

## **Abstract – under the theme of Models of Social Capital in the Digital Age**

### **Title: Social capital, bounded agency and fuzzy logic - making data work in real world applications**

“...in our messy, fuzzy, anarchic field of practice, how can we produce neatly packaged bundles of evidence that might be useful to busy policymakers?” (Field, 2015).

#### Background to the project

This paper is the result of collaboration between Computer Science and Education, working on the development of an Intelligent Decision Support System (IDSS) within a Horizon 2020 research project ENLIVEN (Encouraging Lifelong Learning for an Inclusive and Vibrant Europe which brings together an inter-disciplinary team at the University of Nottingham and across Europe. Its objective is to develop an innovative model and mechanism to support policy debate, formation and evaluation in lifelong learning, with a focus on young adults from disadvantaged backgrounds, and furthest from education, training and the labour market.

The project addresses social exclusion for young people and policy makers’ responses, particularly in the aftermath of the Great Recession, which has shown the inadequacy of social policies for young people which do little to moderate the risks of a market in which inequality and poverty are left unchecked. Although the European Union (EU) has focused on lifelong learning since 1993, one in every five Europeans under 25 is now unemployed. Many are not in employment, education or training. 73 million EU adults have low levels of education and literacy. Policy and educational responses are not meeting the needs of many European citizens, and *social exclusion, disaffection and the long-term ‘scarring’ effects of unemployment are clear dangers to economic competitiveness, to social cohesion and to the European project as a whole.* ‘Austerity’ has brought rising inequality, precarity of employment (particularly for young people), and challenges policy making “*framed by assumptions of linear, unbroken, transitions, by traditional notions of independence and with confidence that most employment is relatively stable and provides an acceptable standard of living*” (Antonucci et al., 2014, p.1). The levels of risk prevalent in a market which does little to moderate the effects of wealth inequality and poverty are left unchecked for those who are most vulnerable, as “*the redistributive capacity of social policies*” (as above, p.19) is brought increasingly into question.

It has also become apparent that for some of the most disadvantaged young people barriers to secure employment and to education or training are exacerbated by what might be described as a lack of social capital. Social capital has been described as “*the networks, communities and ties that locate and bind us*” (Clancy, 2017, p. 48<sup>1</sup>) but not all ‘capital’ is imbued with the same perceived value or is as convertible into a ‘currency’ which is understood by the labour market and can mitigate against contemporary risks. As Antonucci et al have argued, young people have

*differentiated capacities to act to mitigate what are deemed to be common, classless, contemporary risks; as such, differentiated compositions of capitals create advantages and*

---

<sup>1</sup> CLANCY, S. (2017), *Adult Education, Spirit and the 'New Age': Sir George Trevelyan and the Shropshire Adult Education College (SAEC) at Attingham 1948-76*, PhD, University of Nottingham.

*disadvantages that underpin inequality, whilst at the same time the process of individualisation actually masks these structural inequalities and imbues all social actors with a sense of responsibility for their own social location* (Antonucci et al., 2014, p.19).

Part of the normative nature of capitalism is its capacity to confer on the individual the responsibility (blame) for a lack of confidence, skills and qualifications and levels of work experience inadequate to the current job market. This individualisation promotes a myth of autonomy at odds with the structures and systems dominated by “competitive, self-interested individuals vying for their own material and ideological gain” (Giroux, 2004, p. 106) and without a real choice of genuine “*alternative activities*”. This leads to “*agency inequalities*” (Antonucci et al., 2014, p.21) in which failing to manage risk is individualised and the real barriers that young people face are minimised.

For this reason, the Enliven research combines bounded agency theory from the social sciences with case-based reasoning from computer science (in particular, artificial intelligence). Bounded agency is a key concept in Enliven which recognises the complex interplay between personal/individual motivation and the broader structural and cultural conditions in which a person has been raised - specifically the institutional and labour market settings and the social/welfare support available. The theory argues that such factors are as important in shaping a person’s decision to engage in lifelong learning/adult education as their individual drive or motivation (‘agency’). An IDSS system “*uses artificial intelligence, machine learning, taught algorithms and data analytics to help support decision-making in real-time, by setting out possible courses of action and evaluating the likely results of these proposed actions*”<sup>2</sup>. An IDSS will suggest types of action which have been previously employed and enable them to be assessed against suitable criteria.

Bringing together the two theories and determining how they might meet the needs of policy makers and other end users of the research has been challenging. Our focus has become increasingly one of knowledge democracy, or “*the capacity for collaborative research to influence policymakers and to animate social action, with a focus on learning from the expertise of those outside academia*” (Clancy, 2017, p.242<sup>3</sup>). We are keen to explore the ontological differences between data expectations at policy maker level and for young people themselves and how data can serve knowledge creation for those most excluded in society.

