

Media Knowledge: Discussion and Conceptualisation

Kelly Page

Associate Lecturer¹

School of Marketing
University of New South Wales
Sydney 2052 Australia

Work in Progress

Abstract

This working paper is about people's knowledge of media, and how different levels of knowledge affects peoples behaviour. The construct of Media Knowledge with the goal of designing a conceptual framework for construct definition and measurement is discussed with a distinction being drawn between objective and subjective media knowledge. The major significance of construct definition and measurement is to aid further research that examines the role consumer knowledge structures play in consumer media usage, media evaluation strategies and consumer behavioural intention. This study refers to Media Knowledge in the context of the World Wide Web.

Keywords: Media; Knowledge Structures; Media Usage & Evaluation; World Wide Web.

1. Introduction

Past research on consumer knowledge has heavily investigated the information and experience that a consumer has with a product offering. Neglected in the literature however, is the examination of media knowledge - that is, information about and experience with media that is stored in an individual's memory. The aim is to investigate the effect that an individual's knowledge of a communication vehicle has on their behaviour and evaluation.

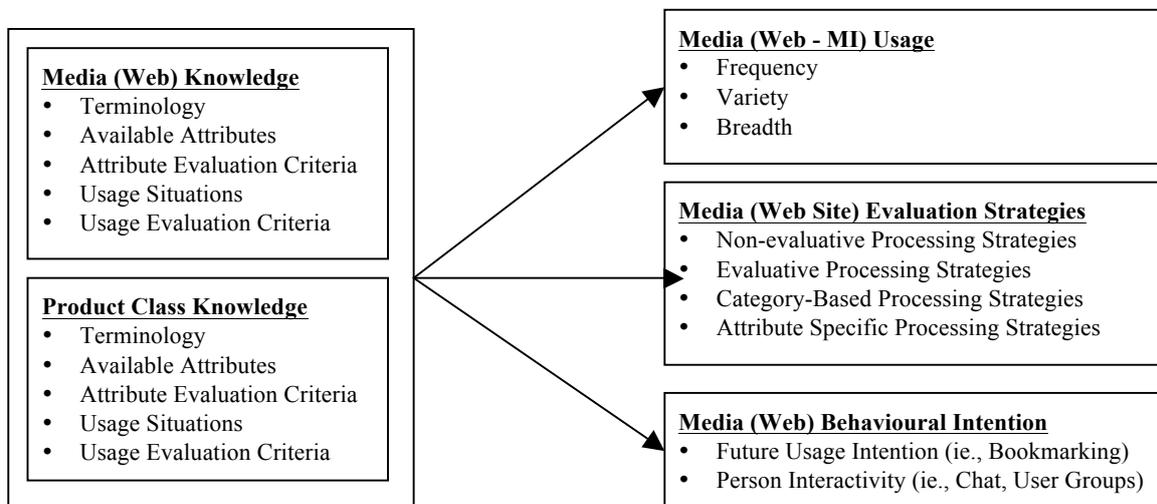
¹Work in Progress paper prepared for the 28th EMAC Conference, Berlin, May 11th-14th 1999. Address Correspondence to Kelly Page, Associate Lecturer, School of Marketing, University of New South Wales, Sydney 2052 Australia; Ph: +61 (2) 9385 3315; Fax: +61 (2) 96631985; Email: k.page@unsw.edu.au. © Kelly. L. Page November, 1998.

'Societies have always been shaped more by the nature of the media by which men communicate than by the content of the communication'

(McLuhan and Fiore, 1967:8).

This statement by McLuhan and Fiore (1967) shows a school of thought investigating the role of media in society. Differentiated from the perspective of media as a communication vehicle that disseminates a message to an audience, McLuhan and Fiore (1967) identify 'the medium or process of our time, as reshaping and restructuring patterns of social interdependence and every aspect of our personal lives' (p8). It is from this background that this study focuses on the conceptualisation of the construct 'Media Knowledge' as a user characteristic derived from information and experience with the communication vehicle (ie., not the message or product offering). The significance of this area of research is to investigate the effect variation in media knowledge has on consumer behaviour, moving beyond the investigation of message characteristics and focusing on the medium itself.

