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Ian Weber

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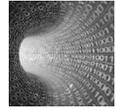
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# Commodifying digital television in China: a socio-linguistic analysis of media discourse, technology deployment and control

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## Abstract

This study examines public discourse surrounding the development and deployment of digital television in China from 1999 to 2004. It analyzes print media constructions of this new media technology against the backdrop of controlled commodification and formation of trans-media groups that define media reform, development and management. The study reveals how these structural changes play a key role in restraining the development of a flexible business environment in which print media can support critical technological development. Inhibiting the media's ability to promote this technological development is a lack of market-oriented experience and knowledge and organizational integration under the current trans-media structure. Accordingly, considerable doubt is cast over the government's broad strategy of media reform, development and management to successfully support the deployment of digital television as the pre-eminent technology in China's drive towards modernization.

## Key words

China, commodification, control, digital television, discourse

Critical histories of broadcasting development indicate inherent struggles in the introduction of next generation technologies into established media systems. For example, Smulyan (1994: 1) identifies the evolution from wireless telegraphy to broadcasting as one in which 'nothing was inevitable with every step involving conflict'. Contemporary

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broadcasting trajectories – analogue to digital – reflect similar conflicted historical trajectories (see Brown and Picard, 2005; Chalaby and Segell, 1999; Galperin, 2004; Hart, 2004; Sourbati, 2004; Sterling, 2003; Weber, 2005a, 2005b; Weber and Evans, 2002). As Galperin (2004: 4) describes, ‘digital television is much more than a tale of technological innovation. It is a story about large-scale changes in the normative models, as well as the institutions that shape television as an economic and social force – and, ultimately, about the politics of the information society’. This story of technological development has unfolded in a multitude of narrative streams to reflect each country’s political, economic, social, cultural and technology legacies, thus amplifying the uniqueness of each broadcasting system’s struggle to achieve the common goal of technological integration and modernization.

This article examines China’s strategy to integrate digital television into its rapidly evolving media system against the backdrop of controlled commodification and trans-media groups as the defining approach for media reform, development and management of new media within the context of China’s modernization. The study uses Lemke’s (1998) socio-linguistic framework of presentational, orientational and organizational components as a heuristic device to identify the dominant language themes within public discourse on digital television during critical pre- and post-launch phases of technology deployment (1999 to 2004). These themes were distilled using a thematic content analysis. The study then uses a socio-linguistic approach, drawing on Mackay and Gillespie’s (1992) and Bijker’s (1995) notions of social construction of technology, to provide a critical framework for identifying how language themes, or nominalizations, reflect how the media represents, controls, privileges and organizes information on technological developments. Furthermore, the study examines whether these language constructions converge or diverge from the strategy of controlled commodification and trans-media formation in relation to media reform, development and management of digital television in the Chinese context.

## **Controlled commodification, digital television and the shaping of new technologies**

Underpinning China’s three decades of economic, social and political transformations has been the adoption of the ‘Four Modernizations’ in 1979, which focused on strengthening agriculture, industry, technology, and defense (Volti, 1982). This modernization process was tied intrinsically to the gradual reform of the economic system, in which China has moved from a planned to a socialist market economy. Accordingly, considerable pressure has been placed on the primacy of government to remain relevant to an increasingly independent citizenry and commercially-driven business environment.

Chinese authorities have responded to these challenges by forging economic policy with a neo-authoritarian political philosophy, which views the government–market relationship as complementary. A key component of this relationship has been the government’s re-positioning of the state-run media as a more effective and responsive contributor to economic development through a process of strategic commercialization. Under China’s economic reform, the government has shifted its thinking on the media from solely one of a tool to propagate the government’s political ideology to one of harnessing

its commercial potential to deliver consumers to advertisers and promote economic growth. Accordingly, the process of commercialization facilitates the exchange of services and content that is calculated to ensure maximum return on the capital investment and expenditure required to build China's modern, state-of-the-art digital infrastructure and meet the needs of an emerging consumer-oriented society (Weber and Lu, 2007). To accommodate this commercialization framework, the government has gradually introduced a raft of media reforms by refocusing the components of print, television, radio and internet within a framework of controlled commodification and strategic vertical integration culminating in the trans-media structure.

Typically, commodification refers to those processes through which social relations are reduced to an exchange relation (Goldman et al., 2003). However, any discussion of commodification today extends to all cultural industries as they are transformed into commodities that enhance desired, though abstract, forms of social relations. In fact, the success of commodification of the media in China is seen by the government as a way of magnifying the types of positive social relations that are not only beneficial but essential for nation building (*guojia jianshe*), or the bringing together of peoples by adopting common values and practices, and economic development (*guojia fazhan*) (see Weber, 2003; Weber and Lu, 2004, 2007). Accordingly, the government's media reforms support the market while establishing subtler forms of control over the media as a propaganda tool, thus reaffirming the government as the central agency in economic and social development and political stability.

