The Effect of Visual Mapping on Attitude toward Organizational Strategy: Scale Development and Application in Europe and China

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ABSTRACT

Visual representations of information can offer several benefits compared to text communication. This study examines the effect of knowledge visualization, compared to a text control condition, on attitude toward the content, specifically an organizational strategy.Companies operating across borders face great challenges in ensuring compliance with the strategy in different cultural contexts. Recent research evidence showcases the cognitive and emotional benefits of utilizing visual representations of knowledge in organizations. An experiment is conducted comparing two knowledge maps to a textual version of the same corporate strategy. In order to measure attitudes toward the strategy, a scale is developed and tested in Europe and China. The study outcome provides a parsimonious and effective tripartite scale of attitude toward strategy with cognitive, affective and behavioral components. The scale is then applied to a different sample to test the effect of mapping the strategy visually on attitudes toward the strategy, and to test whether the effect is persistent in Europe and China. The results of the experiment show that subjects exposed to the visual conditions had a significant more positive affective and cognitive attitude toward the content.

Keywords visual representations, cross-cultural communication, business communication, strategy, international management.

1 INTRODUCTION

Communicating with images offers several advantages compared to text, such as increased memorability, recall and engagement (Paivio, 1986).The so called *picture superiority effect* of images over text has been widely acknowledged (Snodgrass &Vanderwart, 1980) and used in education (O'Donnell, Dansereau& Hall, 2002; Suthers,

2005) and communication (Sojka& Giese, 2006). In particular, in management science we are witnessing a rising interest in visual practices, ranging from timelines (Yakura, 2002), process maps (Fenton, 2007), strategizing (Platts& Tan, 2004), problem solving (Tversky, 2005) and meeting facilitation (Eppler&Burkhard, 2005). For example, in advertising photographs and appealing images are used to speak to the "heart" of consumers.In fact pictures are more effective than textual or verbal messages in evoking emotions and changing attitudes (Ray &Batra, 1982; Mitchell, 1986; Messaris, 1997). Although the emotional power of images is a consolidated finding in the visual communication and advertising field, the effect of visual representation of knowledge (that is, mapping textual information visually) on attitudes has rarely been addressed.

Pictures and drawings can be used in combination with text for conveying multimodal messages, which have the potential to exploit both the visual and the verbal processing channels (Paivio, 1969). Mapping text visually is often addressed with the words "diagram" or "knowledge maps", although these are only subsets of all the potential visual representations of knowledge which exist. Visual mapping, in particular *knowledge visualization,*refers to "mapping concepts graphically by structuring text and visuals in a meaningful way. Visual representations are used to organize information and concepts in order to convey knowledge, to amplify cognition, and to enhance communication. Examples include conceptual diagrams, knowledge maps, visual metaphors and sketches." (Bertschi, Bresciani et al. 2012).

Applications of knowledge representations are found in numerous fields from education, to communication and from collaborative work to management. In particular the purpose of this study is to address a compelling problem in organizations: strategy communication (Godet, 1998). In fact top managers devote considerable time and resources in the development of the company strategy. Yet even the best corporate strategy does not guarantee that employees will comply with it. The most frequently-observed problem which impedes strategy implementation is communication (Alexander, 1985; Peng & Littlejohn, 2001). In order to implement the strategy, employees should know the strategy, understand it, and be convinced by it. The buy-in of employees is fundamental for the reaching of corporate goals. A pre-requisite for this is a clear and engaging communication of the strategy. This problem is accentuated in large organizations which operate in diverse cultural and linguistic contexts.

In this study we propose to analyzewhether a visual representation of the strategy, compared to a classic text format, can improve attitude toward a corporate strategy and the intention to comply with it. Because companies operate worldwide, we also aim to

test the effect of culture on representational format, comparing Asian and Western countries. It is relevant to compare cultures with very different thought patterns such as the West and Confucian Asia (Nisbett, 2006).In fact, societal culture is known to have a relevant effect on management (Adler, 1983), entrepreneurship (Zhao, Li & Rausch, 2012) and communication (Samovar, Porter, & McDaniel, 2011).A cross-cultural study has the potential to inform the academic community regarding the global applicability of visualization principles often deemed universal. Recent studies show that the reception and interpretation of visual information varies in the West and in Confucian Asia (Nisbett, 2005; Eppler & Ge, 2008; Bresciani, 2013).