Figure One: Media Knowledge and Consumer Behaviour



MI – Machine Interactivity

Of additional importance for the conceptualisation and development of an instrument measuring Media Knowledge is the following. Firstly, there exists no clear definition as to what constitutes Media Knowledge. *What is Media Knowledge and What are the key indicators of Media Knowledge?* Secondly, there exists a lack of consistent theoretical direction concerning the conception and evaluation of consumer media knowledge structures. *What is the relationship between Media Knowledge and Media Use, Evaluation Strategies*

and Behavioural Intention? It is from this basis that the conceptual framework is proposed with the objective of instrument development. The key questions addressed in this paper therefore address the conceptualisation of Media Knowledge. The rationale behind this study is to compliment additional research investigating the relationship between media knowledge and media use, evaluation strategies and behavioural intention that are depicted in Figure one.

2. What do we mean by Media or the Medium?

The term *medium* generally refers to the category of communication vehicles that are used for communicating with a target audience, such as television and radio, print media, and direct mail, outdoor advertising and other support media (Belch and Belch 1995). In brief, concerns inherent in this paper will discuss that the information obtained about a medium and experience with a medium will have a relationship with media usage, media evaluation strategies and behavioural intention. Therefore the construct of Media Knowledge is conceptualised to aid in further investigation of the aforementioned relationship.

2.1. Media Context

Within this study, the term media is used to refer to the new interactive technologies currently being adopted within marketing (ie., the Internet and World Wide Web). The Internet is defined at its most basic level as a global network (ie., decentralised) of interconnected computer networks based on a standard systems protocol that facilitate machine and person interactivity (Hoffman & Novak, 1996; Ainscough & Lockett 1996; Pallab, 1996). The key to the commercialisation and rapid growth of this computer network was the development of the World Wide Web, a user-friendly network wide graphical interface, based on hypermedia, which utilises the communication structure of the Internet. Thus the Internet and World Wide Web are concepts used to refer to a communication medium that facilitates interactive, many to many communications in a hypermedia environment. Of particular interest to this study, is the World Wide Web.

The key motivation for this context is to establish a consistent measurement device, building on existing descriptive usage measures (ie., How many times a week do you use the world wide web?), that are used as measures of knowledge and expertise with this medium.

3. What is Media Knowledge?

Consumer knowledge is documented as information about and experience with a product class stored in an individual's memory (Alba and Hutchinson 1987). Consumer knowledge of the World Wide Web thus refers to the amount or level of information about and experience with the World Wide Web that an individual has.

Brucks (1985) further documents two types of product knowledge: objective and subjective. Subjective product knowledge is an individual's perception of what he/she knows while objective knowledge refers to what is actually stored in a consumer's memory (Brucks 1985). Measures of objective knowledge are seen as conceptually and operationally distinct from measure of subjective knowledge.

3.1. Objective Media Knowledge

Brucks (1985) and Alba and Hutchinson (1987) show that a consumer's objective knowledge has two major components, familiarity and expertise.

Familiarity is conceptualised as the number of 'product' related experiences that have been accumulated by an individual (Alba and Hutchinson, 1987). Product related experiences involve advertising exposure, product purchase, or product usage. Media Familiarity is thus inferred as the number of media related experiences that would incorporate advertising exposure, purchase, or usage of media. For example user exposure to firm and domain specific advertising (ie., Television Ads and Programs, and Publicity reports etc), purchase of associated media (ie., Magazines and Newspapers or ISP membership etc) and the use of media for personal and business applications (ie., promotion, entertainment or information search) would constitute a number of media related experiences accumulated by the user.

Expertise, is defined as the high level of relevant skill and knowledge an individual has to perform product related tasks successfully (Alba & Hutchinson 1987; Homer & Kahle 1990; Belch and Belch 1995). Further more, Spence and Brucks (1997) define expertise or an expert as someone who has acquired domain specific knowledge through experience and training. In this instance we would infer Media Expertise as the high level of relevant skill and knowledge an individual user has to perform Media related tasks successfully (ie., navigation, information acquisition etc). For example, information about and experience with media

structure and layout (ie., of a magazine, newspaper, broadcast or interactive medium) would assist the users ability to perform media tasks such as usage (ie., navigation).

