments in augmentative and alternative communication/Invited Lecture
Co-Presenter
California State University Annual Conference, San Diego
- 2010 Effects of a visual immersion experience on communication in autism/ Invited Lecture
Co- Presenter
American Speech-Language-Hearing Association Annual Convention
Philadelphia
- 2011 Effects of animation: a comparison of two graphic symbol sets
Invited Lecture
American Speech-Language-Hearing Association Annual Convention
- 2012 Effects of animation on iconicity of symbols by SLP Students
Invited Lecture/Co-presenter/Handout presented at
American Speech-Language-Hearing Association Annual Convention, Atlanta
- 2012 A comparison of instruction-following cues in children with autism
Invited Lecture/Co-presenter/Handout presented at
American Speech-Language-Hearing Association Annual Convention, Atlanta
- 2013 The effect of environmental sounds on the guessability of animated graphic symbols
Invited Lecture/Co-presenter. Paper presented at
American Speech-Language-Hearing Association Annual Convention
Chicago
- 2013 Mobile device and app selection: who's driving the decision process?
Invited Lecture/Co-presenter. Paper presented at
American Speech-Language-Hearing Association Annual Convention
Chicago
- 2014 "Miracles" in autism treatment: helping parents become better decision-makers
Invited Lecture/Co-presenter. Paper presented at
American Speech-Language-Hearing Association Annual Convention
Orlando
- 2015 A field study: implementing the visual immersion system via Tele-practice
Invited Lecture/Paper presented at Annual Conference of Assistive Technology Industry
Association. Orlando

- 2015 Visual immersion system for autism spectrum disorders. invited Lecture/Paper presented at Annual Conference of Assistive Technology Industry Association Orlando
- 2015 Visual immersion program: assistive technology and tolls for visual language Invited Lecture/Co-presenter/Paper presented Annual Milestones Conference Cleveland
- 2015 Using technology and visual supports to teach symbol syntax. Invited Lecture/Paper presented at Annual Milestones Conference, Cleveland
- 2015 Use of a pacing board for improving intelligibility in a child with moderate to severe autism. Invited Lecture/Paper presented at American Speech-Language-Hearing Association A Denver
- 2015 Bringing AAC technological innovation into commercial reality: how can we improve the process? Invited Panel Participant American Speech-Language-Hearing Association Annual Convention, Denver
- 2015 The use of technology and visual supports to improve communication and learning in individuals with autism. Keynote Address. Fourteenth Annual Statewide Autism Conference, Albany
- 2016 Enhancing Language in Autism: A Visually Immersive Developmental Framework Invited Lecture/Co-presenter. Paper presented at American Speech-Language-Hearing Association Annual Convention. Philadelphia
- 2016 Do Animations Facilitate Understanding of Graphic Symbols in Children With Autism? Invited Lecture/Co-presenter. Paper presented at American Speech-Language-Hearing Association Annual Convention Philadelphia
- 2016 Aided Augmented Input Techniques for Persons With Developmental Disabilities: A Systematic Review/Invited Lecture/Co-presenter. Paper presented at American Speech-Language-Hearing Association Annual Convention Philadelphia
- 2017 Re-thinking Speech - Language Treatment for Persons with ASD. Seminar Presented at Annual Conference of Assistive Technology Industry Association, Orlando
- 2017 Visual Immersion System™ (VIS): Communication Enhancement for Autism Spectrum Disorders. Seminar Presented to the Michigan Speech & Hearing Association Annual Meeting. Troy, Michigan

International

- 1981 Differential diagnosis of children with apraxia of speech
Invited Lecture (Distinguished)
Medical Faculty, University of Lund, Sweden
- 1981 Voice recognition/Consultation
Swedish Institute of Assistive Technology, Vinsta, Sweden
- 1985 Trends in communication aid technology for the severely speech impaired/
Invited Lecture (Distinguished)
Spastic Society Conference, Oxford, England
- 1988 Augmentative communication/Invited Lecture
Newfoundland Association for Community Living, St. John's Newfoundland, Canada
- 1988 Human factors for scientists with disabilities/Invited Lecture
American Association for the Advancement of Science
Newfoundland Association for Community Living, St. John's Newfoundland, Canada
- 1988 Techniques to control computers and assistive devices for the physically disabled

