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Communication Channels Used by Academic Staff in Interacting with Their Students

Abbas Ghanbari Baghestan[1*], Mehrnoosh Akhtari Zavareh[2] and Musa Abu Hassan[1]

[1]Department of Communication, Faculty of Modern Languages, Universiti Putra Malaysia, 43400 UPM, Serdang, Selangor, Malaysia

[2]Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 UPM, Serdang, Selangor, Malaysia

[*]E-mail: Ghanbari.Abbas@gmail.com

ABSTRACT

The aim of this paper is to report the findings on the impact of communication technology as a channel for interaction between academic staff and their students, conducted at a Malaysian higher learning institution. The study focused on media choice and it attempted to determine the communication channels mostly used by academic staff in interacting with their students and the reasons for selecting these channels. It also intended to find out whether there was a significant relationship between communication channels mostly used by academic staff and their perception of media richness. The results revealed that although the existence of new communication technologies such as the internet offers faster and cheaper facilities, face-to-face communication is still the most used and preferred communication channel by academic staff in interacting with their students. In addition, there was a significant relationship between the communication channel mostly used by respondents and their perception of media richness and social presence. This explained why the higher level of social presence, the higher the level of experience with a channel would be. The findings of this study extended two of the most widely investigated media choice theories; Media Richness Theory (MRT) and Social Presence Theory (SPT).

Keywords: Computer Mediated Communication, face–to-face communication, Media Richness Theory, Social Presence Theory

INTRODUCTION

Interaction between academic staff and their students plays a key role in ensuring that they (academic staff) can accomplish their objectives in both educational and interpersonal relationships. Due to the nature of their job, academic staff usually spends a lot of time interacting with students.

Although face-to-face meetings are still likely to be an important channel, with the growth of new communication technology, it is no longer the sole communication medium used by academic staff in interaction with their students. New communication technologies offer new channels and possibilities in communicating. New communication technologies and their facilities are also known as the new media, as opposed to the traditional media of face-to-face meetings, as well as telephone and text-based documents. Thus, research into understanding factors influencing communication media choice and exploring optimal ways of communicating

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[*]Corresponding Author

has sparked the interest of academics and practitioners alike.

The scope of this study is media choice and this research attempted to determine the most preferred communication channels used by academic staff in interacting with their students and the reasons for their selection.

The impact of new communication technologies in human communication has been the target of intense research. For instance, Barnes (2003) proposed that the need to understand the impact of new technologies on education is growing as technological advances offer more communication options. In recent years, while many academic staff have the choice to turn to new communication channels as a means of communicating with students, few researches have been aimed to assess how academic staff communicate with their students. Which channels do they most use in interacting with their students? Are they new communication channels or traditional ones?

Theoretically, the above dichotomies of communications channels (traditional channels vs. new communication channels) have some differences in terms of the nature of channels, characteristics of each channel, etc. Based on the differences highlighted in the literature review, this study thus attempted to answer the following questions:

- RQ1: What are the levels of academic staff experience (use) of using each communication channel (face-to-face, telephone line, mobile phone, email, writing message, online communication) in faculty-student interaction?
- RQ2: What is the perception of the academic staff on media richness factors?
- RQ3: Which communication channels do the academic staff most frequently use for special messages (based on different types of task)?
- RQ4: Which communication channels are most frequently used by the academic staff based on the type of relationships (educational/ personal relationship)?

Media Richness Theory and Social Presence Theory

Although there has been a vast amount of literature investigating new communication channels, how these new channels are integrated into human communication behaviour is still not well understood, or which traditional media are replaced, if so, by the new communication channels. To answer these questions, there has been research on new communication media usage including changing perceptions of communication media (Schement and Stout, 1989), the technical and social characteristics of the new media (Huang and Wei, 2000), the human conceptualization of the underlying properties, roles, and functions of the new media (Katz and Rice, 2002), the perceived characteristics of the new media (Chidambaram and Dag, 1998), and the effect of context and social influence on the adoption and usage of the new media (Carlson and Zmud, 1999).