Increased product familiarity is purported to result in an increase in an individual's level of expertise with the product class. For example, a consumer's level of knowledge and skill with a medium is increased through his/her exposure to advertising, purchase and use of the medium. This knowledge results in observable differences in cognitive structures (ie., belief about media attributes) and cognitive processes (ie., decision rules for acting on those beliefs) (Alba and Hutchinson, 1987; Chi, Glaser and Farr, 1988).

3.2. Subjective Media Knowledge

Subjective knowledge is a belief about how familiar or expert the user perceives that they are (ie., your perception about the level of objective knowledge you have). Based on this definition of what is subjective knowledge, subjective knowledge is also thought of as an indicator of an individuals degree of self-confidence. Park and Lessig (1981) assert that subjective knowledge measurement provides a better understanding of a decision makers systematic biases and heuristics than does objective knowledge. Subjective media knowledge will therefore address the individual's perception about the level of familiarity and expertise they have with the media (or the medium under investigation). Self-confidence levels with the medium would also be examined.

So why conceptualise objective and subjective media knowledge? The key relationships depicted in Figure one address the relationship between media knowledge and media use, evaluation strategies and behavioural intention. To assess these relationships, conceptualisation and operationalisation of Media Knowledge is required. The theory underlying these relationships is briefly discussed in the following section.

4. Media Knowledge and Consumer behaviour

The following discussion outlines how increased product knowledge influences consumer behaviour and by extension, how increased media knowledge might influence consumer behaviour. Brucks (1985) and Hullan and Kleinmuntz (1994) found that an individual's expertise with the product class, and thereby familiarity, affected the individual's search behaviour for that particular product class. Further empirical findings indicate that

knowledgeable decision-makers are more selective in the information acquired (Johnson, 1988; Shaneatu, 1992), are better able to acquire information in a less structured environment (Brucks, 1985), and agree more than novices regarding what information is important (Shaneatu, 1988). Experts are also more often likely to focus on rare events, but often at the expense of undervaluing base-rate information (Johnson, 1988). Spence and Brucks (1997) further found that experts were better than novices at selecting and evaluating inputs, and were more confident in their decisions than were novices.

Furthermore, the assumption that experts use more information than non-experts is labelled the Information-Use Hypothesis (Shanteau, 1992). According to this theory, greater cue usage would imply greater expertise, and lesser cue usage would imply less expertise. Shanteau (1992) results do not support the information-use hypothesis, instead Shanteau (1992) found that the number of significant cues used does not reflect degree of expertise. Shanteau (1992) also reports that novices may use too much information, and that experts are more selective in their information acquisition (Shanteau, 1992). Shanteau (1992) concludes that a key distinguishing feature between experts and novices is in fact the ability to distinguish what information is relevant in a given context.

The study of expertise thus forces us to focus on the key difference between more and less knowledgeable individuals, the dimension of knowledge, because expertise is, by definition, the possession of a large body of knowledge and procedural skill (Chi, Glaser and Rees, 1982). In regards to this study, it is asked how differing levels of media knowledge influence a users use and evaluation of the particular medium. Presented in Table One is a summary of the main findings discussed in the literature relative to the differences between experts and novices and thus why knowledge of media should be further investigated.

It is from the basis of this literature that we theorise that experienced and knowledgeable media users will be more selective in their use of the medium and thus breadth of consumption will be less. Furthermore, more experience and knowledgeable users will use more non-evaluative processing strategies in exploratory search behaviour. The rationale for this is that knowledgeable and experience medium users will have established beliefs about attributes of media (both collectively and specialised) and established decision rules for acting on those beliefs stored in their memory. These users will therefore have the ability to infer the

media attributes that would increase the users ability to evaluate the medium or attributes of the medium that would assist in performing media related tasks successfully (ie., information acquisition for example). Therefore, measurement development of media knowledge would increase the ability to investigate these relationships and further investigate others depicted in figure one.

