# The medium is the message, or the mediating conditions for informing systems

Markus Lahtinen*a*

*a Department of Informatics, Lund University, Ole Römers väg 6, Lund, Sweden*

**Abstract**

In this paper, the works of communication theorist Marshall McLuhan will be laid out in a socio-technical tradition of thoughts. Noted for coining the term 'the global village', another well-recognized adage of McLuhan is 'the medium is the message'. Adapting the perspective of viewing information systems essentially as a language and meaning environment, the set of ideas offered by McLuhan offers a promising way to think about the relationship between media, meaning and language. Inspired by his work, I explore the media-specific qualities of two different media associated with higher education – traditional classroom and the rising online format.

**Keywords 1**

McLuhan, socio-technology, media, education, information systems

## 1. Introduction

Acknowledging the divide and interplay between the social and the technological lies at the obvious core of the socio-technical tradition, especially among scholars identifying themselves as active within the information systems area of inquiry. While this nominal and shared scholarly consensus maybe described as a benevolent constituent pillar of information systems, this apparent agreement conceals contradictory and often ambiguous underlying epistemological points of departure.

The most dominant scholarly socio-technical perspective is one focusing on alleviating, or aligning, ontological tensions between organizational structures and its members agentic acts and micro-ontologies. In a sociological parlor, it would translate into an essentially conflictual and dialectic approach to information systems. In an organizational economics tradition, the socio-technical quest is one of minimizing transaction costs [1]. Less dominant, but with a longer history, is approaching information systems as a hermeneutic and linguistic phenomenon, i.e. treating information systems as open systems exchanging information and meaning with its environment. An extension of this, is rooted in the acknowledgement of *informing systems* [3, 2], something that is reflected in the title of the paper. In a later section, I will return to explaining the title in greater detail.

I this paper, I will join an intellectual inquiry acknowledging a socio-technical perspective rooted in linguistic interpretative tradition, more specifically my addition will depart from the ideas put forward by Canadian communication theorist Marshall McLuhan. Although I have personally always viewed McLuhan as an essential socio-technologist, his intellectual efforts have been drawn upon to a limited extent in the scholarly socio-technical tradition within information systems. Often noted for conceiving the term the 'global village', his ideas have gone by somewhat unnoticed in a socio-technical tradition. The core contribution put forward in this paper is adding a limited and explorative, and hopefully inspiring, problematization on the transformative and interconnected effects of *media* upon meaning as such, and hence in systems of meaning. It might come across as a provocative stretch, but an argument

suggesting that the study of meaning cannot be meaningfully separated and understood from its mediating conditions would be resonate well with my underlying ambitions.

As means for problematization, I will use my personal experiences from working with mixed media in an educational higher education setting. Although not central to the argument as such, the backdrop of the forced shift from classroom-based teaching to online teaching prompted by the Covid-19-outbreak in early 2020 has played a motivating role to writing this paper. Finally, my experiences from 'mixed media' should be read as fairly abstract concept – and clearly separated from the notion of 'multimedia'. By 'mixed media' I refer to educational efforts – in traditional campus classrooms and online – geared towards generating engagement among the participants directly involved in the activity, often in the form a higher education course.

The paper will be organized into a short elaboration as to my own personal interest in Marshall McLuhan. Hopefully, this will serve as a short inspiration, but it will also serve as short introduction to a powerful set of ideas associated with McLuhan. In the next section, I will cultivate the description of McLuhan's ideas from his seminal work Understanding Media [4]. It will also be necessary to highlight and acknowledge some central socio-technical ideas, which will the content of following paragraph. Before concluding the paper, I will offer three experience-based problematizations shedding light on the transformative effects of media upon meaning and content.

