Analysing the curriculum development process: three models

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ABSTRACT This article attempts to analyse the curriculum development process by using three models, i.e. the modern model, the postmodern model and the model suggested by the actor-network theory. It is argued that no matter what context we are in, curriculum is the manifestation of the power distribution in society. It is critical to note that power is not a fixed entity, but a strong network formed by heterogeneous components. Therefore, the study of change in this network formation can greatly enhance the analysis of curriculum.

Introduction

This article attempts to analyse the nature of both modernist and postmodernist curriculum developments. In the first part, theoretical perspectives on social changes, and on the relationship between the curricula and the social context are presented as a basis for further discussions. Then the relationship between modernity and modern curriculum, postmodernity and postmodern curriculum are illustrated. This article argues that no matter what context we are in, curriculum development is the manifestation of the power distribution in society. Therefore, in order to analyse the process of curriculum development, analysts need to investigate how power is established and changed. The actor-network theory, which was developed by Callon (1986) and Latour (1988), is used here to explain what is going on within the curriculum development process and why some curricula are more popular than others. This article argues that curriculum development should be perceived as a network, the nature of which is always changing.

Social Changes and Education

Society changes and the work of teachers become more complicated and demanding. Therefore, developing an understanding of the nature of social changes and their effects on education is an important issue for educationists.

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Postiglione & Lee (1997, p. 2) suggest: 'Schools do not exist in a vacuum. They are part of the society that surrounds them.' In the book, *The Evolution of Educational Thought*, Durkheim (1969, p. 194) argues: 'Education is the symptom and result of the social transformations in terms of which it is to be explained'. In Hong Kong, there are facts that illustrate these arguments. For instance, when there was a need to replace the highly educated professionals who emigrated in 1989, higher education was expanded. When there was a need to boost political consciousness for 1997, civic education was introduced. Thus, education is strongly affected by social transformations.

Social changes can be seen from different theoretical perspectives. The social order approach (Parsons, 1966) views the system as working to maintain equilibrium. According to this approach, schools aim to maintain order and integration among the parts of society. The problem with this model is that it cannot account for the fact that change can be sudden, and it can be generated through contradictions and confrontations. Contrary to the social order model, the conflict approach (Lenski, 1966; Turner, 1984) argues that change is inevitable and disruptive. Conflicts occur among different parties, based on social class, economic interest, religion, political beliefs and so forth. The dominant group that holds power will attempt to shape schools for their own interests. There is also a more balanced model (Postiglione & Lee, 1997), which views change as an integral part of the system. In other words, change can be disruptive or can help schools adapt to different demands from society. Change is inevitable and always present. It can emanate from different sources. Thus, the school system relies on feedback from the environment around it in its process of adaptation.

Our world is at a time when things are changing at an unthinkable speed. The process of change originates from stresses both within and beyond the education system. For instance, changes in population size and composition, in pedagogy, in technologies and in political parties will all produce stresses to education.

Education is also affected by expectations of people about their future. Hence, schools do not only respond to social changes, but can act as a leading force for change. For instance, Postiglione & Lee (1997) believe that, in Hong Kong, education can:

shape the thinking of the new generation;
influence the selection criteria for recruitment into important positions within the government;
work to maintain a highly skilled labour force;
determine the degree of interaction with educational systems of other parts of China;
influence the socialisation processes that build a cultural identity;
bolster or retrain the general process of democratisation.

Theoretical Perspectives on Curriculum and the Social Context

Curriculum is a vital part of education. It is constantly evolving and is the total 'stuff' students take away from schools. The terms, curriculum and curriculum development, are problematic themselves as they imply two well-defined stages – the stage of development and the stage where the curriculum is completed. In fact, there is no line separating the two. Curriculum development is not an entity that stops before going into classrooms and curriculum is not a package that stops developing in the classrooms. It is a continuous process of constructing and modifying. Various parties contribute to this process, which include government, publishers, parents, teachers and learners. This list is endless. However, the effect each party exerts is different. Some are more powerful than others, meaning that they can influence the process at a greater extent or even control the behaviour of other parties. Therefore, to comprehend the process, we should not limit our study to the curriculum structure or curriculum contents, but should be aware of the roles of different contributors.