- Invited Lecture/Co-Presenter
 Rehabilitation Engineering Society of North America Annual Convention, Montreal, Canada
- 1991 Improving the communication of persons of all ages with little or no speech/Seminar
 Centro de Education Cientifica, Centro Fedico Docente La Trinidad Caracas, Venezuela
- 1995 Bandwagons, visions and assistive technology/Keynote Address
 Fourth Annual Conference on Research, St. Amant Centre, Inc., Winnipeg, Canada
- 1996 The selection of AAC devices and strategies using a feature-matching model. Special
 Education Technology/Invited Lecture
 Special Education Technology, Vancouver, British Columbia, Canada
- 2005 The systematic use of visual supports for persons on the autism spectrum/Invited Lecture
 Centro Benedetta D'Intino, Milan
- 2006 All things visual/Invited Lecture
 Special Education Technology, Vancouver, British Columbia, Canada
- 2008 Role of AAC in the Management of Autism/Seminar
 XLII Congresso Nazionale Delle Societa' Italian, DiFoniatria I Logopedia, Milan
- 2008 Images for communication: strategies for visual communication for persons on the autism
 spectrum/Seminar
 Centro Benedetta D'Intino, Milan
- 2016 Toward clarification of augmented input techniques for persons with developmental
 disabilities who use aided AAC/Seminar, International Society for Augmentative and
 Alternative Comunication, Toronto, Canada

Report of Clinical Activities and Innovations

Current Licensure and Certification

- 1972 Certificate of Clinical Competence, American Speech-Language-Hearing
 Association
- 1984- Massachusetts Speech Pathology License

Practice Activities

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|---------------|-----------------|---|-------------------------|
| 1977-
2005 | Ambulatory Care | Center for Communication
Enhancement, Children's
Hospital Boston | Eight sessions per week |
| 2005- | Ambulatory Care | Center for Communication
Enhancement, Children's
Hospital Boston at Waltham | Eight sessions per week |

Clinical Innovations

Assistive Technology
 Boston Children's Hospital

The clinical focus of my 40-year clinical career at Boston Children's Hospital has been with persons who evidence complex communication disorders and in most cases have no functional speech. Individuals with such extreme

communication disorders were, prior to a humane enlightenment period that began in the mid 1970's, living mostly in vast state run facilities or remained at home receiving woefully inadequate clinical and educational services. Since my earliest days in the former Developmental Evaluation Clinic, and Hearing and Speech Division at Boston Children's Hospital in the late 1970's, I have identified and established clinical evaluation and intervention techniques and strategies with a population for whom few models existed. Initially I systematized the evaluation process with innovative protocols that did not penalize or rule out capacity because the patient could not speak or control intentional movements. In order to link these more accurate assessment findings to the burgeoning field of augmentative and alternative communication, I designed a "feature-matching" scheme that systematically linked a patient's deficits and strengths to an appropriate speech-generating device and clinical intervention. This organized approach established a framework for device selection that is now commonplace in clinical centers throughout the world. The Center that I established continues as the oldest and largest program in the world having a clinical focus on solving complex communication disorders with innovative assistive technology. Furthermore, the manner and intensity with which Boston Children's Hospital now provides augmentative communication options to in-patients unable to speak due to complex surgical procedures is another clinical model that has been adopted worldwide. In fact, two full time augmentative communication specialists provide services to in-patients at Boston Children's Hospital. Other pioneering strategies included an in-the-home assistive technology mobile unit that provided AT evaluations to non-speaking patients too frail to come to the Hospital and early use of tele-practice. Finally, when the clinical needs of patients could not be met by existing technology, I have painstakingly designed and sought avenues to develop technological tools that would meet those needs. As a result more than a dozen software programs and several hardware solutions have resulted. (See below).

