Chapter 1
Solution to Chaotic Situations in Higher Education: New Generation Universities as Intelligent Organizations

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Abstract Higher education institutions have been affected by three major developments since 1980s: globalization, growing requirements to lifelong learning and fast and intense developments in information and communication technologies. In this chapter we focus on technology, chaos, new generation and how they interact each other. We try to answer the question of whether new generation universities as intelligent organizations could be a solution to the current chaotic situations of universities or not? New generation was born in a technological world and hence are substantially different from the generations before them. Now, in the twenty-first century, all organizations, whether it to be on the macro scale such as nations or the micro scale such as universities, are trying to find ways of overcoming the challenges created by the technological revolution. At the individual level, researchers, analysts, presidents alike try to create new solutions to deal with these challenges by multidimensional cooperation. The most important characteristic of new generation universities is that they are intelligent organizations. In this chapter, we discuss new generation universities as intelligent organizations on five dimensions as solution to cope with research and development challenges (1) Research and development; (2) teaching, virtualization, mobility; (3) professionalization; (4) organizational culture; (5) glocal citizenship; (6) publication level.

Keywords Technology · Higher education · Chaos · New generation · New generation universities

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1.1 Introduction

The way the world has evolved to come into how we know it today, lifestyles, destinies, as well as paradigms and viewpoints, has been through a continuous process of change. Powerful change has always brought chaos and challenges such as industrial revolution, World Wars and globalisation and has never left any area untouched. All aspects of life, including the way we see and think about the world, has been challenged. Consequences of these catastrophic events completely changed not only international system but also our daily life. Even still it is not easy to predict possible effects of "globalization". So, in such a natural chaotic environment, there is no doubt perception of "university" is evolved. Evolving of universities has been shaped paralleling with demands of societies and global trends.

Especially, after 90's a different era has started for everyone; with accumulation of scientific knowledge and scientific developments booming. This era had definitely profound effects on 21st century and right now in the middle of 21st century, world is trying to adapt themselves to a completely new generation and their unique features. That's why this chapter focuses on relationship of technology, higher education and chaos through the question: Whether *new generation universities as intelligent organizations could be a solution to chaotic situations in today's Universities or not?*

1.2 New Generation

Veen and Staalduinen (2010) named the new generation as "Homo Zappiens" and Facer (2011) named them as digital natives. In this chapter, we refer to them as the new generation.

According to Veen and Staalduinen (2010) Homo Zappiens is the new generation that is growing up with modern communication technologies shaping their views on the world around them. New generation was born in a technological world and hence they are substantially different than the generations before them whose interactions with technology has been limited. The new generation has no recollection of white-black TVs, short-wave radios, dial-up telephones, gramophones or stone plaques. By the same token, the previous generations are as equipped and familiar as the new generation in the use of technology. We define the prominent characteristics of new generation below, they:

- use technology in an effortless manner
- learn new technological instruments without help
- share networks and cooperates in social media easily
- access information efficiently
- create innovations with help of technology
- eager to learn to develop new skills

However, the world is different from before in the era of technology and so is the new generation. As much as in other fields, this requires a new way forward in education. New generation can be considered as mirror to shaping future world and for education in the future. We should create some solutions to be prepared for the new image of the new generation.

1.3 New Generation Universities

World has changed. We live in a society that has fewer and fewer boundaries (Juárez 2013). As each new technology and each new generation of learners have arrived, researchers and educators have been asking what these new digital resources for children's informal learning might mean for the future of schooling (Facer 2011). At the individual level, researchers, scientist, analysts, educators try to create new solutions to deal with these changes by multidimensional cooperation. In the twenty-first century, after the technological revolution, all of us try to learn how to adapt to chaotic system.

The next decade promises to bring some significant challenges to the way we think about schools (Facer 2011; OECD 2008):

1. Children's participation in digital cultures raises a set of questions about how and whether we should police the boundary between formal education and informal learning.
2. The potential to set up online schools combined with an impoverished national debate about education is opening up the possibility for a fragmentation of state education, raising questions about who should govern schools.
3. The 'ecosystem' of education outside the school is becoming increasingly complex, as new folk educators are beginning to make their presence felt and as workplaces become sites for formal accreditation of learning, raising questions about the institutional and economic arrangements that should underpin education.
4. Within some restrictions, as set out by the academic profession in international conventions, students have a great deal of autonomy. They often study abroad and take courses offered exclusively online, which can be completed anywhere.

In adopting to and coping with fast- pace technological development, universities have attempted to transform themselves as well. New technologies have brought about changes in approaches to teaching, especially at the undergraduate level, with universities changing their educational offer to standardised courses often delivered online, and different use of classroom time with more small seminars and interactive discussions, and more time spent with students on their individual projects (OECD 2008). The higher education institution of the future, for example, in the year 2030 (London Darden 2009; Veen and Staalduinen 2010) will have a new position:

• The higher education institutions will be easily distinguishable from our current institutions. We now have lots of buildings that are all very much related to

certain curriculum. They serve particular functions for the students, everything from administration to science labs to dormitories in a university setting. Because technology is linking everything; many devices are converging and functionality is being transferred from traditionally separate devices into combined single units.

