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Communication Media in SMEs: Measuring Adaptation Factor Using Mixed Method Paradigm

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Abstract

The uniqueness of this research lies in its effort of exploring the communication and media adaptation in Small and Medium tourism Enterprises. Literature is reviewed from both qualitative and quantitative perspectives. The mixed approach was used and on the basis of this review some research hypotheses are formulated. Data for the qualitative section was collected from semi-structured reviews with 13 managers of tourism companies. The results fill a gap in the literature, particularly in media research and provide evidence and support for hypotheses.

Keywords: Media; SMEs; Adaptation; Tourism

Introduction

Towards the end of the last century and into the twenty-first century, economies have undergone a transformation from resource-based to information-based strategies. Indeed the world economy is experiencing a number of trends including globalization, inter-connection, and mass communication, in which media and information exchange have grown in importance as factors to a revolution in business.

IT, especially a network technology, realizes global information exchange independent of time, distance, and even borders [1]. Inside organizations, the interactive nature of IT improves the efficiency of the decision-making process and includes structural transformation of organizations from hierarchical to network-type [2]. Today, information technologies present interesting opportunities for small businesses, leading to the emergence of new managerial roles and practices. In this sense, the Small and Medium Enterprises (SMEs) success depends more than ever on their ability to achieve a competitive position and it is hardly surprising that there are growing interests in communication and media.

Previous studies from strategic literature, have argued that negotiation is a key process due to its influence on the success of strategies [3,4]. In other words, it is critical in organizations for connecting employees and permitting organizations to function [5,6]. Obviously, there have been many recent changes in how those in the business world communicate with one another [7]. In addition, with the rapid improvement and availability of communication technologies, electronic media are shaping an evolution in inter-organizational processes and negotiations. One of the today's business transaction features is Computer-Mediated Communication (CMC). CMC is broadly defined as communication that occurs between two or more people with the aid of computer software and a computer interface, including text, audio, and video exchange [8]. There is an expanding interest in the use of modern CMC applications to facilitate group meetings and information exchange in the SME sector.

The issue of whether an Electronic Communication (EC) medium creates or removes obstacles for successful communication, when compared with the Face-to-Face (F2F) medium, has been perhaps one of the central issues around which EC research has gravitated [9]. Some have argued that EC media may both create and remove obstacles to successful communication at the same time [9,10]. In spite of the obstacles that EC media pose to communication, EC tools may remove key constraints to successful communication [11].

The ubiquitous access to multimedia services is facing an increasing amount of heterogeneity in devices, networks, contents, and user's preferences. Enabling transparent use of multimedia context (anytime, anywhere, and anyway) therefore requires the intermediate help of adaptation techniques [12]. Adaptation should be noticed as one of the main characteristics to be taken into account. Much of researches in the communication and media have focused upon the psychological and personal factors, and the adaptation process in the organizations has attracted considerably less attention in earlier findings [13-16]. Because of its novelty, no research has been done about the innovative attributes of media or activities of managers (especially adaptation) in digitalized tourism SMEs.

Aside the fact that in many areas, tourism industry is seen to be an important part of the economic agenda, their ability to create new job opportunities at a time when major operators are downsizing, diversified and flexible structure, and their innovative ways in introducing new service products, leading to an energetic enterprise culture as well as a perfect competition. On the other hand, the practical experiences of tourist agencies and research studies have shown that, while there are a lot of good practices which can be held up as examples, there are a number of weaknesses occurring in tourism SMEs that can constitute barriers to successful tourism development. It should be emphasized that due to the SME's structures, tourism industry has great importance for regional development and is expected to grow faster than other economic sectors. Especially in Middle-East, countries like Iran, United Arab Emirates and Qatar are expecting a growth in the international arrivals. Therefore, the interest in tourism development is changing the nature of economy in these countries.

For this study we have used European Union (EU) definition of SMEs (less than 250 employees). The Iranian tourism industry is coping with the social and technological changes by relying on effective communication and perfect media selection. Further, this study focuses on small businesses that encompass the retailing activities, hotel reservation activities, and transactions on the Web.

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The reminder of the paper is organized as follows: In the subsequent section, the theoretical background on the context of media and adaptation will be briefly discussed. The third section presents the data and methodology used. The forth section presents the elicited results. The paper concludes with a discussion on the findings.

