The Internet as Public Space:
Concepts, Issues, and Implications in Public Policy

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The Internet has long been identified as an information agora (Branscomb, 1994). The role of Internet as a public space for every citizen (as opposed to purely for professionals, for example) is being shaped by two seemingly contradictory characteristics: Internet is both ubiquitous and personal. Cyberspace, unlike the traditional media types (broadcast, common carrier, publishing, distribution) and traditional public spaces in the physical world (Boston Common, the Logan Airport, city library, train station, etc.) enables the citizenry to find new ways to interact economically, politically, and socially. This universal connectivity of the Internet is its potential for everyone and in everywhere. Yet the very nature of its ubiquity may also impinge on a variety of individual or organizational rights, thus hindering its overall usefulness.

Our goal is twofold. First to help clarify concepts - old and emerging, and to bring up important issues involved. Second, to consider how regulating the Internet as public space sheds light on public policies of the future regarding Internet governance. In particular, three issues must be considered when regulating electronic spaces: simultaneity, permeability and exclusivity. Simultaneity refers to the ability of a person to be two places at once: at work and at a train station. Permeability is the ability of barriers between spatial, organizational or traditional barriers to be made less powerful or effective with the adoption of information technology. The permeability of the work/home barrier is most clearly illustrated with telecommuting. Exclusivity is the nature of one space, perception, or activity to prevent others. Intranets may offer exclusive access through a variety of access control mechanisms. In the physical sphere, the walled private cities offer an excellent example of exclusivity.

In order to accomplish our goal we begin by describing what the Internet is not: a new entrant into the media types paradigm. The media types approach fails with respect to the Internet. The failures of the media regulatory metaphor have lead to a spatial metaphor, which better addresses the subtly and complexity of virtual reality. However, the differences which prevent the spatial model from being mapped directly onto the Internet are issues of simultaneity and the permeability of boundaries on the Internet.

We address the fundamental policy issues that result from treating the Internet as public space. We delineate the types of public spaces that may be found on the Internet: libraries, clinics or hospitals, universities, marketplaces, international marketplaces or cultural exchange centers, schools, and as a forum for political speeches or debate ("the digital stump"). For each public place a subset of the previously discussed policy issues applies in a unique way.

We finally close with the implications with respect to public policy which are crucial to the continuing development of the Internet as a valuable viable public space. We argue in conclusion that the public space metaphor is flexible enough to encompass the equally vast Internet, yet sufficiently defined to offer guidance to public policy issues, while recognizing that the use of such a metaphor, and therefor policies based on the metaphor, is not without difficulties.

The Internet: More than Multi-media

There has been much recent debate about what the Internet really is - its role is in society - as it rapidly moves from a pure academic interest into the public domain. Of particular interest when it comes to characterize the cyberspace is the way we look at the public services that are being created with the Internet. Naturally, since the Internet is part of the national and global telecommunications infrastructure, many tend to classify the Internet's services into the traditional media types. One of the earlier voices in this debate (Camp and Riley, 1996) argues, however, that this classification hardly works well. In fact, previous work illustrates, using events at several universities, the attempts to fit media types to Internet services have led to incentives which neither create protected spaces nor encourage open dialogue. A different model, based on treating virtual spaces as their physical counterparts, would better serve both the organizations and the individuals. (Camp and Riley, 1996) We extend this work by focusing upon the Internet's public spaces, and the threats and promises of mapping physical spatial models onto virtual space.

Conceptually media types have an advantage in drawing an analogy - the classification is based on technological determinism. There are four traditional media types: publisher, distributor, broadcast, and common carrier. It is easy to distinguish between these media types in daily life off the Internet. Once on the Internet, any individual may be all four and more: a customer, a merchant, a pamphleteer, a broadcaster, a publisher, and a distributor. The media type rubric fails, however, because it requires that the Internet be exclusive, technologically determinant and that it fit into one of a small set of prescribed categories. Physical spaces, though also exclusive, are not technologically determinant and are not limited to a tiny set of prescribed categories.

To begin consideration, contrast the four media types and the Internet. Broadcasters use the commonly owned spectrum to transmit content. They do not own the spectrum but instead have a limited right to the spectrum based on a license. They initiate all that is sent over the airwaves licensed to them. The information they broadcast is centrally originated, one to many, and therefore subject to tight control -- and stringent liability.

