

# The role of the social sciences and humanities in shaping technological progress as a form of human development

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## Abstract

The recent economic slowdown has resulted in many cuts in the funding of humanities and social sciences (HSS) across the globe. In parallel, the trend is for new students to choose a course leading directly to a profession. However, HSS plays a very important role in enriching and informing a society's economic, social and cultural well-being. Unlike the straightforward impact that the sciences have, say, on industry, HSS impacts a knowledge ecosystem where there are multiple relations between producers and beneficiaries of the knowledge. Apart from providing a qualified workforce in business and finance, as well as imparting cultural understanding, HSS is crucial in (1) the development of public policy and (2) the quality of social well-being. Today, this role is even more important with advancements in information technology (IT). The exponential growth of the Web and mobile communication is having a profound and deep impact on the fabric of society in both the industrialized and developing world. Furthermore, the introduction of Google Glasses signals a shift in IT towards augmentation, where new technology becomes invisible and thus difficult to monitor and regulate. The Oxford philosopher Luciano Floridi has described a fourth revolution in the sphere of knowledge where reality becomes 'interactable', creating novel ethical issues. Despite the impositions of techno-society and liberal values in economics, HSS has promoted a new vision of society where human well-

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being is not measured in terms of a nation's GDP. The work of Amartya Sen and Martha Nussbaum on human development has opened new horizons in the understanding of what is required for a society to improve the human condition and exercise substantial freedoms. This paper aims to describe the challenges that HSS faces in an IT-driven society and argues that it can promote (1) and (2) and define what types of technology as human development we wish to pursue.

**Keywords:** information technology, human development, techno-society

## 1. Introduction

The global financial crisis which erupted in the United States in 2008 with the collapse of the subprime mortgage market and the liquidation of Fannie Mae and Freddie Mac has brought about a number of political and economic policies aimed at either stopping or slowing down the global economic downturn while attempting to reignite economic growth (Fratzscher, 2012). One of the most controversial but widely implemented measures, adopted by both advanced and emerging economies, has been austerity. The result has been a sharp reduction in spending on the welfare state and a cutting of state-funded services deemed as not necessary.

Austerity was and still is seen as the needed bitter pill, able to cure the economy by removing spending on services that in most cases the state can no longer afford to sustain (Pierson, 2002). In the area of higher education, austerity has resulted in a drastic reduction in funding and research budgets, in particular for the Humanities and Social Sciences (HSS), a grouping of academic disciplines that focus on the study of society, governance, business, economics and culture (Labi & McMurtrie, 2010) (Worthington, 2010). In parallel, the economic crisis has also impacted students' education trajectory choice (Klinkenborg, 2013). During harsh economic times, the trend has been for students to choose courses leading directly or related to a profession. Thus many students have enrolled on courses in subjects such as information technology and engineering, which have a direct connection to the

work market, or others, such as the natural sciences of physics and biology, which provide in-demand analytic or mathematical skills. The result has been a drop in student enrolment numbers in HSS in favour of hard-skill oriented subjects (Varghese, 2009). In the midst of the economic crisis, HSS has found itself under scrutiny in the sense of having to justify its costs and prove its value and returns both to students and society at large (Cohen, 2009).

This paper aims to analyse some of the challenges that HSS faces in a society that is still reeling from the economic crisis of 2007-2008 and where technological innovation, particularly in computing and communications, is radically changing the role that knowledge plays in the relation between its producers and consumers. Furthermore, by revisiting several arguments put forward by Amartya Sen (1980, 1985, 2009) and Martha Nussbaum (2003, 2011, 2012), it attempts to reiterate the importance of HSS in creating a more just society. Finally, it aims to explore some of the key changes brought about by information technology, where HSS can play a key role in defining the kind of technology as human development that we may wish to pursue as a global society.

## **2. Consequences of the neo-liberal economic model**

Changes in the higher education system in the West and beyond, have gone hand in hand with neo-liberal market reforms promoted since the 1980s by Margaret Thatcher in the United Kingdom (UK) and by Ronald Reagan in the USA (George, 1999). These reforms have introduced competition and market principles in many social institutions, which had previously been managed by the state. The trend has therefore been towards the progressive privatization of higher education with the injection of a private enterprise model to state-run universities.