Report of Technological and Other Scientific Innovations

Portable computer housing for <i>Freestyle</i> Augmentative Communication Device	United States Patent D404, 376/Filed January 19, 1999/Awarded Portable computer housing for <i>Freestyle</i> augmentative communication device. Created in conjunction with development team at Assistive Technology Group, this innovation was the housing for the first augmentative device to run with a standard operating system (MAC-OS). It was also a tablet style computer having a touch screen interface that ran the MAC-OS. Impact: <ol style="list-style-type: none"> 1. Units sold: More than 3,000 <i>Freestyle</i> devices were used across the world 2. Affect on Field: The housing set a standard in the AT industry as it moved from vacuum form molds to injection molding. Today injection molding is the norm.
Computer carry case for <i>Freestyle</i> Augmentative Communication Device	United States Patent 5,887,777 filed March 30, 1999/Awarded Computer carry case for <i>Freestyle</i> augmentative communication device. Created in conjunction with the development team at Assistive Technology Group. This innovation not only protected a communication device during normal day-to-day activity but also held the device in position for ambulatory users to select targets on touch screen displays. Impact: <ol style="list-style-type: none"> 1. Units sold: More than 2500 custom carrying cases were manufactured and sold world wide 2. Affect on Field: Set the standard for carrying cases for augmentative communication devices.

Software

1.Target, a communication software program, was created in 1983 and represented the first dedicated software for augmentative communication. *Target* ran on the standard operating system of the Apple IIe computer and was used by several hundred persons with neuro-motor disability as their expressive communication tool. *Target* was also used by individuals and communication disorders centers across the United States including Children's Hospital Boston's Communication Enhancement Center.

Impact

- 1. Units Sold:** Several hundred individual software programs were distributed with many going to schools and agencies having multiple users making the numerical impact even greater
- 2. Affect on Field:** Historically, *Target* is significant because twenty-five years after the creation of *Target*, communication based software designed to run on a standard operating system has become the norm.

Language Models

A series of "language models" were developed in 1987 that enabled persons with high-level spinal cord injuries to control a computer through voice recognition using the *Kurzweil AI*. The language models I created allowed voice command control over several popular software applications including: *MindReader* word processing; *Lotus 1,2,3*; *Powerhouse Environmental Control*; and *Versa Cad*. This development represented the first application of computer voice control for persons with a motor disability that enabled employment support, control of environmental electronics and serve as a writing tool.

Impact:

- 1. Units Sold:** Approximately three hundred patients with spinal cord injuries
- 2. Affect on Field:** As an historical perspective, the language models that I created in the late 1980's for persons with a motor disability yet normal speech were the only way to operate a computer hands-free and our Center was the only clinic in the world where such evaluations and training could occur. Today, voice recognition is a commonplace tool spinal cord injured patients can now acquire such technology through numerous mainstream venues.

The following four software applications were created to meet the needs of non-speaking patients with physical impairments. They were bundled together and sold as a comprehensive communication set by the Psychological Corporation.

Software Applications

1.Message Maker keyboard was created in 1986 as a text-based augmentative communication software program. *Message Maker* was a unique application because it employed a feature known as word prediction. Word prediction is an application of language modeling intended to speed up rate of communication by reducing the number of keystrokes needed to complete a word. When operational a user selects a letter causing a list of probable words beginning with that letter to become available for the non-speaking patient to select from without having to type the entire word. The result is an increased rate of expression.

Impact:

- 1. Units Sold:** Three hundred individual software programs were distributed with many going to schools and agencies having multiple users making the numerical impact even higher

2. **Affect on Field:** Word prediction is used extensively today by numerous communication software programs used by persons who are non-speaking.
3. *Message Maker-Scanning* is an augmentative communication software program that was based on the keyboard version. *Message Maker-Scanning* was unique because in addition to enjoying the features of the keyboard version, it allowed more severely physically involved persons to bypass the keyboard and make selections by hitting a switch that could be placed in accordance with the user's ideal movement control pattern.