In addressing the role of communication technologies in the interaction between academic staff and their students, this research project joined a body of literature that aimed to extend two of the most widely investigated media choice theories, namely Media Richness Theory (MRT) and Social Presence Theory (SPT).

Social Presence Theory (SPT)

Social presence is a subjective quality of the communication medium and it is related to the social psychology concepts of intimacy (determined by physical distance, eye contact, smiling, and personal topics of conversation) and immediacy (determined by the medium's capacity in transmitting information) (Short, Williams and Christie, 1976). Tu (2002) argued that social presence could be defined in terms of a combination of social relationships, communication styles, task analyses, feedback levels, and measures of immediacy.

Short and his teammates see social presence as the ability of individuals to collaborate effectively through technology, even when they are located in different locations and time frames.

Social presence refers to the degree to which a medium allows communicators to experience others as being psychologically present, or the degree to which a medium is perceived to convey the actual presence of the communicators. Social presence can be a function of both verbal cues (e.g. tone of voice) and non-verbal cues (e.g. facial expression, direction of gaze, posture, and dress) (Short, Williams and Christie, 1976).

Short, Williams and Christie (1976) surveyed the literature on mediated communication and concluded that communication media differed in their ability to provide a sense of social presence. They also concluded that most new media are lacking in social presence. In other word, communicating by media is rather different than communicating in person. This has the implication that understanding may be distorted due to a lack of social cues and thus, users will have the tendency to misinterpret messages. In addition, reduced social presence may lead to less emotionality in exchanges, weakening the interpersonal function of communication.

This theory also classifies different communication media along a one-dimensional continuum of "social presence." Media that are capable of providing a greater sense of intimacy and immediacy are perceived as having a higher social presence. On a continuum of social presence, communication media such as face-to-face meetings, which are capable of conveying non-verbal and social context cues, are considered to have the most social presence, whereas CMC, written, text-based communication have less of this because they lack non-verbal feedback cues.

According to the social presence theory, communication tasks differ in their requirements for social presence. The appropriateness of a medium for performing certain communication tasks is determined by the degree to which the medium's characteristics of social presence fit the requirements of the tasks. Tasks that require interpersonal skills, such as resolving conflicts or negotiation, demand high social presence, whereas tasks such as exchanging routine information are low in their social presence requirements. Media like face-to-face and group meetings are more appropriate for performing tasks with high social presence requirements, whereas media such as e-mail, letters, and memos are fit for low social presence tasks.

Media Richness Theory (MRT)

The media richness theory was proposed by Daft and Lengel in 1986. It is viewed as a refinement and extension of the social presence theory. According to Dennis and Kinney (1998), richness of a medium is based on its ability to process rich information. Daft and Lengal (1986) proposed Media Richness theory (MRT) which hypothesizes on the information carrying capacity of media. This capacity is increased by the extent to which the medium meets the four criteria as follows:

- Feedback Capability – the ability of the medium to facilitate instantaneous feedback (synchronicity) and clarification of issues during engagements.
- Multiple Cues/Communication Channels Utilized – the range of cues (including body language, voice inflection, physical representations) facilitated by the medium.
- Language Variety – the ability of the medium to facilitate engagements involving both numbers and natural language.
- Personal Focus/Source – the ability of the medium to convey the personal feelings and emotions of communicating parties.

Based on above criteria, the media richness theory classifies communication media along a continuum of "richness," where richness is based on the ability of the media to carry non-verbal cues, provide rapid feedback, convey personality traits, and support the use of natural language. These criteria impact upon human understanding and frame of reference. For instance, the media which provide all these criteria (e.g. carrying non-verbal cues, providing rapid feedback, etc.) are better for understanding the messages. As Lam (1998) claimed, media richness refers to the ability of the media to change human

understanding, overcome different conceptual frames of reference or clarify ambiguous issues in a timely manner. Consequently, communication media possessing more features of the criteria will rank higher on the richness scale compared to one which possesses less.