Common carriers are post and phone companies. A common carrier is required to transmit all information without discrimination based on content. Common carriers are expected to initiate only a trivial amount of that which they transmit (e.g., how many phone calls originate with AT&T?) and are therefore not liable for the contents of their wires.

Publishers create printed, audio, video, software, or multimedia material and transmit it to buyers through distributors. Publishers are liable for content, distributors less so. Broadcast is available over the air to all, and distribution of primary distribution of physical printed matter is easier to control. (Note that secondary distribution is an issue with publication as well.)

The Internet, on the other hand, can be all of the media types or more and sometimes none of the above in the exclusive sense. It is inherently a mechanism for distribution -- it connects networks through internetworking protocols and provides reliable distribution with the transmission control protocol and the user datagram protocol. These technical terms are meaningful in that they describe the basic function of the Internet -- to provide transmission and to distribute user-generated data. In that way the Internet is a common carrier. Yet no one entity owns the Internet, and all who connect can create content. If the material distributed on the Internet was low volume the media characterization of distributor might work in the legal sense. The days of a low volume Internet are long past, however.

On the Internet, everyone can be a publisher. At the same time, the method of publication can make the person a broadcaster as well. A Web page is a one such publication. Similarly, the CU-CMe connection through the Web page is multicasting.

Because the information on the Internet is digital, Internet services are not truly common carriage. Digital information is subject to analysis with far greater ease than analog information. Firewalls are proof that the Internet is not a common carrier; yet both the

volume which a modern firewall must handle and the imperfections of firewalls illustrate that the concept of distributorship is flawed.

There are evolutionary changes in conventional media types that preceded the Internet as a new entity. Cellular telephony and cable television began the breakdown between the media types with common carriage over the airwaves and broadcast over the wire. This was a sufficiently small change that the telephony/broadcast models could continue with limited legal adjustment. Yet on the Internet this separation of media types completely fails.

As an alternative model, physical spaces are not technologically deterministic. It seems trivial to say that in architecture function does not follow form, yet it is an important distinction between the media types model and the spatial model. The Internet is more like physical spaces in that the same generic technology defines things, which are very different -- different spaces, locales, media or forums. It may seem also trivial to note that physical spaces are separated by meaningful distance. They are exclusive - you can't be two places at once. Physical space is also synchronous. Thus there is work in going from one space to another and time passes linearly during transit. There are places that change nature over time. A public venue may have very different norms during a Bare Naked Ladies and a graduation ceremony. There is again an intrinsic separation -- the passage of time. Similarly the media types have appeared distinct to users. Users did not confuse buying a cellular phone with becoming Radio Free Arlington, and similarly a person knows that there is a change in place because of the usual need for travel. Unlike media types, physical spaces have the subtleties and shades of gray that exist on the Internet. Distinctions can be made in physical space under the rubric of time, space, and manner.

The properties of exclusion and determinism make the classification of the Internet as *a medium* tempting but incorrect. The Internet is neither exclusively one medium nor technologically determined. The concept of the Internet as a space mitigates but does not remove these characteristics. A new conception of the private, the public, and the personal must be a part of this new rule set. The Internet is also unique with respect to public spaces in that it was created in the workplace. The public space, the private sector space, and the personal spaces merge seamlessly. The next sections focus on these issues.

Digital Characteristics of a Public Space

Strolling in a park, hustling through a train station, or spending a quiet afternoon in a city library, each of these activities has a unique way of giving us a physical space in the public domain. We claim a place in it and enjoy the rights associated with that space. In return, we are to adhere to the rules and responsibilities commonly declared in that space. Surfing the Internet as a public domain is a relatively new phenomenon, but clearly also needs a similar set of civic rules, intuitive or formal, governing its wide-ranging, information-based activities. Several concepts about the Internet as a public space come to mind when we look at its digital characteristics.