Within these processes of neo-authoritarianism, the government assumes the position of cultural leadership to balance political and social cohesion, domestic economic development, and global economic integration (see Weber and Lu, 2007). As a result, the process of controlled commodification has created a multi-level control structure within the Chinese media system, whereby the government retains tight control over several key media outlets such as popular, nationally distributed media (for example, China Central Television and the *People's Daily*), while allowing more autonomy for a larger number of provincial and city media organizations, including trans-media groups. These trans-media groups include China Film, Broadcasting and Television Group (CRFT), the Beijing Radio, Film and Television Group (BRFT), and the Shanghai Media and Entertainment Group (SMEG), which compete against a flotilla of 'un-networked' broadcasters, particularly cable stations (Keane, 2004). This strategy achieves a number of goals. First, it lessens the financial burden on the government with fewer media to fund. Second, it strengthens the business logic of localized media within a more competitive environment (see Luther and Zhou, 2005; Sun et al., 2001; Zhou, 2008). Third, the vertically integrated structure of trans-media groups provides an environment in which such coordinated operations can utilize economies of scale and resource-sharing to compete more effectively and efficiently domestically, as well as against global media groups.

Although business logic now drives the development and management of broadcasting in this new commercial environment, this strategy has struggled to support and promote key technological advancements within the industry. A key component of the Chinese government's media reform and development is the deployment of digital television as the backbone of China's evolving broadcast media system and digital economy (Weber, 2005b). China's digital conversion began in earnest in 2000 with the building of

six digital platforms in key Chinese markets of Beijing, Shanghai, Tianjin, Chengdu, Guangzhou and Shenzhen, and the appointment of a management team to oversee implementation. Central to this approach is SARFT's (State Administration of Radio, Film, and Television) 10th Five-Year Plan (2001–2005) of 'overall migration deployment strategy', which focused on moving 120 million cable television subscribers across to digital services by the 2008 Beijing Olympics. Stage one of that strategy was to migrate 30 million cable television users across to digital television services by the end of 2005 (SARFT, 2005). Driving this transition was the anticipated economic gains of US\$220 billion from value-added digital services by 2015 (Weber, 2005b).

Such optimistic penetration targets, however, failed to materialize, with the number of digital subscribers constituting only a small percentage of the stage one target. Only 90,000 households subscribed to digital services in 2002, rising to 276,000 in 2003 (SARFT, 2005). Responding to poor penetration levels, the Chinese government approved the investment of US\$7 billion in guaranteed low-interest bank loans to cable television companies to subsidize the distribution of set-top digital decoder boxes (Cheung and Miller, 2004). In providing this leadership, consumers were given the opportunity to observe and experiment with the new technology. By the end of 2004, the number of digital television subscribers had risen from 276,000 to 1.067 million (SARFT, 2005).

A number of reasons contributed to slow adoption figures: high entry costs, lack of differentiated content between digital and cable television programming, poor incentives to make technology accessible, and inexperience in market-oriented operations (see Hui, 2005; Weber, 2005a, 2005b). These problems can be traced back to the structural changes ushered in by government media reforms, which saw trans-media groups fortify their position within the market. Weber (2005a, 2005b) argues that the vertically integrated structure, defined by media type, effectively failed to motivate media to cross-promote the new technology, thus retarding the effectiveness of print media to support digital technology through marketing and advertising. It does so because trans-media groups lack the necessary cross-media organizational integration, and therefore the economic imperative to drive adoption momentum, as evidenced in the successful British digital television deployment in the 1990s (see 'An Old Giant Gets New Legs', 2005; Weber and Evans, 2002). As Keane (2004: 94) suggests:

Although business logic drives the thinking of many of the new breed of [Chinese] broadcasters such as Hunan Electronic Broadcasting (the commercial arm of Hunan Television in South China), the competitive ethic has not magically transformed China's media centres of innovation.

Research by Weber and Evans (2002) on digital broadcasting diffusion illustrates how organizational structures significantly contributed to the successful deployment of digital television technology in Britain. This study used a similar socio-linguistic approach employed in this study on China to examine 1836 newspaper reports from 1998–2002 from Britain, the United States and Australia to reveal how public discourse (i.e. language themes) through media reports constructed the meaning of digital television in each setting. Findings indicate that frequency, timing and focus of media reports and

cross-media relationships between print and broadcasting (e.g. Rupert Murdoch's News Corporation) created adoption momentum in the British model at critical points of the process (i.e. pre- and post-launch phases). For example, News Corporation's print media cross-promoted BSkyB's satellite television operations by marketing equipment, subsidies and interactive content aggressively to consumers (Grover and Lowry, 2004; Weber, 2005c). As a result, Murdoch's print media interests shifted the frequency and focus of reports from mostly technological, political and economic language themes in the pre-launch phase to more social and cultural themes in the post-launch phase to complement the continued focus on economic dimensions of the digital transition. This technological discourse supported digital television's functional and productive level of relative advantage (convenience and satisfaction) and compatibility (access and cost), while reducing the initial anxiety and uncertainty (complexity) for consumers (Weber and Evans, 2002). Accordingly, consumers could observe and experiment (or trial) the new technology conveniently and cost effectively (Galperin, 2004; Weber and Evans, 2002), resulting in penetration levels reaching 61.9 percent of British households within seven years (OFCOM, 2005).