There are several theories that attempt to explain the relationship between the curriculum and the wider social environment. Apple's (1982) work suggests ideology as the thread that relates the levels of base and superstructure. In order to perceive the organisation and practices of curriculum, it is necessary to investigate the ideological root of what counts as valid knowledge in a given curriculum. Eagleton (1991) argues that there is no single adequate definition of ideology. However, it is useful to borrow some of his suggested ways for our discussion. Ideology, in this article, refers to the process of production of ideas and values of a dominant group in social life, and the legitimation and promotion of these in society. It is about how a dominant group uses power to shape its notions into a mainstream trend.

Bernstein (1975) maintains that the consequences of social reproductions cannot account for the ways in which social relationships and identity are reproduced. Researchers need to explore how the society transforms itself and becomes the structural components of curriculum so as to facilitate social reproduction. According to Cheung (1997, p. 127), 'one implication of such an argument is that major changes in curriculum planning at the system level should not be seen merely as changes in methods of education. They are, as it were, changes in the wider society translated in changes within the educational system.'

The above discussion reveals that the curriculum development is closely related to the social context. This characteristic serves as a basis for the debate of the development of postmodern curriculum in times when the world is changing from modernity to postmodernity.

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Modernity and Modern Curriculum

Hargreaves (1994) defines modernity in the following ways. Economically, it begins with the separation of family and work throughout the rational concentration of production in the factory system. Politically, it concentrates control at the centre with regard to decision-making, social welfare and education. Organisationally, it is reflected in large bureaucratic organisations where workers are segmented into different specialisations of expertise. In modernity, there is system and order. Schools with their immense scale, patterns of specialisation, bureaucratic organisation and failure to engage the emotions of many students are the prime symbols of modernity.

Modernity has been greatly displayed in the governmental, commercial and industrial sectors, where the notion to plan and control human behaviour derives from both the classical and behavioural perspectives. Classical theorists like Taylor, Weber and Fayol (Daft, 1995), aimed at finding the 'one best way' for standardising human behaviour. The standard would then become the plan and objective that guided succeeding organisation and evaluation processes. Behaviourists, such as Maslow and McGregor and also discussed by Daft (1995) aimed at discovering the elements they called motivators, which were believed to stimulate the behaviour of workers. After knowing the motivators, managers will then be able to plan, organise and control. Although behaviourist concepts place heavier emphasis on human aspects, it is arguable that the ultimate aim of motivational studies is to control productivity, but not the humane consideration of job satisfaction and worker welfare.

In the field of education, the Tyler *Rationale* (1949) is the most famous modernist model of curriculum development. According to Kliebard (1995), it has not received any direct assaults on its supremacy since its publication. Schubert (1986) also reveals that many educationists consider it to be the most influential on curriculum thought. As argued by Tyler (1949, p. 1):

> The rationale … developed begins with identifying four fundamental
> questions, which must be answered in developing any curriculum and
> plan of instruction. These are:
> – What educational purposes should the school seek to attain?
> – What educational experiences can be provided that are likely to
> attain these purposes?
> – How can these educational experiences be effectively organised?
> – How can we determine whether the purposes are being attained?

This model itemises the four main components of the curriculum: purposes, experiences, methods and evaluation. It is a logical and sequential approach, which shows that curriculum planning is a task of careful consideration and monitoring. It is heavily industrialised because

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it is a response to the industrialisation of the society, which is the process of harnessing inanimate power to machines attended by workers in a factory. The four components resonate amply with the four management functions, advocated by Drucker (1974): planning, organising, leading and controlling. The resemblance between the curriculum planning approach and the managerial approach is no accident because both institutional systems are embedded in the same social environment. As suggested by Apple (1982), they share the common modernist ideology. They both adopt a rational conception of the world, where favourable operations must be preceded by distinct plans and objectives. These two approaches also resonate with the social order perspective (Parsons, 1966), mentioned earlier, believing that the systems are working towards equilibrium. They are silent in addressing changes and conflicts within the systems.