Each of these spaces has implicit, physical definitions of permeability or exclusivity. When applying the spatial models the core which must be reconsidered is the relationship of one space to others. Physical spaces, and some electronic spaces, offer exclusivity. There is some parallel on the Internet , with the obvious being the battler over domain names -- there can only be one "sun.com" on the Internet. The elements of electronic spaces which are exclusive may have public good parameters, as described in (Nissembaum, 1999). In contrast, as further explained in (Shapiro, 1998) spaces are becoming more permeable. Home and work interact, and there are flows between them. Finally at the far end the experience of electronic spaces can be simultaneous -- both on the company Intranet and in the public space. How spaces should be regulated should consider the case that every space exists across this continuum, with the elements of exclusivity, permeability, and simultaneity in different dimensions and situations. This is unlike physical spaces in that physical spaces all lie on the extreme end of the exclusive space. Thus the spatial metaphor is promising but

the assumptions of exclusivity can be neither completely rejected, nor embraced as the only possible condition.

Public and Private. Unlike a physical space in most instances, the Internet that connects people, machines and information resources is at once public and private. This is perhaps one of the most salient characteristics of the Internet - everyone works and lives in the same space, shares the same resources with the rest of the community and yet each can carve out a part of the space and claim it to be his/her own. From the net we draw in shared resources and tailor them to personal use. Conversely, we put proprietary information (personal or business web sites, for example) on the net for public use.

Global vs. Local. An Internet space is by definition globally interconnected, but *localness* provides richness and extends its usefulness. Theoretically, it is just as easy to access the web site of a museum in Paris as one in Boston or the Smithsonian in Washington, DC. Beyond content, however, the Internet also invades the world politics, complicating the balance of power structure among nation states and globalization.

Trans-lingual and Cross-culture. While English is still the universal language of the digital age, the Internet is like the New York City, cuddled in ethnic bits. Surfing the net is like walking in the streets of New York. Unless you shut your eyes or ears, hardly anything you see or hear that is interesting or relevant is rendered only in English.

Connections to the non-public. An Internet space, even in the public domain, may be connected, either inadvertently or by design, to spaces that are of a proprietary nature, e.g., workspace, marketplace. For example, a proprietary space, a proprietary commercial web site for a company (e.g., FedEx), can enhance its business efficiency by making it functionally public (every customer using its web site to check the status of package delivery effectively becomes an unpaid clerk for FedEx).

Control and/vs. Freedom. This is an external issue of governance. Yet the other characteristics of the Internet space described above makes it even harder to reach public consensus in this wired time. The public wants both unlimited access of information and secure, protected electronic environment. The latest evidence of content control and related issues is best illustrated in the Digital Millennium Copyright Act, passed by the 105th Congress. This alters the balance between what is public, what is property and thus what is controlled. For the fundamental right of the property owner is to exclude others from its use, whether the property is intellectual or physical.

Uses of Internet as Public Space: Opportunities and Barriers

As a public domain, the Internet challenges the average citizen's imagination for its function and power far beyond computing and communications. A variety of public uses of the Internet, which draw on one or more of the digital characteristics described above, are already upon us or emerging. Each of them brings to the fore a set of new opportunities, barriers and policy issues.

Digital Libraries

Broadly speaking, a digital library deals with ubiquitous public access to digital collections and knowledge. It is open 24 hours a day and is accessible where the network is. Not a library by the traditional definition, the World Wide Web is the most visible instance of a digital library. New ones are coming on-line everyday. At the dawn of the next century, every school and home should own a piece of the Library of Congress from where ever they might be. This grand vision aside, however, there are serious issues concerning the public access of all digital materials. Nearly every public library is grappling with the problem of how to provide web access and protect the young readers from improper digital content at the same time.

The Internet as digital library brings to the fore connections to the private, ownership of information, and control.

Content control is the single issue currently debated in terms of public interest and value. In both the 105th and 106th Congress Senator McCain proposed bills which would

require filtering for any library which receives federal funds. The "Children's Internet Protection Act", with the title of section 2 of the bill is more informative, "No universal service for schools or libraries that fail to implement a filtering or blocking technology for computers with Internet access."

There has been similar activity in the states, although one mandatory filtering requirement was found to violate the Constitution. In the courts a federal judge rejected the mandatory filtering policy of the Loudon County, VA library system on the basis that mandatory filtering "impermissibly discriminates against protected speech on the basis of content and constitutes an unconstitutional prior restraint."