The core research question of this study is the following: can a visual representation of the organizational strategy be conducive to a more positive attitude toward the strategy across cultures? The question is investigated using a lab experiment assessing subjects' attitude toward the strategy, displayed in three conditions: a visual metaphor, a diagram (in the form of a timeline) and a control condition. Two visual conditions are utilized to discern the effect of visual mapping in general, as opposed to the effect of a specific visualization format.

The results of the experiment provide valuable insights for the academic community regarding the extension of theories of visual representations to the context of strategy communication and addressing cross-cultural differences in the reception of visual representations. Managers and consultants should be particularly interested in learning innovative and effective methods for strategy communication which improve employees' attitude toward the strategy.

In order to conduct such study we had to develop a scale of attitude toward the strategy. To ensure cross-cultural validity of the scale, it has been tested separately in Europe and China. The result is a cross-culturally reliable tripartite scale of attitude (with cognitive, affective, and behavioral components) toward a company strategy. The scale has been validated by over one hundred subjects in Europe and China. The experiment was conducted on a different sample (N=102). Results show that the scale is reliable and that mapping the strategy visually improves the positive, affective, and cognitive attitude toward the strategy.

The remainder of this paper is organized as follows: in the next Section the development and testing of the scale is reported. The third Section focuses on the experimental study, explaining the experimental design, characterizing the sample, and the results. The last

section concludes with the implications for theory and practice, and proposes a direction for future research.

2 SCALE DEVELOPMENT AND TESTING

In order to measure the effect of knowledge visualization on attitude, a scale of attitude toward the strategy has to be employed in the experiment. Although attitude is a widely-discussed measure in psychology, specific and parsimonious scales regarding strategy are not readily available.Thus, a scale has been developed specifically for this purpose.It was tested on subjects in Europe and in China in order to ensure the cross-cultural validity of the scale.

Attitude is defined as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (Eagly&Chaiken, 1993, pg. 1). Rosenberg and Hovland (1960) proposed a model of attitude structure which specified three components: affect, behavior and cognition, also known as the ABC model. Other researchers define attitude as having both a cognitive and an emotional component, and these components predict behavioral intention (Ajzen, 1991). Thus, a scale has to be developed to address these three components: cognitive attitude, affective attitude and behavioral intention. A list of items for each component of attitude has been developed based on seminal studies on attitude (Allport, 1935; Ajzen, 1991).The questions were then adapted to the specific context of organizational strategy. Since the scale is intended to be used with professionals as subjects, the test should not be lengthy.Therefore, only 4 core questions for each component have been selected, and each was chosen based on the recurrence of the concepts in extant scales of attitude. For each question the possible answer is given on a 7-point Likert scale (ranging from absolutely agree to absolutely disagree).

2.1 Methodology

The list of 12 questions (4 questions for each component: cognitive, affective and behavioral) was tested on 102 subjects. The answers were analyzed by extracting factors with Eigenvalues above 1, and then subsequently analyzing the reliability of each single component (Cronbach alpha) and the items correlation matrix.

Since the goal of the study is to develop a scale which is suitable both in Europe and China, the sample is composed of 51 subjects in Europe and 51 in China, each of whom are college students in Switzerland and Beijing, respectively. Subjects were exposed to representations of strategies and then asked to fill-in a questionnaire which contained the attitude questions as well as control questions regarding their demographic data, understanding, familiarity with the content and with the representational format. They were allowed up to 20 minutes to answer all questions. The demographic variables of the

Swiss and Chinese samples were comparable, with a mean age of 22 and most subjects studying business- related topics. The questionnaires were analyzed separately for Europe and China to test if the scale and the understanding of each of the items worked in both cultural context (Harkness, Van de Vijver&Mohler, 2003).

