ArtsIT/DLI History, Research and Network Development

Anthony L. Brooks[1(✉)] and Eva Brooks[2]

[1] CREATE, Aalborg University, Rendsburggade 14, 9000 Aalborg, Denmark
tb@create.aau.dk
[2] LEARNING, Aalborg University, Kroghstræde 3, 9220 Aalborg Øst, Denmark

Abstract. The international conference ArtsIT that began in 2009 has grown since its inauguration presentation in Taiwan. Since then it has been hosted twice in Denmark, 2011 and 2016; as well as in Italy 2013; Turkey 2014; and most recently in Crete, Greece in 2017. The international conference Design, Learning and Innovation (DLI) was inaugurated in 2016 as a co-located event to ArtsIT being presented together in Esbjerg, Denmark; in 2017 in Heraklion, Crete, Greece; and in 2018 in Braga, Portugal. The series of conferences has realized over 108000 Springer e-book downloads at September 2018 and numerous special issue journals. This paper presents past aspects of ArtsIT/DLI from the perspective of steering persons having purpose to offer readers a historical framing of the events under the European Alliance for Innovation (EAI). This is supplemented by overviewing the authors' researches, which promoted EAI to invite leadership, alongside a background of the complementary workings, and contextual goals of the partnering.

Keywords: ArtsIT history · DLI history · European Alliance for Innovation

1 Introduction

1.1 History of ArtsIT/DLI Under European Alliance for Innovation (EAI)

ArtsIT, originating as 'The Arts and Technology international conference', began in 2009 when hosted in September in Yi-Lan, Taiwan. The first author was invited to steer the event subsequent to the inaugural edition and this has been ongoing. As of September 2018 the e-book metrics for the resulting Springer book from the 2009 event was 26388 downloads[1].

The event was next hosted in December 2011 at the Aalborg University Esbjerg campus in Denmark. A feature of this event was the showcase of the SensoramaLab complex. The complex was founded, realized, designed, and directed by the first author as a Virtual/Augmented/Mixed Reality, Human behavior, Art and Technology, Game Creation, and Interactivity resource. It also included a green screen laboratory. Foci was on offering students access to explore technologies for creative expression in the arts cross-researched as tools for inclusive well-being in health care – this profile

---

[1] https://www.springer.com/gp/book/9783642115769.

aligned with the first-author's original body of research. Thus, through the Sensoramalab complex, Medialogy education students and healthcare research students were offered access to cutting edge technology such as Head Mounted Displays, Gesture controllers, Motion tracking systems, Virtual and Augmented Reality systems, and much more. The Medialogy education started in Esbjerg at Aalborg University in 2002 and the first author was a team member of the originating team that established the education that subsequently grew to Copenhagen and then Aalborg campuses of the University to be the largest intake of students, Danish and Internationals. Serendipitously, during ArtsIT 2011, the Center for Design, Learning and Innovation (DLI) was opened at Aalborg University Esbjerg campus. Professor Eva Brooks who now steers the DLI international conference under the European Alliance for Innovation (EAI) established the Center. Keynote for ArtsIT2011 was the first author who was also organizing chair for the event with Professor Imrich Chlamtac, President of Create-NET and leader of EAI co-steering. Integrated into ArtsIT2011 to supplement the traditional academic papers was a demonstration track titled "Creative Showcase & Interactive Art (CSIA)". Additionally, supporting ArtsIT2011 were two related symposiums, namely the inaugural "GameAbilitation" symposium and the 6th "ArtAbilitation" symposium. Also supporting was the 2nd "Ludic Engagement Designs for All" (LEDA) seminar event (see also next section on this event). The two authors were, and ongoing are, active in and across the fields represented by the main conference, the special demonstration track, both symposiums and seminar, thus were originators of these events. Activities under Aalborg University promote external research and student project relationships with national, regional and local industries and many showcased in a foyer exhibition at the events in 2011. Thus, from these fields and industries associated to the authors' research and project activities, rich networks were on offer to attract submissions and attendance from. Additionally, poster and Ph.D. student tracks supplemented alongside offers for local regional senior student volunteers to attend to develop further networks and to offer experiences from attendance to such an event. For many in southwest Denmark it was the first such international conference, symposium, seminar they had such a chance to attend specific to the arts. Responses were highly positive following attendance with thanks being received from across the networks of HE educations, industries, establishments and organizations. In this way exemplifying how EAI inspires beyond solely academic audiences. The idea behind opening ArtsIT2011 to a wider audience was that by adding these events that have a history of success (i.e. ArtAbilitation and LEDA) and by adding others that takes advantage of the prolific interest and adoption across disciplines of digital games, creativity with digital technologies, learning, inclusion and accessibility, a major interest would result. This was evident at the time as reported in local and national media. Delegates at ArtsIT2011 were able to visit the other events activities in the form of tutorials, workshops, and presentations, and were invited to participate in the official opening of the Center for DLI and of course the associated celebrations in traditional Danish style with all shouting a loud "Skål" (or cheers in English) many times! A linked exhibition accompanied the events and entertainment and a grand gala dinner in the most famous restaurant in downtown Esbjerg, the multiple winner of 'Danish city of the Year', concluded the offerings. Partners for ArtsIT2011 included "Inspiring Denmark", who collaborated in event organization, and "Visit Denmark" who, as main