Several theoretical frames offer ways to understand how these complex relationships and transitions discussed by Weber and Evans (2002) relate to technological deployment or change in social settings. First, the neo-Marxist position argues that technological change cannot be fully understood by reference to individual invention. Rather, we need to examine how wider socio-economic forces (e.g. investment in particular lines of research and development) impact on the nature of technological problems (Mackay and Gillespie, 1992). Second, social constructionists argue technologies emerge out of processes of choice and negotiations between relevant social groups (stakeholders), interpretative flexibility and semiotic power (authority to define a technology), and stabilization (function and use) (see Bijker, 1995; Lenert, 2004). Each approach, however, is limited by its inability to resolve the relationship between structure and agency. For example, the neo-Marxist approach focuses on the broader perspective of structure over passive subject while the social constructionists' perspective elevates the active subject over structure.

In reconciling structure and agency, Mackay and Gillespie (1992) argue for drawing ideology into the debate on the society–technology relationship so as to account for the relationship of meaning and power. Drawing from ideas developed in cultural and media studies, it is possible to move beyond analyzing technology solely as a process of design and development. Accordingly, three conceptually spheres – (1) conception–invention–development–design; (2) marketing; and (3) appropriation by users – can be used as a heuristic device to investigate how technologies diffuse into social systems. First, to explain development of a particular innovation requires a coherent model of the society in which the technology is embedded, as well as acknowledging the role of ideology in these processes, which requires recognizing the role functional and symbolic encoding plays in such situations (Mackay and Gillespie, 1992). For example, Weber and Evans's (2002) study of the British digital television system established how ideological encoding created functional (benefits) and symbolic (progress) meanings of this new technology to establish adoption momentum. Second, marketing or communication forms a central position in the social construction or shaping of the technology not only because

it informs design but also because it assists in constructing demand for new innovations (see Mackay and Gillespie, 1992; Webb, 1992). Third, technologies are actively appropriated by users. Rather than considering users as passive subjects who submit to the dictates of technology, we should see them as active, creative and expressive, though socially situated subjects. Users may redefine a technology in ways that defy the original, designed and intended purpose (Mackay and Gillespie, 1992).

Understanding how these complex relationships evolve requires an examination of social processes (economics, politics and culture) and structure (policy, regulations and organizational reform) and how these relate to actions (of ideologically encoding and marketing), in the context of poor levels of digital television technology appropriation by users or consumers. This study focuses on the actions of ideological encoding and marketing to meet the research design objective of distilling the language themes that define interpretive flexibility, semiotic power and stabilization of digital television for the government, industry and consumers. Focusing the study on these elements provides a more coherent strategy for distilling the vast amount of public discourse found in print media reports that create knowledge and perceptions of digital television for consumers and users of the technology into manageable and accessible dimensions for interpretation.

## Method

This study employs a multi-method approach of thematic content analysis and socio-linguistic analysis to first distill then interpret the vast amount of public discourse that defines how the media represents, controls, privileges and organizes language in ways that shape knowledge and perceptions of digital television over time. Through this examination of public discourse on China's digital television environment (entire networks of interactions and processes), it is possible to gain a deeper and richer understanding of how technologies become socially meaningful to societies. According to Graham (1999), within such networks and processes, the domain of language is where social perceptions of values and power are created and mediated. For Postman (1985: 10), such language constructions, shaped by media-metaphors, assist to work unobtrusively and powerfully to enforce special definitions of reality by which they 'classify the world for us, sequence it, frame it, enlarge it, reduce it, color it, argue a case for what the world is like'.

My chosen socio-linguistic method draws from disciplinary roots in social anthropology (Bourdieu, 1991, 1993; Halliday, 1994; Webb et al., 2002) and refined by Lemke (1995, 1998) and Graham (1999). Lemke (1998) most succinctly describes the interdependent components of this method as an examination of the presentational, orientational, and organizational aspects of language.

### *Presentational*

Presentational aspects of language relate to the ways that it is used within a particular community to construe their 'explicit descriptions as participants, processes, relations and circumstances standing in particular semantic relations to one another' (Lemke, 1995: 41). Graham (1999: 490) suggests that presentational refers to the 'actual words that a community typically uses to describe aspects of its world and the semantic rela-

tions between them'. For example, the words 'viewers', 'broadcaster' and 'digital television' can be semantically related in many ways. Graham (1999) argues that how language is arranged will, to varying degrees, reveal the discursive traditions of the speaker's discourse community. For example:

与传统模拟电视相比，它完全摒弃现有的模拟制式，是继黑白电视和彩色电视之后的第三代电视系统。(China Youth Daily)

[Compared to traditional analogue televisions, the digital television totally abandons present analogue formats, and is the third generation television system after black-and-white and color televisions.]

Contrast this with the following:

彩电价格战还未落幕，中国国际数字技术博览会上，TCL、创维、康佳等企业展出的数字彩电再次让北京电视成为人们谈论的话题。(Beijing Youth Daily)

[Even though the price war of color television has not ended, the digital color televisions exhibited by companies such as TCL, Chuangwei and Kangjia at China's International Digital Technical Exhibition have once again caused Beijing's television to become a hot topic among fellow citizens.]

Each of the sentences belongs to the genre of technology statements on China's digital television development and shares the same lexis, with both making implicit and explicit assumptions about participants (technology, people and system), processes (the verb that links these), relations (intertextual voices in the text), and the situation in which action takes place (context). Graham (1999) argues that such assumptions become more apparent when the orientational aspects of language are considered.