The media richness theory proposes that face-to-face communication is the richest medium, followed in order by telephone, written personal, CMC, written formal, and numerical formal media. Oral media, such as face-to-face and telephone, are believed to be richer than the written media because they provide opportunities for immediate feedback and can have multiple cues including kinesics, facial expression and tone of voice and usage of natural language that is high in variety. Particularly in the face-to-face media, participants are able to use varying modes of communication: words, vocal cues (e.g. voice inflection, sighs), non-verbal communication (e.g. gestures, touch), and written or drawn communication (e.g. paper, blackboards). These modes combine to transmit factual information about the task and social information about the personal characteristics of team members. Other media have lesser abilities to transmit the different forms of communication (Wright, 2000).

In media richness theory, the media are placed in continuum of richness, from low in richness to high in richness. Daft and Lengel (1986) state that media low in richness are suitable for facilitating discussion over simple topics, while media high in richness are suitable for complex organizational topics. They focus on 'traditional' communication media, such as the face-to-face meetings which are considered the richest media, while the leanest media are regarded as formal, unaddressed documents (such as memos). Media are placed on a continuum of information richness, suggesting that the richness property of each medium is fixed.

The media richness theory also differentiates between lean and rich media by the number of cue systems within each medium. This approach suggests that because CMC is a lean channel, it is useful for simple or clear messages. CMC is also more efficient for communication that does not require co-ordinated interaction efforts. On the other hand, a richer medium should be used for information that is ambiguous, emphatic or emotional (Wright, 2000).

Ambiguous refers to equivocal, whereby the communicators face the problem of confusion because there are too many possible meanings in the message. When words or events are ambiguous or equivocal, people do not require more information but they need a context or framework to help them sort through the data. They need a filter to help them screen out interpretations that will turn out to be counterproductive. Therefore, face–to-face meeting is best for ambiguous messages as it provides rapid feedback.

Complex messages refer to unpredictable human dimensions and emotional aspects of interactions. It includes those messages that require further explanation, elaboration or clarification. Complex messages are neither objective nor computational procedures that clearly instruct people what to do. According to Keil and Johnson, (2002), complexity is more subjective or perception-dependent than ambiguity.

Keil and Johnson (2002) also noticed that CMC and written media could oversimplify complex problems because they do not provide a means to convey feedback or information concerning personal feelings. In addition, Kock (2004) found that the lack of non-verbal and social cues in CMC interaction reduces social regulation, leading to more relaxing feeling and occasional overly emotional interactions.

Media richness theory proposed at a time when the Internet as we know it today was yet to be conceptualized and this has lead to difficulties in trying to position such media on a scale of relative richness. However, if we attempt to assess an electronic medium such as email based on the criteria for media richness, we will see that email is not a rich medium and thus should not be used for highly equivocal communications.

Conceptual Framework

For the purpose of this paper, we chose to investigate the model shown below. Based on the model which was derived from the media richness theory and social presence theory, three factors could affect the selection of communication channels in interacting which each other.

Based on the above mentioned theories, the type of task refers to the nature of message that contains simple/straightforward message (e.g. clear message), ambiguous messages (e.g. messages that require discussion, negotiation or clarification) and complex message (e.g. messages that require elaboration, explanation or demonstration with examples).