2.2 Results

2.2.1 Chinese sample

First, we conduct a Principal Component Analysis of all the questions.As can be seen in Table 1, three factors emerged with Eigenvalues above the recommended threshold of 1. The total variance explained by these 3 factors is 68%. This is a positive result, and so we then analyzed the questions load on the predicted factors. Table 2 shows that all items load on the correct factor except for the first question of the behavioral component (abbreviated in “Behavior 1” in the table). The remaining questions load on the correct factors with values above the recommended threshold of 0.6, with the exception of the fifth question (Affective 1) which has a slightly lower value.

Table 1: Extraction Method: Principal Component Analysis.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,528	46,069	46,069	**5,528**	46,069	46,069
2	1,465	12,210	58,280	**1,465**	12,210	58,280
3	1,176	9,799	68,079	**1,176**	9,799	68,079
4	,754	6,284	74,362			
5	,651	5,424	79,787			
6	,612	5,101	84,888			
7	,537	4,476	89,364			
8	,393	3,277	92,641			
9	,369	3,072	95,713			
10	,222	1,854	97,567			
11	,164	1,370	98,936			
12	,128	1,064	100,000			

Table 2: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

	Component		
	1	2	3
Cognitive 1	,338	**,602**	,156
Cognitive 2	,172	**,871**	,142
Cognitive 3	,312	**,854**	,186
Cognitive 4	,028	**,681**	,483
Affective 1	*,392*	*,318*	***,552***
Affective 2	-,006	,148	**,764**
Affective 3	,277	,214	**,707**
Affective 4	,135	,074	**,779**
Behavioral 1	*,292*	*,294*	***,507***
Behavioral 2	**,907**	,212	,064
Behavioral 3	**,830**	,177	,209
Behavioral 4	**,825**	,260	,268

Subsequently each component was analyzed separately for the reliability of the scales. The Cronbach alpha for cognitive component of attitude (4 items) for the Chinese sample is 0.829. This value is satisfactory and well above the suggested threshold of 0.7. Since the aim of this study is to develop a new scale, it is worth investigating if all the items are relevant for the scale. The results show (Tab. 3) that if the first item was deleted, the Cronbach alpha would rise to 0.854.

Table 3

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cognitive 1	*,527*	*,854*
Cognitive 2	,720	,759
Cognitive 3	,811	,721
Cognitive 4	,618	,802

The Cronbach alpha for affective component of attitude (4 items) is: 0.759. This result indicates that the scale works well. All the items seem relevant to the construction of the scale, as shown by table 4.The scale of the behavioral component of attitude has a

Cronbach alpha of 0.836 (with 4 items), which is a very satisfactory value. From a deeper analysis (Table 5) we discovered that the first item of the scale has a low correlation with the remaining items (0.409), and if that item was deleted the Cronbach alpha of the scale would rise to 0.892. This indicates that the first item should be eliminated, as not only it load on a different factor than expected, but it is also not related to the other items on the scale.

Table 4

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Affective 1	,546	,723
Affective 2	,501	,733
Affective 3	,651	,653
Affective 4	,564	,701

Table 5

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Behavioral 1	*,409*	*,892*
Behavioral 2	,758	,752
Behavioral 3	,770	,749
Behavioral 4	,772	,747

2.2.2 European sample

The European sample was then evaluated with the same methodology to assess the cross-cultural validity of the scale. The Principal Component Analysis shows that once again 3 factors emerged with Eigenvalues value above 1 (Table 6). The results of the rotated components (with Varimax rotation) show that the items load on the expected factors, with the exception being the first item of behavioral component of attitude. These results are consistent with the Chinese sample, indicating that item 9 should be eliminated. The analysis also shows that the first item of the cognitive component of attitude loads on the wrong factor (behavioral component of attitude) for Europeans, and should therefore be eliminated.