### ***Orientalional***

Orientalional aspects of language refer to how it is used to orient itself attitudinally to others within the discourse community, and to the presentation content of its own language (see Graham, 1999; Lemke, 1995). The orientational aspects of the sentences presented above highlight the different evaluative dimensions of each text. In the *China Youth Daily* sentence, digital television is positioned as inevitable in terms of digital television trajectory. It orients the reader to see technology as autonomous or independent from society, thus an immutable force that affects economics, policy, culture and persons (creating winners or losers, or information rich or information poor). The second text orients the reader to see digital television as subordinate to economics, implying that rational, conscious decisions can influence outcomes in society. Accordingly, the orientation dimensions of the language used to describe digital television shapes attitudes and evaluations of the technology.

### ***Organizational***

Organizational aspects of language refer to how a community constructs 'relations between elements of the discourse itself' (Lemke, 1995: 41). As Graham (1999) sug-

gests, the organizational elements create thematic cohesion across long stretches of text, often reinforcing elements of a discourse community's thematic formation about a given aspect of their discursive universe. For example, the following sentence reinforces the second sentence listed above.

数字电视给我们生活带来的变化也许在未来才会变得更明显。整个国民经济都将从中受益。这对我国的发展非常重要！

[The power of digital television to change our lives may become more pronounced in the future but such change is for the benefit of our economy and our nation. This is an important development for our country.]

The stated purpose of the *China Youth Daily* text is to explain the effects of digital technology revolution and its relationship to China's process of modernization. Such relationships are constructed around a series of human or non-human participants that interact with each other through a series of propositions: agent or agentless propositions (those in which humans do or do not act) that use identifiers or defining relational processes (verbs), that often allow the token (that which stands for what is to be defined by the relational verb) to position the value (that which defines the token) (Graham, 1999). For example, in the following proposition, the token and value can shift to either side of the relational process without raising much concern for the reader: (1) technology development < Token > supports < Process > economic development < Value >. When the token and the value are reversed around the process, the statement continues to make sense to the reader: (2) economic development < Token > supports < Process > technological development < Value >.

Despite the interchangeability, mainly because of the collapsing of items into a single rationality, the two token/value positions provide contested ideologies and discursive traditions within China's neo-authoritarian structure that defines the transition to a socialist market economy: (1) indicates authoritarian assumptions about the primacy of control and (2) indicates the capitalist (read market) assumptions about the primacy of commodification. It is important to note that interchangeability extends to statements relating technology to political, cultural, social or organizational aspects with similar results in relation to contested ideologies and discursive traditions. Accordingly, in the Chinese media language on digital television, thematic formations provide organizational coherence for that text within the context of China's strategy of controlled commodification and transformation to a socialist market economy.

### *Data collection approach*

Analyzing the presentational, orientational and organizational aspects of language requires knowledge of a community's discourse traditions. This means proceeding on the assumption that within a given discourse community or social system, intertextually constituted 'thematic patterns ... recur from text to text in slightly different wordings, but are recognizably the same, and can be mapped onto a generic semantic pattern that is the same for all' texts about a particular theme (Lemke, 1995: 42).

Such intertextual patterning provides the foundation for the data collection and analysis. The data collection method commences with the systematic distilling of language

themes of description, propositions and proposals. A total of 18 language themes was identified from an extensive literature review on the five categories of factors – political (see Russell and Williams, 2002; Weber and Sabine, 1999; Winner, 1980, 1993), economic (see Mackay and Gillespie, 1992; MacKenzie and Wajcman, 1985), social (see Bijker, 1995; Fulk, 1993; Pinch and Bijker, 1984), cultural (see Rammert, 1997, 2001), and technology (see Chandler, 1995; Robins and Webster, 1989) – that pattern the design and implementation of an innovation (see Williams and Edge, 1996). These language themes and factor categories (and descriptions) were then arranged into taxonomy to assist the coding process (see Table 1).

### *Sample and coding procedure*

Articles were drawn from 11 of the highest distributed newspapers in the six main Chinese digital broadcasting markets – Beijing, Shanghai, Chengdu, Shenzhen, Tianjin and Guangzhou. The choice of publications related specifically to urban areas in which the Chinese government had targeted the initial diffusion strategy of digital television (see Table 2). A search of online newspaper archives from 1 January 1999 to 31 December 2004 using the keyword ‘digital television’ located 604 reports (see Figure 1).

Two Chinese-speaking graduate students were trained extensively by the author on the 18 language themes. As part of the training procedure, a random sample of 60 articles (or approximately 10% of the total number of articles) was drawn from the larger sample and coded until the coders reached a satisfactory level of knowledge and agreement. These pre-test articles were then removed from the sample, leaving a total of 544 articles for coding (see Table 2).

Each sentence in the article was coded for the presence of the 18 language themes and valence. When a disagreement between the two primary coders existed the author acted as a third coder to break the tie. The level of agreement between coders was calculated using Scott’s *pi* formula for each theme. Coding decisions of each coder on all themes were used to derive the intercoder reliability score. Agreement on the themes by the primary coders ranged from .79 to .90. The average score attained was .85. Reinard (2001: 203) indicates that ‘a measure with *really* good consistency should have reliability of .9 or higher [while] a good measure may have reliability in the .80 to .89 range.... As a matter of publication policy, the American Psychological Association (APA) has decided that tests with coefficients below .6 should not be analyzed in studies.’