In Tyler's curriculum model, the most critical word is 'purposes'. As he himself suggests (1949, p. 3):

> These educational objectives become the criteria by which materials are selected, content is outlined, instructional procedures are developed and tests and examinations are prepared. All aspects of the educational program are really means to accomplish educational purposes.

Hence, the overall planning exercise rests in the selection of purpose and the following learning experiences will be restricted by the pre-determined purposes. However, the determination of purposes does not cater for any interaction among planners and learners. This makes it a problematic approach. In the profit-making commercial world, this procedure is simpler because the categories of objectives are not many. In the educational field, where purposes are philosophical and ethical, rather than quantitative, the selection process is complex. This, in turn, causes difficulties and limitations in deciding the experiences, methods and evaluation. The curriculum development model also poses other questions, which are equally debatable:

Who is responsible for the decision of purposes?
Is it the teacher, the head teacher or government officials?
How to justify the rights to become curriculum planners?
How to determine the 'right' purposes?
Should the process of curriculum planning only be a passive re-action towards the demand of the economy and other external needs?
Is it appropriate to use an industrial mentality to develop the curriculum?

Tyler's model has overlooked these issues and somehow has assumed that the process of curriculum planning is neutral and self-justifiable. He ignores the politics in curriculum development. He only suggests three sources of objectives, and the development of psychological and

philosophical screens to help select the proper objectives, however, the choice of philosophy can be just as arbitrary as the objectives (Kliebard, 1995).

Hlebowitsh (1995) argues for Tyler and maintains that the philosophical boundary is adequate after the consideration of learners, contemporary life and specialised knowledge. He suggests Tyler opted for generalised objectives and the curriculum is possible to reflect with the present problems and experiences. He also believes that the popularity of the model proves its success as a guide for curriculum development. However, Hlebowitsh has not answered the above queries. It is also problematic to use the popularity of this model to judge its appropriateness as a conceptual framework. It is quite feasible that the simplistic nature of the model has masked some negative features in the process of curriculum development.

Grundy (1987) argues that the modernist curriculum demonstrates the 'technical' interest of the society. Education becomes a product-orientated manufacturing process. She calls this perspective a 'reproductive' view of curriculum. In her view, teachers become factory workers, who have to teach according to some guiding *eidos*. Their work is to mould students into a predefined image accordingly. In other words, teachers are not autonomous in their practices; they need to follow directions given by managers or factory owners (curriculum planners). Evaluation becomes a quality control procedure. Graduating students then become products, which must enter the capitalist market and wait to be transacted. Owing to the fact that teachers are only specialised workers, knowledge is fragmented into chunks of subjects and is presented as unquestionable truths. Knowledge becomes an external entity, which is independent from the learning experience. Teachers and learners sympathetically become tools that are manipulated by the curriculum designers.

A major problem with the modernist curriculum model is that power is taken away from the teachers and students. In other words, only knowledge selected by the powerful is considered valid. Grundy's (1987, p. 38) argument is very true as she mentions:

> Although such an orientation to educational evaluation and
> improvement has appeal in its simplicity and scientific portrayal, it
> has the problem of removing control of the teaching/learning process
> from the teachers and learners. Power both to determine and to judge
> what teachers and learners must do is vested elsewhere.

In a modernist society, power lies in the hands of those who are financially rich and those who are politically rich. Their power is so massive and significant that they can exert influences on other institutions, such as education, medicine and even the government. The forces of the rich can be put forth directly through the provision of

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financial resources to schools, or indirectly through exerting influence on the official curriculum or other administrative policies. People, such as government officials and rich merchants, become the ultimate curriculum planners. Power does not reside with the less powerful, i.e. teachers and students. They are only objectified elements in the process. As long as the curriculum is serving the needs of the planners, the objectives will be justified as politically 'correct'. Therefore, curriculum development in modernist societies is a manifestation of the power distribution. It is easy to see why so many curricula are work-orientated instead of learner-orientated. The argument that whether the curriculum should be a passive response to the external demands depends upon whether the institution of education can be more powerful than other institutions. If it is, then it can start playing the leading role in the process of curriculum development. If it is not, then the curriculum will continue to be led by the commercial or political sector. It is senseless to take education out of the social context, however, power has to be redistributed so that educationists, instead of politicians or industrialists, can become more active in the evolution of curriculum.