Impact:

1. **Units Sold:** Approximately two hundred individual software programs were distributed with many going to schools and agencies having multiple users making the numerical impact even higher.
2. **Affect on Field:** Word prediction is a feature of AAC software that is used extensively today. The value add of this program was that it allowed word prediction for persons who could only access a computer through a single movement that controlled a single momentary action switch.

3. *Touch and Speak*, the third program in the series was developed also created in 1986. It was designed to enable persons with sufficient motor control to express themselves by selecting targets containing symbols (not text) on a touch sensitive screen. Because the user did not need to select alphabet letters, persons who could not spell but appreciated the meaning of symbols were able to communicate. *Touch and Speak* was designed for patients coming to the Communication Enhancement Center at Children's Hospital Boston, but was used internationally.

Impact:

1. **Units Sold:** Approximately two hundred *Touch and Speak* software programs were distributed with many going to schools and agencies having multiple users making the numerical impact even higher
2. **Affect on Field:** A program for non-spelling, non-speakers was an important contribution to the field.

4. *Scan and Speak*, was released in 1987. It was the scanning version of *Touch and Speak*. As such it allowed persons who needed to access targets (containing a symbol content) to do so through activation of a momentary action switch. *Touch and Speak* was also used by communication disorders centers across the United States including Children's Hospital Boston.

Impact:

1. **Units Sold:** Approximately two hundred individual software programs were distributed with many going to schools and agencies having multiple users making the numerical impact even higher
2. **Affect on Field:** Access to symbols with a single switch as the interface made communication possible for persons who were unable to spell and had a physical disability preventing them from using a keyboard.

5. *VoisShapes*® was a software application created in 1991. The application was derived and based on an extensive systematic analysis of the hand shape, movement and locations that comprise American Sign Language (see Shane and Wilbur, Sign Language Studies). This analysis allowed sign language normally executed by actual hand movements to be contained and spoken on an

augmentative communication device. *VoisShapes*® was created in conjunction with a development team at Phonic Ear, Inc. where I served as Lead Designer.

Impact:

1. **Units Sold:** None. A working prototype of the *VoiceShapes*® systems was created, clinical trials were completed but the system never went into commercial production.
2. **Affect on Field:** *VoisShapes*®'s greatest impact is the continued recognition that sign language can be represented by a set of unique graphic symbols on a tablet style, touch sensitive keyboard.

6. *WriteAway*®, a text based software program with word prediction, was developed in 1991. The program contained a powerful algorithm allowing word prediction based on user history to improve rate of expression by persons with keyboarding skills. *WriteAway*® was created for persons with learning disabilities as an expressive writing tool. Its widespread use occurred because of the program's ability to complete words based on initial letter selections.

Impact:

1. **Units Sold:** Approximately two thousand persons have used *WriteAway*® across the United States and Canada.
2. **Affect on Field:** *WriteAway*® is unique application because it was the first word prediction software developed expressly for children with learning disabilities. When Information Services, Inc. of St. John's, Newfoundland, Canada became the exclusive distributor the software was distributed internationally to Great Britain and Australia.

7. *Companion*®, the first visual scene based augmentative communication program, was developed in 1997 in conjunction with a development team at Assistive Technology, Inc. The application was based on my conceptual design where I continued to lead the development team. The software was based on the metaphor of a virtual world and, specifically, a village containing stores, homes, school, playground and farm. By navigating to different locations a person could communicate preferences and desires. *Companion*® was the first software application for the disabled that employed visual scenes.

Impact:

1. **Units Sold:** It has been widely used in communication disorder centers internationally and by over 500 non-speaking persons.
2. **Affect on the Field:** *Companion*® represents the first software application program that enables non-speaking children to use a visual scene (graphical metaphor) as a communication strategy. The success of *Companion*® has spawned to at least five software programs based on the concept of a virtual scene that are now available to persons who are non-speaking.

