INJECTING 'SOFT SKILLS' IN THE ICT CURRICULUM

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Abstract: Industry, government and various professional organisations emphasize the need for the ICT graduates to be able to communicate in the global work environment. The elegant injection of 'soft skills' in the ICT curriculum is what differentiates good contemporary ICT programmes. This paper presents a joint pilot work in this area between the New Bulgarian University (NBU) and the University of Western Sydney (UWS). This blended learning approach aims to develop broad social intelligence knowledge and skills in the IT graduates, applicable by future IT specialists working in companies, ranging from small and medium enterprises to corporate global players.

Keywords: Soft Skills, Computer Science, ICT, Nonverbal Communication, Social Networking, Disruptive Innovation

ACM Classification Keywords: Human Factors, Management, Performance

1. Introduction

Since the late 90-ies of the past century there has been an increasing demand in the development of professionals who possess a broad range of what could be labelled as 'soft skills'. The notion 'Soft skills' is an umbrella term for a broad range of *social* and *psychological skills* of strategic communication which enable professionals to be sensitive and responsive in what influences other partners [Jeffries 2008]. Globalization, the development of information and communications technology (ICT), and the impact of social media are among the key reasons for this demand. Moreover, scholars like Erik Brynjolfsson and Andrew McAfee from the MIT Sloan School of Management, have painted in their monograph [Brynjolfsson/McAfee 2011], using James Crabtree words, "worryingly convincing vision of a future in which an ever-decreasing circle of professions is immune from robotic encirclement" [Crabtree 2011]. In such future, the 'soft skills' are central to employability and success. For ICT professionals the range of soft skills is of equal importance to the range of technical skills [EU Panorama 2012; AWPA 2012]. Consequently, educators have focused on designing curriculum and delivery learning scenarios, which address this requirement. [Howard 2005] proposed to adapt a model of intercultural sensitivity (learning about the self, about the other and adapting to the other), refined for different learning styles. Engaging students in the learning process with real clients in real world ICT projects is essential for their broad development as ICT professionals [Abernethy/Treu 2009]. Recently reported case study [Verdugo et al. 2013] confirmed what many educators in the area of ICT have established informally – that teaching successfully the knowledge and skills to communicate effectively with a range of disciplines and cultures requires specific course design within the ICT curriculum. Such design includes a valuable ability to develop a specific *emotional intelligence*

how to follow an intuitively selected segment of already accumulated knowledge and to *pitch it* in a sensitive way with a purpose to connect with partners. Proper design should enable students to learn to perceive the message as encoded by the 'sender' with the final goal to create a favorable ambiance for business interaction.

This paper presents the underpinning philosophy and pedagogical design of such a new educational product. The outcomes of this product includes enriched abilities for *reading* others (in the sense discussed in [Howard 2005]) and proper responding, enhanced with *nonverbal skills* and *social networking capabilities* to communicate with professional success. *Three modules*, discussed in the paper are integral parts of a recently shaped didactic methodology applied as a disruptive 'education technology' in the framework of practice-oriented education of IT students at the New Bulgarian University. Whilst the lead in the underpinning philosophy of the design has been taken by a communication specialist (the first author), the contextualisation of the design has been overseen by the ICT experts.

The **first module** incorporates *four capstones*. It refers to the basics of communication analysis developed *first* as an academic concept by the Palo Alto "invisible college" during the 50ies – 70ies; with its collaborative work has been elaborated an overall agenda of communication theory as used nowadays at various universities. *Second*, the focused framework has to be extended with relevant historical and broad multicultural background components to complement Palo Alto's communication framework playing a relevant role in "real life" situations (as pointed in Duridanov 1990, 54-55). *Third*, the module emphasizes the pragmatic extraction of essentials of communication as face-to-face interaction (from 1990 on) concerning their application in training programs with the purpose to prepare professionals for business procedures. *Fourth* is the integration of *social networking skills* within Palo Alto's multichannel face-to-face communication analysis bringing a balanced application of

recently developed social networks (or social media) such as Facebook, Twitter, Instagram and YouTube for business purposes.