The issue of ownership of information is not one which has been discussed with the public interest in mind. The focus on ownership of information has intersected with the concept of digital libraries in the concern for the continuation of fair use into the digital age. Bills which would extend or apply (according to opponents and advocates, respectively) copyright into the digital age included the enabling legislation for the WIPO treaty, the Digital Millennium Bill, and bills to protect compilations of fact, usually called database bills. The American library and scientific communities were strongly opposed to the WIPO legislation, all database bills thus far presented and certain components of the Digital Millennium proposal. The changes to allow reverse engineering and cryptographic analysis for engineering, research and scientific purposes advocated by scientific societies were made in the Digital Millennium Bill, and it is now the Digital Millennium Act. WIPO enabling legislation and database bills have been defeated. Thus the physical libraries have successfully argued for continuation of fair use on the Internet, although there has been resistance to the idea among the owners of intellectual property.

Connections between the public and the private are brought forward with respect to privacy on the Internet. Forty-one[1] states and the District of Columbia have specific statutes on the confidentiality of library circulation records. Library circulation records are records of reading patterns. Internet use patterns are also records of reading patterns. However, corporate library equivalents, such as Lexis/Nexis, are also on the Web. These and similar collections of information have been treated as databases and not as libraries. Yet a single uniform, technologically agnostic law must treat all these collections of information as equal.

Universities

The Internet is changing the landscape of education: Western Governors Virtual University makes 500 courses accessible to Internet users, community colleges and aspires to serve beyond the local communities (Healy, 1998). Harvard's Extension School is expanding its distance education program via the Internet, with course offerings to anyone with Web access. On the other hand, many educators argue that over-reliance on technologies, such as the Internet, threatens the essence of teaching (Banks, 1998). Very few, however, doubt the positive aspects of the Internet as a public tool for self-learning and instant access to material at minimal cost .

The primary issues of the Internet as a University are issues of access and certification. At the University level issues of content control versus freedom of access are not crucial. Universities are by definition the learning spaces of adults, who are capable of evaluating content and taking their own risk.

At the University level cross-cultural issue come to the fore. Should text-based translators fulfill their technical potential, information availability for those who do not speak English will not be an issue. Until and unless that happens making content available in multiple languages is of critical importance. Making the Internet "interoperate" across cross cultural dwarfs the considerable technical cross-platform problem.

Global/local issues are also considerable. Universities are developed for use primarily by the citizenry, and are national and regional assets. Some universities have responded by

closing much of the content from all outside the domain. An extreme example of this is Harvard's Business School, which has developed an intranet where students may only view those classes for which they are registered. Other universities make all course content (within the limits of copyright law) universally available. As universities begin to struggle with the abstract questions of access policies the spatial model can offer guidance by changing the question from "What is our access policy?" to "What is our community?".

Of course, the Internet will simplify the proliferation of bogus universities and for-profit schools. Thus the issue of certification becomes significant. This is not an issue in the spatial comparison, as bricks and mortar are hard to falsify.

Hospitals

A grand example of the revolutionary change caused by the Internet is the new online digital Medline, by the National Library of Medicine. Other new technological advances in tele-medicine are also being made. The Internet will not cure the common cold, but the vast amount of medical data available on-line is changing the relationship between doctor and patient.

Consider this scenario. There is a historical record of discussion on alt.infertility at Deja News, which may reflect that the user posted about such things at work. Clearly making a phone call to a doctor or musing over one's medical problems at work is not actionable as an employee's loss of time. Certainly an employee seeking information in the library at lunch cannot be acted on by an employer, and the employer can not even know the subject of the employee's search. Obviously employers should always retain the right to evaluate performance. Employers have an interest in the actions of employers, which are identifiable to the employer through domain name. But what of the employees interest of privacy? When is the person a patient in the doctor's office and when are they employees at the job?

Cross cultural issues are also important here. Information can be tailored to communities with different levels of access. Consider that lack of information is a leading cause of preventable death for children in the world: that caregivers do not know how to treat fluid losses in infants and children greatly increases the risk of fatality. How can such information be transmitted appropriately to communities? All the issues in the physical space carry over to the virtual one, and ignoring these questions by trying to fit the information to the medium rather than the many spaces where it may be read will have a predictably negative result.

International Marketplaces

Internet Commerce will connect American consumers and small businesses to small vendors across the globe. Issues of business practice as well as business law will conflict. The most likely early adjudicators of business conflict are VISA, Master Card & American Express. However, the private sector may not take larger cultural issues into account when deciding on clearance and settlements. This may engender hostility, widespread friction, and, in the long term, abuse of electronic trust.