The neo-liberal stance on education has posited that in a knowledge economy, universities must stop being monolithic, immune to change and sanctified by the state. Instead, they need to be responsive and adaptive to the demands of business and industry (Olssen & Peters, 2005). Reforms have also involved a re-drafting of the social pact between the

state, provider of education, and the individual, the receiver. The result has been that university students themselves have had to progressively start covering their education costs, mostly by taking up bank loans to cover living expenses as well as tuition fees.

In the UK, a number of successive governments, from both ends of the political spectrum (i.e. from the Labor and Conservative parties), have drastically transformed not only the way in which universities operate but also what it is like to be a student. The removal of the maintenance grant system, which guaranteed support for the basic costs of a university-level education, and the introduction of tuition fees in 1998, have marked the slow but steady application of a market model of profit making to higher education (Altbach, Reisberg, & Rumbley, 2009). With the introduction of high tuition fees in 2012 of up to 9000 pounds a year (for UK students), the burden of the majority of education costs has moved from the state to the students and their families. The reduction in state funds has also transformed universities into business enterprises, marketing their services (often abroad to Asian countries including Thailand) so as to attract funds from both affluent foreign students and the private sector (Altbach et al, 2009).

It is beyond the scope of this paper to speculate on the merits and failures of neo-liberal economic policies on education. These policies belong to a particular historical and economic phase, which is also a social experiment whose long-term consequences cannot yet be fully assessed (Hall, 2011). However, HSS has a crucial role in studying and analysing the outcome of economic policies, and in this case the impact of the neo-liberal economic model on higher education. Ultimately, HSS can provide a constant critique and assessment of neo-liberal policies on society.

### **3. Challenges in an IT-driven society**

With the advent of the information technology revolution, we are in the midst of one of the most rapid transformations in human society. The renowned sociologist Manuel Castells has pointed out that what he coined as "the network society" demands a rethinking

of both the notions and the language that we use to understand it (2000). From tablet devices to new generations of smartphones, our consumer society in developed countries, and increasingly among the affluent middle classes of the developing world, is inundated with new and persuasive technology. The underlying ideology is a form of technological determinism: hence technology, and the mass consumption of it, is the prime mover that follows its own course and to which society must adapt (Bimber, 1990). HSS can have a crucial role to play by means of questioning these underlying assumptions.

In the following sections, I analyse three current innovations that are deeply impacting 21st century techno-society and relevance as regards the role of HSS in informing and directing policy making. The first emphasizes the impact that the new technological innovations coming from Silicon Valley in the USA have on the kind of technological solutions that society decides to uphold. The second deals with changes in how we interact with each other in an increasingly complex information culture. The third shows how information technology devices such as Google Glasses are becoming so sophisticated that they are in a sense invisible to us and hence difficult to detect, scrutinize and monitor.

### ***Technology solutionism***

Technological utopianism is the idea, widely promoted within techno-society, that technology can offer a solution to all sorts of problems. The senior editor of *The New Republic* magazine, Evgeny Morozov, criticises technological utopianism by questioning the common idea that technology, and in particular computing science, can provide the right solution to all of society's problems (2013). In the first decade of the new century, new technologies centred on the Internet have been granted the role of offering solutions to an ever-growing number of problems in society. However, Morozov describes this solutionism as a dangerous intellectual tendency. Morozov furthermore points out that it is Silicon Valley, the areas south of San Francisco that are home to the major IT corporations, which drives technological progress in the IT industry. According to Morozov, the solutionism promoted by Silicon

Valley is a shallow and simplistic way of defining problems. He does not deny the fact that IT can make a number of interventions to most areas of society, industry, health care or the preservation of the environment. However, according to Morozov, there is a need to question these interventions as perfections. In the human sphere, Morozov argues, it is our imperfections that make us human, that challenge us to improve and become better at what we do. It follows that incoherent and imperfect behaviours should be encouraged. In fact, it is this imperfect characteristic of our nature that makes us able to embody contrasting roles that often clash.

