

# ***The Mode 3 Networked University: A New Materialist Perspective***

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## **Abstract**

The idea of a modern university is a constantly changing and often contested concept. This paper traces the idea of a university using three modes. These modes are the Mode 1 Ivory Tower, Mode 2 Factory and Mode 3 Network. This framework draws upon higher education literature as well as three modes of knowledge production. I use these modes as a framework to describe the genealogical and historical development of the university in the Western world. These however are not purely historical and elements of their characteristics can be found within and between university institutions today. A genealogy shows a historical path dependency (i.e a teaching and research institution) of the idea of a university and a new materialism perspective shows the coming together of the many elements of the network assemblage which includes the discourse on the idea of a university clashing with new ideas, technologies and policy. The growth and development of the modern university from small, autonomous, elite and autonomous in mode 1 to large, mass regulated factory with marketplace outputs within neoliberal societies is well documented. The Mode 3 Network University is emerging with a potential for universal access with networked societies and technologies and has many actors influencing its becoming and idea. The 2020 Covid-19 pandemic and a broadening multidisciplinary approach to the field of Networked Learning has been called for and I introduce the possibility of theoretically analysing the becoming and enactment of the Mode 3 Network University using concepts and frameworks from the broad field of New Materialism. Such approaches take into account the complex assemblage and network of actors which are human and non-human in the growing and diversifying university. The growth and marketisation of the university has added to this complexity with commercial 'unbundling' taking place. Degrees, institutions and functions are being unbundled and rebundled and this active complex network of actors including technologies, humans (academics, students, employers, wider public) and the residual path dependency of the three modes are in tension and conflict but come together to enact the modern university. New Material methodologies allow for these many influences to come together in a 'flat ontology' to allow for a more nuanced and new approach to research in Networked Learning.

## **Keywords**

New Materialism, networked learning, idea of a university, ivory tower, factory, network

## **Introduction**

The field of Networked Learning has developed and evolved as new technologies and networks have been introduced into universities and other learning environments. Many years of research and development of the field and the global Covid-19 pandemic has pushed networked learning into greater prominence, culminating in the field taking stock of its work and inviting redefinition for the future (Networked Learning Editorial Collective (NLEC), 2020). The NLEC remind us that as we emerge from emergency remote teaching, and language moves towards 'blended', 'hybrid', 'online', 'offline' (to name but a few) there has been considerable focus on the network:

There is a field of research and practice in education that studies such entanglements. It is known as networked learning. Over the last 20 years or so, researchers in this field have developed methods for analysing learning networks and designing for networked learning. (Networked Learning Editorial Collective (NLEC), 2020; p313).

In this paper I focus on such entanglements to theorise the contemporary and near future university as a networked assemblage of human and non-human actors. The broad field of New Materialism is an opportunity to trace complex assemblages, seeing universities as physical and digital sites of networked learning. I view this network as embedded into the fabric of society with traces and residual ideas and discourses of the idea of a

university and what is developing and being sociotechnically imagined (Jasanoff & Kim, 2015; Matthews, 2021a). Here I propose theoretical opportunities for future research in the field.

As we move out of pandemic into the brave new world of hybrid, blended, etc, it is important to see the path dependency or genealogy of the university as it enters a new digital and technologically driven future. In response to the call for a refresh and redefinition of Networked Learning as a field the NLEC (2021) take a socio-technical perspective which aims to not focus on just the technological but also the social. Examples include both a political and technological analysis of networks as well as the philosophical and sociological.

In this spirit I build on this work to explore New Materialist perspectives which look to acknowledge complex entanglements of technologies and the social. To do this I take a historical and path dependent framework with which to look at the development of universities using three modes as presented by Nørgård, Mor, & Bengtsen (2019) and expanded by Matthews (2021b). Modes 1, 2 and 3 trace the development of universities in societies with the autonomous Mode 1 University as Ivory Tower and Mode 2 as industrial and post-industrial neoliberal Factory. Mode 3 is the Network University developing what has come before as the autonomous researcher-teacher model in mode 1 develops into the growing factory with more roles with measured inputs and outputs. Each mode fits with Trow's (1973) elite (1), mass (2) and (potential) universal (3) access to university. Mode 3 is part of society and is networked socially and technologically where boundary walls are much more porous than the classic vision of the Ivory Tower university walled off from society.