8. *Puddingstone Place*, a virtual home environment, was released in 2005. The application was intended for children with language learning disabilities including autism as well as those who are deaf or hard of hearing. A learner navigates through this virtual environment learning the names of objects and hearing sounds and seeing animation association with hundreds of objects in the several rooms that comprise the home.

Impact:

1. **Units Sold:** *Puddingstone Place* is applied widely in communication disorders centers across the United States and by nearly 6,000 children with a host of disabling conditions.
 2. **Affect on the Field:** *Puddingstone Place* appeals to persons on the autism spectrum most likely because of an inherent interest in electronic screen media. The success of version one of *Puddingstone Place* as a learning tool for persons with autism and other developmental disabilities has set the stage for *Puddingstone Place* currently under development.
9. *Teaching Language Concepts* (Versions 1 & 2) and a companion set of animated graphics (*ALP Animated Graphics*) were recently completed. The program is intended to teach hard to learn language concepts to children with language disorders through the use of animation and video technology. A recently approved IRB (Fall, 2008) has led to a study (submitted for publication) showing the efficacy of both the software application and the graphics package.

Impact:

1. **Units Sold:** Approximately three hundred copies of *Teaching Language Concepts* have been distributed to patients from the Center for Communication Enhancement and to others across the country.
2. **Affect on the Field:** Program demonstrates the effectiveness of teaching language concepts with computer software

Hardware

1. *Multivoice*® was a portable, serial based, speech synthesizer developed in 1995 in conjunction with a joint development team from the Communication Enhancement Center and the Digital Equipment Corporation (DEC). I served on the design team detailing characteristics of the synthesizer that would facilitate use by the clinical population. Before being replaced by computer-generated speech internal to the OS, *Multivoice*® became the voice for 3,000 non-speaking persons throughout the world and was used in assistive technology centers in English speaking countries around the world.

Impact:

1. **Units Sold:** 3,000 *Multivoice*® speech synthesizers
2. **Affect on the Field:** The intelligible male, female and child digitized voices produced by the *Multivoice*® set the standard for speech synthesis for more than 10 years. Today professionals demand voices that are not only intelligible but also natural.

2. *Multi-phone*®, released in 1997, was an innovative telephone that worked in conjunction with the *Multivoice*® speech synthesizer. The dialing function was controlled through ring tones generated by the *Multivoice*®. I served on the design team detailing characteristics of the synthesizer that would facilitate use by the clinical population and overseeing clinical applications.

Impact:

1. **Units Sold:** Three hundred non-speaking persons from around the world used this hi-technology telephone.
2. **Affect on the Field:** Persons with a physical disability have traditionally been unable to operate a telephone independently – with the inability to dial independently being the biggest obstacle. The *Multi-phone*® represents the first communication product integrated with a communication device that allowed independent phone operation and speech through a communication device possible.