tourist agency in the region, designed excursions and cultural activities to supplement the academic activities. Delegate evaluations following ArtsIT2011 were "eleven out of ten". As of September 1st 2018 the e-book download metrics for the resulting Springer book was 15950 downloads[2].

Two years later, ArtsIT2013 was hosted by the University of Milano-Bicocca, Italy where a feature was the three different keynote speakers arguing three different points of view over the three days of the event. These were on day one – Austrian media-artist, director/choreographer and composer – Klaus Obermaier (see http://www.exile.at/ko/klaus_bio.html); on day two – Italian art historian and curator Dr Andrea Lissoni; and on day three – Professor Antonio Camurri. As of September 2018 the e-book metrics for the resulting Springer book was 10182 downloads[3].

ArtsIT2014 was held in Istanbul, Turkey, November 2014 with sponsorship by host institute Sabancı University aligned with collaboration with Amber Electronic Arts Festival/Conference. Chairs were Elif Ayiter and Onur Yazicigil from Faculty of Arts and Social Sciences Sabancı University with keynotes by two renowned international artists Murat Germen from Istanbul and Paul Brown from UK. As of September 2018 the e-book metrics for the resulting Springer book was 9739 downloads[4].

There was no event in 2015 due to Danish government dimensioning impacting the authors' workplace. In this break the first author gained permission from EAI to extend the ArtsIT format under the title "ArtsIT, Interactivity & Game Creation". Thus, reflecting the 2011 co-located initiatives and contemporary trending interests in both interactivity & game creation where creativity, art and technology are core. Additionally, he promoted EAI to support a co-located event led by the second author titled as 'The International Conference of Design, Learning and Innovation (DLI)'. This was approved and in 2016 DLI was inaugurated to run parallel alongside ArtsIT when hosted again in Esbjerg at Aalborg University campus. The resulting common publication, again realized as a Springer book stands at 21929 downloads[5].

In 2017 the two events were hosted co-located in Heraklion, with strong local support by Technological Education Institute (TEI) of Crete. The resulting common publication, again realized as a Springer book stands at 23804 downloads[6].

Braga 2018 will be the third edition of DLI as co-located event to ArtsIT and it is notable to mention that we have seen record numbers of paper submissions that have as usual again undergone double blind peer reviews. Demos and posters will also feature and three keynotes are invited.

The next section elaborates on the background and research linkages in line with the purpose of offering readers a historical framing of the ArtsIT and DLI events under the European Alliance for Innovation (EAI) exemplifying why EAI president Imrich Chlamtac selected Brooks and Brooks as ongoing event leaders. It is considered pertinent to mention that in addition to the Springer series of LNICST books realized by

the conferences (as outlined in the previous texts with e-book download metrics) are numerous special edition journals of extended papers – for example under the International Journal Arts and Technology[7,8] and at the European Union Digital Library via EAI Endorsed Transactions on Creative Technologies[9,10,11,12]. The proceedings from the Braga event will also realize a Springer book and special issues.