Morozov posits two problems implicit in solutionism: on the one hand, its tendency to define problems as problems, and on the other the cost of such solutions (2013). Improvements in technological infrastructure, Morozov argues, are going to facilitate the offloading of problem solving from the state to the individual. As a result, the state is progressively moving away from providing any alternative solutions in areas such as health care or transport; instead, solutions to problems will be mostly privatized. The result will be a different kind of politics where solutions are outsourced to the individual. Morozov warns that the solutionism offered by technological innovation cannot itself be taken for granted. Rather, this process must be scrutinized. The Internet, as the medium of exchange, cannot be solely identified with its infrastructure, a network of networks of computers and cables that connect people. It is also a set of ideas, which includes ideologies about how we can collectively organize so to make changes that have an impact on the whole world.

### ***Reality becoming interactable***

The Oxford philosopher Luciano Floridi has put forward a very powerful metaphor regarding the transformation in the relations between humans and information technology (2008). Floridi posits that we are entering a fourth revolution in the way that we think about ourselves, our fundamental nature and role in the universe. This revolution concerns self-understanding: the understanding of what we are as humans, and in particular the perspective

that we hold in examining our own nature and self. It is clear that Floridi intends his remarks to be a form of thinking tool that can be used to assess the ethical and political implication of the changes that we are witnessing with the advancement and the pervasiveness of information technology.

Floridi argues that the transformations in information technology mark a new paradigm shift(2008). This follows up from three previous revolutions in our self-understanding: Copernicus' realization that we are not at the centre of the universe; Darwin's idea that we are the product of and belong to nature; and Freud's vision of the self as driven by forces of which we have no control. The new paradigm postulates that we are now becoming agents among other information agents in a global environment that is made up of information. Floridi calls this space the infosphere (2007).

Unlike other technology critics such as Clark (2004), who sees our nature merging with other machines in cyborgization and extending beyond ourselves in the networked society, Floridi maintains that we are re-interpreting who we are. As we interact more and more via mobile devices on the Internet, and create new online identities, we tend to interact as information agents. This transformation, Floridi argues, requires a rethinking of the relationship with one another and with our environment.

The philosophical argumentation offered by Floridi gives an insight into the future that we are about to enter (2007). With the advent of the Internet of Things, moreover, and information technology becoming ubiquitous, we are increasingly going to interact with and rely upon intelligent agents such as algorithms to make many practical decisions. It is therefore important to understand, question and challenge the information space that we inhabit.

### ***Technology becoming invisible***

The introduction of Google Glasses signals a shift in information technology towards augmentation where new gadgets and devices become so small and non-invasive to

be invisible and thus difficult to monitor and regulate. Augmented reality is the inclusion of virtual reality, hence computer-generated images, sounds, and animated entities, to the experience that we have of the real world (Bimber & Raskar, 2005). Unlike the notion of virtual reality, which implies the immersion in a separate computer-generated virtual world, in augmentation, virtual and real worlds combine and co-exist together with their mutual information exchange processed in real time.

The idea of augmentation glasses promoted by Google is not new; it was born long ago in the 1960s. Steve Mann, an inventor and researcher, claims to have been wearing computerized glasses attached to his head for 35 years (Mann, 2013). Modern Google-like glasses are voice-activated gadgets where the user never escapes from her digital life. Some of their initial prospective features were facial and eye blinking recognition. At the time of writing, Google Glasses can only be purchased in the United States from an Apple Store where they are made to fit. Because of the difficulty of obtaining a pair, their initial high cost, and limited features in the initial versions, Google Glasses have not yet become ubiquitous. Nevertheless, and in spite of their limited availability and use, they have already been banned in the United States from casinos and cinemas, and they cannot be worn while driving (Gray, 2013).

The prohibition stance reveals concerns for the implication that these technologies have for privacy. Privacy is a particular worry because with Google-like glasses, all actions and everything that the user sees can not only be recorded but also shared in real time with other people in social media outlets such as Google Plus or Facebook. Some cultural commentators have argued that their widespread use is going to bring privacy to an end (Arthur, 2013). Google glass-like devices thus signal the further integration of humans with information technology without first exploring the wider implications of its implementation. Furthermore, the risk is that these advancements will further delegate whole sets of decisions, and the ethics and politics of those decisions, to invisible and sentient systems, such as social media in the present time, which independently enact and organise global information flows (Graham, 2005).