Theoretical Background

Kock [17] has proposed the Media Naturalness Theory (MNT) as a means of understanding communication by focusing on biological and evolutionary factors. MNT proposes that different communication media present different levels of an attitude called "naturalness". The theory also proposes that humans have evolved so that face-to-face, synchronous interaction is the most natural and therefore optimal mode of communication, because the evolutionary forces have designed our brain primarily for face-to-face communication [9,17,18,]. Comparisons of high-natural versus low-natural communication modes have indicated that humans maintain an ability to adapt to the different media and compensate for whatever restrictions those media present [19,13].

This article defines adaptation as Canning [20] said:

… modifications at the individual or group level which are carried out by one or both parties in a relationship in order to suit new needs or conditions, and which are designed initially for the specific communication.

Broadly defined, adaptation refers to technological or behavioral changes that take place in individuals in response to communication demands. The MNT proposes that humans can adapt to media and thereby find those media less challenging. It is rather interesting that human motivation and the ability to adapt to the limits of technology allow people to overcome obstacles presented by media that are low in naturalness [13]. From the business perspective, as customers become fluid in the way they contact and interact with companies, companies in turn need to be fluid in their approach [21]. Therefore, experience can be one of the main factors to be taken into account.

Some research results suggest that with maturity and experience in a job, people might be more comfortable with communication climate and organizational context [22]. In other words, the different levels of experience with computer-mediated media and face-to-face media in an organized context will shape one's perceptions and use of such media.

Despite the fact that the people working face-to-face show superior performance at the beginning of the time period, differences between the communication conditions decrease as the time progress and participants become more familiar with the computer-mediated systems. Studies that examined experience found that users who spend higher amounts of time online may feel more comfortable communicating online compared to communicating offline [23]. It should be noted that as society makes a movement towards online media and the popularity of Instant Messaging (IM), e-mail, and online journals increases, individuals are expected to become socialized with online culture as well as the comfort level with these media is expected to become more increased and therefore users would prefer online communication [23].

It was found that the decrease in the degree of naturalness of communication media will cause an increase in the amount of communication ambiguity and in the amount of cognitive effort. Also, the burden of compensatory adaptation and cognitive effort will fall primarily on those who attempt to convey information, as opposed to those who receive it [9]. In this sense, sender always tries to use media that help him/her transfer the burden to other parts of communication, especially receiver. The burden is reflected in more time in communication with electronic media than face-to-face and reduction in fluency. In addition, whenever the amount of information giving and receiving is unbalanced, communicating electronically becomes a problem for the information giver [9]. Some of the communication media such as face-to-face require little adaptation, but the others require substantial changes.

Studies that examined time duration indicated that the repetitive use of communication media is likely to lead over time to those media being perceived as "richer" than before [24]. Also, negotiators are able to apply the integrative skills, learned in one task, to different negotiation situation [25]. The people who are less adept in technology may be the ones who prefer face-to-face communication [16]. Accordingly, Table 1 shows the literature orientation among researchers of communication and media adaptation.

The Structuration Theory's central tenet is that, in socially enacted environments, structures are influenced and created by the people who interact in those environments [26]. Also, it conveys that the perception of structures (e.g., group and technology) is dependent on actors (e.g., participants) as well as a communication among participants (e.g., peer-to-peer). Adaptation is strongly related to people's learning capacity, their access to training opportunities and their enthusiasm for learning. Therefore, education can be considered another factor to be taken into account. By tracing the series of activities, events, and trends associated with specific adaptations, the behavior related to these can be identified and is distinct from the normal and routine patterns of interaction that occur between the people. Different methods concerning the adaptation are now discussed (Figure 1).

In-line adaptation

Content enrichment: Content enrichment in adaptation is a hot topic today. Fortunately, the literature provides us with a wealth of research articles. Visual media such as Face-to-face and Video Conferencing enjoy the benefit of non-verbal cues, which are likely to convey the content at hand in a more rapid way. These include facial expressions, body movements, and speech arousal [13,14,17,27]. Vocal media such as Telephone and Answering Machine can express content in terms of "what is said? and how it is said?" [7]. In addition, certain paralinguistic aspects of speech, that is, tone, pitch, vocal stress, and vocal latencies may be useful in content enrichment. Text-based media such as e-mail, Instant Messaging, and written letters have the characteristics that all communication must be typed [9,13,16]. People today found efficient ways to enrich these media content. For example, in e-mail or Instant Messaging system, instead of typing the words "you are", people may type the text "u r" with the knowledge that the receipts will understand the intended message. Also, someone may use graphics, drawings, etc. to enrich the transferred content.