The paper develops as follows. I genealogically trace the development of the Mode 3 University, noting that strands of history with ideas and discourses leave residual traces. This is followed by a look at the social and technological aspects of Mode 3, making links with the Unbundled University (Swinerton, Ivancheva, Coop, Perrotta, & Morris, 2018). This is followed by a proposition for a new materialist approach to researching the networked university which embraces entanglements and becomings which attempt to trace the enactment and idea of a university in complex assemblages of actors both inside and outside of the university.

## A genealogy of the Mode 3 Networked University

A key aspect of the Mode 3 Network university is the networked fashion of interests and influences. This is clear in the Unbundled University which adopts business practices of unbundling roles and tasks within the university as well as unbundling the 'product' for consumer value and convenience. This contrasts but also builds upon the genealogical development of the university in mode 1 and 2. The Mode 1 University as described by Nørgård, Mor, & Bengtsen (2019) sees universities as governed independently without any political or private interference. Academic freedom is at its most free in that research and teaching is based on enquiry and discovery. Research is termed as 'basic', 'pure' and mode 1, situated in disciplinary silos.

Here, knowledge is universal and kept within the university walls in a self-sustaining ecosystem. The inhabitants of the ivory tower are the keepers of knowledge, and their task is to transfer knowledge from one generation to the next and from university to society. (Nørgård, Mor, & Bengtsen 2019; p72)

I further conceptualise the university in mode 1 as a product of the humanistic Enlightenment period whereby a university education emerged as a reaction to the dogmatic transfer of static knowledge, often associated with religious institutions, passed from one generation to the next. Key figures in articulating the Enlightenment ideals were Kant and Humboldt in Germany and Newman in England. Kant in writing his *Conflict of the Faculties* (Kant, 1992) as well as being one of the architects of the Enlightenment period with his call of 'Sapere Aude' (dare to know) challenged all citizens to use one's own understanding and enquiry. Humboldt is credited with 'bundling' (contrasting the unbundling in Mode 3) teaching and research and treating knowledge as not static, but learning in research mode with knowledge as a problem not fully resolved (Elton, 2005). Alongside Kant, Humboldt and other Enlightenment thinkers, Newman set out his vision of the university in *The Idea of a University* (Newman, 1852) which rejected the university as transmitting encyclopaedic knowledge from one generation to the next or for vocational skills but to develop the whole person in moral and intellectual habits. A charge directed at the writers and enactors of the university in mode 1 was its elitist entry and small scale opportunity for all of society to engage with knowledge and education - the elite, closed off university (Trow, 1973).

Whilst Trow (1973) identified the small-scale elite access university (conceptualised here as mode 1) he also foresaw the move to a mass access university. Nørgård, Mor, & Bengtsen (2019) term the mass access university as 'the factory':

In the mode 2 university, researchers and teachers find themselves in a situation where they have lost much of the ownership and the power of definition, which characterises the mode 1 university. The factory is not in control of its own fate, it is rather a question of market forces and demand, and here relevance and value are measured in the ability to efficiently produce a future workforce with competencies enabling employability as well as the production of socio-economic growth. (Nørgård, Mor, & Bengtsen 2019; p73)

Aspects of freedom to teach and research wherever enquiry took students and academics in the Mode 1 University began to be eroded when nation states and industry saw the knowledge producing university as a tool of socio-economic progress. Research and teaching remains a key characteristic of mode 2 (Tight, 2016) but as much more of an output in factory terms. The growth and mass interest in the Mode 1 University is testament to its success but it also coincided with the application of the science of the Enlightenment period emerging into industrial revolutions involving a concentration of Western populations on industrial towns and cities. Much of this involved work concentrated on factories which cannot have been a coincidence in Nørgård, Mor, & Bengtsen's naming of the Mode 2 Factory university. Economic growth and development in western countries was followed by a social and economic move to a neoliberal knowledge economy which again pushed the institution of the university to centre stage as knowledge producers and disseminators of that knowledge with the mode 2 factory university metaphorically having inputs and product outputs at the end of a production line (students and knowledge).