#### 4. The impact of Humanities and Social Sciences

HSS plays a very important role in enriching and informing society's economic, social and cultural well-being. A thorough research study carried out in the United Kingdom by the London School of Economics in 2008 (The British Academy, 2008) over a six-month period, and involving over one hundred significant individuals in business, industry and education, has substantiated the importance that HSS has in the economic and civil development of society. Although the research was carried out in the UK, its findings were deemed to apply to the modern world at large. The research highlights that the most important contributions HSS brings to society are added value and knowledge to the social, cultural and the economic spheres.

##### *Knowledge ecosystems*

Unlike the direct impact that the sciences have on industry, HSS impacts a larger knowledge ecosystem that entails multiple relations between producers and beneficiaries of that knowledge (The British Academy, 2008). In order to acknowledge the benefits of HSS towards various spheres of society, it is therefore essential to explicate the framework in which it operates. This can be done by contrasting HSS with the contribution that the sciences make. In the case of physics and chemistry, for instance, the benefits are very evident insofar as they further material progress giving the science behind much of the implementation of new technologies. An emblematic example from history is the famous research by the chemist Humphrey Davy in 1807 that led to the development of the first incandescent electric bulb. While in the sciences, the benefits to knowledge are linear, thus easily traceable, this is not often the case for HSS, and in particular for subjects such as history or philosophy (The British Academy, 2008). However, by analysing how HSS impacts a knowledge ecosystem, the benefits that translate to society emerge. A knowledge ecosystem involves the presence of multiple parts that are interdependent from one another. Knowledge producers and consumers interact together in identifying new areas of knowledge and finding solutions to

problems. This is particularly important in the complex knowledge society that we inhabit because most innovation is the result of the merging and interaction of different knowledge areas.

### ***Quality of social well-being***

Part of the neo-liberal economic legacy has been the identification of human and social well-being with economic growth. The increase in gross domestic product (GDP), the total sum of the value of goods and services produced in a country, is the standard measure of improvement in society. Although this may be the case for countries emerging from poverty, the equation "higher GDP equals higher happiness" does not apply to more prosperous countries. Research in HSS has shown that when a certain amount of basic material comfort is reached, further GDP growth does not make people any happier (Clark, Frijters, & Shields, 2008). Happiness, therefore, can be extrapolated from economic growth once sufficient material well-being has been reached. This dilemma, in particular in the industrialized world, runs counter to the emphasis on neo-liberal policies that focus solely on an infinite GDP growth (Nussbaum, 2012).

Despite the impositions of techno-society and liberal values in economics, HSS has promoted a new vision of society where human well-being is not measured in terms of national GDP alone. In this context, the writings of Amartya Sen (1980, 1985, 2009) and Martha Nussbaum (2003, 2011) on human development have opened new horizons to the understanding of what is required for a society to improve the human condition. For this reason, they deserve to be reevaluated despite the changes in the cultural fashions of our day.

### ***The value of Education***

Matthew Batstone, co-founder of the newly established New College for the Humanities (University) in London, stressed the importance of humanity subjects by pointing out that 60% of the UK's leaders studied HSS degrees (2012). Cultural and historical

understanding, decision making, the ability to clearly express oneself as well as a good grasp of ethics are the key skills that make up such leaders. This stance, akin to Plato's vision of 'philosopher kings' (2012), although attractive is controversial because it assumes that a particular educated social class, in the case of Plato's philosopher kings, is destined to rule society. However, this does not diminish the importance of social science and humanities in providing the individual with reasoning, understanding and a set of skills that will contribute to her success in society.

Against the neo-liberal model of education described above, the moral philosopher Martha Nussbaum has argued that education has transformed from forming the individual to fit a purpose in society to merely seeking short-term profit (2012). In this context, the skills that are thus required are those that help business and industry to increase their short-term gains. However, Nussbaum posits, HSS can promote democracy and provide long-term benefits to society on top of basic day-to-day needs and short-term gains.

