

Opportunities and Challenges in Management Information Systems

Qasim Alajmi

Department of Computer Science & MIS, Oman College of Management & Technology, Sultanate of Oman.

qasim.alajmi@omancollege.edu.om

Ali Sadiq

Faculty of computer systems & Software Engineering, University Malaysia Pahang Kuantan, Lebuhraya Tun Razak, 26300, Gambang, Pahang, Malaysia.

alisafasadiq@ump.edu.my

Abstract

Job creation pivots around producing the needed skills and the talents through education. In Oman, as well as in many Arabic societies, the preferential treatment given to males can be broadly observed. The impact has resulted into numerous empirical discussions on how socio-cultural conditions in the Middle East have been affecting the educational pursuits of the female gender. As the number of socio-cultural studies on Arabic women grows, the increasing trend contrarily creates a diminishing proportion for related studies focusing on Arabic men. In view of such discrepancy, the motivation behind this study is to collect data, explore and identify some of the socio-cultural barriers that hinder the studies of young Omani men taking-up Management Information Systems (MIS) at Sultan Qaboos University. There is a limited amount of empirical studies on socio-cultural factors that either influence or impede educational advancement in Oman among men. Thus, this study aims to provide first hand research information and establish data that would offer fresh perspectives while supplementing existing ones as well as the chance to verify the validity of existing available data and share valuable experiences with other information managers. In the conclusion, every young Omani should be aware of the bounds and limitations of MIS. A student's expectations of the future to pursue a course in MIS should always be kept to a minimum as everyone's profession lies on electricity and the technology that run the system.

Keywords: Socio-Cultural Barriers, Careers of Young Omani Men, IT, MIS

1. Introduction

The rapid evolution of electronic tools for collecting, analyzing and diffusing information under more accurate terms than manual procedures, helped ushered-in the development of essential management tools now commonly known as management information systems (MIS) [1]. With MIS, the access to data used to generate information for decision making is no longer restricted by the manual systems of the organization since information technology (IT) can record, synthesize, analyze and disseminate information quicker than at any other time in history. Decision-making individuals and units, obtain much of the information used to identify and deal with decision-making situations through an information processing network [2]. MIS is particularly essential to high-volume governmental, commercial, and industrial systems and transactions [3]. It promises to deliver efficiency, improved productivity, lower error rates, job satisfaction and cost savings. By these benefits, a new standard is created and new jobs are

flourished. Thereby, education systems must react in conformity with the aim of producing talents to meet up with job demands.

The most important contribution that the higher education sector should make is to provide a learning that will enable its graduates to emerge with the skills and knowledge that will meet the economic, social and environmental challenges of the 21st century [3]. The IT revolution has brought a series of broad challenges to education, which puts it under pressure to carry out a range of reforms beyond the confines of the classroom and extending across social and political environments of education and its broader links to society [4].

Moreover, the use of IT throughout the world has raised many issues of interest to researchers. Information Systems (IS) is the real 'relationship' subject, trying to integrate knowledge from behavioral science, computer science and business administration [5]. Further the objective to investigate how people develop and use IT solutions to support and improve activities in their organizations and social life form the themes and subjects of many research studies.

In the field of education, there is no doubt that Information Technology and the techniques are highly critical in IS course. However, with the ever changing tools and expanse of technologies, the processes of teaching and learning becomes more difficult since it involves constant updating and lifelong learning for both teachers and students [6, 7], the end users face the pressure of learning a variety of interfaces over a short period of time, but the motivation to learn anew thing / concept is subject to many variables including level of computer competency and openness to experience [8]. In addition, the occurring changes require students to be well-versed in skills that go beyond traditional IT skills [9]. Perez and Murray observed that at most universities, fundamental IT skills have not risen to the level of must-have competencies such as mathematics and English [10]. Many universities do not even assess IT skills or require a computing course in the core curriculum.