The idea of modes of production of knowledge in mode form has roots in the work of Gibbons (1994). The production of knowledge in mode 1 for Gibbons was set within the confines of disciplinary university structures (psychology, sociology, biology, chemistry etc). As described above in the elite Mode 1 University, knowledge was created and disseminated for its own sake and directed by academic interest and freedom to pursue knowledge. Mode 2 knowledge production for Gibbons is transdisciplinary aimed at solving real world issues in social and economic context.

Clark Kerr documents this development in his *Uses of the University* (Kerr, 2001) which in contrast to the writers on the Mode 1 university (Kant, Humboldt and Newman) describes the university institution as a 'Multiversity' in that there are many uses and purposes. Key to the development of the Mode 2 university is the societal development from industrial to post-industrial neoliberal knowledge economies. Kerr comments on the German (Kant and Humboldt) and UK (Newman) conceptualisations of the university entering the US in developing the university in mode 2.

German intellectualism and American populism were merged in the new university. Pure intellect and raw pragmatism made an unlikely but successful alliance. (p36)

And the factory analogy continues with Kerr commenting upon the coming together of industry and academia:

The university and segments of industry are becoming more alike. As the university becomes tied into the world of work, the professor – at least in the natural and some of the social sciences – takes on the characteristics of an entrepreneur. Industry, with its scientists and technicians, learns an uncomfortable bit about academic freedom and the handling of intellectual personnel. The two worlds are merging physically and psychologically. (p68)

Neoliberal approaches to education are well documented (Ball, 2008; Moore, 2004). A key aspect of neoliberal practice is measurable output of performance rather than professional experience and knowledge (Olssen & Peters, 2005), known widely in education as 'managerialism'. Elaborating on the factory analogy, the Mode 2 university is more open to society with mass access of students and governments and industries having more of a say in what is researched and taught through regulation and funding regimes. Key to this is that inputs and outputs became more open and universities in mode 2 respond to regulatory (government) and market (industry) need. The process of the factory production line is still closed off to much of society but the inputs and outputs are clearly defined by markets and regulation in line with neoliberalism. The direction of knowledge, research and teaching as a one directional output is challenged in the Mode 3 Unbundled University.

## The Mode 3 Networked Unbundled University

The Mode 3 Networked Unbundled University has not emerged independently, but is emerging from modes 1 and 2 described above. Seeing this development as genealogical embedded into the social conditions of its time allows us to see the Mode 3 Networked University, not as independent but building on and still showing signs of the residual and legacy ideas and developments of the university - this is key for new materialist approaches outlined below. Moreover, such a framework I hold can be used to identify approaches across time (history) and space (institutions, departments etc).

Basing mode 1 in the Enlightenment period with the emergence of the scientific method rejecting tradition and religion and mode 2 in industrial and post-industrial neoliberal knowledge economies, the new and emerging mode 3 university, I place in the social context of the Network Society. The Mode 3 Network is open in many more ways, not just to inputs and outputs but to the many aspects of contemporary universities. This is part of wider social change, including, mode 3 networked knowledge, networked society, the business practice of unbundling of roles carried out in the university and new technologies all building upon modes 1 and 2.

Key to my conceptualisation of the Mode 3 Networked University is the recent developments of Gibbons (1994) knowledge production. As described above, mode 1 knowledge production is set within disciplines with freedom for academic enquiry, while mode 2 is interdisciplinary and problem solving to the needs of the government and markets.