The answer to the question, "Where is this transaction?" is not necessarily "on the Internet." Or, if that is the answer, it will be increasingly meaningless. Spatial information can provide trust information, and alert consumers and merchants to possible misunderstandings as well as something as mundane as shipping costs.

Schools

Beyond the traditional ability to read and write, the skills of the digitally literate span a set of new core competencies, including the ability to evaluate critically what is found in the cyberspace (Gilster, 1997). Digital literacy is becoming as important to the next generation citizens in the 21st century as a driver's license to the 16-year olds today.

All issues coincide at the school level. The possibility of global information will expose children to ideas, thus widening their minds. Conversely children can also be exposed to prejudices that narrow their minds. As the Internet is global there is no way to remove what is hateful prejudice at one place, as it may be reasonable thought in another.

The issue of simultaneity occurs at the school. The Internet has very tight connections pt public and private spaces. There is no way to get the Internet in schools without allowing banner adds. Commercialism is school has been consider unreasonable. Teaching children to be critical to commercials is a necessary part of bringing the Internet into school. Yet the classroom has traditionally been a place of trust, yet critical almost cynical thought is appropriate in the marketplace. Understanding that this collision of spaces and norms is occurring is possible with the spatial approach but not if the Internet is merely the telephone on steroids.

The Digital Stump

Like digital literacy, Web democracy means more than just reading a political document off the Internet (Norris, 1999). Educating the public (and leaders) to digest unfiltered on-line information and engage in political deliberations unrestrained by media control poses a critical test of the Internet as a tool of citizenship in a modern democratic society. (The recent by Congress of the Independent Counsel's report over the Internet and its subsequent public response seem to be the first such test of both the Internet's technical capability and its potential role in the contemporary political process.

What are the possibilities the Internet can create for democracy in the 21st century? Is the Internet providing a suitable space for the average citizen to more actively participate in public affairs? Or is it merely a conduit for hatred and intolerance? While media classifications for the Internet are failing with the advent of new communications technologies (Krattenmaker and Powe, 1998), exploring issues in civil rights in public electronic forums is critical to preserving them (Pool, 1983). Spatial concepts could make an important contribution here. The definition of public spaces and public roles are a critical step in re-defining civil liberties and other forms of freedom.

The Marketplace

Economic activities on the Internet will be a kind of universal shopping mall, farmer's market and Wall Street put together - open, free, and blending the traditional and the modern. (Camp, 2000). Transactions, large or small, will be accessible to all kinds of people for both new and old economic activities. Producers study demand from data on the Web. Smart consumers on the other hand use the Internet to access information about the goods or services before they buy. But can they trust the Internet to do business in the cyberspace? To say the transaction is in cyberspace is almost meaningless: is it a flea market (e.g. ebay), a major mail order company (e.g. L.L. Bean), a start-up (e.g. etoys.com), or an established brick and mortar store (e.g. Walden Hobbies)?

What are the barriers to economic participation? Again the spatial metaphor lends itself to the more complete discussion. For example, all auctions at Southerby's are open to the public. Yet most of the public does not attend. What are the range of cultural and economic barriers? To answer this question requires a greater understanding of economic activity than can be found in CATV and POTS penetration rates.

Implications in Public Policy

Here we discuss how the spatial model would alter perceptions of public policy problems in comparison to the media types perspective.

Governance of Internet Use

Issues in Internet governance include security, protection of data and intellectual property rights, reliability, trust, standards, and global power interdependence (Hurley, Kahin & Varian, 2000; Spar & Bussgang, 1996) Much governance on these fronts has been delayed by the perception that what is required are multiple fundamentally new and creative frameworks in which to seek answers. By using the already established framework of spaces, answers will come more easily.

In security, risk assessments determining the analysis between risk and threat will be more widely implemented. The security fallacy of security by obscurity appears properly

absurd when using the spatial model, one does not simply hide valuable assets and call them secure.

Issues of privacy expectation can be more easily delineated with a spatial mode than a media model. Those Internet spaces where medical information is provided should be defined by the type of information and transaction, not by the medium used to transport the information. The continuum possible with the spatial concept would provide greater flexibility with respect to privacy than the four discrete points on the media spectrum. What implications does the concept of Internet public spaces have to privacy? Using the Internet spaces metaphor employee have a (private) desk drawer as well as a (public) desktop. Further issues of privacy in the public sphere could (Nissenbaum, 1999) apply to public electronic spaces.