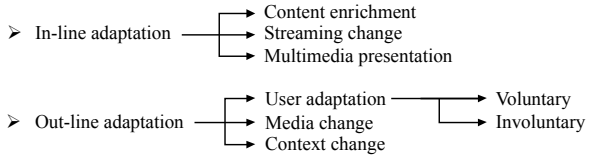

Figure 1: Adaptation techniques.

Streaming change: Many adaptive delivery techniques have considered the problem of bandwidth limitations, loss rates, delay and jitter [12,28]. There are a lot of techniques and approaches for adaptive streaming such as variable transmission rate, Adaptive Media Play-out (AMP) in the receiver, split at the sender and merge at the receiver, source-coding, compressing, and caching or prefetching methods. Prefetching is predicting future use thus trying to assure a continuous delivery.

Multimedia presentation. Several authors [12,29,30] distinguish between adapting single media and adapting structured multimedia presentations. Lemlouma et al. [29] review different techniques and tools for transforming a complex multimedia composition or presentation. Such techniques (hyper link structures, temporal relations between the media objects, temporal media objects substitution) will increase the In-line adaptation. However, the greatest opportunity for innovative adaptation increase is through combining the new and the old channels.

Out-line adaptation

User adaptation: One dimension of Out-line adaptation deals with the human factors (users' behavior along time). Prior researchers have found that people use the adaptation mechanisms that maximize and maintain the user-perceived Quality of Perception (QoP) as low-level Quality of Service (QoS) varies [13,17,25,31,32]. It should be noted that User adaptation can be judged by a variety of factors. Time must be considered one of factors to be taken into account. Based on the time period, two main approaches can be identified: Green (Environmental) adaptation or involuntary adaptation which is gaining through the long-term and unconscious communication. In contrast to this approach, voluntary or short-term adaptation is conscious, and often is enforced from the top managerial echelon or context pressure.

Media change: It has already been found that different communication platforms can substantially affect behavior and outcomes [15]. Media change approach indicates that ambiguous and unsuitable outcomes influence media selection and communicators always select the medium that needs less effort into the structure of their message contents. In this sense, prior researchers have found that communication participants preferred media that were high in naturalness and synchronous nature of interaction [33-35,13]. Another trend is media improvement or Intelligent Adaptive Hypermedia Systems (IAHS). These systems provide various types of interaction support. For example, they can be used to avoid improper educational session or computer-mediated messaging. This topic has received a lot of consideration in Zukerman et al. [36], Syeda-Mahmood [37], Bra and Stash studies.

Context change: Most of the context features in organizations such as available resources and the negotiation requirements can change over time. For example, if the communication between parties is based on the common sense, these parties can increase or decrease their environmental factors (noise, workplace schema, etc.). Therefore they will utilize an intelligent integration of several resource-based or organizational factors for designing fully adaptation techniques.

Personalization

If an organization uses what it knows about the personnel to define how it treats those personnel, it is utilizing Personalization. However, the personalized media are the most expensive to support. Between the argued media, face-to-face is inherently the most personalized, and those between a person and a software system are the least personalized. Between these two extremes are channels with intermediate levels of inherent personalization, such as telephone, Webchat, and e-mail [38].

Based on the above arguments, the key question being investigated here is whether a change in the adaptation with a media or change in the personal behaviors leads to high satisfaction. In other words, satisfaction with the communication media is caused through the adaptation with media. This suggests the following hypothesis:

Hypothesis 1. CEOs prefer to use the media that are high in richness than media that are low in richness.

This hypothesis compares the communication media selection (high natural versus low natural) of the SMEs managers. In addition, it is also of interest to assess satisfaction with the media in SMEs. This leads to the hypothesis:

Hypothesis 2. Using the media that are high in richness has more satisfaction than media that are low in richness.

It is useful to understand that we do not intend to investigate media effect itself, but the main goal of this research is exploring the adaptation factor through the media spectrum in order to highlight satisfaction existence. In the third hypothesis, we have gone a step further where we tried to investigate the existence of the media usage effect on satisfaction factor:

Hypothesis 3. Satisfaction factor with communication media affecting the later usage of media for the CEOs.