Postmodernity and Postmodern Curriculum

The definition of postmodernism is still evolving. As suggested by Bullock et al (1988, p. 672): 'It is a still amorphous body of developments and directions marked by eclecticism, pluri-culturalism, and often a postindustrial, hi-tech frame of reference coupled with a sceptical view of technical progress.' Conceivably, the unsettlement of the definition is itself the best elaboration of postmodernity.

Hargreaves (1995) suggests several signs of postmodernity. Philosophically, the convenient use of information technologies enables people to choose alternative life styles. Economically, there has been a decline of mass production. People are realising the change from an atomic to a digital world (Negroponte, 1995). Organisationally, people are advocating greater flexibility and responsiveness. Managers talk about decentralisation, streamlining and networking. Personally, postmodernity creates increased empowerment.

In the field of organisational studies, there is similar claim that people are leaving the rational Fordist era and entering a 'post-Fordist' phase of development (Whitaker, 1992). Some forces are identified to be substantial to the restructuring of work environment in this era. They are the massive de-industrialisation of the manufacturing base, the wave of technological innovation based upon information processing, the growth of the service sector and economic competition within the global market.

Whitaker uses the British economy to interpret this trend. He reveals that there has been a massive reduction in the number of workers employed within manufacturing since 1971, a decline in traditional manufacturing areas and the emergence of new industrial areas.

Employment in large firms has fallen, coupled with a growth in small firm employment. There has also been a rapid development in the internationalisation of production. Labour market restructuring can be found in various aspects, such as the increase in female employment, and the growth of part-time work, of temporary workers and of the self-employed.

He further identifies two sorts of flexibility: 'investment-led' flexibility which is sought mainly in terms of the use of new manufacturing technologies and, secondly, 'labour-led' flexibility, in which emphasis is placed on variable uses of labour. Therefore, this new trend is about the division of labour, its organisation and ownership, both externally and internally. Externally, there is the increased use of sub-contracting to allow greater flexibility. Decentralisation of production into smaller units through licensing or franchising agreements is also very common. Internally, labour is classified into core and peripheral groups (Atkinson, 1985) to achieve 'numerical flexibility', whilst at the same time, they are required to carry out various different tasks, thus, creating 'functional flexibility'. Therefore, paradoxically, workers are skilled and de-skilled simultaneously.

Contrasting to the mechanistic nature of modernism, postmodernism is organic, fluid, flexible and interactive. Therefore, a postmodernist perspective will not search for simple linear solutions for solving educational problems. Instead, it will focus on the process of development where old elements are fusing together to create new and perhaps unimaginable effects.

In a period where uncertainty, fluidity, flexibility and empowerment are the themes, educationists need to look for new theoretical framework that will illuminate key issues at different levels of curriculum development. To understand complex curriculum changes, links have to be forged between social, economic, political and historical analysis, on the one hand, and people's beliefs, imaginations and aspirations, on the other.

UNESCO (1996) sets out four 'pillars or education for the twenty-first century:

> learning to know;
> learning to do;
> learning to live together;
> learning to be.

These principles offer a general framework for postmodernist curriculum development. They sound very pleasant and attractive. However, similar to Tyler's rationale, they suffer from an over-simplistic perspective. They have not justified what knowledge to learn, what skills to acquire, what experiences to undertake and what personality to develop. UNESCO treats these issues as neutral and fails to regard that answering these

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questions is a political matter. Of course, it is possible that UNESCO takes the dominant preference within itself as a generalised norm. If that is the case, then UNESCO will become the curriculum planner, because it is the most powerful party within the curriculum development process.

Doll (1993) provides a more complete view and argues for the construction of a postmodernist curriculum matrix, which contains several elements:

> The curriculum has to ground theory in and develop it from practice. Teachers and learners can develop their own curriculum through continuous interaction.
>
> The curriculum needs to enhance self-organisation by being rich in diversity, problematics and heuristics, and a classroom atmosphere, which encourages exploration.
>
> The curriculum has to empower both the teachers and the learners, thus creating an environment where they can engage in constructive dialogues.
>
> The curriculum should encourage interpretation, rather than explanation of knowledge.
>
> The curriculum should adopt developmental planning, which allows for greater flexibility and modification.
>
> Evaluation will be an interactive process, in which feedback is provided to the learner. Communities' support is required to help the learner through constructive critiques.