### *Data organization*

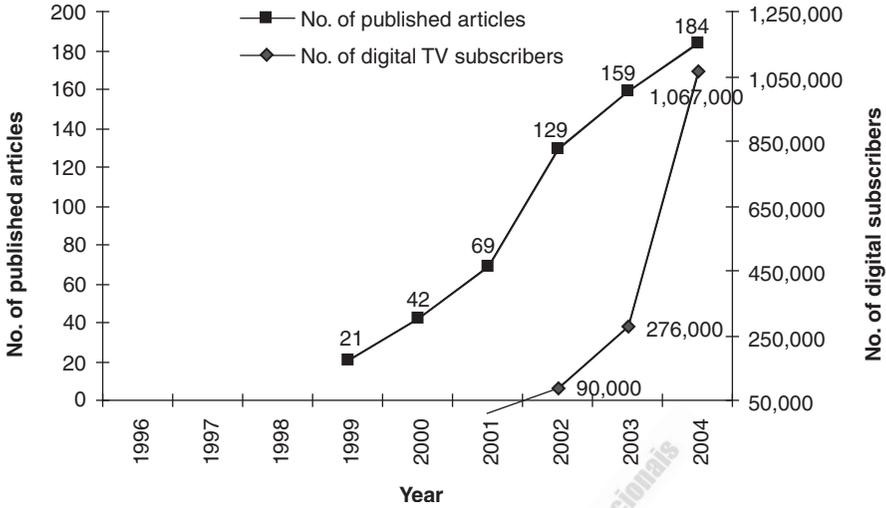
Distilling these recurring themes into thematic patterns makes it possible to assess presentational, orientational and organizational coherence between systematically and individually produced propositions within the Chinese media about digital television. These thematic patterns are presented as a percentage of articles exhibiting specific language themes. Accordingly, this approach provides a platform to investigate how neo-authoritarian technocratic discourse characterizes the current government–media–society relationship in the Chinese context.

**Table 1.** Taxonomy of factor categories, language themes and descriptions

Factor	Theme	Description
Social: Public and private construction of uses, rules, meanings and styles of technology in practice	Citizen	Group of people who are advantaged or disadvantaged by technology
	Consumers	Individuals or groups who purchase new technologies
	User/Viewer	Individuals who appropriate technology in active and creative ways
Economics: Logic of capital shaping production, distribution and consumption of technology	Momentum	Increasing financial returns to technology adoption
	Reasoning	Economic rationales for technology adoption (e.g. revenue and employment)
	Reverse Salients	Technology inefficiencies (e.g. drag, emergent friction, or limits to potential)
Political: Fostering of technology development by groups to preserve or alter social relations of power and authority	Policy	Frameworks for invention, design and arrangements of technologies
	Regulation	Roles and relationships of politics in creating technology networks
	Lobbying	Individuals or groups protecting interests of organizations and people
	Legal	Actions taken to protect interests of individuals or groups
Cultural: Processes of symbolic interpretation, material inscription and social institutionalization	Visions of Functions/Use	Provides first orientation to use and purpose of a technical device
	Concepts and Styles of Engineering	Technologies grow out of organizational cultures, and inscribed in technical design
	Traditions and Regimes	Reflects attitudes, relations between actors to stabilize how technologies are institutionalized
Technology: Development presented as occurring according to an inner, determined technical logic and becoming an asset to aligned interest groups	Techno-causality	Technology is mentioned as the dominant cause of a phenomenon
	Techno-autonomy	Technology is out of human control, changing under its own momentum
	Techno-effects	Technical developments lead to unforeseen side-effects
	Techno-imperative	Technology developments are inevitable, irresistible and unavoidable
	Techno-evolutionism	Sequential, determined course of technical action; described in blanket label terms; evolving in predictable ways

## Analysis of language themes

Understanding how such technocratic discourse operates requires knowledge of how linguistic condensations work and interact with one another. Linguistic condensation, or nominalization, can and does attempt to collapse a multitude of language themes – along



**Figure 1.** Number of digital television articles (1999–2004) and digital television subscribers (202–04)<sup>1</sup>

**Table 2.** Sample of digital television articles (1999–2004)

Publication	Location	Distribution	Number	Percent
Yang Cheng Evening News	Guangzhou	City	22	4.04
Xinmin Evening News	Shanghai	City	53	9.74
Shenzhen Press	Shenzhen	City	123	22.61
Chendu Business News	Chengdu	City	32	5.88
Tianjin Daily News	Tianjin	City	58	10.66
China Youth Daily	Beijing	National	73	13.42
Beijing Daily & Beijing Evening News	Beijing	City	27	4.97
Liberation Daily	Beijing	National	43	7.90
Beijing Youth Daily	Beijing	City	56	10.30
PLA Daily	Beijing	National	21	3.86
People's Daily	Beijing	National	36	6.62
Total			544	100.0

with their participants, processes and circumstances – under a single rationality or nominal factor like economics or politics. Once created, these nominals can be cast by the media in ways similar to Postman’s (1985) notion of media metaphors, which allow the language to work unobtrusively and powerfully to provide explanations for complex situations. By drawing out the language themes that constitute these nominalizations within media reports, we can gain a more nuanced and deeper understanding of how language configurations attempt to gain persuasive traction within public discourse on technological development (see Figure 2).