## 2. Annie Hall

My personal intellectual interest in McLuhan dates back several decades, most strongly anchored in the Academy Award winning movie Annie Hall by Woody Allen from 1977. In a memorable sequence, a fictive Columbia University Professor and his date, happens to end up in front of Alvy Singer (played by Woody Allen) and Annie Hall (played by Diane Keaton) lining up for an afternoon viewing of an Ingmar Bergman movie in New York City. Due to relationship issues, Alvy and Annie are both in an agitated mood while lining up to enter the movie theater. The situation is further agitated by the fact that the Columbia Professor in front of him is engaged in an intense pretentious monologue elaborating on the core intents of Marshall McLuhan as well as Ingmar Bergmans' work. Alvy Singers' tense dialogue with Annie Hall mixed with the fairly loud monologue from the Columbia Professor in front of him, makes Alvy lose his temper. Alvy engages in a verbal confrontation aimed at the Columbia Professor, accusing him of completely having misunderstood the central ideas of both Bergman as well as McLuhan. The Columbia Professor – as expected – is not in short of a reply, and hurls back at Alvy that he teaches a media class at Columbia University – meaning that his insights into the matter holds a certain level of authority. That could have been the end of the scene, but Alvy Singer then walks down the movie theater reception and pulls McLuhan, making a cameo, into the scene. McLuhan, having been present behind a pillar throughout the scene, enabling him to overhear the monologue by the Columbia Professor, turns his attention to the Columbia Professor explaining he has completely misunderstood his central ideas. Alvy Singer then "breaks the fourth wall" and speaks to you and me – "If only life was always like this.".

Retelling this short scene holds more meaning than only representing my personal interest in McLuhan, it also informs us about the act of interpreting, and possibly misinterpreting, other individuals thought process and intents. In short, we will never know what someone else means unless the creator is in the room to verify or denounce an interpretation. And even that is interpretative act in itself, meaning that true meaning is highly illusive. That in itself offers interesting socio-technical ramifications.

But – and more importantly for the argument put forward in this paper – the act of breaking the fourth wall informs the audience that Woody Allen understands the medium he is operating – the movie format. By creating a situation that stretches beyond the movie plot of Annie Hall, for a short period of time reminds you and me of a situation most of us have been confronted with – one where we need the

approval of creator to support our personal interpretation of the creator's ideas. "Breaking the fourth wall" in this specific scene, could be seen as an example "break boundaries" [4].

## 3. >>Understanding media<< highlights

A seminal of piece in McLuhan's intellectualization on communication is the, earlier mentioned 1964 book Understanding Media. It represents a full-length book and is divided into two parts. The first part is rather limited but introduces some powerful set of ideas and concepts. Most heard of is probably his notion of the 'Global village', at the time a pioneering term, but something that is an obvious circumstance to anyone having access to the Internet in 2020. The statement "The medium is the message" is the name of the first chapter of the book, and from the beginning the following specification is offered:

*In a culture like ours, long accustomed to splitting and dividing all things as a means of control, it is sometimes a bit of a shock to be reminded that, in operational and practical fact, the medium is the message. This is merely to say that the personal and social consequences of any medium – that is, of any extension of ourselves – result from a new scale that is introduced into our affairs by each extension of ourselves, or by any new technology.* [4]

It is common to separate between form and content, but central to McLuhan's point is the idea that the content cannot be separated from its form. Or to put it alternatively, content always comes in package or transmission medium. While the separation makes sense on a logical-analytical level, no such separation exists in the real world. The much-appreciated filmmaker of popular movies, George Lucas famously once stated that "It's all about telling a good story", a statement that could be categorized into paying tribute to the idea of the medium is the message. For a filmmaker everything is an actor. Not only the actors, but the script, the illustrations, the storyboards, the lighting, the music, the costumes, the props etc. All of which are mediums in their own right, and it's the filmmaker's ambition to curate these mediums into a coherent vision into what we call a movie. The true content only exists in the mind of George Lucas – much like the ideas of Marshall McLuhan exists in his mind, being tucked away behind the pillar in the scene from Annie Hall while listening to the misinterpreted interpretation from the fictive Columbia Professor.

Another important distinction worth introducing, is the separation McLuhan makes between hot and cold media. In its essence, this distinction departs from the degree of interpretative closure offered by the medium. A medium offering a high degree of closure, or *cold media*, are generally media like telephone, TV and spoken word, as exemplified by McLuhan. *Hot media*, on the other hand, allows for a lower degree of participation, movies, radio and photographs are all examples mentioned by McLuhan. As a side-track, there are interesting consequences following from this insight into the domain of organizational information systems, often treating a high degree of interpretative maneuvering room as somewhat pathological, and in conflict with the idea of "one version of the truth".