2   Temporal Linkage to ArtAbilitation + LEDA

As mentioned above, one temporal linkage to ArtsIT in its extended form was to the international conference ArtAbilitation. This entity was inaugurated in 2006 by the first author reflecting his cross-sensorial research in the investigations of playful creative expression (as 'art-based') and potentials (e.g. in rehabilitation, well-being, and healthcare quality of life - QOL) of digital technologies, e.g. Extended Realities (VR, AR, MR etc.), alongside advances in interfaces (especially bespoke and adaptive gesture-based non-invasive and worn), signal mappings, and digital multimedia content (including multi-sensorial stimuli, motion-tracking, and robotics). The inaugural ArtAbilitation international conference was held alongside the 6th International Conference on Disability, Virtual Reality & Associated Technologies (ICDVRAT) 18th to 20th September 2006 - Esbjerg, Denmark, where the first author was chair[13]. This event was the first open visit by international delegates to the SensoramaLab (see International Society for Virtual Rehabilitation ISVR - http://isvr.org/wp-content/uploads/ISVR-Newsletter-Issue7-2016-04.pdf). ArtAbilitation 2006 realized a special edition issue of the Journal Digital Creativity Volume 18, 2007 - Issue 2 (see https://www.tandfonline.com/toc/ndcr20/18/2).

The 2nd ArtAbilitation was again co-located, and again hosted in Esbjerg, Denmark, supporting the IEEE 17th International Conference on Artificial Reality and Telexistence (ICAT 2007) when the first author was again chair following being elected to the international board and as committee member of ICAT2006 where he was also keynote. ICAT is the figurehead of the Japanese society for Virtual Reality and ICAT 2007 was the first time ICAT was hosted in Europe (see https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=4414599).

The 3rd ArtAbilitation was held in the Rem Koolhaas' designed Casa Da Música in Porto (see http://www.icdvrat.org/2008/music_special_session.htm) alongside the 7th ICDVRAT, which was held at nearby Maia, Portugal (Sharkey et al. 2008). A feature of ArtAbilitation 2008 was the author's Interpretations showcase with the Portuguese

---

[7] http://www.inderscience.com/info/inarticletoc.php?jcode=ijart&year=2010&vol=3&issue=2/3#issue.

[8] http://www.inderscience.com/info/inarticletoc.php?jcode=ijart&year=2009&vol=2&issue=1/2.

[9] http://eudl.eu/issue/ct/4/13.

[10] http://eudl.eu/issue/ct/4/12.

[11] http://eudl.eu/issue/ct/4/11.

[12] http://eudl.eu/issue/ct/4/10.

[13] 1st ArtAbilitation papers http://www.icdvrat.org/2006/ArtAbilitation/index.htm.

National Symphony Orchestra. This was an event closing ICDVRAT/ArtAbilitation and signifying the opening of the 2nd Art, Brain and Language international conference in Casa Da Música where the first author was co-chair following being keynote in Art, Brain and Language 2007 when hosted in Calouste Gulbenkian foundation in Lisbon[14]. In the Interpretations showcase the Orchestra performed two pieces where the author's bespoke sensor system sourced performance motion data from the conductor and various section musicians. The data was mapped to control stage visuals (lighting, animations, effects, etc.) to complement the musical performance conducted in the large auditorium to a 'sell out audience'. The fourth ArtAbilitation was integrated into ICDVRAT2010 hosted in Viña del Mar, Valparaíso, by the University of Chile[15].