He also suggests four criteria to check the quality of a postmodernist curriculum. They are richness, recursion, relationships and rigor. A common notion flows through these four elements – the concept of interaction. Richness is about the interactive nature of the curriculum, which allows teachers and learners to interact and develop the richness that is appropriate to the context. Recursion is about the interactive nature between the learner and the knowledge. In this criterion, the curriculum does not have a definite beginning and ending. Instead, the learner is always reflecting the knowledge. Relationships are about interactions in two dimensions. One is 'pedagogical relationships', which emphasises interactions among the curriculum structure. The other is 'cultural relationships', which focuses on the interactions among the curriculum with the local as well as global context. Lastly, rigor deals with the continuous interactions among concepts and theories. The attitude towards curriculum is one that constantly entails rigorous exploration and interpretation.

Although Doll has not directly discussed the notion of power, his argument shows that power needs to be redistributed from the planners at the 'top' to the teachers and students at the 'bottom'. This resonates with the concepts of decentralisation and empowerment in the management discipline. Similar to the modernist curriculum, a

postmodernist argument cannot escape from the power struggle reality. Doll's model is a manifestation that power needs to lie in the hands of teachers and learners. It does not emphasise the predetermination of plans and objectives, but celebrates the interactive nature of learning. There can be a 'continuous dialogue' only if the participants have the authority to do so. The model echoes with the 'learning to know' principle suggested by UNESCO, but elaborates a clearer framework of how to put the argument into practice.

The Actor-Network Theory for Curriculum Analysis

The above discussion shows that different approaches of curriculum development are the results of different power patterns. The modernist curriculum is designed because planners perceived curriculum as an industrial product, which follows definite manufacturing procedures. This kind of conceptualisation arises from the social environment, where industrialisation and bureaucratisation are the most dominant phenomenon. The workability proven by modernisation at a particular period becomes a powerful network, the force of which is spread to other social institutions. Hence, it is fair to describe that the modern curriculum is a reflection of the power structure of the modernist society.

Nevertheless, the world is now being replaced by strong senses of indetermination, chaos and fluidity. Power structure is less rigid than it was before. This characteristic is reflected in several dimensions. Politically, we see the breakdown of the Soviet Union and the change of ideological direction of Eastern Europe. Economically, we see the rise of China, the deteriorating economy of Japan and the speedy ups and downs of South East Asia. Culturally, we see the celebration of globalisation, on one hand, and the tension and confrontation among different ethnic groups and religious groups, on the other. Technologically, we see atomic mass production giving way to digital customised production. Here is a period in which diversified parties are trying to embrace as much power as possible.

Within this postmodernist context, Doll (1993) proposes a postmodern perspective on curriculum arguing for a more interactive approach in which learners are empowered to self-organise and transform. Unlike modernist perspective, which places power at the top, postmodernist curriculum advocates the decentralisation of power to where the learning is actually taking place.

However, the world is constantly changing and it is certain that postmodernity will not be the final stage of evolution. Instead, it is only a part of the total process. The debate on modern curriculum and postmodern curriculum demonstrates that both can be analysed from the angle of power distribution. Curriculum planners, regardless of their identities, are the people who grasp the most power. Therefore, a better approach to curriculum analysis does not rely upon the acceptance of

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Tyler's

Tyler's model or Doll's model, but upon the improved ability to conceptualise the power structure within the curriculum development process.

The actor-network theory, developed by French theorists, Callon (1986) and Latour (1988), is a useful analytical model, which helps examine the heterogeneous processes of social and technical change. It can be borrowed to analyse the change of curriculum development. It also highlights the critical features that curriculum analysts need to look at.