- Technology is increasingly organized in a distributed, parallel network, relying on the contribution of many different parts to increase its usefulness and addition to our lives. So the comprehensive university or even the comprehensive community college of the future would then take on a totally different meaning than our current model.
- Technology is becoming ever more open sourced; in the true sense of sharing, many new and emerging technologies are being developed by the community instead of being patented and protected, subject to development in small teams behind closed doors. In the future, more than half of the learning will most likely be happening at home, wherever "home" may be. Learning will be delivered virtually to the residences of the students, whether that residence is in a dormitory room or in a home. However, the actual facilities of learning for higher education institutions will be completely different.
- There may very well be an educational mall that has outlet stores specializing in the best programs for each of the major universities. Other partners will include all of the communication and media companies. It is obvious that it's inevitable to have one huge virtual college where there are partnerships and buy-ins from all the major universities of the world, and that they will share and partner in the whole concept.
- The reason this makes sense is because the cost of delivering higher education continues to go up. It will only be possible for institutions of higher education to pay for what students need and want by having enough students enrolled. In the university of the future, everybody will be paid according to their specialty. That's why it will be much more important for a faculty member to have a special. Additionally, it is going to be much more important for faculty and staff to be experts in technology.

1.4 Chaotic Situations in Today's Universities

Higher education institutions have been affected by three major developments since 1980s: globalization, growing demands of lifelong learning and fast and intense developments in information and communication technologies. Future of higher education institutions in Turkey and in the world have been discussed intense in terms of purposes, structure and other dimensions (Erçetin 2001a, b, c, 2002).

While organizational role, responsibility, identity and their success creating brand value have always been discussed in the past, new questions such as the role of universities in promoting entrepreneurship through their own research activities

as well as part of their teaching offer has come into the discussion (Etzkowitz et al. 2000). Realizing that we need a flexible structure to organize ourselves and the world around us, we can look at Homo Zappiens for a clue (Veen and Staalduinen 2010).

Since universities' ultimate responsibility to prepare human resource pool for the challenges of a constantly changing future, universities must change and continuously develop in accordance with this changing environment. Higher education institutions will evolve towards institutions that will function as hubs in knowledge networks, serving students working in fluid communities of research or learning on subjects of their interest (Veen and Staalduinen 2010). These changing conditions, adaptation to these conditions, preparation to the future is the greatest cause of chaos for todays' universities. Other chaotic situations include (Fishman 2013):

1. Funding and costs: One of the biggest barriers to provide online technologies is funding. Given the diminishing support from state appropriations, many public institutions are increasing tuition fees to provide their students with the status quo of services. If institutions did not already have the infrastructure in place to fully support online courses and services, it can be difficult to find new funds necessary to do so.
2. Faculty buy-in and quality concerns: Faculty buy-in is integral to supporting online offerings. One way to build faculty buy in is to be transparent with faculty and include them in the planning and development process of online courses and degree programs. In Minnesota's State College and University System, administrators have found that the more faculty involvement developing and teaching online courses, the more positively they view online student learning outcomes. Another way to gain faculty buy-in is through offering or mandating training in the development and teaching of online courses. A related faculty concern is that the development and teaching of an online course may require much more time than a comparable face-to-face course. This indicates that faculty develop and teach online courses in spite of their institution's incentives, not because of them. Accordingly, institutions may able to utilize an entirely new set of incentives like assigning great weight to online study for promotion and tenure purposes.
3. Meeting the needs of next generation students, serving diverse students: While online and hybrid courses are taken by traditional and nontraditional students alike, online degree programs tend to serve a more nontraditional student population. Institutions need to put relevant support structures in place for these students in order for their degree programs to be stable and successful.

With the conception of universities constantly changing as the environment around them is changing, universities should fully comprehend the dynamics of these changes and then develop reflexes accordingly. In this context, Ernst and Young (2012) reveal the dynamics of change and five basic tendencies in their study (Fig. 1.1).
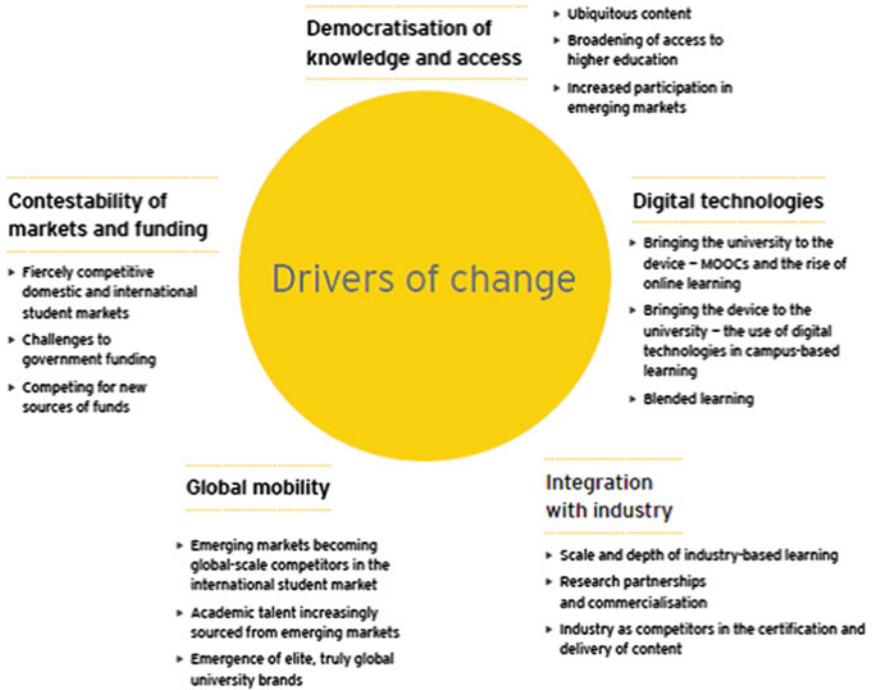
Fig. 1.1 Drivers of change. *Source* Ernst and Young Research Team (2012)