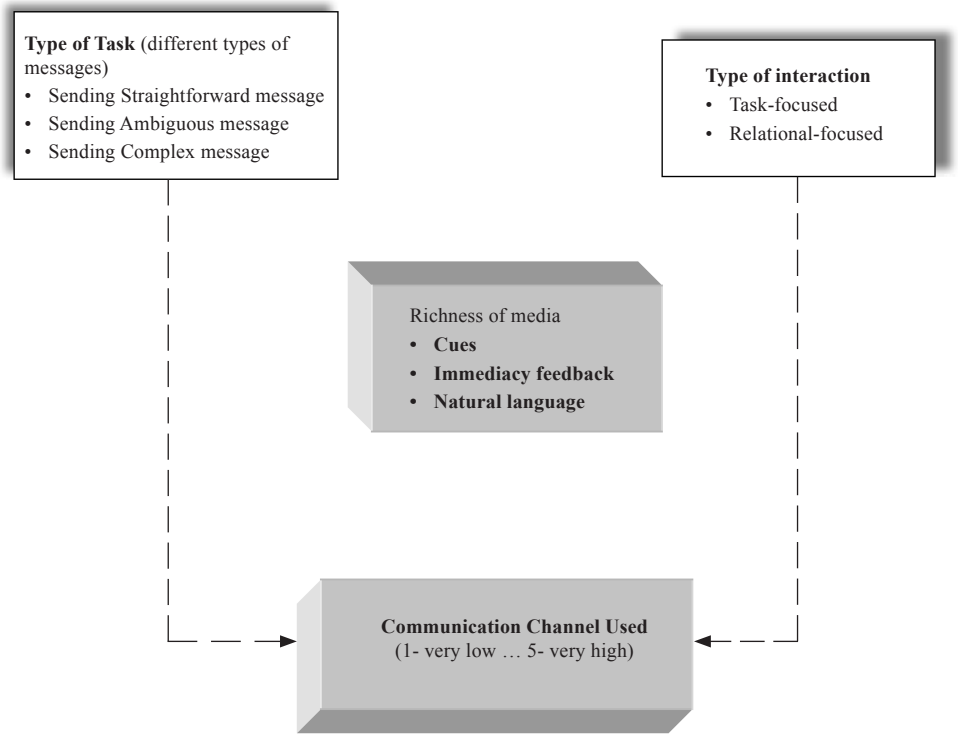
Type of interaction refers to the kind of relationship between academic staff and their students, which includes task-focused (e.g. educational relationship) and relation-focused (personal relationship).

Richness of media means the ability of media to carry both verbal cues (e.g. volume, tone, and rhythm of sound) and non-verbal cues (e.g. gestures, facial expression, and eye contact) so as to provide rapid feedback, convey personality traits, and support the use of natural language.

Communication channels refer to both traditional and new channels of communication including face-to-face, telephone, mobile, email, written messages, and online communication. These were ranked on the scales from 1= very low, 2= low, 3= middle, 4= high, and 5= very high, to measure the level of academic staff's experiences in using each of the communication channels in interaction with their students.

Hypotheses

Based on conceptual framework, there are three factors that can influence the choice of



communication channel by the academic staff. For this purpose, two hypotheses were postulated to explore these factors. The first hypothesis is related to the experience of academic staff with different channels:

H1- Whether experience level differed across different communication channels.

The second set of hypotheses is the role of academic staff's perceptions (in terms of richness) in determining the different communication channels used in interacting with their students. The effectiveness of the different constructs such as providing immediate feedback, conveying personality traits and carrying both verbal and non-verbal cues were also examined in this study. *(Noticed that the differences between the first three channels mostly used by the academic staff were measured and the other three remaining with lower usage were left out)*.

H2.a - There is a significant relationship between the first communication channel mostly used by academic staff and their perception of media richness.

H2.b - There is a significant relationship between the second communication channel mostly used by academic staff and their perception of media richness.

H2.c - There is a significant relationship between the third communication channel mostly used by academic staff and their perception of media richness.

METHODOLOGY

This study employed a survey research design by distributing self-administered questionnaires to the respondents. The questionnaires were distributed among 80 academic staff at one Malaysian higher learning institution. The population of this study was 103 academic staff, and based on Bartlett, Kotrlik and Higgins (2001), a sampling table with a total of 80 respondents were selected randomly from a total population of 103 academic staff.

Meanwhile, the research instrument used in this study was the questionnaire. The questionnaire was adapted from Lam (1998) and Chidambaram and Dag (1998). The reliability of the questionnaire was examined by calculating the internal consistency of the scales using Cronbach's alpha. In this study, the Cronbach's alpha for the 6 items of media richness was 0.89, which is statistically acceptable.

