



Universita' degli Studi di PADOVA

Progetti di Ricerca di Ateneo

Anno: 2011 - prot. CPDA114999

1.0 Macroarea di Afferenza del Responsabile Scientifico del Programma di Ricerca

2 - Scienze della vita

1.1 Area Scientifica del Responsabile Scientifico del Programma di Ricerca

07 - Scienze Mediche

1.2 Responsabile Scientifico del Programma di Ricerca

PERILONGO	Giorgio	M
(Cognome)	(Nome)	(sesso)
PROFESSORE ORDINARIO	MED/38	06/09/1955
(Qualifica)	(Settore Scientifico Disciplinare)	(Data di Nascita)
PRLGRG55P06I531A	Facoltà di MEDICINA e CHIRURGIA	DIP. PEDIATRIA
(Codice fiscale)	(Facoltà)	(Dipartimento/Istituto)
0498213517	0498218487	giorgio.perilongo@unipd.it
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Lingua veicolare del progetto

English

1.3 Area Scientifica del Programma di Ricerca

Area Scientifica Prevalente	Scienze Mediche	(% di afferenza)	40
Area Scientifica	Scienze Psicologiche	(% di afferenza)	30
Area Scientifica	Scienze Matematiche	(% di afferenza)	30
Progetto Interarea	SI		

1.4 Titolo del Programma di Ricerca

Vocal output communication aids for temporarily impaired owners: a feasibility study

1.5 Abstract del Programma di Ricerca

Primary objectives –

To document the possibility that children temporarily unable to communicate because of a severe acquired brain injury (ABI) or because intubated and partially sedated (thus, incapable of completing any motor function, including speaking) can use augmentative serious games (ASG) designed for facilitating the communication.

To evaluate if, in these patients, ASG can:

- accelerate the arising phase and thus favoring an early rehabilitation
- improve and stimulate the communication capacity of the child with parents and the medical staff and thus ameliorate his/her quality of life as well as the one of his/her parents and of the medical staff;
- improve the functioning of the medical and nursing staff and thus the quality of care.

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Rationale – To overcome the terrifying and isolating experience related to feelings of panic, insecurity, anger, worry, fear, sleep disturbances and stress that children, suffering from a temporary clinical conditions limiting their capacity to communicate, experience. To start as early as possible the rehabilitation.

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Type of study – Feasibility study combining quantitative and qualitative approaches in a complementary design. Participant observation, semi-structured interviews, questionnaires, and clinical record reviews will be used to obtain data on the use of ASG.

Patient population – All children aged between 3 and 18 years of age consecutively admitted to the Pediatric Intensive Care Unit (PICU) of the Department of Pediatrics of the University Hospital of Padua (Italy) temporarily unable to communicate or because of a severe ABI or because of mechanical ventilation (e.g. after politruama, post- neurosurgical conditions, extensive body burns, severe infection and intoxications). The PICU of the Department of Pediatrics of Padua, is a 10-bed facility serving a population of 500.00o children < 18 years of age. It is estimated to enroll 30 children in a 2-year period.

Study-end points – i) The documentation that ASG can actually be used by the study-population; ii) the clinical judgment made by the doctors in evaluating the speed/quality of the arising phase in these children; iii) the quality of life and care perceived by the patients, by their parents and by the medical personnel.

Equipments.

ASG is a game designed for a primary purpose other than pure entertainment and, in this case, for making possible and stimulating the communicate in children who can't communicate. It is a tabled based digital application provided with all the characteristic of a pure computerized vocal game in order to facilitate the children's approach. It also allowed all the internet based form of distant communication to family members, friends and schoolmates (having access to SMS, Face Book, Twitter) . This ASG has been developed by a team of researchers of the Department of Pediatrics and of Pure Applied Mathematics of the University of Padua..

Financial resources – The financial support is required i) to acquire the computer tables on which the serious games is developed; ii) to support the dedicated personal (psychologists & information technology experts); iii) to disseminate the information

1.6 Caratteri di innovatività del progetto e del gruppo

The collaborative efforts of experts coming from quite different disciplines: information technology experts, applied mathematicians, clinical psychologists and pediatricians.

The development of electronic vocal tools specifically constructed to be easily accessible and attractive to children (having all the characteristics of any other electronic games)for medical, rehabilitative and inclusive purposes.

The possibility of having children affected by acquired temporarily severe neurologic disabilities and admitted to a Pediatric Intensive Care Unit (PICU) to take part, very early during the recovering phase, to their own care, manifesting their needs and their willing to communicate with parents and medical staff.

This is the first time to our knowledge that a augmentative serious game is used in a PICU at least in Italy for therapeutuc purposes.