The start of this theory is to dissolve the perception of curriculum as a solid entity. Instead, curriculum, at any particular time, can be considered as a network of relationships or processes. Therefore, the technicist modernist view of seeing curriculum as a package (Grundy, 1987) has to be abolished. Members within this network are not fixed, but constantly changing. In Cooper's (1992) words, this network is a circuit of continuous contact and motion. This resonates with Doll's view that the curriculum is not a predetermined package and is developed through the interaction among various parties. Major components in this network are people, such as government officials, head teachers, examination boards, teachers, parents and students. All these people have different contributions to the development of curriculum. Nevertheless, the theory does not simply imply that the curriculum is the mere summation of people. Analysts have to understand how these people are affecting one another. To borrow a quote from Elias (1978, p. 150), 'to understand what sociology [curriculum] is all about one must … be aware of oneself as a human being among other human beings'.

Secondly, instead of seeing curriculum development as bounded by a greater social environment, analysts need to look at the interaction among different forces, parties or institutions. Analysts have to see that different social institutions are all existing in a seamless web and the boundaries among disciplines are arbitrary. When the line of demarcation between the curriculum and the environment no longer exists, then the process of curriculum development can be re-framed into sets of relationships. As Tsoukas (1992, p. 444) argues: 'A richer picture emerges if we view a locale as the setting of interactions, itself internally differentiated, specifying the contextuality of interactions, rather than if we treat it as merely a well-bounded geographical area'. Therefore, unlike modern curriculum, Doll argues for the possibility of constant dialogues between teachers and learners.

As a sociologist, Callon (1987) argues that the study of technology can be transformed into a sociological tool of analysis. He suggests that engineers who are developing a new innovation need to plan and predict the roles of other elements, such as the taste of customers, the strategy of competitive companies. Therefore, engineers are not purely technical people. They are transformed into sociologists when they are doing

sociological analysis. This concept challenges the traditional view that there is a definite line of demarcation between what is technical and what is commercial.

Similarly, when curriculum planners are designing the curriculum, they cannot escape from taking other roles such as technicians or politicians. They need to do the technical work of writing the curriculum, as well as the political work of choosing what knowledge to put into the curriculum. The line between these disciplines, therefore, becomes arbitrary. All these elements are tied into the network involved.

Thirdly, curriculum development is not just a homogeneous network. It also consists of non-human agents, such as machines, texts and money that are as equally significant as human agents. Callon (1987) uses the term 'actor' to represent agents of different properties, be it human or non-human. Analysts, therefore, need to investigate what are the actors of the network. He defines: 'An actor network is simultaneously an actor whose activity is networking heterogeneous elements and a network that is able to redefine and transform what it is made of' (p. 93).

Heterogeneous networks become stabilised if the network builder knows the interrelations among the actors and try to control their behaviours. Law (1987) calls this activity heterogeneous engineering and suggests the product can be seen as a network of juxtaposed components. The success of heterogeneous engineering is not easy because there is always some degree of divergence between what the actors will do if they are left alone, and what they are forced to do when they are enrolled in the network. Therefore, analysts need to see what and how are the forces that pull the different actors together.

Fourthly, it is common for analysts to forget the network lying behind an object or an institution. For instance, some theorists perceive curriculum as an entity and ignore the whole process and network behind the façade. Law (1992) argues that this effect of simplification is called punctualisation. Networks, which are widely and routinely performed, are those that can be punctualised. This offers the advantage for the general public to handle the networks quickly without having to analyse in depth.

Fifthly, the theory argues that power is a relational effect. It is not located in a fixed position but is movable. As Latour (1991, p. 118) suggests: 'Domination is never a capital that can be stored in a bank. It has to be deployed, black boxed, repaired and maintained.' In his earlier works, Latour (1987, 1988) argues that Pasteur was successful because he borrowed power from other agents and shaped it to support his own ideas. Latour identifies that science is politics by other means. The multiplicity of Pasteur's identities is critical to the kind of power of the network of which he is so central a part. As Star (1991, p. 28) suggests: '[Pasteur] is stage-manager, public relations person, behind-the-scenes planner. It is through a series of translations that Pasteur is able to link very heterogeneous interests into a mini-empire.' Hence, powerful actors

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have to secure more resources to their activities. They have to make themselves indispensable by beating competing networks. They design roles for other actors and control their behaviours. When the network is powerful enough, the cost of objection for any actor will be too high and the possibility of overthrowing the network will be low.