Further temporal linkage includes to the authors' established International Symposium and conference Ludic Engagement Designs for All (LEDA), the first of which took place November 2007 supporting the 2nd ArtAbilitation and the 17th IEEE International Conference for Artificial Reality and Telexistence (ICAT) 2007[16]. Under this symposium a special panel debate took place on the issue Ludic Engagement Designs for All: defining the field. The panel was led by author 2, Professor Eva Brooks, and participants were ICAT keynote speaker Roy Ascott, professor of Technoetic Art, University of Plymouth, UK; Patrice Chazerand, General Secretary of the Interactive Software Federation of Europe, Brussels, Belgium; Phil Ellis, professor in Performance Art, University of Sunderland, UK; Caroline Hummels, professor in Industrial Design, Technische Universiteit Eindhoven, The Netherlands; Lieselotte van Leeuwen, Professor of Psychology, University of Sunderland, UK; Staffan Selander, Professor in Didactics, Stockholm Institute of Education, Sweden; Anthony Brooks (author 1), Associate Professor Medialogy/Art and Technology, Aalborg University, Denmark. Ascott's ICAT keynote titled 'Syncretic Fields: Art, Mind, and the Many Realities' was also cross-referenced in the panel discussions. LEDA2007 realized a special edition issue of the Journal Digital Creativity[17].

The 3rd Ludic Engagement Designs for All (LEDA) was presented under the international conference "Designs for Learning 2012" (DfL 2012) hosted in Copenhagen. This LEDA contribution reported "on a developing 'design for learning' research and application platform that has evolved from two mature bodies of ongoing work. Non-formal learning and (re)habilitation result from exploration of virtual interactive environments that catalyst ludic user-experiences. The created environments are flexible to needs, adaptive, and profile- determined whereby learning goals influence design." The two mature bodies of ongoing research are of the authors – the contribution further details how "Each body of work has emerged models for intervention that transcend and cross-inform in learning and rehabilitation situations." The text posits how "The term Ludic relates to the designed for fun/playful user-experience (UX) for both end-user (learner/disabled person) and facilitator (teacher/healthcare professional). Engagement refers to the targeted immersion of the end-user that is

---

14 https://www.inderscience.com/info/dl.php?filename=2010/ijart-2062.pdf.

15 http://centaur.reading.ac.uk/27451/1/ICDVRAT2010_Full_Proceedings_8th_Conf.pdf.

16 https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=4414599.

17 Volume 19, 2008 - Issue 3 (see https://www.tandfonline.com/toc/ndcr20/19/3).

achieved through the adaptation of the available environment design parameters so that profile matching is optimized. Designs for All refers to the inclusive iterative inductive strategy where facilitator learning influences subsequent session design, and how the LEDA concept is context independent, thus all encompassing, and applicable across users and fields, i.e. in education, in healthcare, and beyond." The contribution then presents models that questioned existing traditional formal education models that increasingly are reflected upon by contemporary scholars as being redundant as advances in ICT evolve curricula, classroom activities and strategies. Catalyst to this questioning of traditional strategies is a Non-Formal Learning Model (Fig. 1) that aligns to the philosophy behind Ludic Engagement Design for All (Brooks 2013).

Figure 1 illustrates a model emergent from Brooks' body of research – as presented at DfL2012. It posits a holistic overview of a complex situation focused upon qualities integral to the design of user experiences leading to desired learning. The learning within and the design of a learning (or therapeutic) situation constitute a situated activity with inherent actions and interventions. The profile influences the facilitator's decisions on how to set up the attributes of the environment relative to the desired learning process and the expected outcome of that process. The model was developed relative to the development, use and evaluation of interactive environments targeting learning. However, the model has proven to have a more generic value as it has been used in learning situations where other forms of resources and/or methods have been used (Brooks 2013).
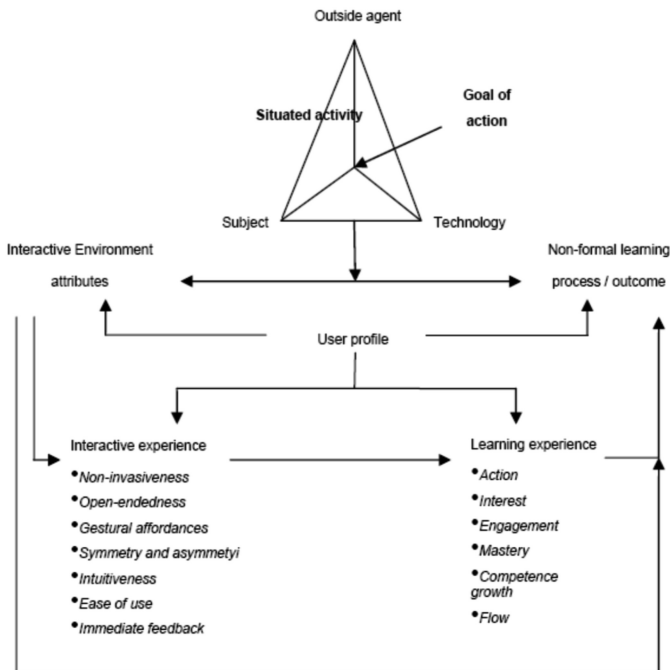