Table 6

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %

1	6,345	52,875	52,875	**6,345**	52,875	52,875
2	1,334	11,114	63,989	**1,334**	11,114	63,989
3	1,190	9,913	73,902	**1,190**	9,913	73,902
4	,635	5,293	79,196			
5	,589	4,909	84,104			
6	,484	4,033	88,137			
7	,399	3,321	91,459			
8	,330	2,747	94,206			
9	,246	2,054	96,260			
10	,186	1,551	97,811			
11	,152	1,265	99,076			
12	,111	,924	100,000			

Table 7: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

	Component		
	1	2	3
Cognitive 1	*,281*	***,614***	*,448*
Cognitive 2	,012	,258	**,820**
Cognitive 3	,257	,267	**,809**
Cognitive 4	,280	,230	**,696**
Affective 1	***,599***	*,465*	*,087*
Affective 2	**,785**	,355	,032
Affective 3	**,818**	,356	,110
Affective 4	**,785**	,019	,493
Behavioral 1	***,764***	*,051*	*,506*
Behavioral 2	,101	**,786**	,287
Behavioral 3	,239	**,824**	,148
Behavioral 4	,439	**,671**	,350

The Cronbach alpha values for the scales are: 0.833 for the cognitive component, 0.855 for the affective component and 0.815 for the behavioral component. Tables 8 to 10 report the inter-items correlation and factor loading if items are deleted. As for the Chinese sample, if the first item of the behavioral component scale is eliminated, the scale's reliability improves.

Table 8

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cognitive 1	,625	,807
Cognitive 2	,650	,795
Cognitive 3	,735	,759
Cognitive 4	,649	,795

Table 9

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Affective1	,609	,850
Affective2	,740	,801
Affective3	,803	,768
Affective4	,653	,834

Table 10

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Behavioral 1	**,472**	**,844**
Behavioral 2	,609	,779
Behavioral 3	,664	,754
Behavioral 4	,818	,677

2.2.3 Entire sample

The final step of the scale analysis was to conduct the same tests on the entire sample of Chinese and Europeansin order to ensure that the scale works with different cultural samples. The results, as shown in Table 11 and 12, produced the same insights as the aforementioned analyses.

Table 11

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6,286	52,379	52,379	**6,286**	52,379	52,379

2	1,210	10,082	62,461	**1,210**	10,082	62,461
3	1,075	8,954	71,416	**1,075**	8,954	71,416
4	,820	6,831	78,247			
5	,486	4,048	82,294			
6	,477	3,977	86,271			
7	,430	3,581	89,852			
8	,370	3,081	92,933			
9	,287	2,394	95,327			
10	,246	2,054	97,381			
11	,186	1,552	98,932			
12	,128	1,068	100,000			

Table 12: Extraction Method: Principal Component Analysis

	Component		
	1	2	3
Cognitive 1	,181	***,656***	*,400*
Cognitive 2	-,002	,377	**,710**
Cognitive 3	,290	,310	**,767**
Cognitive 4	,345	,075	**,768**
Affective 1	**,712**	,275	,109
Affective 2	**,753**	,339	,110
Affective 3	**,798**	,282	,106
Affective 4	**,738**	,069	,511
Behavioral 1	***,749***	*,165*	,409
Behavioral 2	,245	**,758**	,287
Behavioral 3	,320	**,843**	,059
Behavioral 4	,494	**,602**	,304

The items of the scale are listed in Table 13, along with the factor loadings on the expected facets reported for China, Europe and for the total sample. The first question (cognitive component item 1) has to be eliminated because it affects the wrong factor for Europe (and for the entire sample). Question number 9 has to be eliminated becasue it does not load on the correct factor for either sample, and question number 5 (affective component of attitude item 1) has low factor loadings for both samples (below the suggested level of 0.6)and can be eliminated in order to develop a more reliable and parsimonius scale.

The eliminated items are reported in gray text in the table (Tab 13). After eliminating the problematic items, the Cronbach alpha of the scales are: 0.783 for the cognitive component of attitude (3 items), 0.823 for the affective component of attitude (3 items), 0.855 for the behavioral component of attitude (3 items). The final items work well in both cultural contexts and provide a parsimonious yet strong scale with a reliability score well above the reccomanded 0.7 value for all the components.

The developed scale was applied for testing our main research question.