Methodology

The data for quantitative section was collected from tourism top managers via pre-interview questionnaires from a population of 172 tourism SMEs located in Tehran metropolitan area. They were randomly selected from an Iranian tourism database of Iranair (http://www.iranair.com/), a standard source of data about Iranian small tourism companies. A total of 78 managers provided complete answers to the questionnaire, giving an effective response rate of 45.34 percent. 53 CEOs were males (67.9%) and 25 were female (32.1%). Over 70% of SMEs were self-employed and 30% of SMEs were family-based businesses and none of SMEs were run by the government. Exactly 68% of SMEs had fewer than 50 employees and 7% had between 50 and 250 employees. Participants ranged in education from non-college education to Ph.D., with 29.5% had no college experience, 47% received at least 2 years of college or university education, 7% had master degree, and 1% had Ph.D. The average year that computer permeated SMEs was 7.4 years (Median = 8 years). The mean of annual sales of SMEs is 167.700 $ with the minimum of 50.000$ and maximum of 650.000 $. 41 CEOs were young adults (between 15 and 35) and 37 were in the middle and late ages (greater than 35 years old). The mean of CEOs age was 37.98 years old with over 13.24 years of business experiences.

From the data gathering and goal aspects, this research is mixed method study. Mixing qualitative research and quantitative research is a major methodological movement across the social science and many researchers view it as a third approach to research, alongside qualitative and quantitative research [39,40]. In this approach, the researcher decides to combine or blend both qualitative and quantitative methods, because the methods together result in a better understanding of the problem being researched. For example, the researcher can examine statistical results, along with in-depth or semi-structured perspectives to obtain stronger trends. There are many reasons that researchers choose to use mixed methods in their research studies. One of the mixed approach applications in social science is explanatory design. The explanatory design is a two-phase mixed methods design in which the quantitative and qualitative methods are implemented

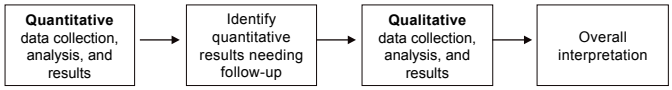

Figure 2: Explanatory design. from Creswell and Plano Clark (2007).

in a sequence (Figure 1). This design starts with the collection and analysis of quantitative data. This quantitative phase is then followed by the subsequent collection and analysis of qualitative data in a second phase. The qualitative phase of the study is designed so that it follows from, or is connected to, the results of the initial quantitative phase [41] (Figure 2).

As the first phase, each participant received a written consent form and was asked to complete a demographic information sheet and a theory-based questionnaire. Adaptation was measured based on the Cemalcilar et al. suggested technologies. Participants were asked to indicate how often they use noted media in the everyday routine work. A five-point Likert scale (from strongly agree to strongly disagree) was utilized to measure the items about adaptation. Lower scores on this scale indicate a stronger adaptation to communication media in SMEs. As the second phase, the qualitative section, data was collected via personal interviews within one week period from a sample (n = 13) of all top managers in tourism SMEs. The questions that were asked varied from their difficulties and barriers of communication in their SMEs, to the degree of media usage under their supervision.

As already stated in the introduction, the main objective of this study is to analyze the adaptation in the communication process of SMEs. This issue has been analyzed in a particular context, tourism SMEs in Tehran. In order to achieve the study goals, the data was gathered from CEOs that had actively taken part in the communication of their firm. All data was gathered over a three week period. To ensure data quality and to enhance response, the research instrument was pre-tested in five SMEs and several adjustments were made before data gathering. Considerable care was taken during the field-based validation of the research instrument to ensure content validity by establishing relevance to practice and elimination of wording problems (such as biased, ambiguous, double meaning or inappropriate items). Also, despite the exploratory nature of this study, several precautions were taken to ensure the validity of the measures used. Many of the recommendations by Carmines et al. [42] were followed. To ensure content validity, a thorough survey of the relevant literature was undertaken to understand the important aspects of each major construct and its components, and not to neglect any important dimension. Finally, some of the academic experts authorized the instrument for data gathering. After the final modifications, the questionnaire was mailed to managers including a letter explaining the purpose of the study. High reliability of the instrument was found with Cronbach alpha 0.83 associated with the component measures. The analysis was carried out using the SPSS software package.