The **second module** includes communication patterns extracted during the professional experience of the first author of this paper as a consultant on foreclosure procedures at the German Postbank (2004 – 2009). The **third module** is presented by a set of extracted communication patterns during a "simulation" of business communication at the work place where teams of computing students from the University of Western Sydney (UWS) (supervised by academics from UWS) learn and apply 'soft skills' through group work on a series of NBU projects, where the 'client' team includes the first and the third author.

The disruptive innovation [Christensen 1997, Christensen/Horn 2008] of the discussed educational approach is in the new shape of the practice-oriented communication courses in response to the updated global standards [Key Competencies 2010; SAGA 2008, ACS 2009, Bokor 2012, Richardson et al. 2009, 95]. The result is an affordable flexible solution customizable to the personal requirements of individual IT students with respect to their respective corporate career and professional development goals. *First*, it masters a didactic dilemma how to complement actual 'business practices' of communication training with relevant historical, cultural, ethnological and social background components. *Second,* it shows in a "simulated practice" how to visualize a *relevant selection* that becomes active as a mind set of *résurgences* within cases of "real life". It is based on the fundamentals of communication theory laid out in the 1960ies, on the practical application of the theory started in the 1990ies and enhanced with the social networking principles and communication strategies from 2004 onwards. In terms of delivery it follows the blended-learning methodology, underpinned with respective technologies.

2. History of the developed method, current status and disruptive innovation

The developed methodology is a „multilayer" one based on the theoretical foundations of communication as *face-to-face interaction* as conceived in the 1950ies – 1970ies and evaluates further the elaborated essentials in communication training focused on body language behaviour and social networking habits.

2.1.1   The crucial value of reading face-to-face communication is considered in depth for the first time in an interdisciplinary environment during the 1950ies – 1970ies by a collaborative team of researchers in linguistics, psychiatry, anthropology and social psychology known as the "invisible college" of Palo Alto [Birdwhistell 1970, 230-231; Winkin 1981, 27-102; Duridanov 1990, 48-89; Duridanov/Popvasileva 2012] where nonverbal analytics has been elaborated and its essentials have been taken „under the microscope" [McQuown 1957, 1971; Birdwhistell 1952, Trager 1958, Pittenger/Hockett/Danehy 1960]. The interdisciplinary communication analysis is based on successful therapist–patient experience [Sullivan 1954, Scheflen 1965, Ruesch/Bateson 1951]. Communication processes have been defined using linguistic procedures as a *multichannel social interaction system* referring to sociology [Parsons 1951, Parsons/Shils 1951, Goffman 1959], social psychology [Bateson 1972] and psychiatry [Ruesch/Bateson 1951, Scheflen 1965]. The whole framework procedure how to isolate and analyze nonverbal and cultural components of the 'silent language' has been crystallized in the pioneering works of Edward Hall [1959, 1966] where the language of space and distance [proxemics : Hall 1968] has been later complemented