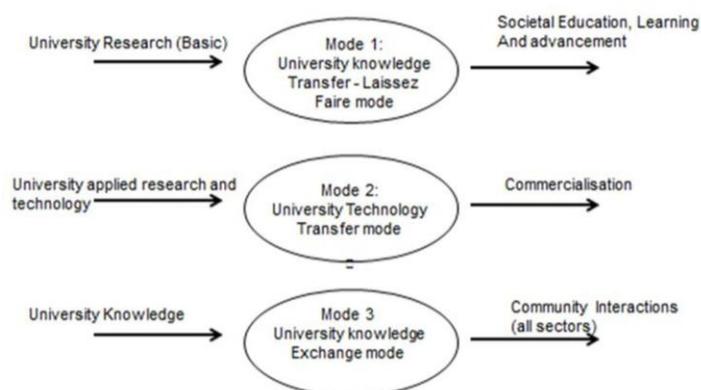


Figure 1. (Carayannis, Grigoroudis, Campbell, Meissner, & Stamati, 2018)

Carayannis et al in Figure 1 develop the modes of knowledge production concept further with mode 3 as knowledge exchange and production as multi-directional between all aspects of society. Moreover, the university in mode 3 does not have exclusivity on knowledge production (research) and dissemination (teaching and public engagement). Mode 3 knowledge production is not the one way dissemination of knowledge (from a university) but a many to many interaction of nodes including (amongst many others) industry, governments, academia and wider public (Carayannis & Campbell, 2012; Carayannis et al., 2018). Liyanage and Netswera sum this up as follows:

In other words, Mode 1 is not adequate to solve social problems. As a result, Mode 2 and Mode 3 have evolved combining scientific knowledge and social contexts. It is a reflexive knowledge production system with reverse communication. Namely, science speaks to society, and society speaks back to science. (Liyanage & Netswera, 2021, p. 3)

Castells (2000) outlined the emerging Network Society. For Castells the development and access to new network technologies was just part of the social move toward a Network, as many nodes in the social network. The network for Castells dominates contemporary life, not just work and economics but all social life in the Information Age. These networks for Castells are open, global and connect diverse entities that would have previously been independent (universities in modes 1 and 2 for example). Examples for Castells include stock markets, governments, television systems and the natural world making up a meta-network of capital where it is often unclear who the owners, producers and managers are. The university in mode 1 and 2 is singular and linear, in mode 3 it is networked both inwardly and outwardly.

An example of such two-way networking is the professional social media platform LinkedIn. Komljenovic (2019) outlines how the platform 'networks' with the university in that students (and faculty and professions) use the platform to record and advertise their experiences which link to jobs and other advertisements drawing upon student data owned by LinkedIn. Further, universities themselves use the LinkedIn platform to advertise but also track student employment destinations through dashboards and data. Such data collection provides analysis and links to jobs and learning courses (Matthews, 2016). This shows the networked power of such platforms as part of the Mode 3 Networked University transcending the boundaries and inner workings of the university - and thus having an influence upon the university and its idea and ontology.

The networking and boundary blurring of society and the university is evident in what has been termed the Unbundled University (McCowan, 2017; Swinnerton et al., 2018). Walji (2018) describes unbundling as:

Unbundling is the process of disaggregating educational provision into its component parts likely for delivery by multiple stakeholders, often using digital approaches and which can result in rebundling.

An example of unbundled educational provision could be a degree programme offered as individual standalone modules available for credit via an online platform, to be studied at the learners' pace, in any order, on a pay-per-module model, with academic content, tutoring and support being offered by the awarding university, other universities and a private company. (Walji, 2018)

Just as LinkedIn enters the university in a networked permeable fashion, mode 3 as depicted in Figure 1 sees a two-way, multidirectional and networked relationship between society and the university. This is an important area of study as the idea of a university develops and evolves. For some, unbundling has been happening since the beginnings of the contemporary university (mode 1 as the sole academic researching and teaching) and higher education's growth and success has seen specialist roles (careers, accommodation, management, estates etc) being required for large-scale institutions the size of the modern university (Gehrke & Kezar, 2015). The recent attention and growing literature on the unbundled university shows that the university in Mode 3 is enacted in many ways through many nodes including new technologies, private commercial interests and the residue (genealogy) of the university of the past (i.e research and teaching).