If local governments see themselves as points on the Internet, rather than as tangential to the Internet, cooperative governance may be more likely.

Understanding that the Internet is a global connected space may yield more fruitful talks, as the history of media is a history of national assets rather than shared connected space. The history of negotiations over common borders and shared resources yields richer and more varied models than the international history of media regulation.

Impact on Social Capital and Society Leadership

The Internet enables the formation of "social capital", which refers to the features of social organization, such as networks, norms and trust, that facilitates technology innovation (Fountain, 1998) due to increased coordination and interactivity for mutual benefits. On the other hand, some (Chapman, 1998) fear that as the new generation of political and civic leaders flock to the wealth created from economic growth, the society is loosing its leaderships of sensitivity to the poor and disadvantaged. Understanding past concerns of spatial segregation enables building on a learning from experiments to foster equality in physical spaces. The media rubric lends nothing to such debates.

Another equally important issue is sociological impact. Heavy Internet home users may be vulnerable to social isolation, loneliness, and depression, according to a recent study by Carnegie-Mellon University (Kraut, et al, 1998. On the other hand, other surveys suggest Web users find Internet a positive experience and they use it to build on social networks and improve on existing relationships. How do we steer the society more in the positive direction with the Internet? The spatial concepts create opening for additional research to guide the policy debate beyond the traditional bounds of media studies.

Impact on Social Well-being

Many argue that, like at the beginning of Theodore Vail's era, the traditional concept of Universal Access needs a new definition. (Brewer, 1997) The disputes over what is a "digital dial-tone" and the definition of broadband on the Internet have distracted policy makers from the core issues. Beyond cross-subsidy between the haves and the have-nots, urban vs. rural, how do we bring the estimated 40 million citizens, with various requirements for access due to disability, on line? If the Internet consists of various spaces including public spaces, there is a Constitutional imperative to ensure access, rather than a simple bargain with a turn of the century monopolist. The concept of universal access has shown it limitations as the phrase is being twisted so that it has so many meanings as to be meaningless. The spatial metaphor will allow all the possible options to be addressed without such confusion, e.g. access to markets, access to credit, access to public debate, etc.

Conclusions

If a metaphor is to be used to describe the Internet, it must be a metaphor as rich as the Internet itself. Yet no metaphor will have the same set of boundaries as the Internet or the same issues of

What regulatory construct can protect the interests of the many Americans who can access the myriad electronic public spaces only from work? What actions properly balance the need for access as citizenry with the need of employers for control? Answering these questions requires a greater understanding of the characteristics of digital space and the resulting implications. Yet answering these questions can be assisted by understanding people as moving from one space to another.

The traditional roles of the government at various levels are still applicable. However, each has a special twist as the Internet takes the center stage. Yet defining these roles in spatial terms creates a better conception of the problem. For example the media rubric suggest that it is necessary to keep pornography off the wires. Yet the spatial concept would argue for a market for content control that is competitive and non-exclusionary to ensure that all points of view can be easily protected or represented at the desktop

Heading off the negative impacts of Internet on society, requires a better understand the social-behavioral issues at the intersection of technology and humanity. Supporting the research to gain this understand requires the ability to pose the questions in the most full and rich language possible. Funding more research focused on human- or public-centered technologies requires understanding how technologies can be both public-centered and serve economic growth – just as the town square enables debate and supports commerce.

Finally in terms of governance the spatial metaphor will help to promote and coordinate work in standards, rules of governance, ethics of Internet use. Speech, such as threats, are judged off line by time, space and content. The final judgement in the Jake Baker case on the threatening implication of his words was finally based on *where* the words were posted. Thus the courts found guidance in a difficult situation which balanced free speech and freedom from harm by using an implied spatial model.

A regulatory regime that is too extreme may result in employee's limiting employers to private areas on the Internet. This may result in a decrease in the legitimate use of public space. The corporate investment in the Internet has vastly increased its value by increasing the utility through information and service availability. Similarly the public square would be of little interest if it did not also house a marketplace, and were not surrounded by storefronts as well as government buildings. Spatial models offer a subtlety and complexity that are lacking in media models.

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