Table One: Empirical Findings of Expert Knowledge Structures

<i>Expert</i>	<i>Novice</i>
<ul style="list-style-type: none"> • Recalls large chunks of Information <ul style="list-style-type: none"> - De Groot (1965) - Chess Players^a - Chase & Simon (1973) - Chess Players - Reitman (1976) - Chess Players - Sloboda (1976) - Non/Muscians - Egan & Schwartz (1979) - Electronics 	<ul style="list-style-type: none"> • Recalls Small Chunks of Information
<ul style="list-style-type: none"> • Recalls More Information <ul style="list-style-type: none"> - Spilich etal(1979) - baseball knowledge - McKeithen etal(1981) Computer Science - Chi & Glaser (1982) - maths & physics 	<ul style="list-style-type: none"> • Recalls Less Information
<ul style="list-style-type: none"> • Possesses Superior categorisation of information <ul style="list-style-type: none"> - Murphy & Wright (1984) - psychologists - Sujan,Sujan & Bettman(1988) salespeople 	<ul style="list-style-type: none"> • Possesses inferior categorisation of information
<ul style="list-style-type: none"> • Produces good abstract representation of information (ie., by concepts or a deep structure) <ul style="list-style-type: none"> - Schneiderman (1976) computer programmers - McKeithan etal (1981) computer programmers - Lewis (1981) math & physics problems - Adelson (1981) computer programmers - Schoenfeld & Herrmann (1982) math&physics - Jong & Ferguson-Hessler (1986) - Physics 	<ul style="list-style-type: none"> • Produces poor abstract representation of information (ie., by functional rules or a surface structure)
<ul style="list-style-type: none"> • Produces more cohesive representation of information(ie., sorts randomly ordered script activities more quickly) <ul style="list-style-type: none"> - Pryor & Merluzzi (1985) Social Interaction 	<ul style="list-style-type: none"> • Produces less cohesive representation of information(ie., sorts randomly ordered script activities more slowly).
<ul style="list-style-type: none"> • Shows better clusters (meaningful groups) of presented information <ul style="list-style-type: none"> - Halpern & Bower (1982) non/muscians - Vitalari (1985) systems analysts 	<ul style="list-style-type: none"> • Shows poorer clusters of presented information
<ul style="list-style-type: none"> • Shows superior inferential capability <ul style="list-style-type: none"> - Fiske, Kinder & Larter (1983) - politics - Arkes & Freedman (1984) baseball knowledge - Ceci & Liker (1986) 	<ul style="list-style-type: none"> • Shows inferior inferential capability

^a De Groot, A. D. (1965) - German - as Cited in Chase, W. G. and Simon, H. A. (1973) 'Perception in Chess,' *Cognitive Psychology*, 55-81.

5. Measurement Development of Media Knowledge

Churchill (1979) argues that a critical element in the evolution of a body of knowledge is the development of better measures of the variables investigated. It is from this basis, that a level of importance is placed on the development of reliable and valid measurement instruments to

measure the central construct Media Knowledge discussed in this paper. For example, basic descriptive measures of web use duration (ie., How long have you been using the Web?) are often used to infer knowledge of the World Wide Web (ie., experienced or novice user). However, this inference can be complicated by user characteristics, such as learning strategies.

Furthermore, due to lack of discussion regarding consumer beliefs about media attributes, and the decision rules for acting on these beliefs the call for standardised measurement devices that have high reliability and validity properties is apparent. The development of the measurement instrument required for this study is based on cross-sectional research undertaken with the sole purpose of developing reliable and valid standardised measurement devices. The development of a measurement instrument that measures Media Knowledge (information about and experience with a medium) is thus undertaken.

6. Item Generation and Application

To generate a concise and representative list of items, a panel of World Wide Web experts has been approached to discuss the concept of Media Knowledge. The purpose of this discussion is to develop an inventory of what constitutes Media Knowledge as categorised by terminology, available attributes, evaluative criteria of attributes and usage situations of the World Wide Web. From this discussion and further exploratory research, a set of items has been generated with which to indicate Media Knowledge of the World Wide Web. Subjective Media Knowledge is to be administered by a self-administered semantic differential scale asking respondents their perception on the knowledge of the World Wide Web.

To assess the appropriateness of the language and terminology used and the readability and wording of the items generated to measure the construct of Media Knowledge, a convenience sample is selected with which to pre-test the measurement instrument and scale items.

6.1. Objective Media Knowledge

Several different measurement categories are developed and used to measure objective media knowledge. This approach is adapted from Brucks (1985) measurement of objective knowledge for sewing machines. As discussed previously, an individuals objective media knowledge is derived from their information about and experience with the medium being

investigated. Therefore, the following categories will be used as contributing factors to an individual's degree of familiarity and expertise with the medium: a) Specific Media Terminology, b) Available Media Attributes, c) Criteria by Which Attributes are Evaluated, d) Media Usage and e) Criteria for Media Usage Evaluation. All of the items discussed above will form an overall scale rating of objective media knowledge.