1.5 New Generation Universities as Intelligent Organizations to Solve Chaotic Situations in Higher Education

The most important characteristics of new generation universities is that they are intelligent organizations. New generation universities as intelligent organizations should strengthen themselves within dimensions of a) research and development, b) teaching, virtualization, mobility, c) professionalization, d) organizational culture, e) globe-local citizenship, f) publications.

(a) *Research and Development*:

- To have education, practice and research centers
- To ensure effective use of technopolis
- To have institutionalized and individualized formation on research and project production
- To carry out projects and researches that are determinative of need for change by multi-disciplinary fields with unique studies and causing for pragmatic changes and transformations by results

(b) *Teaching, Virtualization, Mobility*:

- To provide social and individual learning opportunities in the context of lifelong learning approach to all potential stakeholders in multimedia by using information and communication technologies in an effective way
- To provide instant feedback on performance.
- To have clear, simple, pure and instant accessibility via media
- To perform reporting on all processes
- To restructure as multicultural universities by providing learners and academic staff exchange with ease
- To create application areas in the labor market for each field of teaching
- To organize teaching and learning, knowledge generation, transfer information to a wide audience, integration processes that in order to perform *"intellectual capital"*
- To diversify as possible as social activities

(c) *Professionalization*:

- To offer unique productions to the field to demand in both national and international scale
- To prepare scientific activities with national and international participation

(d) *Organizational Culture*:

- To sustain productivity no matter what level of success
- Being trustworthy according to stakeholders
- Characteristics of the sciences to become agents of corporate culture
- To attain administrative and financial autonomy
- Energy, imagination, sincerity, joy, ideally, be able to take risks, to have a vision at the organizational level
- Being democratic, fair, decisive, unbiased, respectful for human rights, to have special interests, supportive, courage, modest, synergic, diligent, planning, sensitive, self-confident, reliable, objective, self-giving, respectful, patient, creative, enthusiastic, not to be jealous and to support characteristics such as cooperation, honesty, perseverance, cooperation

(e) *Glocal Citizenship*:

- To be aware of national and international social responsibilities, cooperate with relevant institutions, organizations and non-governmental organizations to perform these responsibilities
- To be aware of local and global problems and create solutions to these problems
- To be aware of economic, commercial and financial markets that influence local balance
- To have power of international competition

- To make accurate predictions in terms of qualitative and quantitative viewpoint about necessary manpower in future by the help of these owning national and international knowledge (Erçetin et al. 2013a, b).

(f) *Publications*:

- To share practical and theoretical information with various and rich methods at the glocal level.

1.6 Conclusion

As Duderstadt (2007) wrote in his groundbreaking biographical overview on the life of a university president, *A View from the Helm*:

> Today, there is an urgent need to reconnect the university presidency with the academic values and public purpose of higher education, to link university presidents tightly to the institutional saga that animates and shapes the evolution of their institution. The pace and nature of change affecting the higher education enterprise both in America and worldwide in the years ahead will require such strong, informed, and courageous leadership. True, it is sometimes difficult to act for the future when the demands of the present can be so powerful and the traditions of the past so difficult to challenge. Yet such academic leadership will be the most important role of the university president in the years ahead, as we navigate our institution through the stormy seas of a changing world. (Duderstadt 2007, p. 375)

Being an effective leader in new generation universities as intelligent organizations is crucial in this chaotic period now and in future. Leaders in universities should direct and manipulate their universities through organizing scientific activities, workshops, discussions to adapt new generation and technology paralleling with demands of new generation. Leaders of universities should not only provider of this changing patterns but also determinant of futures of new generation universities. In other words, leaders of universities should not only follow trends but also determinant of trends or it can be considered that leaders of universities should be pioneer in new generation universities. All in all, the most important factor in these adaptation and change process is that know new generation, their dreams, future goals, requests, life style should be main pillar of new generation universities. If we do not know them, we can not get conclusion from anything that make their future better. To sum up, leaders of universities should implement demands of new generation in their universities. Learn with them, work with them and work for them is the only way to be new generation universities.

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