From an absolute point of view, McLuhan is not always clear as to what is to be classified as being considered hot or cold media. Movies is considered a hot medium, while TV is interpreted as being a cold medium. Intuitively, both typically – but not always – possess a fairly high level of visual precision, combined with an underlying script that limits the interpretative space of the audience. However, McLuhan makes the comparison between a lecture and a seminar – both spoken:

*Any hot medium allows of less interpretation than a cool one, as lecture makes for less participation than a seminar, and a book for less than dialogue.* [4]

From the example offered in the quote above, it is possible to conclude that McLuhan takes somewhat of a relative stance on the difference between hot and cold media, meaning that both situations are spoken acts, meaning cold media – as stated earlier. But the *lecture* is still considered a hot media situation in comparison to the seminar. This might come across as somewhat problematic,

but the central argument put forward by McLuhan is the acknowledgment of allowing for analyzing media in terms of its degree of interpretative texture.

The second part of the book, is devoted to numerous elaborations on different media instances, for example spoken word, written word, clothing, prints, comics, photographs, ads, games etc. While highly engaging, I will leave those outside this paper and conclude to suggest that the study of meaning, or content, is the study of the transmitting media in which the content is embedded in, i.e. the medium is the message.

## 4. The socio-technical connection

As earlier mentioned, the interplay between technology and organization – as a social instance – has attracted substantial previous scholarly effort. Not least by drawing inputs from sociology and economics. Notable contributions acknowledge this duality of technology in organizational settings [5] and is further developed into the "socio-materality" view of technology [6]. At a higher level, this duality, or tension, could be framed as one of technological determinism and the social construction of technology [7]. A personal favorite as regards to articulating the hard-to-catch nature of technology use in organizations is conveyed in the title "Design of ICT – the material without qualities" [8] (in the Swedish version of the book), a phrase borrowed from Robert Musil's [9] monumental work 'The Man Without Qualities". While I at the one hand I reject the apparent statement [8], the fundamental point raised is one of continued inquiry along the lines of problematizing the *medium*, which aligns fully with the ambition of this paper.

An alternative socio-technical perspective is rooted in organizational economics, associated with an ambition of minimizing (organizational) transaction costs [1]. More precisely, the underlying proposition is one of seeking to align and minimize the tensions between managerial intents and the interpretative acts of its organizational members – often with an ambition in establishing one of version of the truth.

Having no intention of downplaying the covered distance in theorizing and deepening our common understanding on this complex interplay, there is still an unnerving equilibrium and sustained prevalence of technology on the one hand and the social dimensions on the other.

Accepting a less reductionistic stance, information systems can also be characterized as open and dynamic system – one where language (cf. universe of discourse), and meaning are central concerns. This offers an opportunity to circumvent the socio-technical duality laid out above. In this case technology is tightly interwoven with the concept of meaning and language.

A fascinating meta-systematization is offered by Beynon-Davies [10], offering a comprehensive mapping of the transmissional and communicative 'mechanics' involved in communicative acts involving humans as well as animals – one where language, signs and meaning are key. Interestingly enough, Beynon-Davies directly addresses McLuchan – as one of few information systems scholars – by clearly stating that the medium is not the message. This might be true judged from the catalogue and systems of concepts introduced by Beynon-Davies, but in Woody Allen's meaning system these opposing view offers a possible opportunity to play out to two bickering, but highly competent, intellectuals against each other – tapping into and harnessing the audience previous experience and awareness of similar situations. The movie medium offers strong capabilities in setting up such fictive situations, a fact the fictive Columbia Professor was clearly made aware of.

The notion of *informing systems* [2, 3], which I equate strongly with recognizing the importance of perceptions and language associated with the members belonging to a defined system. Recognizing, the members perception of a situation is central to the system thinking perspective stressing the perceptive interplay between owners, actors and underlying weltanschauung [11], as well as being recognized in

the "info-logical equation" [12]. Of particular interest is the ambiguous nature of bias, an often-reported undesirable state [2]. The essential point put forward, is recognizing that all systems are essentially, and by definition, biased. Precluding bias would basically preclude system-relevant agentic forces from perceiving. This is essential for informing systems. In order for a digital support system to function as support for informing systems, the design needs to strike a satisfactory balance between top-down, often managerial intents and instructions (push) while at the same time heeding signals/responses from its participating members (pull), i.e. acknowledging its members "bias" – or weltanschauung [11].