by a time framing [chronemics : Poyatos 1983], integrated in the diagram from [XXXX] presented in Figure 1.
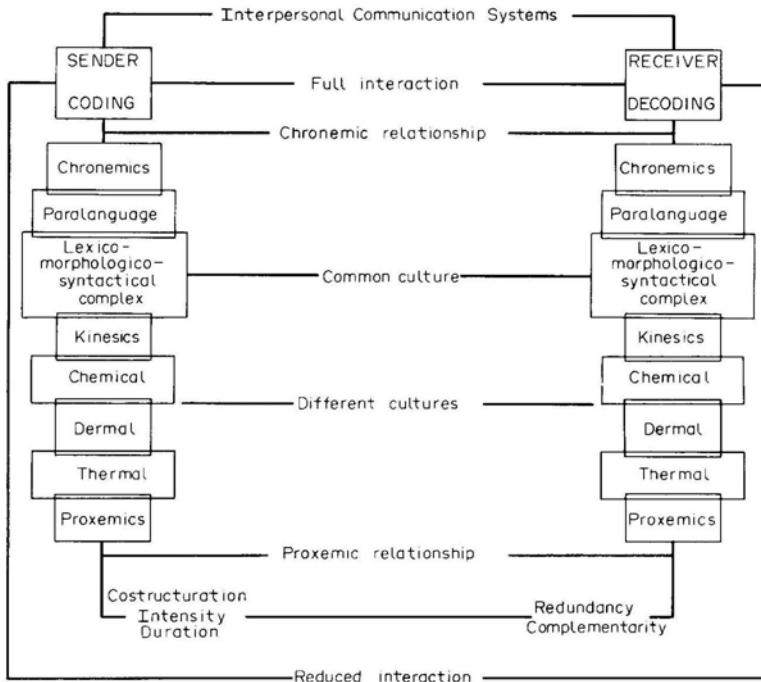
Figure 1 Multichannel Communication System [Poyatos 1983, 130]

2.1.2   In the 1960ies the practical application of reading micro and macro gestures aimed to disclose intercultural 'hidden differences' with the purpose to leverage human behaviour within business encounters. It has been scarcely adopted in education where traditional 'teacher-centred' interaction models still dominate the school practice. Nonverbal training is a capstone apart without affecting language teaching or IT academic programs. For that purpose some researchers of the Palo Alto group have been engaged on a pilot project to train

professionals at the US Foreign Service Institute in the 1960ies, esp. for American – Japanese negotiations [Hall 1966, 1990].

2.1.3   The *second* big step of extracting essentials and applying a method of *body language reading* has been unfolded during the 1990ies where communication theory becomes an integral part of practiced training of communication skills [Reiman 2007, Jeffries 2008, Lackner/Triebe 2008, Messinger 2008]. Hereby the global market trends triggered the coming of a new educational "product" ('soft skills to win') and its implementation at various universities and business schools (Wharton, Chicago, Berkeley Haas, MIT). The application of theoretical essentials modernized the academic point of view of the 1970ies and focused on finding of practical solutions in typical business cases to be trained as "templates". The new challenge hereby is to synchronize fundamental theory of communication with the globalized "dance of life" trying to develop an *emotional sensitiveness* and a *social intelligence* within a 'customer-centred' model of communication. The market development requires harnessing the „marriage union" of *participatory learning* with *collaborative working*, because customer service and support become an integral value of IT products. Training programs concentrate especially on the short message forms such as 'elevator pitch' of innovative ideas and the reaction to a customer's claim. It becomes more important how to react appropriately than to bring the "right message": "Concentrate! Listen and respond! Be always in the room!" (Baron 2008)

2.2   Based on face-to-face interaction patterns *Social Networking* expands as a *third* major step and develops a multichannel "social system" communicating in personal life and professional business. Applied as a „professional technology" in the 1960ies as a generalized computer assisted instruction system PLATO

(Programmed Logic for Automatic Teaching Operations) social networking was limited primarily to its professional boundaries..During the last ten years the expanding social media, in particular, 'Facebook' technology, seem to conceive itself as a "real time" mirror. It "simulated" from the beginning "real time" communications focused on personal relations' system, esp. on the visual basics of real life (pictures are an important part of the "social game" as the rapidly expanding social network Instagram emphasizes that). By 2011 many companies interact already with their customers via Facebook and their advertising strategies are about to follow the communication principle of the so-called 'Goldilocks effect' as an alternative key to communicate.