### *Altruistic Happiness*

Objective List Theory runs counter to subjective theories that identify happiness as the satisfaction of one's own goals, such as self-pleasure. Proposed by Amartya Sen (1985) and promoted by Martha Nussbaum (1992), the theory offers an alternative conceptualization of happiness and a meaningful life beyond individual self-interests. It does this by proposing a List of worthwhile pursuits, which include aims that benefit other people or society at large. The pursuits of a number of personal goals are also included: freedom from disease and pain, material comfort and career success, knowledge and love. But the list extends to aims which are wider and, according to the theory, more worthwhile such as civic spirit and a good conscience.

By proposing these goals, the Objective List theory maintains that a person can both find happiness and lead a meaningful life, and in so doing have a positive impact on others. Such theorization of altruistic happiness promotes a set of values that runs counter to

the emphasis on subjective feelings and pleasure, the hedonism and individualism that characterizes our modern world.

## **5. Technology as human development**

HSS has a crucial role to play in an increasing technology-driven society. By promoting and directing innovation, HSS can further technology as a form of human development that benefits society at large. What follows are a few areas where HSS can instruct our increasingly technological society.

Research and education in HSS can give a historical perspective on the development of information technology. Exploring the past can help to untangle and understand the present (Nussbaum, 1992). This is particularly important for digital natives as the interaction with technology and social media creates the illusion of a permanent present in the context of Fukuyama's end of history politics (Fukuyama, 2006). A sense of historical perspective is also relevant in keeping pace with globalization in a networked society. Moreover, since the Internet backbone allows people from all corners of the world to have immediate knowledge of other cultures, world history and religions make it possible to tackle the many problems of today's globalized world.

Democratic values are key factors because a democratic society requires self-examination, critique, and cultural understanding (Nussbaum, 2012). Nussbaum furthermore points out that in order to have a successful democracy we need to impart in people the capacity for argumentation. Social media have indeed aided social rebellion against injustice, as has been the case in the Arab spring (Castell, 2013). But at the same time at an individual level, and particularly among natives, they seem to promote dependency towards technology and the medium itself, as is often the case with Facebook, rather than a critical stance towards it. HSS can also aid democracy by guiding public policy towards the evaluation of new information technologies. The fast-paced technological progress that we are witnessing requires scrutiny because, as Morozov points out, it is ultimately driven by large commercial

interests (2013) and profits corporations rather than individuals. In the case of solutionism, the reliance on solutions offered by technological innovation alone can have unforeseen social and political consequences.

At the subjective level, the education offered by HSS can help towards promoting a happy and meaningful life. Researchers in HSS have redefined the concept of how taking up goals that benefit society can give life meaning and happiness whereas IT instead tends to promote individualistic values. Furthermore, HSS can mitigate the impact of new dimensions of existence that are being created in cyberspace. In the description of Floridi, the integration of humans with IT is opening up a new sphere of existence where we are progressively going to interact as information agents with other agents, whether human or computerized (2008). The information space we inhabit needs to have points of reference. In this respect, disciplines such as philosophy and psychology can help grasp and question changes that are taking place in our own human nature in the integration with computer technology.

Finally, HSS can reveal alternative paths to a technological future as human development. Since the present is an actualization of one of all the possible past futures that could have been realized, the wisdom of the social sciences can contribute to selecting a variety of choices that define what values in society we wish to pursue. In so doing, HSS can direct technology primarily towards the promotion of social well-being.

## 6. Conclusion

A contextual framework for the current state and role of HSS in education and society has been established -- on the one hand by analysing the impact of the neo-liberal economic policies on the education system; on the other hand by looking at the impact of information technology on the organization of society and on our own very nature. This paper has argued that while HSS has had to adapt and reassert its place and values in a globalized free-market economy, it can provide the necessary tools to monitor and question the results of economic policy as well as the limits and purpose of technological progress.

While our current techno-society promotes an ideology that sees technology as an end in itself, the author has pointed out that HSS can promote values that take into account universal quality of life. Furthermore, research in HSS can direct public policy and guide technological progress in a world where multiple relations among areas of knowledge and producers and consumers of that knowledge take place in a dense ecosystem. Ultimately, the paper has sketched a vision of technology as human development and social progress where social well-being and objective happiness are considered its core value. This vision needs to be developed further.

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