Table 13

No.	Facet	Items	Factor loadings China	Factor loadings Europe	Factor Loadings Total
1	C1	I have always focused my attention while reading the strategy	,602	,448	,400
2	**C2**	The strategy is simple to understand	,871	,820	,710
3	**C3**	This strategy makes sense to me	,854	,809	,767
4	**C4**	This strategy is clear	,681	,696	,768
5	A1	I find this strategy interesting	,552	,599	,712
6	**A2**	On my opinion, this strategy is engaging	,764	,785	,753
7	**A3**	I find this strategy inspiring	,707	,818	,798
8	**A4**	This strategy is convincing	,779	,785	,738
9	B1	I am persuaded that this is a good strategy	,292	,051	,165
10	**B2**	If this was the strategy used in the compa work… I would commit myself to adopt it in my daily work	,907	,786	,758
11	**B3**	If this was the strategy used in the compa work… I would be motivated to change my behavior accordingly	,830	,824	,843
12	**B4**	If this was the strategy used in the compa work… I would gladly get involved in its implementation	,825	,671	,602

C: Cognitive component of attitude; A: Affective component of attitude; B: Behavioral intention

3 TESTING THE EFFECT OF KNOWLEDGE VISUALIZATION ON ATTITUDE

3.1 Experimental Design

The hypotheses of the study are the following:

Knowledge visualization has a positive impact on attitude toward the organizational strategy, compared to a textual format. This effect is moderated by culture.

In order to test these hypotheses an experimental study was conducted.A typical textual representation of a corporate strategy (in bullet-point format) was compared to two visual maps of the same content (using exactly the same words). The difference was the visual background and the distribution (or mapping) of the text on the page. In particular, two types of knowledge representations were tested to discern the effect of visualization in general from the effects of a specific visual representation. Two visuals were selected: a timeline (which is an abstract and linear representation) and a mountain visual metaphor (which is a metaphorical and more concrete representation). According to the theory of the Geography of Thought (Nisbett, 2003), East Asians should display higher preferences for metaphorical compared to abstract formats, and vice-versa for Westerners.

Subjects were exposed to only one of the conditions (with a between subjects experimental design) and were then asked to answer a questionnaire which measured attitudes (with the aforementioned scale), demographic, and control questions including manipulation checks.

3.2 Analysis and Results

The research hypotheses were tested on different samples composed of 54 European subjects and 48 Chinese subjects (total N=102) with a modal age of 21, all of whom are college students in business or related disciplines, in Switzerland and China, respectively. Subjects were blind to the hypotheses and the conditions of the study. After the experiment, they were offered a debriefing.

The data was analyzed by assessing the scales, comparing the mean values per condition, and then conducting an ANOVA to test the significance. Finally,the moderation effectwas tested.

The newly-developed scale works well and the results of the reliability analysis returns a Cronbach alpha of 0.834 for the cognitive component of attitude, 0.832 for the affective component of attitude and 0.879 for behavioral intention. Table 14 reports the means for each of the 6 conditions (3 visual representation conditions and 2 cultural groups). To detect if the mean differences are statistically significant, an ANOVA (Analysis of Variance) was conducted. The results, as reported in Table 15, indicate that there is a significant positive effect of communicating the strategy with a visual representation – compared to a textual format – on the cognitive and affective component of attitude. The effect on behavioral intention is positive but not significant.

Table 14

	Condition		Cognitive	Affective	Behavioral
Europe	**Control**	Mean	3,9630	3,0351	3,2807
		Std. Deviation	1,51	1,18	1,23
	Diagram	Mean	4,4510	3,3725	3,9412
		Std. Deviation	1,43	1,41	1,25
	Metaphor	Mean	4,8148	3,8889	4,1852
		Std. Deviation	,87	1,00	1,28
China	**Control**	Mean	4,7292	4,1042	4,7083
		Std. Deviation	1,24	,93	1,08
	Diagram	Mean	5,3125	4,4167	4,8750
		Std. Deviation	1,17	,93	1,22
	Metaphor	Mean	5,3958	4,7292	4,7917
		Std. Deviation	,80	,76	1,04
Total	**Control**	Mean	4,32	3,5238	3,9333
		Std. Deviation	1,42	1,19	1,35
	Diagram	Mean	4,86	3,8788	4,3939
		Std. Deviation	1,36	1,30	1,31
	Metaph	Mean	5,0882	4,2843	4,4706

	or	Std. Deviation	,88	,98	1,20

Table 15

	F	df	Sig.
Cognitive	3,381	2	**,038**
Affective	3,674	2	**,029**
Behavioral	1,748	2	,179