FINDINGS AND ANALYSIS

1-Respondents' Personal Information

Among the 80 respondents of this study, 41.9% were males and 58.1% were females. Majority (66.1%) of the respondents have PhD, followed by Master's holders who contributed about 24.2% of the sample. Five respondents (9.7%) were Professors, and most of them (75.8%) had more than 10 years of teaching experience. However, the mean for the respondents' level of teaching experience was 18 years, while the minimum teaching experience was 1 year and the maximum was 37 years.

2- The Level of Experience in Using Communication Channels

To answer RQ1, the responses to the six channels (including face-to-face, telephone line, mobile phone, email, writing message, online communication) used were examined. Table 1 indicates that academic staff considered themselves as most experienced with face-to-face meeting (Mean = 4.84) and least experienced with online communication (Mean = 1.66). Meanwhile, the experience with other channels, telephone line (Mean = 3.66), mobile phone (Mean = 3.41), Email (Mean = 3.20), and Written message (Mean = 3.20) fell between these two extremes.

The first hypothesis addressed the experiential differences across the different communication channels. In order to determine this, pair sample t-test was used to compare the mean of communication channels used by the academic staff in interacting with their students.

TABLE 1
The level of experience

Cannels	Mean	Std. Deviation
Face-to-face	4.84	.371
Telephone line	3.66	1.01
Mobile phone	3.41	1.03
Email	3.20	.93
Written message	3.20	1.26
Online communication	1.66	1.02

The channels were on the scale from 1= very low to 5= very high

Based on the finding, the first hypothesis was found to be supported, suggesting that academic staff's experience levels significantly differed according to the different media used.

Table 2 indicates that there is a significant difference between the mean for the face-to-face meetings, telephone line, and mobile phone with other communication channels. For example, the face-to-face with telephone line ($t = 9.26$, $p = .00$), face-to-face with mobile phone ($t = 9.69$, $p = .00$) and telephone line with mobile phone ($t = 9.80$, $p = .001$).

3- Communication Channel Used and the Perception of Media Richness

RQ.2 asked the academic staff on the perception of media richness factors. In this study, the academic staff were requested to provide reasons of their selection for certain medium in communicating with their students. As can be seen from Table 3, the respondents agreed that the channel must convey personality traits of themselves and students (Mean = 4.47), provide immediate feedback (Mean = 4.37), enable both the respondents and students to use friendly language (Mean = 4.34), carry both verbal and non-verbal cues (Mean = 4.24), and carry sufficient verbal cues (Mean = 4.18).

Hypotheses 2.a through 2.c addressed whether there was a relationship between communication channel most used by academic staffs and their perception of media richness. As Table 2 and 3 shows, academic staffs choose face-to-face channel as their mostly used communication channel, significantly. This was followed by telephone line and mobil phone as the second and third ones. In line with this, Pearson Product Moment Correlation was used to measure whether there was a significant relationship between face-to-face, telephone line, and mobile phone channels, as the three

TABLE 2
Pair sample t-test

Pair sample t-test	t	df	p
Face-to-face Telephone line	9.267	61	.000
Face-to-face Mobile phone	9.69	61	.000
Telephone line Mobile phone	9.80	61	.001

TABLE 3
Academic staff's perception of media richness

Valid	Mean	Std. Deviation
The channel must convey personality traits of mine and students, e.g. friendliness, respectfulness, and concern.	4.47	.67
The channel must provide immediate feedback.	4.37	1.15
The channel must enable both me and students to use friendly language.	4.34	.71
The channel must carry both verbal and nonverbal cues, e.g. volume and eye contact.	4.24	.78
The channel must carry sufficient verbal cues, e.g. volume, tone, and rhythm of sound.	4.18	1.12
The channel must carry sufficient non-verbal cues, e.g. gestures, facial expression, and eye contact.	3.64	1.45