Fig. 1. Non-formal learning model - the composition of learning and design in interactive environments © Petersson 2007/Brooks 2013 – see also PhD thesis (http://muep.mau.se/bitstream/handle/2043/7970/EPHelaboken.pdf?sequence=1.)

From the first author's body of research is another emergent model that complements the Non-Formal Learning Model (Fig. 1). It is titled Zone of Optimized Motivation (ZOOM – see Fig. 2) and was first presented publicly in Busan, South Korea in 2005. This is a synthesized hybrid intervention model where participant/learner ability is ideally matched by a challenge to achieve a tailored idiosyncratic technological supported interactive experience in line with Flow (Csiksczentmihalyi 2002). Challenges are planned according to a dynamic program design to increment participant Microdevelopment and learning pathways (Fisher and Bidell 2007; Battro et al. 2008; Granott and Parziale 2009). The unit of analysis assessing the system is participant action in the designed interactive environment, in this way it is also in line with Vygotsky's Zone of Proximal Development (ZPD 1978); Vygotsky (1978), Leont'ev (1981), and Engeström's (1987) interpretations on Activity Theory (1978) and linked to Wertsch's Mediated Action body of work (1994) that links followed theories of Dewey's thinking on art and learning. A catalyst to the first author's synthesizing of these luminary works into a reflexivity model is Schön's (1983) work informing on reflective practitioners. Notable is that the posited ZOOM model differs from ZPD by the primary inter-subjective entity being the mediating technology in the form of the interactive system supported by a secondary inter-subjective entity, i.e. the facilitator. This dynamic non-formal approach questions facilitator intervention time (t) in respect of parameter change to incremental challenge (δ). Published texts on ZOOM inform how an automated version aligns with the Artificial Intelligent (AI) concept of Dynamic Difficulty Adjustment (DDA), i.e. where change is matched to performance.
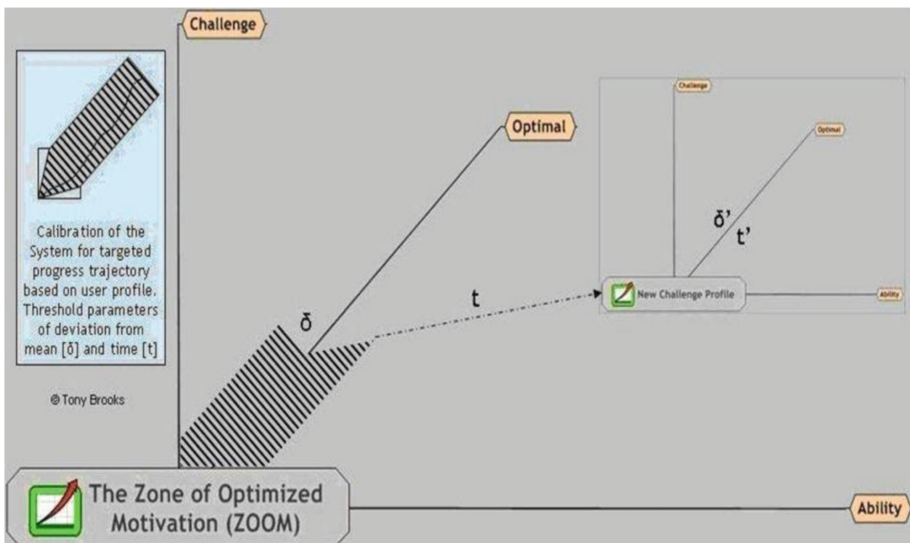