In an Australian setting, a study by Narsimhan revealed that the apprehensions and aspirations (fears and dreams) of high school leavers within the context of Computer Science education have not been studied and understood well [11]. Many studies have revealed that high school and college students perceive a substantial number of barriers that affect their path towards achieving their career goals [7]. Narsimhan agrees that, if only the educators address the very concerns of prospective students, their field would also considerably improve in terms of industrial relevance and in increasing student numbers.

2. Socio-cultural Perspective

2.1. Learning Theory from a Socio-cultural Perspective

Many advocates of a socio-cultural view on literacy [12] have tendency to dismiss the cognitive and linguistic dimensions of literacy. In what might be considered at times to be a rather reductionist stance, the group becomes the primary, if not the exclusive domain of study, involving literacy events and literacy practices. From this perspective, the construction of interpretations of ongoing events involves the use of cultural/social/historical milieu into which every person is born and lives [13], the socio-cultural theory is the relationship between human mental functioning, on the one hand, and cultural, historical and institutional setting on the other. Literacy is not simply an individual act of cognition or language but represents patterned

social acts or behaviors of the group [12], by which it, involves differentials between people or groups in terms of power, identity, and agency [13]. Lewis et al. regard the term “critical socio-cultural theory” as the drawing on a range of socio-cultural theory and other theoretical perspectives to better comprehend the nature of power, identity and agency in the literacy practices they study [13].

Furthermore, as Kucer explained that the individual belongs to a number of social groups and thinks, behaves and acts in particular ways that are appropriate to the group’s view of itself [12]. The knowledge, values and behaviors that a member comes to reflect are not therefore, the products of his or her own independent psychological interactions with the world; but is also the results of interactions and experiences with the various and significant social group which the member belongs. Therefore, the inclusion of the prefix “socio” indicates the acknowledgement of social, cultural and contextual issues in learning situations vis-à-vis the exclusive and internal construction of knowledge referred as constructivism [14]. Lucey [15] argues that, there are no private acts of literacy, only social ones. Thus, literacy acts as a vehicle to learn about group characteristics as referred in Table -1.

Table 1. Group Memberships and Social Identity [12]

Sl. No.	Group	Description
1	Culture	The individual’s perceived view of the behaviors, values, norms, and ways of acquiring knowledge which are appropriate to his or her ethnic group; together with the value and expected outcomes that are attached to these features.
2	Socioeconomic status and class	Lower, middle, upper; working class, professional class, blue collar, white collar.
3	Gender	The way in which masculinity and femininity are constructed, shaped and expressed in society.
4	Organizations	Volunteer memberships in various groups (political, social clubs, sports teams, educational, and professional/occupational groups.

2.2. Socio-Technical Theory

According to Cartelli [16], the socio-technical theory hypothesizes the presence of two sub-systems in every organization; the technical sub-system and the social sub-system. The features of these sub-system hypotheses are discussed as follows.

Technical sub-system is much more than the sum of the equipment in the organization. It is identifiable with the process responsible in converting system inputs into system outputs. The conversion process must be controlled to ensure that system goals are achieved.

Social sub-system is much more than the set of technical control tasks to be performed by people. Technical tasks are combined with individual jobs and responsibilities assigned to groups. Therefore, any redesign in the technical subsystem or analysis in the social sub-system is equivalent to a revision of the jobs and corresponding social roles. The resultant could create implications in the technical sub-system or to some extent, enhance or reduce the quality of working life for the individuals and the groups involved in the production.

Hence, as Cartelli [16] outlines, the cornerstone of the socio-technical approach is in ensuring that both systems are retrofitted and work in harmony together, in order to yield joint optimization. Investigating on the effects of information systems and web sites used by students and researchers in Paleography (as for this experiment); it reveals the following:

1. The use of ICT and web-technologies contributed in knowledge development and regarded as positive from both constructivist and social-constructivist perspectives.
2. Students are able to participate in communities of learning and the presence of new processes of knowledge acquisition; construction and evolution were confirmed. Many of these have induced deep changes in the way students developed new learning.
3. ICT and web-technologies facilitate an easier creation of communities of practice (CoP). Thereby a pool of knowledge is made available and accessible under a socialized perspective that in effect; liberates the forced-introduction of knowledge since new procedures can be learned upon will and personal volition or conviction.
4. With the use of ICT changes were observed from the SECI (Socialization, Externalization, Combination, and Internalization) Model developed by Cartelli [16]. Hence, ICT is integrated and becomes a vital component not previously identified in the earlier constructs of the SECI.