Another point is made about the crude semantic support offered by computers, captured in the following quote:

"However, to perform calculation as computers do, entirely based on syntactic form, puts severe restrictions on the language used." [13]

In the quote, we are reminded about the difference between the linguistic branches of syntax and semantics. The inherent and historical nature of computing systems being transaction-oriented, lends itself poorly as a complete language support, only more formal aspects of a specific language domain may be subject to computerization.

With the gradual and increased prevalence of image-driven social media, it could be argued that computers have more recently come to realize its potential as a medium rather than as purely formalized transactional support. The value-creating part of computers was, and still is, often reserved individuals holding programming skills, i.e. developers. In line with the intentions of this paper – they could be referred to as media operatives, or grammar specialists. However, the rise of social media *influencers* [14] represents a novel sub-set of "developers" more in tune with mastering the communicative and semantic essence of online presence. A proposed revised quote from Nissen would potentially acknowledge the rise of influencers – as a kind 'media-turn' of computing.

The act of Alvy Singer breaking the "fourth wall" also reinforces Woody Allen's understanding of the movie medium – a bit like influencers we find in social media, addressing you and me watching the scene. There is a fundamental socio-technical systems dimension in this act as well. As mentioned, central to the system perspective are the involved actor's perception of a given situation. The common convention of you and I watching a movie, is that the movie operates within the boundaries set by the script. However, suddenly Woody Allen redefines and expands these boundaries, to include you and me in this temporary spatial expansion.

In order to summarize, treating information systems as an ongoing sense-making and agency-making among involved stakeholders, opens an opportunity to break away from the dualistic divide between technology on the one hand and social/organizational constraints on the other. The cast of agents all bring meaning, language and perceptions to a defined situation, and they all play an active and ongoing role in shaping, as well as consuming, the situation they are embedded in. Furthermore, I have argued that the agent's ability to maneuver and exert a level of control on an informing system, is tightly interwoven with a set of, undervalued and understudied, media-specific circumstances.

## 5. The classroom and online as media

For many of us, traditional classroom teaching holds a special place in the narrative of university life. Classroom teaching plays an assumed pivotal role in transferring knowledge from the instructor to the participating students. For participating students, classes represent a structural and disciplining activity – one that is not always engaging, but can be fitted into a timetable of events, as well as being the topic of conversation with the social environment. Classroom activities hopefully takes place in well-designed learning-spaces and its facades is architecturally fitting to the activity at hand. However, over the past decade, increased digitization and the gradual rise of alternative educational providers

offering flexible, affordable, customized experiences, have challenged the previously unrivalled traditional classroom and campus-based higher education experience [15]. Online and video-mediated classes, be it synchronous or asynchronous, plays an important role in this shift – both as an embedded activity within a traditional framing, but also as a completely novel way of offering purely online-based (higher) education.

Traditional classrooms and online could be also be framed as representing two sets of separate media, media which fundamentally differs from one another. Not only does the media as such differ from another, but also the contextual arrangements surrounding the two. In this section and based on the adage >>The medium is the message<<, I will elaborate and point to three central differences between these two experiences. I have tried to harshly screen in favor of describing differences of highly practical relevance to instructors engaged in, or interested, in the face-to-face teaching as well as online instruction. I will end each of the included aspects, with a media-specific insight. These insights will be articulated from an online point of view, since it represents the media most higher education faculty members, overall, are less accustomed to. I should also say that I firmly believe that not recognizing these media differences, will lead to personal and organizational resources being put to risk.

## 5.1.  Classroom as cold media and online as hot media

For various reasons, video-classes might come across as burdensome from an instructor points of view. The reasons, in my experience, varies – it could be based on lack of experience, intimidation from using new media, lack of training and knowledge and concerns about copyright issues. Despite these raised objections, an important quality of the video-medium is the degree on how lenient the medium is for the individual in terms of scripted material to cover. Assuming the existence of a script is common denominator as input to a traditional voice-carried classroom situation and as well its video-equivalent, a script of holding approximately 500 words manuscript would last for 8 to 10 minutes of video due to forced slowing of speech tempo significant to online video recordings.