Report of Education of Patients and Service to the Community

Activities

1982-1983	Massachusetts Department of Education (Speech Pathology) Comprehensive System for Personnel Development
1983-1983	Massachusetts Department of Education, Boston/Clinician Integrated Applications of Computer Technology for Severely Physically Handicapped Students
1983-1984	Massachusetts Department of Education Ad hoc Committee on Non-Speaking Children
1989-1991	Boston Public Schools/Member Advisory Board on Special Education
1991-1994	Massachusetts Developmental Disability Council/Appointed Member
1993-1993	PBS/Interview regarding theory <i>Frontline on Facilitated Communication</i> , practice and controversy of facilitated communication
1993-1993	<i>60 Minutes</i> CBS/ Interview regarding the controversy of facilitated communication
1993-1993	<i>Now</i> NBC News Program/ Interview regarding the controversy of facilitated communication
1996-1996	PBS/ Interview regarding theory <i>Frontline on Facilitated Communication</i> , practice and controversy of facilitated communication (Rebroadcast)
1999-1999	Autism Support Center/Clinician Presentation pertaining to autism. Boston, MA
2001-2001	Minuteman Implant Club/Clinician Computer Software for Listening and Learning with a Cochlear Implant
2002-2002	Learning Disabilities Association of Massachusetts/Advisory Board
2002-2002	Learning Disabilities Association of Massachusetts/Advisory Board
2006-2006	Boston Public Schools/Committee Member Autism Advisory Board
2007-2007	Nantucket, MA/ Presenter Presentation to parents of children on the autism spectrum
2007-	City of Boston/Autism Consultant
2011-2011	Participant in Apple Computer's World Wide Web Keynote Series: Utilization of the iPad by children on the autism spectrum
2011-2011	University of California/Presenter KiDA 3 rd Annual Summit on Autism presentation regarding Technology Today
2012-2012	<i>20/20</i> ABC appearance regarding Dangers of Facilitated Communication Broadcast date - January 6, 2012
2014-2015	Boston Children's Hospital/Presenter Technology for Teaching Language and Communication in Autism Spectrum Disorder for Parents and Professionals
2015-2015	"The Strange Case of Anna Stubblefield" <i>The New York Times</i> 25 Oct 2015 Magazine Issue.

Educational Material for Patients and the Lay Community**Books, monographs, articles and presentations in other media**

2001	The children's hospital guide to your child's health and development	Co-editor	Educational resource for parents
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Educational material or curricula developed for non-professional students

1978	Communication boards: help for the child unable to talk	Co-author	Educational article published in <i>Exceptional Parent</i> F19-22
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Patient educational material

1977	Looking forward: A guidebook for the laryngectomy	Co-author	Patient education guidebook
1986	Alternative and augmentative communication education booklet	Co-author	Patient education booklet
1994	The clinical and sociological phenomenon of facilitated communication	Author	Information for families and professionals regarding facilitated communication

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Books/Textbooks for the medical or scientific community

1. **Shane HC**. Ed. *Facilitated communication: the clinical and social phenomenon*. San Diego: Singular Publishing Group, 1994.
2. **Shane HC**, Weiss-Kapp S. *Visual language in autism*. San Diego: Plural Publishing, 2007.
3. **Shane HC**, Laubscher EH, Schlosser R, Fadie H, Sorce J, Abramson J, Flynn S, Corley K. *Enhancing communication in individuals with autism. A guide to visual immersion system*.

Patent educational material

1. Visual communication graphic symbols (350 animated graphics)

Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings

Poster Presentations:

1. **Shane HC**, Tourian M, Weiss-Kapp S. lecture; Managing Autism Outcomes: The Participation, Accuracy, and Independence Scales. American Speech-Language Hearing Association Annual Convention, 2004.
2. **Shane HC**, Kearns W, Tourian, M, Weis-Kapp S. lecture; Monarch National Language Curriculum for Generalization of Language Concepts. American Speech-Language-Hearing Association Annual Convention, 2004.
3. **Shane HC**, Jeans, C. lecture; Teaching language concepts to adults with autism spectrum disorders. American Speech-Language-Hearing Association Annual Convention, 2010.
4. Schlosser R, Koul R, **Shane, H**, & Brock B. lecture; Effects of animation on identification of symbols by children with autism. American Speech-Language-Hearing Association Annual Convention 2014.
5. O'Brien, A, **Shane, HC**, Schlosser, R, Allen, A, Abramson, J, Dimery, K, & Flynn, S. "Just-in-time" supports: delivery and use through wearable technology. International Society for Augmentative and Alternative Communication (ISAAC) 2016
6. O'Brien, A, **Shane, HC**, Schlosser, R, Allen, A, Abramson, A, Flynn, S, Yu, C. Autism & the Apple Watch: Just-In-Time Delivery of Visual Supports. American Speech-Language-Hearing Association Annual Convention, Philadelphia, 2016.