1.7 Settori scientifico-disciplinari interessati dal Programma di Ricerca

MED/38

M-PSI/04

INF/01

1.8 Parole chiave

1. AREA 07 - Medicine - Med/38 - General And Specialistic Paediatrics - GENERAL, CLINICAL AND PEDIATRIC NURSE SCIENCES
2. AREA 17 - Psychology - Health And Mental Health Treatment And Prevention - Psychological Evaluation
3. AREA 01 - Mathematics - Computer Science - Computing Methodologies And Applications - INFORMATION SYSTEMS (HYPERTEXT NAVIGATION, INTERFACES, DECISION SUPPORT, ETC.)
4. Pediatric Informatics (Augmentative Serious Game)

1.9 Curriculum scientifico del Responsabile Scientifico del programma di ricerca

PROF. GIORGIO PERILONGO

Date of birth - September 9th, 1955

Married with two children (Tommaso & Giovanni)

Citizenship – Italian

Residency – Padua, Italy

Academic Curriculum Education

University of Padua, Italy

Medical Doctor School of Medicine 1974-1980

Pediatrician Pediatric Residency Program 1980-1983

Oncologist Oncology Residency Program 1983-1987

Children's Hospital, Philadelphia

Fellowship in Allergy/ Immunology/Bone marrowtransplantation 1985/1986

In Haematology/Oncology 1986/1988

In Neuro-Oncology 1989/1990

Academic Appointment

Full Professor in Paediatrics, University of Padua, Board certified, October 1st 2005

Chair, Division of Paediatric, University of Padua, 2006 (including also the Pediatric Intensive Care Unit)

Chair, University-Hospital Department of Paediatrics, Padua, Italy, 2007 as of to-day

Co-ordinator, Undergraduate Paediatric Training, School of Medicine, University of Padua
 Director, Paediatric Residency Program in Padua, Italy 2005/2010
 Faculty, PhD program in Development Science and Public Health, University of Padua
 Faculty, Undergraduate course of Paediatric Nursing Science, University of Padua
 President, College of Division Chairs of Paediatrics, Veneto Region, Italy
 Past position within SIOPEL
 Member, 1985
 Member, Scientific Committee 2001/2004
 Chair, Scientific Committee 2004/2007
 Treasure, SIOPEL Europe Continental Branch 2002/2006
 Other relevant Scientific Society memberships
 National Society of Paediatric and of Haematology-Oncology
 European Association of Neuro-Oncology
 Clinical Research Activity conceived under the umbrella of SIOPEL
 Co-Founder, SIOPEL (International Childhood Liver Tumors Study Group of the International Society of Pediatric Oncology) Group, Jerusalem
 1988 – Past, SIOPEL Group Chairman, Chair of the SIOPEL 2 and SIOPEL3 standard risk trial
 Co-Founder, SIOPEL Brain Tumour Sub-Committee (with Cliff Bailey & Minna Yssing) 1992 – Co-Chair SIOPEL Low Grade Glioma Study 1 and 2
 Scientific Production – 125 peer reviewed manuscripts (PUBMED); IF 425; 15 chapters in Scientific Book, Co-Editors of three Medical Books;
 past Associated Editors of Paediatric Blood and Cancer & Neuro-Oncology

1.10 Pubblicazioni scientifiche più significative del Responsabile Scientifico del Programma di Ricerca

n°	Pubblicazione
1.	GARDIMAN MP, FASSAN M, ORVIETO E, D'AVELLA D, DENARO L, CALDERONE M, SEVERINO, M, SCARSELLO G, VISCARDI E, PERILONGO G. (2010). Diffuse Leptomeningeal Glioneuronal Tumors: A New Entity?. BRAIN PATHOLOGY, vol. 20; p. 361-366, ISSN: 1015-6305 (Articolo su rivista) impact factor: 5.903 - I.F.: 5.576 ISI: CLINICAL NEUROLOGY, NEUROSCIENCES, PATHOLOGY ISSN: 1015-6305
2.	ZSIROS J, MAIBACH R, SHAFFORD E, BRUGIERES L, BROCK P, CZAUDERNA P, ROEBUCK D, CHILDS M, ZIMMERMANN A, LAITHIER V, OTTE JB, DE CAMARGO B, MACKINLAY G, SCOPINARO M, ARONSON D, PLASCHKES J, PERILONGO G. (2010). Successful treatment of childhood high-risk hepatoblastoma with dose-intensive multiagent chemotherapy and surgery: final results of the SIOPEL-3HR study. JOURNAL OF CLINICAL ONCOLOGY, vol. 28; p. 2584-2590, ISSN: 0732-183X (Articolo su rivista) impact factor: 17.793 - I.F.: 17.793 ISSN: 0732-183X ISI: ONCOLOGY
3.	PERILONGO G., MAIBACH R, SHAFFORD E, BRUGIERES L, BROCK P, MORLAND B, DE CAMARGO B, ZSIROS J, ROEBUCK D, ZIMMERMANN A, ARONSON D, CHILDS M, WIDING E, LAITHIER V, PLASCHKES J, PRITCHARD J, SCOPINARO M, MACKINLAY G, CZAUDERNA P (2009). Cisplatin versus cisplatin plus doxorubicin for standard-risk hepatoblastoma. NEW ENGLAND JOURNAL OF MEDICINE, vol. 361; p. 1662-1670, ISSN: 0028-4793 (Articolo su rivista) impact factor: 47.05 - I.F.: 47.050 ISSN: 0028-4793 ISI: MEDICINE, GENERAL & INTERNAL
4.	GNEKOW A, DE SALVO GL, THIEME B, VON HORNSTEIN S, PERILONGO G., STOKLAND T, SANDSTROM PE, SLAVC I, HELGESTAD J, GOETTE H, GRILL J, KORTMANN RD, WALKER D (2008). SIOPEL-LGG 2004: Comprehensive treatment strategy for low-grade glioma in children and adolescents, including a randomized chemotherapy trial and a radiotherapy trial. NEURO-ONCOLOGY, vol. 10; p. 452-453, ISSN: 1522-8517 (Articolo su rivista) impact factor: 5
5.	DE IORIS M, BRUGIERES L, ZIMMERMANN A, KEELING J, BROCK P, MAIBACH R, PRITCHARD J, SHAFFORD L, ZSIROS J, CZAUDERNA P, PERILONGO G. (2008). Hepatoblastoma with a low serum alpha-fetoprotein level at diagnosis: The SIOPEL group experience. EUROPEAN JOURNAL OF CANCER, vol. 44; p. 545-550, ISSN: 0959-8049, doi: 10.1016/j.ejca.2007.11.022 (Articolo su rivista) impact factor: 4.475 - IF 4.121