To assess the interaction effect of culture and visual representation on attitude, a moderation test was conducted. The results (Table 16) show that there is no significant interaction of culture and representation, but a significant effect of visual representation condition (as explained above) and also a significant effect of culture.All the outcome variables are significantly higher in China than in Europe (Sig<.001 for the cognitive component of attitude, Sig=.003 for affective component of attitude, Sig<.001 for behavioral component of attitude). However, the interaction effectwas not significant for any of the measures.This means that the impact of visual representations on attitude has the same trend in Europe as in China, but in China the absolute values are higher. In other words the Chinese subjects had a significantly more positive attitude in general, for all conditions, when compared to Europeans. Table 16 also shows that the effect of the visual (versus textual) representation on cognitive and affective attitudescontinue to remain significant when culture is taken into account, indicating the robustness of the results. A visual representation of the results can be seen in figures 1-3 (displayedas the original SPSS output).

Table 16

Condition	Outcome	F	df	Sig.
Visual representation	**Cognitive**	3,531	2	**,033**
	Affective	3,852	2	**,025**
	Behavioral	1,654	2	,197
Culture	**Cognitive**	20,696	1	**,000**
	Affective	9,351	1	**,003**
	Behavioral	17,100	1	**,000**
Vis rep * Culture	**Cognitive**	,095	2	,909
	Affective	,117	2	,890
	Behavioral	1,010	2	,368

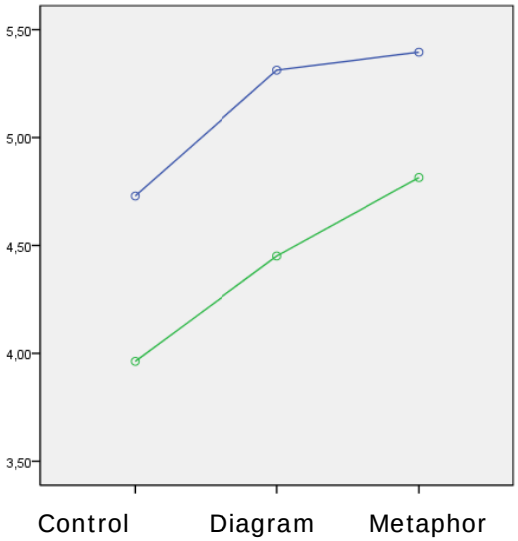


Fig. 1 Moderating effect of culture and visual representation on the cognitive component of attitude (Original SPSS output)

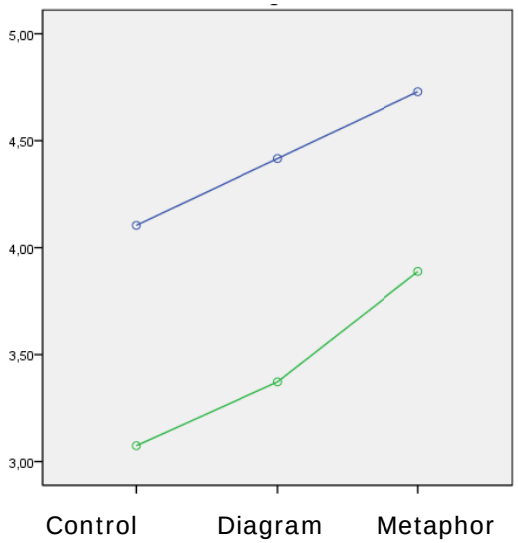
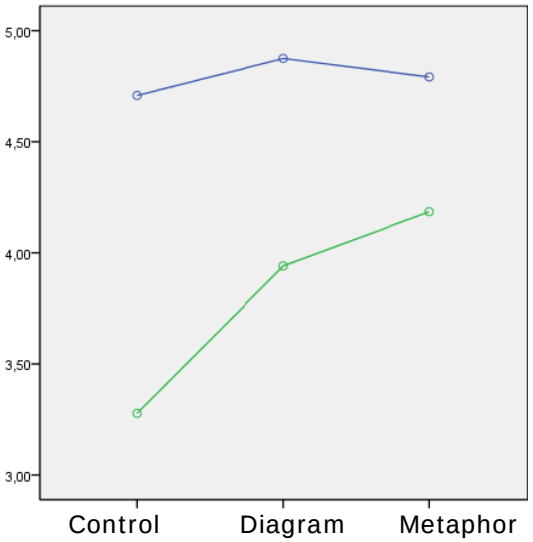