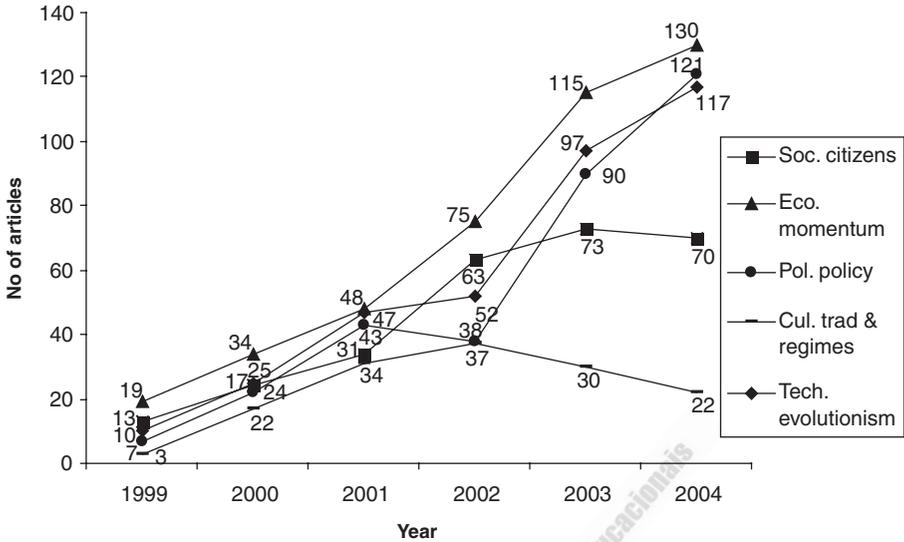


Figure 2. Dominant language themes from each factor (1999–2004)

*Digital television as a symbol of economic prosperity and political control*

From the findings above we can see that media language was patterned predominantly around economic, technological and political themes. More than three-quarters of the articles (78.25%) over the six-year period featured the economic momentum theme with reports focusing on such aspects as financial returns on investment (ROI) for media and electronic businesses. A second economic language theme also featured prominently with economic reasoning appearing in over a third of the articles (38.66%). These reports focused on such aspects as revenue generation and industry employment. When collapsed under the economic nominalization, these language themes not only link into the contemporary modernization process but valorize it within China’s transformation to a market economy. They present digital television as a symbol of the current success in China’s modernization processes and an inducement to foreign (including US, Korean, Japanese, Taiwanese and Hong Kong SAR) and domestic cultural industries and electronic manufacturing companies to invest in China’s digital economic development. Such propositions are linked explicitly and implicitly to the anticipated return on (digital) investments, which is conservatively estimated for digital television at US\$215 billion over the next decade (see Weber, 2005b).

While economic factors prevail throughout the pre- and post-deployment period (1999–2004) in line with the commodification dimension of media reforms and with establishing business logic within the industry, there is an increasingly strong presence of political language in the discourse over time. For example, the presence of the political policy theme increased from appearing in just over a third of the articles

(34.86%) in 2002 to more than three-quarters (76.58%) in 2004. Furthermore, two-thirds of these articles (66.36%) were either positive (55.2%) or neutral (11.16%) in their support for government policies on digital television. This patterning of themes illustrates that although the print media has commercialized, it still performs the propaganda function of supporting government initiatives, though more prominently by state-funded publications such as the *People's Daily* and the *China Youth Daily*. Typically, in a capitalist economy the market structure of buyers and sellers would set levels of supply and demand in relation to digital products and services without state intervention in the form of subsidies or regulations. However, under China's socialist market economy, as defined by the cultural logic of controlled commodification, the state actively seeks to play an important role in defining how the market responds to technological development (Weber and Lu, 2007). Evidence of this kind of intervention can be seen in the government policy of issuing US\$7 billion in subsidies in 2004 to help re-tool cable television program suppliers with digital equipment (Cheung and Miller, 2004). Functionally, the funding strategy attempts to drive adoption through establishing access to, visibility of, and ultimately experience with, digital television technology. Symbolically, though, intervention subtly reinforces the centrality of a socialist government in China's modernization processes by addressing market deficiencies when deemed necessary. At another level, such aspects reinforce the control modalities that continue to exist between government and media, even in a more autonomous environment, by directing the media, which is unable or unwilling to support new technological innovations for the benefit of the Chinese society. As the data suggest, the print media has continued to support the central government's policy initiatives, with the rise in reports across publications on political dimensions of the technology deployment, to control technological development when the market fails to realize expected outcomes.