1.11 Componenti il Gruppo di Ricerca

1.11.0 Personale docente e ricercatore anche a tempo determinato dell'Università di Padova

n°	Cognome	Nome	Dipartimento/Istituto	Qualifica	Settore	Mesi/Persona(*) Primo anno	Mesi/Persona(*) Secondo anno	Stato della risposta
1.	PERILONGO	Giorgio	DIP. PEDIATRIA	Prof. Ordinario	MED/38	3	3	RESPONSABILE
2.	FERRARI	Lea	DIP. PSICOLOGIA DELLO SVILUPPO E DELLA SOCIALIZZAZIONE	Ricercatore	M-PSI/04	4	4	ACCETTATO

3.	SGARAMELLA	Teresa Maria	DIP. PSICOLOGIA DELLO SVILUPPO E DELLA SOCIALIZZAZIONE	Ricercatore	M-PSI/04	3	3	ACCETTATO
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1.11.1 Altro Personale dell'Università di Padova a tempo indeterminato (personale tecnico-amministrativo, Dirigenti e CEL)

n°	Nome	Dipartimento/Istituto	Facoltà	Qualifica	Mesi/Persona(*) Primo anno	Mesi/Persona(*) Secondo anno
1.	MANCIN ROBERTO	"DIPARTIMENTO DI PEDIATRIA ""SALUS PUERI""	FACOLTA' DI MEDICINA E CHIRURGIA	CATEGORIA D POSIZIONE ECONOMICA D1 AREA TECNICA, TECNICO- SCIENTIFICA ED ELABORAZIONE DATI	4	4
2.	MORO GIANLUCA	DIPARTIMENTO DI SCIENZE STATISTICHE	FACOLTA' DI SCIENZE STATISTICHE	CATEGORIA D POSIZIONE ECONOMICA D1 AREA TECNICA, TECNICO- SCIENTIFICA ED ELABORAZIONE DATI	1	1
3.	SEQUI GIUSEPPINA	"DIPARTIMENTO DI PEDIATRIA ""SALUS PUERI""	FACOLTA' DI MEDICINA E CHIRURGIA	CATEGORIA D POSIZIONE ECONOMICA D1 AREA TECNICA, TECNICO- SCIENTIFICA ED ELABORAZIONE DATI	1	1

1.11.2 Titolari di assegni di ricerca dell'Università di Padova

n°	Cognome	Nome	Dipartimento/Istituto	Mesi/Persona(*) Primo anno	Mesi/Persona(*) Secondo anno
1.	CENTI	Sonia	DIP. PEDIATRIA	1	1

1.11.3 Studenti di Dottorato di Ricerca dell'Università di Padova

n°	Cognome	Nome	Dipartimento/Istituto	Qualifica	Mesi/Persona(*) Primo anno	Mesi/Persona(*) Secondo anno
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1.11.4 Personale docente e ricercatore anche a tempo determinato, dottorandi e assegnisti di altre Università

n°	Cognome	Nome	Università	Dipartimento/Istituto	Qualifica	Settore	Mesi/Persona(*) Primo anno	Mesi/Persona(*) Secondo anno
1.	PITTARELLO	Fabio	Università "Ca' Foscarini" VENEZIA	DIP. SCIENZE AMBIENTALI, INFORMATICA E STATISTICA	Ricercatore	INF/01	3	3
2.	SARTORETTO	Flavio	Università "Ca' Foscarini" VENEZIA	DIP. SCIENZE AMBIENTALI, INFORMATICA E STATISTICA	Prof. Associato	MAT/08	3	3