6.2. Subjective Media Knowledge

These measures will be self-rating scales of media knowledge in two contexts; familiarity and expertise. The first measure asks respondents to use a seven-point semantic differential scale to respond to the following statement: *'Rate your knowledge of the medium as compared to the average user of this medium.'* The next measure asks respondents on a seven-point semantic differential scale to respond to the following: *'Circle one of the numbers below to describe your familiarity with this medium.'* The anchors for this scale will be *'Not at all familiar'* and *'Extremely familiar.'* These measures are used to examine subjective media knowledge.

7. Conclusion

In this study, the construct of media knowledge was examined with a brief discussion of the implications of construct conceptualisation and operationalisation for further research. Addressed was what constitutes media knowledge, the relationship between media knowledge and media use, media evaluation strategies and media behavioural intention and a brief delineation of the key indicator categories of media knowledge. The major significance of this area of research is to obtain a greater understanding of the role consumer knowledge structures relevant to different media play in consumer media usage, media evaluation strategies and consumer behavioural intention.

Research regarding item generation for a specific medium, the World Wide Web is currently being undertaken. The key motivation for the development of such a measurement instrument for the world wide web is to establish a consistent measurement instrument that builds on the existing descriptive usage measures (ie., How many times a week do you use the world wide web?) as measures of expertise and knowledge of the World Wide Web. The results from this research will be further discussed and implications for future research presented at the forthcoming conference.

References

- Adelson, B (1981) 'Problem Solving and the Development of Abstract Categories in Programming Languages,' *Memory and Cognition*, Vol. 9, 422-423.
- Ainscough, T.L and Luckett, M. G (1996) 'The Internet for the Rest of Us: Marketing on the World Wide Web,' *Journal of Consumer Marketing*, Vol. 13 (2), 36-47.
- Alba, J. W. and Hutchinson, J. W. (1987) "Dimensions of Consumer Expertise," *Journal of Consumer Research*, Vol. 13, 411-454.
- Arkes, H. R. and Freedman, M. R. (1984) 'A Demonstration of the Costs and Benefits of Expertise Recognition Memory,' *Memory and Cognition*, January, 84-89.
- Belch, G. E. and Belch, M. A. (1995) *Introduction to Advertising and Promotion: An Integrated Marketing Communications Perspective*, U.S.A, Irwin.
- Brucks, M. (1985) 'The Effects of Product Class Knowledge on Information Search Behaviour,' *Journal of Consumer Research*, Vol. 12 (June), 1-16
- Ceci, S. J. and Liker, J. R. (1986) 'A Day at the Races: A Study of IQ, Expertise, and Cognition Complexity,' *Journal of Experimental Psychology: General*, 255-266.
- Chase, W. G. and Simon, H. A. (1973) 'Perception in Chess,' *Cognitive Psychology*, 55-81.
- Chi, M. T. H. and Glaser, R. (1982) 'The Measurement of Expertise: Analysis of the Development of Knowledge and Skill as a Basis for Assessing Achievement,' in *Design, Analysis and Policy in Testing and Evaluation*, edited by E. L. Barker and E. S. Quellmaltz, Sage Publications.
- Chi, M. T. H., Glaser, R. and Farr, M. J. (1988) *The Nature of Expertise*, London: Lawrence Erlbaum Associates.
- Chi, M. T. H., Glaser, R. and Rees, E. (1982) 'Expertise in Problem Solving,' in *Advances in Psychology and Human Intelligence*, (ed) Sternberg, R., Hillsdale: Lawrence Erlbaum Associates, Vol. 1, Chap. 1, 7-73.
- De Groot, A. D. (1965) *Thought and Choice in Chess*, The Hague: Mouton; Chase as Cited in Chase, W. G. and Simon, H. A. (1973) 'Perception in Chess,' *Cognitive Psychology*, 55-81.
- Egan, D. E. and Schwartz, B. J. (1979) 'Chunking in Recall of Symbolic of Drawings,' *Memory and Cognition*, March, 149-159.
- Fiske, S. T., Kinder, D. R. and Larter, W. M (1983) 'The Novice and The Expert: Knowledge Based Strategies in Political Cognition,' *Journal of Experimental Social Psychology*, July, 356-377.