TABLE 4
Pearson Correlation for communication channels used and perception of richness of media

	Media Richness	
Channel	r	p
Face-to-face	.376	.001
Telephone line	.399	.001
Mobile phone	.450	.067

Correlation is significant at the 0.01 level

channels mostly used by academic staff, and their perception of media richness. In other words, to understand whether the choices of face-to-face meetings or telephone line and mobile phone as the mostly used communication channels was due to their perception of media richness provided by this medium. As can be seen in Table 4, two of the above hypotheses were supported and there were significant relationships between the face-to-face and telephone line as channels, and their perceptions of media richness. In other words, these results confirm that academic staff preferred using face-to-face and telephone line channels due to the high level of social presence and media richness provided by these media. Nevertheless, the third hypothesis (i.e. the relationship between mobile phone and academic staff's perception of media richness) was rejected. One possible reason is that it was less experienced by academic staff (Table 1) so they could not consider mobile phone as a rich medium, or they probably believed that mobile phone was less effective because of its accessibility, cost, etc., as compared to Face-to-face and telephone line.

Thus, the perceptions of media richness play an important role for academic staff in the selection of channels to interact with their students. This finding is also consistent with the social presence, which claims that face-to-face has the highest level of social presence and richness of information because it allows simultaneous observation of multiple cues, including kinesics, facial expression, and tone

of voice. Meanwhile, face-to-face meeting also provides immediate feedback, personal interaction, and use of natural language that is high in variety.

4- Communication Channel Mostly Used based on the Type of Task

As shown in Table 5, 38.7% of the academic staff preferred meeting their students on the Face-to-Face basis to communicate straightforward and clear messages. Mobile phone was ranked as the second preferred medium (27.4%), followed by Email (19.4%), Written messages (8.1%) and Telephone line (6.5%). However, these findings contradict with the notion of social presence and media richness theories which propose that communicators use a lean channel for straightforward and clear messages. One possible reason to explain why academic staff preferred using face-to-face for almost every task is the phase that "old habits are hard to break." In other words, it grows into a habit to use this particular means of communication traditionally and culturally. Similarly, this is also because the new communication technologies are more or less new arrival, and thus they may feel or face some difficulties in terms of accessibility (for both sides; sender and receiver), effectiveness, and their ability to correctly carry messages.

To communicate ambiguous messages, 90.3% of the academic staff preferred using face-to-face meeting, and only 9.7% chose to use Telephone line. This finding is consistent with the social presence and media richness theories which suggest that a rich medium is useful for ambiguous messages. 93.8 % of the academic staff chose face-to-face meeting as the preferred channel to communicate complex messages, and this was followed by written messages (3.7%) and email (2.5%).

As mentioned in the earlier section, these findings cast some doubts on the media richness theory which states that task with different information rich requirements requires the use of different media. In this study, while media use differed within tasks, it did not differ across the tasks. For example, academic staff appeared to be relying on the traditional media for almost every task.

However, when this result is considered in light of the support for hypothesis No.1, a possible explanation emerges. The academic staff's experiences with different media differ, and they are obviously more experienced when it comes to using traditional media (e.g. face-to-face), but are less experienced with new communication channels (e.g. online communication). As their level of experience with a channel increases, their use of that medium also tends to increase.

TABLE 5
Communication channel used based on the type of task

Type of task	Communication Channels	Frequency	Percentage
Sending simple messages	Face-to-face	31	38.7
	Mobile phone	21	27.4
	Email	15	19.4
	Written messages	8	8.1
	Telephone	5	6.5
Sending ambiguous messages	Face-to-face	72	90.3
	Telephone line	8	9.7
Sending complex messages	Face-to-face	75	93.8
	Written messages	3	3.7
	Email	2	2.5