1.11.5 Studenti di corsi di laurea magistrale dell'Università di Padova, personale docente e ricercatore di Università straniere, personale extrauniversitario (solo sulla base di specifiche convenzioni)

n°	Cognome	Nome	Ente	Qualifica	Mesi/Persona(*) Primo anno	Mesi/Persona(*) Secondo anno
1.	BRESSAN	SILVIA	University of Padua (Doctoral Student in Pediatrics)	Medical Doctors	3	3
2.	CRACCO	ALESSANDRO	Azienda Ospedaliera di Padova	IT Specialist of Paediatric Department	1	1
3.	PETTENAZZO	ANDREA	Azienda Ospedaliera di Padova	Medical Doctors, Chair of the PICU	3	3
4.	STRITONI	VALENTINA	Azienda Ospedaliera di Padova	Medical Doctors, Staff Member of the PICU	3	3

5.	ZAGGIA	CRISTINA	Azienda Ospedaliera di Padova	Head Nurse in PICU	3	3
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2.1.0 Pubblicazioni scientifiche più significative dei componenti il gruppo di ricerca (docenti dell'ateneo di Padova)

n°	Pubblicazioni
1.	NOTA L, FERRARI L., SOERSI S, SGARAMELLA TM. (2008). <i>Conception of working and leisure in adults with disability. JOURNAL OF INTELLECTUAL DISABILITY RESEARCH.</i> vol. 52, pp. 689-689 ISSN: 0964-2633, ISI:000257797700280. Impact factor 1.853
2.	SGARAMELLA T.M., SORESI S. (2010). <i>MODELS OF NEUROPSYCHOLOGICAL ASSESSMENT AND THE ANALYSIS OF EVERYDAY LIFE DIFFICULTIES: EVIDENCE FROM EXECUTIVE FUNCTIONS. INTERNATIONAL JOURNAL CHILD HEALTH AND HUMAN DEVELOPMENT.</i> vol. 3,4, pp. 357-370 ISSN: 1939-5965.
3.	SGARAMELLA T.M. (2011). <i>ABILITÀ DI PROBLEM SOLVING E SVILUPPO PROFESSIONALE NEL GIOVANE ADULTO CON DISABILITÀ COGNITIVE.</i> In: NOTA L. E SORESI S. EDS. <i>NUOVE SFIDE PER L'ORIENTAMENTO SCOLASTICO-PROFESSIONALE.</i> (pp. 79-98). FIRENZE: OS- Giunti (ITALY). FIRENZE: ORGANIZZAZIONI SPECIALI-GIUNTI.
4.	SGARAMELLA T.M., SORESI S, FERRARI L, NOTA L. (2010). <i>The role of executive functioning on quality of life perception in chronic, unpredictable disabilities. JOURNAL OF INTELLECTUAL DISABILITY RESEARCH.</i> vol. 23, pp. 420 ISSN: 0964-2633. Impact factor 1.601
5.	FERRARI L., NOTA L, SORESI S. (2008). <i>Conceptions of work in Italian adults with intellectual disability. JOURNAL OF CAREER DEVELOPMENT.</i> vol. 34, pp. 438-464 ISSN: 0894-8453, ISI:000256550900005 doi:10.1177/0894845308316295. Impact factor 1.049
6.	NOTA L, SORESI S, FERRARI L. (2008). <i>Intellectual disability and psychopathology: influence of institutionalization and level of intellectual disability and relationship between psychopathological problems and social and functional abilities. INTERNATIONAL JOURNAL ON DISABILITY AND HUMAN DEVELOPMENT.</i> vol. 7.1, pp. 57-68.

2.1.1 Pubblicazioni scientifiche più significative dei componenti il gruppo di ricerca (altri partecipanti al progetto)

PETTENAZZO A.

- 1) Amigoni A, Comer P, Zanella F, Pettenazzo A. "Successful use of inhaled nitric oxide in a child with fat embolism syndrome." *J Trauma.* 2010 Mar;68(3):E80-2
- 2) Zulian F, Martinez Toledo MM, Amigoni A, Martini G, Agosto C, Pettenazzo A. "Successful use of extracorporeal membrane oxygenation for severe interstitial lung disease in a child with dermatomyositis." *Intensive Care Med.* 2007 Sep;33(9):1663-6. Epub 2007 Jun 27.
- 3) Amigoni A, Pettenazzo A, Biban P, Suppiej A, Freato F, Zaramella P, Zacchello F. "Neurologic outcome in children after extracorporeal membrane oxygenation: prognostic value of diagnostic tests." *Pediatr Neurol.* 2005 Mar;32(3):173-9.

MANCIN R.