2.3   The *second module* plays a crucial role in the new 'education technology' bringing a representative extraction of 'best practices' from the communication expertise of foreclosure sale procedures (mediated by the first author) to find IT business solutions. Here we consider only two "templates" as typical interaction cases. The *first case solution* is based on the application of intercultural skills to make a "link" with vocal signs (pitch, intonation, melody, pace) by starting a new conversation with a bank creditor, a property owner, a portfolio service adviser or an IT specialist from another country. The *fine tuning skills* to predispose the partner with the melody and pulse of the person's voice making a "link" are like a key that opens a gateway so that the other side would wish to have a *shared space* with the person in consideration. The accumulated knowledge of the required know-how is useless if the response is not "on the beat". The *second* case discloses the "communication know-how", i.e. how to be aware of the used selection of 'soft skills'. It creates a dynamical communication

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system via "synchronizing" pace and interaction velocity as well as the balance of moods between a customer, a property owner (run bankruptcy), two creditors with the purpose to deliver a foreclosure sale, i.e. to „create" a win-win situation. The role of the IT specialist within such situation is to design a network and to support it to the final delivery. In a corporate ambiance this is normally the task of a *communication manager* operating across all working divisions and presenting what the IT department is intending to do to the Board of Trustees. An example of the sync difficulties can be demonstrated from the board meeting of an IT global player "Parish Communications" (from the movie "Joe Black") where 'fine tuning' is at stake; how to intervene at an appropriate time and slow down the pace during a discussion of an offer to sale the IT company to a business partner is the dilemma. The Chairman, Bill Parish plays a 'chief-centred' role at the board meeting and nearly fails to sync his velocity with all members of the board.

2.4   The components of the *third module* are extracted from the professional development training of teams from UWS computing students, working every semester on a joint NBU-UWS projects since 2011 in a closest to "real time" corporate ambiance for the NBU team of the Department of Informatics (Stanislav Ivanov) and a free lance entrepreneur (Ludmil Duridanov); both conceived as a "client". These pilot projects are part of the building blocks in the concept development of a new undergraduate interdisciplinary program in *Digital Humanities*, which is to be started at NBU by October 2013 (the program has been developed in consultation with UWS). The professional skills envisioned to be trained within a "semester fieldwork" are manifold. They focus *first* on communication training of IT students as professionals handling a

"humanitarian project"; *second*, they develop the basics of visual environments as an *educational tool* for students "grown up" in an Internet ambiance (the so-called 'Digital Natives'). *Third*, they develop sustainable participatory teaching/learning through a global interdisciplinary collaborative teamwork. *Fourth*, the joint projects have the task to achieve intercultural synchronization on various levels of social interaction, i.e. they aim to elaborate a mind set of *intercultural skills* applied by UWS students, who have diverse cultural backgrounds in their teams. and by NBU lecturer (having South East and Western European cultural identity). Various components of communication strategies are to be emphasized here starting from *project management*, intercultural synchronizing and going to "orchestrating" the vision of the project and the idea development in the domain of the *Arts and The Humanities* which has to be realized via open source web instruments; a last relevant point is to select "time frames" on the "simulated" work field aiming to elaborate a functioning education tool with a non-proprietary web access. The orchestrated communication system is a 'disruptive technology' on the technical supply and the educational level, because it will be *easy to use*, *affordable* and could be *accustomed* for the demands of every user via online or mobile communications as well as to be developed further by users following the copyleft principle [Lessig 2006].

3. Conclusion

The paper presented several aspects of a methodology for seamless integration of 'soft skills' in the ICT curriculum. The 'soft skills to win' paradigm, which is composed by several components at a variety of social interaction levels, is central to this blended learning educational product. It is built on the theoretical foundations of communication

research, social media technology and global collaborative project-based work in a learning environment comprising of diverse professional cultures. The evaluation of the approach shows that collaborative work within a simulated 'customer-centred' corporate communication model is effective learning scenario for participatory learning of 'soft skills'. The described scenarios offer an *intercultural professional experience* at various levels of everyday communications. The integration of relevant professional, cultural, historical and psychological background components that play a crucial role in everyday global interaction, leads to authentic and relevant learning experience. Broadly trained in this way, the IT graduates are IT professionals, well positioned for operating in the globalised world economy.

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