5- Communication Channel Used based on Types of Interaction

In general, for both educational and personal type of interactions, most of the academic staff preferred using the face-to-face channel in communicating with their students, followed by the use of mobile phone, email, and written message. Although face-to-face and telephone are considered as having high level of media richness, according to the social presence and media richness theory, Email has lower level of social presence and media richness as compared to telephone. However, this study found that email (38.7%) was preferred by academic staff "to pass lecture or tutorial notes to students." This preference of students could be explained by some characteristics of e-mail, as suggested by Sproull and Goodman (1991), where they pointed out that e-mail technologies share the following five characteristics which differentiate them socially from other communication technologies: 1) email is asynchronous, 2) email is fast, 3) email is text based, 4) email has multiple-receiver addressability, and 5) email has built-in external memory, which is important for social memory.

TABLE 6
Communication channel used and types of interaction

Educational Relationship	Communication Channels	Frequency	Percentage
To fix appointments with students to see them or do something.	Mobile phone	36	45.2
	Face-to-face	22	27.4
	Telephone line	16	19.4
	Written message	6	8.1
To provide feedback on students' assignments or final year projects.	Face-to-face	59	74.2
	Written message	12	14.5
	Telephone line	7	8.1
	Mobile phone	2	3.2
To pass lecture or tutorial notes to students.	Face-to-face	34	41.9
	Email	31	38.7
	Written message	10	12.9
	Telephone line	5	6.5
To encourage and motivate students to do something.	Face-to-face	75	93.5
	Email	2	3.2
	Mobile phone	2	3.2

Personal Relationship	Channels	Frequency	Percentage
To show concern about students' problems (e.g. sympathy, condolence).	Face-to-face	71	88.8
	Email	4	4.8
	Written message	2	3.2
	Mobile phone	2	3.2
To invite students to eat/ drink something with you.	Mobile phone	39	48.4
	Face-to-face	27	33.9
	Telephone line	6	8.1
	Email	2	3.2

CONCLUSION

The major conclusion of this research is the perception that media richness plays a key role in the selection of channels. As it was discovered in this study, face-to-face communication is mostly used and preferred communication channel (Mean = 4.84) by the academic staff in interaction with their students, followed by telephone line (Mean = 3.66), and mobile phone (Mean = 3.41). A significant difference (H1) between the academic staff's level of experience across the different channels was also found in this study.

This finding resonates with Chidambaram *et al*. (1998) who discovered that even though many new communication technologies have surfaced and are available (such as the Internet which offers faster and cheaper facilities), traditional channels still remain the most preferred channels among the academic staff at this university. The main reason for this finding, as supported by H2.a and H2.b, is because of their higher level of social presence and richness of information (F-F = r, .376, p =.001 & telephone line = r, .399, p =001). In other words, face-to-face and telephone line were still preferred because academic staff have experience with them, and they considered them as more effective and rich mediums, and are generally satisfied with them. Nevertheless, the H2.c for the third communication channel used was rejected.

Although face-to-face meeting remains highly appropriate and popular in most situations, modern communication channels such as email can also provide a preferable solution in other contexts. Despite the lower usage of e-mail for ambiguous and complex messages, e-mail is still indicated as the third widely adopted and preferred communication medium among the faculty members in faculty-student interaction, especially for sending simple messages and complex messages (Table 5).

Another explanation for the results of this study is probably the factor of time. The element of time, as discussed by the Social Information Processing Theory (SIP), is one of the most important factors in the deciding to use the kind of media in interacting which others (Whalter, 1996). These are mostly because of the slower process involved in using the new communication channels, while multiple channels and cues available in the face-to-face interaction expedite the exchange of information and fulfilling the task.

In view of this, Burgoon *et al*. (2002) developed the principle of interactivity. According to the principle of interactivity, the differences among channels are not just based on the number and types of cues filtered out, but also based on several criteria or structural affordances such as contingency, transformation, participation, proximity, synchronicity, parallelism and so on.

Thus, future studies should consider examining the factor of time in the selection of media channels in interacting with each other. In addition, future studies also need to be conducted determine the effects of principle of interactivity in each communication channel.

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