- 1) Mancin R, Leonardi C, Bertocco E. "Disabilità neuromotoria in età pediatrica: Ausili informatici per giocare e crescere. Proceedings of Meeting "ausili per persone disabili" – Abano 5-7/11/2008
- 2) Zulian F, Meneghesso D, Grisan E, Vittadello F, Mancin R, Martini G, Ruggeri A Computerized skin score: A new technique for the assessment of Localized Scleroderma Author(s): Source: ANNALS OF THE RHEUMATIC DISEASES Volume: 65 Pages: 578-578 Supplement: Suppl. 2 Published: JUL 2006
- 3) Mancin R. Corso di informatica per ragazzi con trauma cranico. Atti del 40 Convegno Nazionale "Informatica, Didattica e Disabilità (IDD'95)", Firenze 1995, pp. 545-548

PITTARELLO F.

- 1) PITTARELLO, F., and R. STECCA, "Querying and Navigating a Database of Images With the Magical Objects of the Wizard Zurlino (PDF available)", *IDC 2010, 9th international Conference on interaction Design and Children, NEW YORK, NY, ACM Press, pp. 250–253, 2010.*
- 2) PITTARELLO, F., and A. DE FAVERI, "Improving Access of Elderly People to Real Environments: a Semantic Based Approach (PDF available)", *Proceedings of AVI 2006, International Working Conference on Advanced User Interfaces: ACM Press, pp. 364–368, 2006.*
- 3) PITTARELLO, F., "Accessing Information Through Multimodal 3d Environments: Towards Universal Access (PDF available)", *UNIVERSAL ACCESS IN THE INFORMATION SOCIETY, vol. 2(2), pp. 189–204, 2003*

SARTORETTO F.

- 1) Flavio Sartoretto and Roberto Mancin. "Disabilità e multimedialità: come migliorarne l' interazione". In *Atti del IX Congresso Nazionale di Informatica Medica, Venezia, 3-5 ottobre 1996, pages 181-184, Venezia, 199*
- 2) Mario Ermani, Flavio Sartoretto, Gianfranco Boccalon, and Gianfranco Testa. "Automatic spike and spike and wave detection using wavelets." *Electroencephalography and Clinical Neurophysiology, 103(1):116, July 1997.*
Abstracts of the 14th International Congress of EEG and Clinical Neurophysiology, Florence, Italy, August 24-29, 1997
- 3) Roberto Mancin and Flavio Sartoretto. "Internet e multimedialità: Verso un' accessibilità universale." In *Atti del Quinto Convegno Nazionale "Informatica, Didattica e Disabilità", Bologna, 5-8 novembre 1997, pages 148-151, Bologna, 1997.*

2.2 Curriculum scientifico dei Componenti il Gruppo di Ricerca

LEA FERRARI

Academic Background

- 2007 Post Phd, University of Padova
- 2005 Phd in Vocational Psychology, University of Padova
- 2000 Post-graduate one-year course in "Psychology of Vocational Guidance" at the University of Padova
- 1998 Degree in Psychology, University of Padova

Actual position

- 2007- Assistant Professor at the Faculty of Psychology, University of Padova

Teaching activities

- 2008-2009, 2009-2010 Professor of Psychology of work inclusion of persons with disability, Faculty of Psychology, University of Padova
- 2009 Professor of Psychology of Handicap and Rehabilitation at the course of Speech Therapy, Faculty of Medicine, University of Padova
- 2009- Professor at the post-graduate Master Course in School-Career Counseling, Faculty of Psychology, University of Padova

Research Interests

- Quality of life
- Social inclusion
- Cognitive and physical disabilities
- Efficacy of intervention
- Assessment
- Career Development

Memberships

- Italian Society for Vocational Guidance
- International Member of American Psychological Association
- AIP - Associazione Italiana di Psicologia (Italian Association of Psychology)
- European Society on Family Relations (ESFR)
- Member of the Centro di Ateneo di Servizi e Ricerca per la Disabilità, la Riabilitazione e l'Integrazione (University center of services and research for disabilities, rehabilitation and inclusion), University of Padova

Member of international research projects 2007-

- "Erasmus NICE - Network for Innovation in Guidance" coordinated by prof. Christiane Schiersmann, University of Heidelberg, Germany
- "Career Adaptability" coordinated by prof. M. Savickas, Northeastern Ohio Universities College of Medicine and Pharmacy, USA

Editorial activities

- Editorial coordinator of the *Giornale Italiano di Psicologia dell'Orientamento* (Italian Journal of Vocational Behavior)
- Ad-hoc reviewer: *Giornale Italiano di Psicologia dell'Orientamento*, *Scandinavian Journal of Psychology*, *Educational Research Review*

TERESA MARIA SGARAMELLA

Actual position: assistant professor at the Dipartimento di Psicologia dello Sviluppo e della Socializzazione, University of Padova.