Fig. 2. ZOOM (Zone of Optimized Motivation) © Brooks 2005

3   European Alliance for Innovation (EAI)

EAI was founded in 2010 as a non-profit professional community. EAI person steering ArtsIT and DLI is President Imrich Chalmic. Prof. Chlamtac is the President of EAI, European Alliance for Innovation. Chlamtac pioneered EAI as a global initiative for promoting growth of ICT-based economy and digital society. EAI supports research and innovation worldwide with over hundred and fifty thousand subscribers worldwide through events, publications, and community collaboration. EAI organizes over 70 conferences and summits every year. Additionally, EAI has set up strong collaboration and a strategic partnership with the International Federation of Inventors' Associations (IFIA). Prime foci are Internet of Things, eHealth, Smart city, Applications for future Internet. Prof. Chlamtac's prior positions in Italy included CREATE-NET where he was the Founding President, Bruno Kessler Professor at the University of Trento, among the top ranked ICT institutions in Italy. Prof. Chlamtac also served as Associate Provost for Research and Distinguished Chair in Telecommunications at the University of Texas in Dallas, and Professor at Boston University, University of Massachusetts and Technion. Prof. Chlamtac holds multiple academic and honorary appointments including the University of Trento, the Tel Aviv University, the Beijing University of Posts and Telecommunications, and the Budapest University of Technology and Economics. Prof. Chlamtac's scientific recognitions include IEEE and ACM Fellowship, the ACM Award for Outstanding Contributions to Research on Mobility, the IEEE Award for Outstanding Technical Contributions to Wireless Personal Communications, New Talents in Simulation of SCS, Fulbright Scholarship, IEEE Distinguished Lecturer. He was listed in ISIHighlyCited.Com among the 250 most cited Computer Science researchers worldwide. Prof. Chlamtac is also included in the list of Notable People from the University of Minnesota where he received his Ph.D. and holds a Honorary Citizenship in Slovakia where he was born.

Prof. Chlamtac has published over four hundred refereed articles, and multiple books. He is the co-author of the first textbook on "Local Networks" (Lexington Books 1980), and IEEE Network Editor's choice and Amazon.com engineering books bestseller "Wireless and Mobile Network Architectures" (John Wiley & Sons 2000). As part of his contribution to the research community, Prof. Chlamtac founded the ACM SigMobile, serves as Editor-in-Chief of the Springer WINET and MONET journals, established ACM Mobicom and other leading conferences. Prof. Chlamtac is a co-founder and past President of CONSIP Ltd, the first network emulator company, and of BCN Ltd, currently KFKI Ltd., one of the largest system integrator companies in Central Europe.

Core members of EAI are ICST, Fraunhofer FOKUS, INNOVA, CREATE-NET, Mobicap, Agentúra na Podporu Výskumu a Vývoja, STU, EUREC, Microsoft Israel R&D Center, IBM Israel. CREATE-NET is one of the core members, and main drivers, of the European Alliance for Innovation (EAI), a non-profit organization that brings under the same roof the major actors in the ICT innovation lifecycle. Established in 2003 as a non-profit association with the support of the Autonomous Province of Trento, the Center had been led by Prof. Imrich Chlamtac until the incorporation within Fondazione Bruno Kessler (FBK) in 2017.

The mission of the EAI is to serve as an incubator for fostering innovation in the ICT sectors of society, providing points-of-access at all levels of the innovation cycle. The unique approach of EAI consists of involving active participation of member organizations and empowering their communities through a grassroots approach, thus promoting effective technology transfer, entrepreneurial mindset in education, and increased competitiveness of European companies.

CREATE-NET has been contributing to the formation of this initiative since its active involvement in the European Commission's workshop which took place in Lyon (ICT2008) to analyze and discuss the role of scientific societies in improving the innovation process in Europe, an area where we are informed lags behind the US and other regions.