Universities will need to guard against this disaggregation of education, and its unintended consequences, whilst remaining relevant and active in this space, which will continue to attract interest from a wide range of private providers, including employers and new training providers. (Morris, Ivancheva, Coop, Mogliacci, & Swinnerton, 2020, p. 15)

The mode 3 networked university boundary is becoming more porous to outside interest. The need for specialist skills also comes with commercial interest from private companies. Perrotta (2018) details the phenomena of the Online Programme Management (OPM) which goes further than design online resources as a service for universities but creates long term partnerships involving private commercial companies taking up aspects of the university operation. This includes many aspects of the university such as admissions, marketing and technology to directly teaching students. Moreover, the very identity of a university as a teaching and researching institution is potentially being unbundled (Matthews and Kotzee, 2022).

The Mode 3 Network University is an important concept in considering the influences and co-existence of influences of actors in the unbundled university embedded within a network society. In fact, McCowan warns that the university in unbundled form could no longer exist as a university as borders become so permeable that they disappear. Writers such as Barnett (2018) see this development of the university as an open ecosystem with many influences and actors. Barnett's ecological university is defined as an ecosystem of ecosystems including: knowledge; social institutions (schools, universities, government etc); people; the economy; learning; culture and the natural environment. Ellis and Goodyear (2019) highlight some of the challenges and complexities of the ecological university and its governance strategies with so many actors bearing influence upon the ecosystem/network.

The mode 3 networked university cannot be theorised or researched from a technological or social perspective alone. Analysis of such complex relationships requires methodologies and perspectives which make connections between the growing number of (human and non-human) influences in the Mode 3 Unbundled University. What

follows is a brief overview of the broad area of New Materialism which I propose as a way of understanding and researching such relationships which come together to enact the idea of a university in Mode 3.

## New Materialism

The contemporary and future networked university is not governed by one person or group of people who have sole agency and power to direct and enact the idea of a university (see Mode 1 above). We may lay the effect of unbundling of university functions to specialist roles or private companies as a cause such as capitalism or neoliberalism. However, New Materialist perspectives 'flatten' such ontologies and grand narratives.

There are no structures, no systems and no mechanisms at work in the new materialist ontology; instead there are 'events'; and an endless cascade of events compromising the material effects of both nature and culture that together produce the world and human history. Exploring the relational character of these events and their physical, biological and expressive composition becomes the means for sociology to explain the continuities, fluxes and 'becomings' that produce the world around us. (Fox & Alldred, 2017, p. 7)

New Materialism rejects binaries (such as agency and structure) in what is described as a 'flat' or 'monistic' ontology. Such a relational perspective fits the Mode 3 Networked University with its vast array of human and non-human actors which include (to name but a few) specialist roles in the university, employer and student expectations, commercial private interest, government and institutional policy, built physical and digital environments and the residual and genealogical legacy ideas of a university (see modes 1-2 above).

New materialism has an ontological orientation towards matter in that it is concerned with what it does and not what 'it is'. Such matter is post-anthropocentric in that it focuses on humans and non-humans as matter including thoughts, memories, desires as well as power and resistance to power. This ontology of new materialism is relational (Fox & Alldred, 2017).

As explored so far in this paper such an assemblage of relational actors include the different modes or 'ideas' of a university. Although, modes 1, 2 and 3 as outlined are broadly historical this does not mean that the university in mode 1 has totally been rejected. In some locations or parts of a university mode 1 may be clearly visible. In the same university, mode 2 may dominate perspectives and in others mode 3. There indeed may be a tension between all three which is in itself productive in the becoming and idea of a university as well as the practical relationships of all actors involved. The relationality of New Materialism holds great promise in future research with which to analyse university assemblages as they have grown and included many new actors and discourses both within the university and from outside.