EDUCATION

- 1984 Graduated in General and Experimental Psychology at the University of Padova.
- 1988-1992 PhD student at the Psychology Faculty, University of Padova.

Main activities

- Professor of "Models and programs in life span rehabilitation, Faculty of Psychology, University of Padova (2009- present)
- Professor of "Psychology of Inclusion", Interfaculty degree on Education, University of Padova at Rovigo (a.y. 2003-present)
- Contract professor of "Psychology of handicap and rehabilitation", Speech therapist degree, Medical Faculty, University of Padova (a.y. 2002-2010)
- Contract professor of "Psychology of handicap and rehabilitation", at the Education Faculty, University of Parma (a.y. 2002-2005)
- Seminars on Neuropsychological assessment, Cognitive rehabilitation and Neuropsychology at the Post graduate course on "Rehabilitation and integration of Disabilities, University of Padova (a.y. 1999-2002)
- Contract professor of "Psychology of language development and communication", Speech therapist degree, Medical Faculty, University of Padova (a.y. 1998-1999)
- Scientific organization of the annual post-graduate course on "Neuropsychology of aging and dementias". DIPSCO, S. Raffaele University, Milano, Italy (1996).
- From 1995 to 2005 Head of the Neuropsychology Unit, Department of Neuroscience, S. Bortolo Hospital, Vicenza, Italy.
- 1993-1994 Post-doc research grant
- 1992-1993 Part time research assistant, University of Stokholm, Sweden

From 2001 in the board of referees for Italian Journal of Disabilities; scientific organizer and scientific board for the annual meeting "Disability, treatment and inclusion", held in Padova.

Main research interests

- Development of Executive functioning, school and career guidance.
- Models of rehabilitation in developmental and acquired disabilities.

2.3 Stato dell'Arte: base di partenza scientifica nazionale ed internazionale

The inability to communicate because of a severe acquired brain injuries (ABI) or because of mechanical ventilation is recognized as a terrifying and isolating experience that is related to feelings of panic, insecurity, anger, worry, fear, sleep disturbances, and stress among critically ill patients of any age. Most of these feelings are also experienced by all the people caring for these patients, such as parents, relatives and medical personnel who want but can't establish effective contacts with the affected patient. The lack of communication has also an influence on the quality of care because of the difficulties of interpreting patients' intimate needs. Furthermore, the impossibility of giving and receiving messages have a clear impact on the recovery or, better, on the rehabilitation phase of the affected patients and thus, possibly, on the speed and quality of the recovery. For all these reasons it becomes imperative to find alternative ways for allowing the affected patients to

establish effective communication with the surrounding word.

Most nurse-patient communicative interactions in the intensive care unit (ICU) are brief, consisting of task or procedure-oriented information, commands, or reassurances.

So far alternative methods of Augmentative and Alternative Communication (AAC) systems in Intensive Care Units (ICU) with temporarily nonspeaking patients have received little attention from the researchers. Voice Output Communication Aids (VOCAs) are a subset of AAC devices that produce prerecorded, digitized voice messages (recorded speech) or synthesized speech (computer-generated voice) when the communicator accesses specific locations on a dynamic display screen or membrane keyboard. Most electronic VOCAs can be pre-programmed with situationally-relevant whole messages, such as "I'm having pain," that are accessed via one location on the device display. Pre-programmed messages on additional "levels" can be added for elaboration.

The new communication technologies are permeating the attitude of children who, since the beginning of their psycho-social and motor development, are exposed to the application of these modern technologies. The computerized games are by definition the tools with which children learn, and at very early stages of their life, how to deal with the 'language' of these new communication technologies. Thus AAC systems can be 'hidden' within electronic game like tools which can easily attract children's interests other than find, in them, already expert users. These type of tools are generally defined serious games: a game designed for a primary purpose other than pure entertainment and, in this case, it is constructed to allow people 'who can't but have to' to communicate. This tool may also stimulate the child's willingness to communicate and thus may allow him/her to become the main actor of his/her own rehabilitation process.

It is proposed to called these tools Augmentative Serious Games, (ASG) - other than simply serious games - because indeed these are dynamic and flexible tools capable of potentiating and stimulating the emerging abilities of the sick child during the recovering phase of a severe Acquired Brain Injury (ABI).

In brief the project here outlined is designed to produce feasibility data on the use of ASG in children admitted to a pediatric ICU and suffering from a clinical condition temporarily preventing them from being able to communicate. It also aims to document their beneficial effects on the quality of life of the patients, of their relatives, and of the medical staff caring for them and, thus, on the quality of care.

The ASG under investigation has already been developed by a team of researchers of the Departments of Pediatrics and of Pure Applied Mathematics of the University of Padua.