- Halpern, A. R. and Bower, G. H. (1982) 'Musical Expertise and Melodic Structure in Memory for Musical Notation,' *American Journal of Psychology*, 31-50.
- Hoffman, D. L. and Novak, T. P. (1996) 'Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations,' *Journal of Marketing*, Vol. 60(3) July, 50-68.
- Homer, P. M. and Kahle, L. R. (1990) "Source Expertise, Time of Source Identification, and Involvement in Persuasion: An Elaborate Processing Perspective," *Journal of Advertising*, Vol. 19 (1), 30-39.
- Hulland, J. and Kleinmuntz, P (1994) "Factors Influencing the Use of Internal Summary Evaluations versus External Information in Choice," *Journal of Behavioural Decision Making*, Vol. 7, 79-102.
- Johnson, E. J. (1988) "Expertise and Decision Under Uncertainty: Performance and Process,' in *The Nature of Expertise*, Chi, M. T. H., Glaser, R. and Farr, M. J. London: Lawrence Erlbaum Associates.
- Jong, T. D. and Ferguson-Hessler, M. G. M (1986) 'Cognitive Structures of Good and Poor Problem Solvers in Physics,' *Journal of Educational Psychology*, August, 279-88.
- Lewis, C. (1981) ' Skill in Algebra,' in *Cognitive Skills and Their Acquisition*, Editor J. R. Anderson, 85-110, Hillsdale, N. J. Lawrence Erlbaum Associates.
- Mckeithan (1981) 'Knowledge Organisation and Skilled Differences in Computer Programmers,' *Cognitive Psychology*, 307-25
- McLuhan, M. and Fiore, Q. (1967) *The Medium is the Massage*, Penguin Books, USA.
- Murphy, G. L. and Wright, J. C. (1984) 'Changes in Conceptual Structure with Expertise: Differences Between Real World Experts and Novices,' *Journal of Experimental Psychology: Learning, Memory and Cognition*, 144-154.
- Pallab, P (1996) 'Marketing on the Internet,' *Journal of Consumer Marketing*, Vol. 13 (4), 27-39.
- Pryor, J. B. and Merluzzi, T. V. (1985) 'The Role of expertise in Processing Social Interaction Scripts,' *Journal of Experimental Psychology*, July, 362-79.
- Reitman, J. S. (1976) 'Skilled Perception in Go: Deducing Memory Structures from Inter-Response Times,' *Cognitive Psychology*, 336-56.
- Schneiderman, B (1976) 'Exploratory Experiments in Programmer Behaviour,' *International Journal of Computer and Information Science*, 123-143.

- Schoenfeld, A. H. and Herrmann, D. J. (1982) 'Problem Perception and Knowledge Structure in Expert and Novice Mathematical Problem Solvers, 'Journal of Experimental Psychology: Learning, Memory and Cognition, September, 484-94.
- Shanteau, J. (1988) "Psychological Characteristics and Strategies of Expert Decision Makers,' Acta Psychologica, Vol. 68, 203-215.
- Shanteau, J. (1992) "How Much Information Does an Expert Use? Is it Relevant?" Acta Psychologica, Vol. 81, 75-86.
- Sloboda, J. A. (1976) 'Visual Perception of Musical Notation: Registering Pitch Symbols in Memory,' Quarterly Journal in Psychology, 1-16
- Spence, M. T. and Brucks, M. (1997) 'The Moderating Effects of Problem Characteristics on Experts and Novice Judgements," Journal of Marketing Research, Vol. 34 (May), 233-247.
- Spilich (1979) 'Text Processing of Domain Related Information for Individual with High or Low Domain Knowledge,' Journal of Verbal Learning and Verbal Behaviour, 275-290.
- Sujan, H., Sujan, M. and Bettman, J. R. (1988) 'Knowledge Structure Differences Between More Effective and Less Effective Salespeople,' Journal of Marketing Research, Feb, 81-86.
- Vitalari, N. P (1985) 'Knowledge as a Basis for Expertise in Systems Analysis: An Empirical Study,' MIS Quarterly, 221-41.