A starting position has been to try to ascertain the outcome of policies across Europe in relation to interventions and programmes targeting disadvantaged young adults, both in terms of what worked and what did not. The process of finding programmes which have been well-evaluated, at the individual, the intervention/practitioner level and the policy maker level, has demonstrated that there is little commonality across countries or across programmes in terms of how interventions are evaluated, and at what level. Establishing the needs of end users for the research and the IDSS has also been problematic as policymakers and who they are/where they are located varies across Europe. We have also argued that practitioners are important end users as they develop and deliver programmes and that the ultimate end users are the young people themselves. Young people have a

---

<sup>2</sup> FIELD, J., the Learning Professor, blog, *Mechanising education policy with intelligent decision support systems*, (Posted on January 18, 2015, Accessed 20 September 2017).

<sup>3</sup> CLANCY, S. (2017) The power of language in the age of austerity: Volunteers and practitioners reflect on UK civil society. *Research for All*, 1 (2): 234–51.

stake in how these policies are enacted that goes beyond systems and evaluations as such policies have a direct impact on their lives. From previous research, we already know that “*people living in specially disadvantaged circumstances are less likely to engage in lifelong learning, in part because they lack the financial resources to fund their studies and believe that there will be few economic benefits. In addition, their life experiences may have reinforced a sense of powerlessness and inability to control risk*” (Róbert 2012, p. 88)<sup>4</sup>.

To enable the Nottingham team to examine the needs of the range of end users and to collect and analyse data, the team has been working with an independent community-based practitioner who is evaluating a regional project within the UK which supports young people not in employment, education or training. The programme particularly emphasises the importance of trust building and ongoing communication and the heterogeneity of the young people who are targeted, offering a ‘person centred’ and individualised approach, and focusing on fostering autonomous thinking and decision making. It recognises that the journey to developing employability is not linear and consistent between individuals and that attempts to standardise interventions have a high probability of failure and can have unintended negative outcomes, based on erroneous assumptions. It is predicated on the principles of social inclusion and involves young people in the development of a service that is designed to help support their own progression.

In our view, the intelligent use of data has the potential to provide opportunities to identify underlying trends and patterns which contribute to inequalities which might otherwise be overlooked by commissioners and policy makers. ‘Good’ data structures, which recognise social complexity and allows for fuzziness and uncertainty, could enable commissioners and policy makers to significantly enhance their understanding of the needs of disadvantaged young people as a target community. The work with Enliven allows for the application of conceptual approaches to using data to help identify the specific needs and situations facing young people. We believe that our joint work and our willingness to collaborate across interdisciplinary boundaries creates an opportunity to challenge assumptions that an IDSS system is necessarily constrained or defined by the vested interests and demands of policy makers. Though our partnership is still in its infancy, we ultimately aim to ‘road test’ data to provide opportunities to spot underlying trends and patterns which contribute to inequalities and bounded agency and to identify those which foster autonomy and emotional, social and economic well-being - and enhanced social capital - for the most disadvantaged young people in society. As John Field has argued, we recognise that social capital is not static:

---

<sup>4</sup> RÓBERT, P. (2012) The sociodemographic obstacles to participating in lifelong learning across Europe. In RIDDELL, S., MARKOWITSCH, J. and WEEDON, E. (Eds.), (2012) *Lifelong Learning in Europe: Equity and Efficiency in the Balance*, Bristol: The Policy Press (pp. 87-101).

FIELD, J. (2005) *Social Capital and Lifelong Learning*. Bristol: The Policy Press.

*social capital must be understood as a dynamic quality of changing relationships, which actors manipulate more or less consciously in response to change, and not as a static phenomenon that is 'owned' for once and for all by a particular group or individual*<sup>5</sup> (Field, 2015, p.292).

Data employed within any IDSS system needs to be responsive to the dynamic nature of social capital. It should be possible for the IDSS to automatically update in response to new developments. Therefore, we also recognise the role that data might play in informed policy making and in empowering young people to have a role in developing policies that both respect and facilitate personal choice and autonomy, whilst recognising that social barriers must be acknowledged and challenged.

---

<sup>5</sup> FIELD, J. (2015) Social ties, agency, and change: education and social capital in adult life in Li, Y. (editor) *Handbook of Research Methods and Applications in Social Capital*, Edward Elgar: Cheltenham, pages 292-306.