Results

At the outset, the aim of this study was to determine if adaptation with the communication media cause satisfaction. T-test conducted on the data pertaining to media usage and media satisfaction differences to assess hypotheses H1 (which it was predicted that CEOs prefer to use the media that are high in richness than media that are low in richness) and H2 (which it was predicted that using the media that are high in richness has more satisfaction than media that are low in richness). Table 2 reports the results of t-test on differences in media usage (t = 8.13, $p < 0.05$) and satisfaction with the media (t = -29.30, $p < 0.05$). The results in Table 2 show that the Media usage (preference for media) and media satisfaction are significantly different across media that are high in richness versus media that are low in richness. (Table 2)

Descriptive statistics are presented in Table 3 indicate that respondents were only slightly satisfied with media that are low in richness. Table 3 also suggests that managers had a greater use of media that are high in richness. However, we can conclude that the results did support Hypotheses H1 and H2.

As the next level, the effect of media satisfaction on the later media usage (H3) was measured by running a linear regression. The result in Table 4 shows that the low rich media satisfaction affected later media usages. It means that the users after a while feel unsatisfied and stopped working with low rich media.

Mean while, the result in Table 5 shows that the high rich media satisfaction didn't affected later media usage. It means that the manager's reason for later usage of high rich media is not coming from the satisfaction with the same media, but another source.

The results did partially support Hypothesis H3. Please note that the significance scores just show the satisfaction effect on the media usage, but not the satisfaction or dissatisfaction level.

Conclusion and Discussion

It is important for researchers to acknowledge that as technology evolves, so too does the generation developing with it. Consistent with

Adaptation items	Source of literature
Power balance and Formality	Brennan and Turnbull (1999), Hallen et al. (1991)
Information exchange	Hallen et al. (1987), Seyed-Mohamed and Wilson (1989), Metcalf et al. (1992)
Task and End-parties	Kock (2007)
Medium and Technology	Hallen et al. (1993), Charvillat and Grigoras (2005)
Negotiation process	Ring and Van de Van (1994), Hakansson (1982), Canning and Hanmer-Lioyd (2002)

Table 1: Literature Review.

Source	Lower	Upper	t	df	Significance
High use-Low use	0.66	1.09	8.13	77	.000*
High satisfaction-Low satisfaction	-2.14	-1.87	-29.30	77	.000*
Notes: *$P < 0.05$					

Table 2: Results of t-test on Media usage and Satisfaction.

Source	Mean	N	Std. deviation
Media use (high richness)	3.06	78	0.611
Media use (low richness)	2.18	78	0.614
Satisfaction (high richness)	4.39	78	0.349
Satisfaction (low richness)	2.38	78	0.601

Table 3: Descriptive results.

Dependent variable	SD. Error	Beta	Significance
Low richness media	2.06	0.239	**0.035**

Table 4: Results of Linear regression on low richness media usage and Satisfaction with low richness media relation.

Dependent variable	SD. Error	Beta	Significance
High richness media	2.38	0.070	**0.540**

Table 5: Results of Linear regression on high richness media usage and Satisfaction with high richness media relation.

this idea is the argument that the presence of new technology affects the behavior of those using it [43]. In order to survive in the ever-changing environment, managers will need to learn more adaptive methods of communication through balancing both media and humans. Considering the changing customer demands and resource limitations in tourism SMEs, these companies rely heavily on part-time employees. According to the previous finding, a high proportion of part-time employees suggested that alternative channels of communication are required to keep staff informed Gray et al.

If one is to select media so as to make adaptation easier, it is important to notice the target (i.e. sender or receiver), since he/she is really the one responsible for most of the adaptation effort. According to Kock [9], the individuals trying to convey information, instead of the ones receiving it, is the ones on which the burden of compensatory adaptation effort seems to fall more heavily. Also, managers should use a combination of media in their firms, because it reduces the adaptation effort when they are trying to convey heavy, complex, and unbalanced information. This is consistent with the Kock [9] findings. Our study suggests that the adaptation with communication media changes the very nature of service work. Usually, online transactions induce more effort between the parties, while face-to-face and high rich media induce more of satisfaction and less effort between the parties.

Although the domain of adaptation is attracting increasing interest, the context of Computer Mediated Communication offers a host of unexplored and intriguing possibilities. Throughout this paper, we have advanced a number of research propositions related to media adaptation, satisfaction, and challenges and opportunities. Future research on adaptation and satisfaction with media in SMEs should include other industries such as electronic, software and machinery companies. Additional classifications can be added to the media richness scheme to provide greater description and understanding of these subjects. Furthermore, cross-cultural studies of media should provide an understanding of the diversity of managers' roles in communication.

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