To our knowledge this would represent the first clinical research regarding the use of an ASG in a pediatric ICU

2.4 Descrizione del Programma di Ricerca

Type of study – Feasibility study combining quantitative and qualitative approaches in a complementary design. Participant observation, semi-structured interviews, questionnaires, and clinical record review will be used to obtain data on the use of an Augmentative Serious Game (ASG). This work is focused on a less explored domain, that of the access to ASG by children temporarily affected by a "looked-in-like-syndrome" (condition in which a patient is aware and awake but cannot move or communicate verbally due to complete paralysis of nearly all voluntary muscles in the body except for the eyes) because of acquired brain injury (ABI) or because of mechanical ventilation (e.g. after poli-trauma, post-neurosurgical conditions, extensive body burns or other conditions)

Clinical setting – The study will be conducted in The Pediatric Intensive care unit (PICU) of the Department of Pediatrics of the University Hospital of Padua, Italy. The PICU is a 10-bed facility serving all the North-East part of the Veneto Region (about 500.000 children less than 18 years of age). The study has been submitted for approval by the Research Ethical Committee of the University Hospital of Padua.

Patient population – All children aged between 3 and 18 years consecutive admitted to the PICU of the Department of Pediatrics of the University Hospital of Padua, Italy in the two-year period of the study or i) suffering of a "looked-in-like syndrome" or ii) being intubated and partially sedated incapable of completing any motor function (including speaking). No patient selection by gender, race, social status, level of education, culture or native language will be used. Patients will be identified by the medical and nursing staff of the PICU and the child enrolled into the study upon signing of the consensus form by the child's parents or legal guardian. The timing to start the use of the ASG will be decided by the medical staff, by the researchers and whenever possible after receiving the patient's approval to "play" with the ASG. All the medical and nursing staff and the child relatives will be trained on the use of ASG in the study patients and on how "to train" the patients. An instructional manual will be made available outside of the patient's room for review. The study patients will be followed until extubation or hospital discharge, whichever occurred first. Investigators during the study period will carry pagers, rotating "on call" to solve problems or answer questions about the ASG.

Equipments - "Mind Reader Square": an ASG developed by a team of researcher of the Department of Pediatrics and of Pure Applied Mathematics of Padua University (after having obtained preliminary data testing other Augmentative and alternative Communication (ACC) systems). This tool is a tabled based digital application designed with all the characteristic of any other pure vocal computerized game in order to facilitating the children's approach. The patient can play with the ASG interacting with the colored and multimedial screen using whatever motor movement he/she is capable of performing at that specific stage of the recovering phase from his/her severe ABI. A series of images, sounds and video clips are stored in different levels (files) which are variably accessible according to the child's quality of performance. At every image a vocal message (in the chosen language) can be generated simulating a real dialogue. In this prospective all the language barriers are overcome (!). The different sets of images are selected according to the content of the message the patient wants to give; they may be related to the sense of hungry, thirsty, upset, of being in pain, of being cheerful. The set of images can be also personalized according to the specific patient's age, history, culture or family and whatever else can be selected. The ASG contains also real games if the sick child wants only to play. The games can be also constructed to stimulate the personal rehabilitation effort; for example the game can be constructed in a way that it gives a prize if the child accomplishes a task which is important for his/her rehabilitation program (for example using one arm other than the other or rising legs or whatever). The ASG can be also used for distant communication with relatives at home, friends, schoolmates in class, having access to e-mail, SMS, FaceBook, Twitter.

Study-end points – i) The documentation that ASG can actually be used by the study-population; ii) the clinical judgment made by the doctors in evaluating the speed/quality of the arising phase in these children; iii) the quality of life and care perceived by the patients, by their parents and by the medical personnel.

Outcome measures. The actual use of the ASG by the child will be recorded daily by the parents (appropriately trained) and by the nurses. For this purpose an Observation of Communication Event Record will be developed. It will be designed also to document time, frequency of the actual use of the device, the characteristics of observed communication interactions between patient and communication partner (ie, nurses or family visitors) such as initiation of communication, position of device, methods of communication, message content, difficulties encountered and assistance required by the communication partner.

Furthermore, automatically and daily the ASG will generate a report indicating the frequency, the duration and the magnitude of its use which will be stored in a central server. The data produced "manually" by the parents and the nursing staff will be collected separately for a later comparison with the automatically generated information produced by the ASG. All this will serve to produce evidence on the actual use of the

device by the child. The daily reports will be also used to compare the actual use in term of time spent with the game and quality of the games played according to the patients' clinical status. Ideally a direct relationship will be note with the level of games "played" and the improved clinical status.

To assess changes in patient perception of communication difficulty, participants, if capable, will complete the revised Ease of Communication Scale (ECS), before introduction of the ASG, during and after the ASG will be used. The researcher read the 10 Likert-type statements about perceived communication difficulty to patients who referred to a card with response selections (0 _ not hard at all, 1 _ a little hard, 2 _ somewhat hard, 3 _ quite hard, 4 _ extremely hard) printed in large font.