Fig. 2 Moderating effect of culture and visual representation on the affective component of attitude (Original SPSS output)



Legend:
■Blue: China
■Green: Europe

Fig. 3 Moderating effect of culture and visual representation on the behavioral component of attitude (Original SPSS output)

4 IMPLICATIONS AND CONCLUSION

4.1 Implications for Theory and Practice

The results of the experimental study have valuable implications for the management and visualization fields.Knowledge visualization can significantly improve attitude toward organizational strategy, as opposed to a textual representation. Therefore,

communicating with both text and visual representations can improve the efficacy of the messages. This effect seems solid as it is found across cultures and with diverse visual representations. Thus, Dual Coding Theory (Paivio, 1969) can be extended to knowledge visualization in a management setting.

Few studies have addressed the cross-cultural effectiveness of images. However, our results indicate that representing content visually is a suitable format in all cultures. The hypothesis regarding the impact of visual representations on behavioral intention is not fully supported, yet Figure 3 showcases an interesting pattern. The behavioral intention effect (that is, the commitment to implement the strategy) for Europeans is higher when they are exposed to visual representations.Conversely, no difference can be seen for the Chinese sample. This observation can imply that Europeans need to be convinced about the strategy in order to be committed to implement it, while the Chinese sample would commit to implement the company strategy, regardless to their attitude toward it.

This study provides a further theoretical contribution by developing a novel and cross-culturally validated scale of attitude toward strategy. Management professionals can learn from this study by understanding that mapping information and content visually proves to be a cost-effective mean to improve strategy communication across cultures. Thus, business communicators can craft convincing messages by mapping textual information with meaningful representations such as diagrams and visual metaphors.

4.2 Limitations and Future Research

Readers should be made aware of the limitations of the study.The sample was composed of college students with limited work experience, therefore the effect on professionals might differ. The content of the experiment focused on a company strategy; future research should address the effect of knowledge visualization on attitude for many diverse types of content to test if the effect holds regardless of the content. In this study only two types of visual representation could be tested against the control condition to maintain adequate statistical power.However, as several knowledge visualization formats and techniques exist, future research should investigate further visual mapping formats.

In conclusion, this study has provided a novel and concise scale in order to measure attitude toward an organizational strategy,a scale which works in both the West and in East Asia. The results show that knowledge visualization leads to a significantly more positive cognitive and affective attitude toward the content of the visualized message (not just toward the visual format itself), compared to a text format of the same message. In addition, the effect holds across cultures, indicating the universal

communicative power of visualization and its relevance in management, especiallyin cross-cultural settings.

Acknowledgments

The authors are grateful to Professor Martin Eppler and to Kyle Rydalch.

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Appendix

Final list of questions for the scale *attitude toward the strategy:*

Items	Facet
The strategy is simple to understand	Cognitive attitude 1
This strategy makes sense to me	Cognitive attitude 2
This strategy is clear	Cognitive attitude 3
On my opinion, this strategy is engaging	Affective attitude 1
I find this strategy inspiring	Affective attitude 2
This strategy is convincing	Affective attitude 3
If this was the strategy used in the company I work…	
I would commit myself to adopt it in my daily v	Behavioral intention 1
I would be motivated to change my behavior	Behavioral intention 2
accordingly	Behavioral intention 3
I would gladly get involved in its implementatic	

Answer options for each question:

strongly disagree *neutral* *strongly agree*

1 2 3 4 5 6 7