Technological factors are also prominent in the media discourse on digital television during the surveyed period. For example, the techno-evolutionism theme emerged through the discourse in two dimensions – related inventions (64.68%) and blanket labels (27.5%). Emerging through these themes are three processes of reinforcing, defining and focusing technological development, which linguistically construct digital television as an immutable and inevitable force in China's modernization. For example, references to related inventions such as cable television and providing blanket labels such as 'digital revolution' to describe digital television developments *reinforce* and *define* the technology as another sequential step in the process of modernization. These processes attempt to subtly fold digital television into an array of familiar technologies to reduce consumer anxiety, thus promoting the technology as an inevitable and accessible extension of the current system. When combined with a third technology theme of techno-causality (28.25%), the discourse *focuses* consumers on the benefits of the new digital system over the old, antiquated analogue system, such as providing better quality picture and sound and interactivity. Together, these themes combine to reinforce the new technology's irresistibility (and inevitability) to potential consumers. In creating the perception of digital television in these ways, the discourse acts to provide a simplistic explanation of complex and often mystifying technological phenomena (see Kinsella, 1993; Weber and Evans, 2002).

Within this simplified context, language themes attempt to subtly communicate the persuasive proposition of technological determinism to assist the marketing of the technology. As Kinsella (1993) and Weber and Evans's (2002) comparative study on digital television in the United Kingdom attests, the media's role in shaping technology ideologically as an immutable force through such simplistic language structures becomes an asset to those groups with a vested interest in the adoption of digital television, whether that is government (control) or business (competitive advantage and profit-making). For example, unlike its antiquated relative analogue television, which was used openly by the Chinese government as a control mechanism for disseminating propaganda, a successfully integrated, interactive digital system offers the government newer and subtler ways to encode the technology ideologically (functionally and symbolically) for control purposes within China's cultural logic of controlled commodification. For example, deployment of digital television acts functionally within China's grander narrative of commodification by supporting the development of its digital economy through coordinating, enhancing and stimulating consumer demand for innovative products and services. Symbolically, deployment of this technology reinforces control modalities in relation to the state's political relevancy in a Chinese society that is increasingly more financially independent from government control. Accordingly, these positions undergird the key proposition that the government provides cultural leadership through controlled commodification as the primary enabler of China's modernization successes such as economic growth, improved living standards, and improved international reputation.

### *Failing to account for social forces and organizational structure*

One of the most significant aspects emerging from the analysis of presentational aspects of language is *not* so much how the media supports neo-authoritarian technocratic discourse but how it fails to orient itself attitudinally to key stakeholders such as consumers, users or citizenry, which constitute social factors in technological change. The most dominant social theme in the discourse was citizens, though these mentions decline over time from a peak of 57.79 percent in 2002 to 42.68 percent in 2004. Such themes allude to the role of Chinese people in technological advancement, but mostly in nationalistic sentiment and tones. Most often these references emerged as adjectival phrases relating to the grander narratives on national development (*guojia jianshe*) and economic development (*guojia fazhan*). These narratives focus on achieving a harmonious balance between political control (information management) and commodification (economic growth).

More problematic, though, for the successful adoption of digital television is how the Chinese print media has ignored other key social factors such as consumer and user (or viewer) in the processes of technological development. This situation emerges in spite of the business logic that drives the commercialization of the industry. Within the patterning of linguistic themes, references to consumers showed a gradual decline from its peak in 2003 of 18.1 percent (see Figure 2). More importantly, though, potential users of the technology received little attention in the discourse – appearing in just 6.12 percent of articles over the sampled period. Contrasting this situation is the British digital television experience, which saw these linguistic themes continue to rise after the launch as political and technological themes declined rapidly (see Weber and Evans, 2002). Functionally,

the lack of reference in public discourse to these social factors impacts negatively on the ability of the print media to connect consumers and users' desires to the advantages or benefits of digital television (i.e. improved picture and sound quality and increased interactivity), thus impacting on demand for the new technology. This situation occurs because the media discourse has not adequately aligned, or as Bijker (1995) argues, to stabilize the technology with historical and contemporary values relevant to Chinese consumers and their role in the diffusion-adoption process. In fact, this attitudinal stance to the technology by the print media is paradoxical to the ideals set down in China's grander narrative for creating a socialist society and ironically counter-productive to the business logic advocated by the majority of media outlets in China today. Within this narrative, the media is charged with promoting a climate of civilized (supporting the nation) and productive (supporting the economy) citizens all working together and towards securing the welfare of the country by contributing productively to the modernization efforts (Weber and Lu, 2007).

Further evidence of this discord between agency and structure is found in the presence of traditions and regimes theme within the discourse, which fell significantly from 34 percent in 2002 to just 13 percent in 2004. Rammert (1997) argues that traditions and regimes reflect the attitudes and relations between actors (consumers, media and government), while Bijker (1995) posits that such aspects assist in stabilizing how technologies are institutionalized across a society. As Weber (2005b) suggests, the Chinese print media are the weak link in this relationship because they are ill-equipped to understand the broader benefits derived from developing the kind of attitudes and relations between print and broadcasting media that would help stabilize and institutionalize this new technology. Support for this assessment is derived from Hui's (2005) observation that media managers lack the experience and knowledge in market-oriented structures to conduct such cross-promotional strategies. At a more fundamental level, there was little incentive to undertake these measures in relation the government's \$US7 billion financial support package for the adoption of digital television, which was only offered to cable television companies and not to trans-media groups. As Weber (2005b) argues, the current trans-media structure, which is vertically integrated by media type, offers little or no economic motivation for print media management to cross-promote digital television, which is essentially a competitor within the new commercially-driven environment. Accordingly, the meaning of digital television remains ill-defined, and thus a poorly stabilized technology that is inaccessible to an unmotivated consumer/user base. Evidence of this is found within the slow adoption figures by consumers, which had only reached just a little more than one million by 2005 (see Weber, 2005a).