EAI publishes scientific magazines and journals (Transactions) through its own community-driven publication platform called European Union Digital Library (EUDL). For online publications EAI uses its e-Scripts system, while EUDL houses a database of peer reviewed scientific publications. EAI Transactions are peer-reviewed, community-driven research journals covering the latest specialist topics at the emerging intersections of IT and other fields. Supported by an international network of editorial boards drawn from leading experts in their disciplines, EAI Transactions reach out to an audience of over 150,000 subscribers worldwide. Thanks to the transparent, community-based e-Scripts review system; EAI Transactions are paving the way to the future of open and fair scientific publishing.

Individual members are in the core of the EAI Community, comprising of researchers, innovators, business leaders, venture capitalists, and policy makers. Individual membership is free to ensure the open and equal opportunity nature of EAI Community.

EAI connects members through online tools and international conferences, creating a space to share and discover ideas, while improving their career prospects via equal access to opportunities for professional development and fair recognition. Every member can actively participate in reinventing the governance and economy of research and innovation and get recognized objectively and transparently with EAI Community Awarded Recognition of Excellence (CARE) Index.

EAI Institutional membership: Institutions that join EAI feature leading minds with insight and influence in academia, industry, and government, coming together to engage in the mission of advancing innovation across the world.

The EAI designated team manages and organizes the ArtsIT and DLI events in close liaison with the local host event team/committee. EAI is a non-profit organization and professional community established, in cooperation with the European Commission, to empower global research and innovation, and to promote cooperation between European and International ICT communities. EAI's vision is to foster excellence in research and innovation on the principles of transparency, objectivity, equality, and openness. A guiding principle is community cooperation to create enhancement in research, to provide fair recognition of excellence, and to transform notable ideas into commercial value proposition. EAI's mission is to create an environment that rewards excellence transparently, and builds recognition objectively regardless of age, economic status or country of origin, where no membership fees or closed-door committees stand in the way of research careers. EAI is led by top minds from the highest

levels of government, research, industry and academia as well as from the grass roots of the innovation community.

References

Battro, A.M., Fischer, K.W., Léna, P.J.: The Educated Brain: Essays in Neuroeducation. Cambridge University Press, Cambridge (2008)

Brooks, E.P.: Ludic engagement designs: creating spaces for playful learning. In: Stephanidis, C., Antona, M. (eds.) UAHCI 2013. LNCS, vol. 8011, pp. 241–249. Springer, Heidelberg (2013). https://doi.org/10.1007/978-3-642-39194-1_28

Csiksczentmihalyi, M.: Flow: The Psychology of Optimal Experience. Harper Collins Press, New York (2002)

Engeström, Y.: Learning by Expanding: An Activity-Theoretical Approach to Developmental Research. Orienta-Konsultit, Helsinki (1987)

Fisher, K.W., Bidell, T.R.: Dynamic development of action and thought. In: Damon, W., Lerner, R.M., Lerner, R.M. (eds.) Handbook of Child Psychology (2007). https://doi.org/10.1002/9780470147658.chpsy0107

Granott, N., Parziale, J.: Microdevelopment: Transition Processes in Development and Learning (Cambridge Studies in Cognitive and Perceptual Development). Cambridge University Press, Cambridge (2009)

Leont'ev, A.: Problems of the Development of Mind. Progress Press, Moscow (1981). English translation

Schön, D.A.: The Reflective Practitioner - How Professionals Think in Action. Basic Books, New York (1983)

Sharkey, P., Lopes-dos-Santos, P., Weiss, P.L.T., Brooks, T. (eds.): Proceedings of the 7th International Conference on Disability, Virtual Reality and Associated Technologies, with ArtAbilitation (ICDVRAT 2008). Reading University, UK (2008)

Vygotsky, L.S.: Mind and Society: The Development of Higher Psychological Processes. Harvard University Press, Cambridge (1978)

Wertsch, J.: The primacy of mediated action in sociocultural studies. Mind Cult. Act. **1**(4), 202–208 (1994)