Traditional classroom lectures, compared to pre-recorded video-mediated lectures, are rather forgiving communicative acts. Based on subtle inputs from the audience, it is possible to improvise the narrative structure. For example, by providing further examples and elaborations in order to narrow in on a concept. This interpretative opportunity is central to what McLuhan refers to as a cold medium, meaning a high degree of real-time co-creation.

Video on the other hand is a hot medium, a medium often associated with precise and hi-res imagery, allowing for a typically low degree of closure [16] between the participant and the instructor. In the parlor of McLuhan, the face-to-face meeting is a human-to-human meeting. In the video-mediated instructor-participant touchpoint, the instructor is an actor subordinated the hi-res format of video.

Since the spoken words of the online lecture is subordinated the hot movie-motion format, the underlying media expectations are different compared to the classroom experience. In other words, cold communicative acts are mediated in a hot medium. The hot and precise nature of video-motion media has led me to conclude that "Something new needs to happens every 30 seconds". This could be in the form of video close-ups – generated in post-production sessions, change in speech tempo, overlaying slides, picture-in-picture elaborations, adding "quirky" inserts etc. Most of all, video sessions longer than 10-12 minutes should be avoided. When moving a spoken lecture from the classroom to online, these are all examples of mediating conditions that needs to be managed.

**Media-specific insight >> Online video is mainly a hot media, and needs to be managed accordingly.**

## 5.2. Value-add by combining static and scalable with personalized and un-scalable – from you to You

Online video-lectures sometimes is portrayed as threat to traditional teaching. The promise of making a solid and engaging recording on a topic, being able to scale that recording over and over again to an unlimited number of participants is seen as possible disruption to higher education as we know it. It further signifies significant cost-saving potential in teaching expenses for managers of higher education. There is certainly a level of truth to this, but at the same time it is in line with the general digitization (efficiency-seeking) trend following in the footsteps of Moore's Law.

However, it is possible to use the online video-format to speak to You instead of you. The you in the previous sentence is any participant out there. The experience for you holds no degree of personalization. The video-format speaking to You, acknowledges You and recognizes the opportunity of making online video-experiences with a level of customization. This could be in the form of real-time synchronous lectures allowing for the participants to ask live questions. It could be in an asynchronous form, providing pre-recorded general feedback sessions acknowledging outstanding work submitted by a named participant. Both of these examples acknowledge the specific audience present. It could be argued that it represents a middle way drawing on mixed hot and cold media. Obviously, this approach lies outside the scope of a massive open online course (mooc). However, it does inform us that hybrid experiences are possible to design and execute successfully.

**Media-specific insight >> Even though online video is mainly a hot media, it can – with benefit - be supplemented with cold features.**

## 5.3. Cost of attending high, degree of forgiving high – moment of truth as a prolonged process

Another aspect of the traditional classroom compared to online equivalent, can be derived from the statement >>If the cost of attending is high and spread over time, the degree of forgiving is high<<. This statement is derived from the upfront costs associated with entering a traditional educational setting. We might not think of it, but the accrual of initial investments and costs – applying for a study program, commitments to one's social environment, arranging to move to a campus, acquiring books etc. From the point of view of the higher education participant, campus and undergrad social life as much an augmented study experience, which in turn creates a less clear notion of what is the defining moment to evaluate one's decision to participate in a traditional study program. The moment of truth is fragmented and more like a prolonged ambiguous process.

Online video creates a sharper moment of truth, one where production and post-production quality is key to create long-term engagement on behalf of the participant. While there exist minor but significant workarounds from this fact – as elaborated upon above – it nevertheless holds true overall. Online video-education is a demanding media for faculty members formed and shaped in a traditional environment. If the initial touchpoints don't live up to set expectations it is easy to pull the plug. Detailed replication of the classroom experience into a video format is hence not advisable for the absolute majority of instructors.

**Media-specific insight >> Online represents a more fateful 'moment of truth'**

## 5.4. Conclusion before the conclusion

In this section, I have been guided by the McLuhans' adage >>The medium is the message<< in exploring aspects of classroom and online education, both of which I have experience of myself. This is deliberately not an exercise of precision; it should rather be seen as inspirational attempt to heed a powerful insight into creating engaging learning environments. Even though challenging McLuhan, Beynon-Davies [10] offers in his own right and equally powerful systematization – one that does not need to be proven right to be intellectually energizing.