Broader implications of this discord between agency and structure can also be found in the government's inability to effectively manage the control modalities of its broader media reform, development, and management strategy. Countering the supportive language themes (found in economic, political and technological nominalizations) that would have aligned the control and commodification components more cohesively is the emergence in media reports of a strong critical element within the technocratic discourse – ironically a result of a more autonomous media environment. For instance, the presence of the reverse salient theme, focusing on the negative dimensions of digital television, including system inefficiencies and limits to potential to provide promised

social and economic benefits, dramatically increased during the surveyed period. From a mere 10 percent of articles in 2002, the number of reports featuring this theme increased to 35.25 percent in 2003 and almost two-thirds (58.86%) in 2004. Emergence of the reverse salient theme has both negative and positive implications for the integration of digital television. On the one hand, the increased negative focus further inhibits establishing an authoritative definition of this technology for Chinese consumers, users and citizenry, thus impacting on the acceptance and adoption of the technology. On the other hand, the rise of a critical media has the potential to contribute positively to directing future technological developments in the media industry, as a more autonomous media establishes a critical voice in the process.

## Conclusions, implications and further research

Findings from this research indicate important implications for current and future deployment of next generation interactive, digital technologies into media systems. As the pre-eminent technology in China's progress towards modernization, the limited success of digital television deployment up until 2005 posed considerable problems for the Chinese government, especially in relation to its reform, development and management of a newly commercialized media system.

The study found that the current failure of digital television to deploy illustrates weaknesses in the overarching cultural logic of controlled commodification, which is used as a guiding directive to balance political and social objectives with economic development at critical points of the implementation process. On the one hand, the print media fulfilled its obligations under the control dimensions of this logic with economic, political and technology language themes and nominalizations creating an environment in which simplified explanations of complex digital television developments were presented in ways that supported the deployment of this new technology into changing media and social systems. However, structural changes implemented by the government to introduce trans-media operations, based on vertical integrated media types, into this developing system failed to provide the kind of economic imperatives required to assist the diffusion of digital television during critical post-launch phases. As Weber and Evans's (2002) British research indicates, an economic imperative in the form of cross-media ownership or alignment and promotion needs to exist for print media to focus on economic, social and cultural themes and nominalizations as a way to build adoption momentum initially established by economic, political and technology discourse in the pre-launch phase.

Contributing to Chinese media's inability to focus on relevant factors that would promote digital television at critical times was the discord between structure and agency and lack of commercial experience and subsequent motivation to promote the new technology. First, we can see that although the media follows a business logic protocol it can and does prioritize control over commodification when the state deems necessary to address market deficiencies. This situation was evidenced by the increase in political policy language as the market economy structure failed to drive digital television adoption. Second, government financial support to boost adoption of digital television was too narrowly distributed. For example, the \$US7 billion government rescue package was only issued to cable

companies and not the larger, trans-media television groups. Third, the momentum for digital television diffusion was weakened by the government's decision to allow no cross-media ownership or alignment of operations within the trans-media structure. As a result, print media, where consumers and users learn about new technologies, was unmotivated to support the government initiative because there was no economic return on such an investment. In fact, in the new commercial, highly competitive media marketplace, print media have become a direct competitor to television companies, whether trans-media entities or the flotilla of other independent broadcasters. Resulting from this discord was the media's limited ability to use semiotic or persuasive power to define this new technology in terms of consumer and user purchasing–adoption behaviors. Accordingly, the print media failed to position digital television in ways that establish relative advantage (convenience and satisfaction) and compatibility (access and cost), while reducing the initial anxiety and uncertainty (complexity) for consumers and users. Consequently, the print media did not adequately stabilize the meaning of digital television for key stakeholders (particularly consumers, users and citizenry), nor did it authoritatively construct the technology's symbolic and functional roles in economic progress and modernization of China.

Given the stated importance of social (consumers and users) and cultural (traditions and regimes) factors in reconciling structure and agency in technological deployment, it is critical that further research focuses on understanding why consumers and users have not adopted digital television. Such a focus would reveal how consumers interpret the discourse relating to digital television, which can then be interpreted in relation to poor adoption levels – two aspects beyond the scope of this socio-linguistic study. In doing so, the research would open up a more critical and nuanced understanding of how media discourses represent, control, privilege and organize language in ways that shape knowledge and perceptions of new media technology diffusion and adoption in diverse settings. However, it is important to note that the methodological approach adopted for this study needs to be tested in further studies on related technological fields. It is always difficult to relate measurement methods to language studies, whereby interpretation and context can change the meaning of the texts under examination. Accordingly, further studies of media-related technologies and media's reporting on new technological developments need to be undertaken to adequately test the validity of this methodological approach.

## Note

- 1 Number of articles totaled 604 before 10 percent of reports (60) used in pre-testing were removed from the sample.

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