New materialism spans a range of disciplines and theorists and due to space cannot be fully reviewed here. However for an overview and point of reference see Lupton (2019). I do however, offer brief examples below.

Barad's (2007) agential realism of intra-acting (rather than interacting) entanglements of agencies include discourse, causality, agency, power, identity, embodiment objectivity, space and time and include nature, culture and technology. Along similar lines Latour (2007) uses a sociology of associations as part of a wider Actor-Network theory to describe the unstable network of human and non-human actants which make up a network. Both Barad and Latour emphasise moving beyond a humanistic Anthropocene which sees humans as controlling the non-human with sole agency for our environment. Moreover, this humanistic view can often be solely male, white, western and privileged (Davies, 1997). Further, a humanistic view of technology and the non-human is often seen as instrumentalist (Matthews, 2021a) or radically at odds with being human (Hassan, 2018).

Braidotti (2013) proposed a move beyond such humanism which was not a crisis but an opportunity to be reflective as to what it means to live in an ecology of nature, other species, materiality and technology. Posthumanism and seeing an ecological holistic relationship and assemblage of the environment and material, including the spatial, temporal, political, legal, economic, epistemological, technological and education (Braidotti & Bignall, 2019) allows for a more considered and criticality with potential futures of the idea of a university and not a binary techno-utopian or dystopian neoliberal future.

In similar ways to the three modes of university described above, posthumanism looks at what there is to be salvaged (Braidotti, 2019; Herbrechter, 2013; Jandrić & Bayne, 2017) from residual and legacy theory and practice but also as a way at looking at complex assemblages. For these reasons I argue that this has huge

potential for the analysis of the Mode 3 Networked University. Rejecting one grand narrative idea and purpose of the idea and ontology of 'a university' (Herbrechter, 2018) is an important reflective project and timely in the ongoing development and enactment of the Mode 3 networked and unbundled university.

## Discussion

The broad field of New Materialism offers a perspective with which to analyse and theorise the Mode 3 networked university which is in the process of growth, diversification and unbundling. I have described this process and genealogy starting with the elite, small scale mode 1 university with freedom to teach and research wherever enquiry leads. Building on the success of mode 1 coming out of the European Enlightenment period, the Mode 2 factory university is characterised by mass access and regulated inputs and outputs in a neoliberal knowledge economy environment to make teaching and research 'useful' to society. The Mode 3 university is emerging with permeable (two way and networked) boundaries making an assemblage of different actors including academics, technologies, management, government regulation, specialist roles (such as technology and design), industry etc. I argue that these characteristic modes leave behind a residue and create a path dependency influencing the future university as well as these modes being in tension and conflict.

The many facets of new materialism hold promise to make sense of these complex bundling and unbundling assemblages of the present and future university. For example Gourlay (2020) describes the laptop and digital learning environments not as merely tools but active and agentic agents exerting influence upon the idea of a university. Mapping human and non-human influences in the university as an assemblage, I hold presents an opportunity for a research agenda which takes into consideration the network of influences on the current and future idea and enactment of a university.

Such new materialist perspectives on the mode 3 university reject binary causalities of the present and future development of the idea and enactment of the university. At a micro scale we can see interactions between teachers, technologies and students as well as those working in learning and technology roles as one area of future study on working practices and student experience in the Mode 3 University. At a more macro level, such causal claims of neoliberalism as the cause of a business efficiency move towards the private sector and specialist roles in the unbundled university are refuted as reductive, whilst still being an actor in the assemblage. Moreover, claims of the inevitability of technology to revolutionise and change the idea of a university are equally refuted. Such tools of analysis present opportunities for the becoming and being of an assemblage of influences and actors as they increase in number and complexity.

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