Patients, clinicians, and family members will be asked informally about their experience with the device, including validation of message content heard by observers. Clinical records will be also reviewed for documentation of nonvocal communication method, content, and ASG use. Finally formal interviews will be conducted with the patients, the family members and the medical personnel.

Data analysis - Quantitative data will be analyzed using descriptive statistics (mean, SD, frequency) and pattern identification via data matrices. Characteristics of communication interactions (ie, communication method(s), number of communication partners, role of communication partner, position of partner, patient, and device, initiator of message, message validation, sedation/analgesia, physical restraint use) were coded from the Observation of Communication Event Record and tabulated.

Qualitative field note data were analyzed by simple coding and categorization of the following: (1) communication method, (2) barriers to use of ASG or other nonverbal communication technique.

2.5 Obiettivo del Programma di Ricerca ed indicazione dei risultati previsti alla fine del primo anno e a conclusione della ricerca

Primary objectives –

To document the possibility that children temporarily unable to communicate because of a severe acquired brain injury (ABI) or because intubated and partially sedated (thus, incapable of completing any motor function, including speaking) can use augmentative serious games (ASG) designed for facilitating the communication.

To evaluate if, in these patients, ASG can:

- a) accelerate the arising phase and thus favoring an early rehabilitation
- b) improve and stimulate the communication capacity of the child with parents and the medical staff and thus ameliorate his/her quality of life as well as the one of his/her parents and of the medical staff;
- c) improve the functioning of the medical and nursing staff and thus the quality of care.

Study-end points and expected results at the end of the first year– i) Preliminary documentation that ASG can actually be used by the study-population; ii) first positive judgments made by the doctors in evaluating the speed/quality of the arising phase in these children; iii) and first positive reports on the quality of life and care perceived by the patients, by their parents and by the medical personnel.

These study end-points will be monitored regularly. At the end of the first year a study report will be produced in order to monitor the preliminary outcome of the project. At the end of the study period qualitative and quantitative data regarding the study-end-points listed above will be produced to document the achievement of the objectives set for the research.

The ultimate desired outcome will be the patenting of the entire process and its diffuse use in pediatric as well as adult ICUs. Furthermore, it is predicted that these experiences will generate new ideas regarding the use of modern communication technologies in Pediatric Intensive Care Units as well as in other pediatric settings.

3.0 Costo del Programma

Il finanziamento complessivo biennale, richiesto e assegnato, ha un limite minimo di Euro 20.000 (che può essere ridotto a Euro 15.000 nel caso in cui non si richiedano finanziamenti per attrezzature) e un limite massimo di Euro 100.000

Il costo per Assegni di Ricerca non può essere inferiore a Euro 22.818 per annualità di un assegno di ricerca.

3.1 Assegni di ricerca da attivare in questo Programma di Ricerca

n°	Attività specifica nel progetto e competenze	Durata complessiva	Costo assegno annuo (euro)	Costo totale (euro)
1.	Assegno di ricerca per un psicologo clinico	BIENNALE	24.000	48.000
	TOTALE			48.000

3.2 Richiesta di attrezzature di importo superiore a 5.000 Euro

n°	Descrizione attrezzatura da acquistare	Costo previsto (euro)
1.	Tablet (10 unità)	6.000
	TOTALE	6.000

3.3 Costo complessivo del Programma di Ricerca

	Descrizione	Costo totale (euro)

Materiale inventariabile	<i>ASSISTIVE PRODUCTS FOR COMMUNICATION AND INFORMATION (Tools for alternative inputs = inputting messages with the tongue, the eyes, the head movements, the brain evoked potentials)</i>	2.000
Materiale di consumo e funzionamento	<i>Coventional materials for secretarial support</i>	1.000
Congressi e missioni	<i>To diffuse worldwide the results of the study and to visit/share information with other groups working in the same field; organizing working sessions</i>	3.000
Servizi esterni		
Assegni di ricerca	<i>(vedi punto 3.1)</i>	48.000
Attrezzature scientifiche di importo superiore a 5.000 Euro	<i>(vedi punto 3.2)</i>	6.000
TOTALE		60.000

Il presente progetto NON prevede sperimentazione animale

SI DICHIARA INOLTRE QUANTO SEGUE:

1) È stata presentata richiesta di finanziamento, per lo stesso o analogo progetto, anche ad altro Ente, da parte del Responsabile o dei componenti il gruppo di ricerca: **NO**

Se si indicare:

- a quale Ente:

2) La realizzazione del presente progetto sarà sovrapposta alla realizzazione di altri rilevanti progetti di ricerca: **NO**

Se si, indicare quali:

Il Responsabile della Ricerca:

Il Direttore della Struttura:

Per la copia da depositare presso l'Ateneo e per l'assenso alla elaborazione e diffusione delle informazioni riguardanti i programmi di ricerca presentati; decreto legislativo 196/03 sulla "Tutela dei dati personali".

Il Responsabile della Ricerca:

Padova lì, 16/06/2011 11:49