## 6. Conclusion

Although somewhat overlooked since the initial articulation back in 1964, Marshall McLuhan's adage >>The medium is the message<< offers a refreshing conceptualization of how to approach computer-mediated higher education courses. Depending on the induvial pre-disposition, and for the individual instructor, conceptualizing online video-promoted education through the lens of Marshall McLuhan offers a kind of short-cut to distilling the benefits of the medium.

- Traditional spoken lectures is a cold medium, that differs fundamentally from online video – a hot medium
- The divide between hot and cold media is not mutually exclusive from one another, i.e. it is possible to add cold features to hot media – allowing for personalized touchpoints
- Educational efforts should recognize online as a sharper and stronger moment of truth, i.e. it is likely that perceived inferior quality in an online (video) format,

On a wider note, there is a powerful insight in this adage that could be transferred into bureaucratic and corporate settings – the material information systems scholars mostly deal with. Challenging the typewriter paradigm in a health care setting is one such example, much technology frustration has been generated from not challenging the keyboard and the screen in these settings, something members of health care of stumble upon. The professional using a smartphone or smartpad to assist in professional duties, might be served much more effectively by re-thinking both hardware and software support completely differently. McLuhan allows us to ask such questions.

Whether McLuhan would approve of this interpretation of mine is not of importance. Any scholar suggesting a misinterpretation on my behalf, should without further notice access the scene I described earlier from Annie Hall. Inherent in this instruction, lies an understanding, on my behalf, of challenging the conventional structuring of a paper text – a medium in its own right, with its own set of rules of engagement.

## 7. References

[1] Coase, Ronald. "The Nature of the Firm." Economica 4.16 (1937): 386-405.
[2] Bednar, Peter and Welch, Christine. "Bias, Misinformation and the Paradox of Neutrality" Informing Science: the International Journal of an Emerging Transdiscipline 11 (2008): 85-106.
[3] Cohen, Eli. "Reconceptualizing Information Systems as a Field of the Transdiscipline Informing Science: From Ugly Duckling to Swan" Journal of Computing and Information Technology, 7.3 (1999): 213-219.
[4] McLuhan, Marshall. "Understanding Media", Routledge, Taylor & Francis Group, Milton Park, Abingdon, Oxon, United Kingdom, 1964.

[5]  Orlikowski, Wanda. "The Duality of Technology: Rethinking the Concept of Technology in Organizations" Organization Science 3.3 (1992): 398-427.

[6]  Orlikowski, Wanda. "Sociomaterial Practices: Exploring Technology at Work" Organization Studies 28.9 (2007): 1435-1448.

[7]  Pinch, Trevor J. and Wiebe E. Bijker. "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." Social Studies of Science 14.August (1984): 399-441.

[8]  Löwgren, Jonas and Stolterman, Erik. "Design av informationsteknik: materialet utan egenskaper" Studentlitteratur, Lund, Sweden, 2004.

[9]  Musil, Robert. "Mannen utan egenskaper" Albert Bonniers Förlag, 1999

[10] Beynon-Davies, Paul. "*Sign*ificance – Exploring the Nature of Information, Systems and Technology" Palgrave-Macmillan, UK, 2011.

[11] Checkland, Peter. "Systems thinking, Systems Practice" Wiley, Chichester, UK, 1993.

[12] Langefors, Börje "Theoretical analysis of information systems" Studentlitteratur, Lund, Sweden, 1966.

[13] Nissen, Hans-Erik, Using Double Helix Relationships to Understand and Change Informing Systems, in: Nissen, Hans-Erik, Bednar, Peter, Welch, Christine. (Eds.), Use and design in IS: Double helix relationships? Monograph in Informing Science: The International Journal of an Emerging Transdiscipline 10, 2008, 1-19

[14]  McCorquodale, Sara. "Influence: How social media influencers are shaping our digital future" Bloomsbury Business, UK, 2020

[15] Lahtinen, Markus. "Moocar – onlinekurser med global räckvidd – En lägesrapport och några lärdomar" Nordicom-Information 40.1 (2018), 39-45

[16] McCloud, Scott. "Understanding Comics" HarperPerennial, United States, 1994