However, Star (1991, p. 38) rightly suggests: 'there is nothing inevitable about any such science or technology, all constructions are historically contingent, no matter how stabilised.' Although the world has conventions about the use of materials, standards, and so forth, these sets of conventions are never stable for non-members. She argues the public stability of a standardised network (e.g. a national curriculum) often involves the private suffering of those who are not standard – who must use the standard network, but who are also non-members of the community of practice. She emphasises that no network is standardised for everyone. Not even McDonald's.

To summarise, the main tenet in actor-network theory is that social structures are processes or effects. Curriculum is no exception. Law (1992, pp. 285–286) argues:

> [Social] structure is not a noun but a verb. Structure is not free
> standing, like a scaffolding on a building site, but a site of struggle, a
> relational effect that recursively generates and reproduces itself.

The theory offers an explanation of why modernist curriculum is so acceptable because it has a robust network in society. Modernist planners make the best use of actors, such as modernist curriculum theories, favourable support from the industrial sector and bureaucratic government, and teachers who are trained to adopt the modernist attitude. They become powerful because power from other actors is transferred to them. It is also true that many planners present the curriculum as 'black box', causing difficulties for 'external' people to understand what is going on inside. Curriculum development becomes a secret garden, where only the powerful have the authority to enter. Modernist curriculum is a standard, which is costly to redevelop.

Stemming from this argument, in order to develop a postmodernist curriculum or any other unconventional curriculum from the present modernist model, educationists need to form a new network, which is stronger than that of the modernist curriculum. Power has to be shifted from the modernist curriculum to the postmodernist curriculum. In order to achieve this, strong actors, such as new theories, new pedagogy, and new teachers and students who are willing to challenge the old method, have to be recruited. In fact, many favourable actors are available now. For instance, Doll's postmodern curriculum model is a possible theory that can become a strong actor. Digital technologies are powerful non-human actors that can serve as learning tools. Integrative and interactive pedagogy is also available (Ingram, 1998). There are teachers and

students who are willing to explore a decentralised, empowered and self-organised curriculum. Perhaps, what is lacking in the development process of a postmodernist curriculum is a network builder who can pull all these actors together.

Conclusions

Modernist curriculum has been highly acceptable over a long period of time. It provides a framework for quantifying human behaviour. The quality of teachers and learners are both measured by standards predefined at the stage of curriculum planning. Schools become bureaucratised entities where learning is similar to a manufacturing process. Knowledge is treated as an external object and the success of education depends upon the transmission of knowledge from teachers to students. Obviously, learning is a passive activity that only requires feeding-in information. This modernist practice is favourable in times when the overall society is working in a similar manner. Every member seems to accept the roles that are assigned to him/her. The power pattern is rigid and clear. Power lies with the political rich and the financial rich. The less rich can only follow the established rules and regulations, and await for the day when they themselves become rich.

Nevertheless, facts show that the world is breaking away from this modernist paradigm. Power patterns are less rigid and less certain than before. Old disciplines become less useful in building the new world order. New technologies are advancing; new industries are booming; new cultures are emerging; new political powers are arising; and all these are changing at an enormous speed. No one can really anticipate what will happen in the coming decade. In this new era of flexibility and change, the institution of education seems to be the most out-dated sector. What is advocated in the modernist curriculum cannot prepare students to survive and further develop in the postmodernist era.

Doll's (1993) discussion on postmodernist curriculum provides a beginning for studies in the field. It illustrates possible features of a postmodernist curriculum and criteria in judging one. In this paradigm, power is redistributed. It lies with those who can self-organise and those who can respond to the world in the most creative manner.

Furthermore, the actor-network theory suggested at the end of the article, is a postmodernist model for analysing curriculum in any context. The theory explains the nature of change in any development process, and is used here to show what is going on within the development process of a curriculum. The argument is that the process of curriculum development is the manifestation of the power distribution at that particular period. Power is not a fixed entity, but a strong network formed by numerous heterogeneous components. Studying the change in network formation, therefore, can enhance curriculum analysis. It is critical to appreciate that the formation of a network is an on-going

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process and builders are not respecters of knowledge categories or professional boundaries (Hughes, 1986).

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