Implementation of Practices by means of ICT

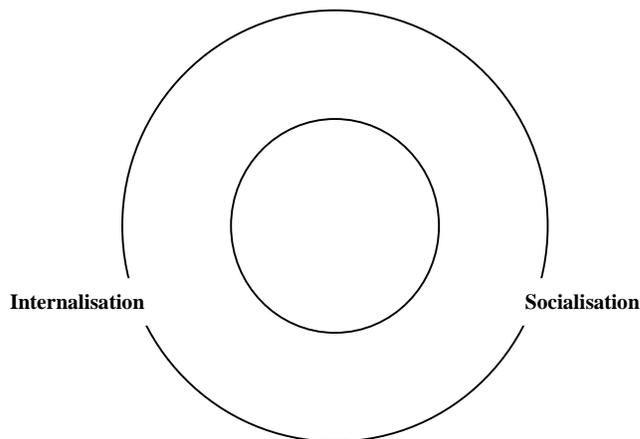


Figure 1. Revision of the SECI Model by additional of a new Element [16]

Figure 1 shows the implementation of practices by means of information systems (strongly based on web technologies), introduce a new way of looking at knowledge acquisition and management at personal, group, societal and organizational levels.

Additionally, Somekh [17] confirmed the presence of interlocking features in both social and technological systems that, technological advancements may emerge as a threat to organizations as it would force it to transform its theory and structure. Notwithstanding the impact it causes to individuals who are also susceptible to change or indecisiveness. A wealth

of knowledge availability scattered across a medium years towards a tendency to confuse the mind and derailing in effect; specific doctrinal orientations which learning institutions are espousing upon students. The rise of the internet creates a problematic social dimension due to the flexible, interactive, transnational and individualist orientations which the virtual community creates. Somekh pointed out that with globalization, individuals today have much more opportunity to live and work within cultures different to their own. This can lead them to embrace, to different extents, some of the cultural values and basic assumptions shared by the host culture.

2.3. Social Information Processing Theory

This theory developed by Lent et al [18] posits that, individuals adapt their behavior based on consequences that are observed and not necessarily experienced directly. It complements rather than competes with, the cognitive judgment approach by suggesting that social context influences a person's attitude formation. According to Lent et al. [18], there are two primary ways in which the social context influences attitudes. First, it helps people form their attitudes and provides guides to socially acceptable beliefs, attitudes, needs and acceptable reasons for actions. Second, the social context helps people focus their attention on attitude-relevant information; making that information as salient as to the expected conduct from an individual's behavior, as well as the logical consequences of such behavior.

Therefore, under this theory, other people's evaluations or opinions also create an influence to our own evaluations, especially when the situation is complex or ambiguous [18]. It also affects a person's evaluation of his own performance. In an example by [19], African-American students who are confronted throughout their school careers with mixed message about their competence and potentials as well as widespread negative cultural stereotypes about their academic aspirations and motivations; are in effect experiencing difficulties with their schoolwork due to the anxiety induced by the stereotype vulnerability [19].

In today's interconnected community, the use of ICT oftentimes replaces the need of actual social interaction in lieu of using electronic media to communicate and convey certain types of communication. It is able to bridge different frames of reference, to make issues less ambiguous or to provide opportunities for learning in a given time interval [20]. According to Kendall [20], an individual using a specific media tool as a form of resource is assumed to be somebody who is aware of the intrinsic properties of such media. This assumption however, is challenged by the social influence model of technology use which posits that, an individual's perception of his own media channel of choice or otherwise, is an aggregation of a user's experience with media channels, and of the social context he perceives to belong. It contains a robust source of information that a person may fit in and relate with, or otherwise find information that is subjective or prejudicial of one's individuality and identity. Whilst, the creation of social groups and networks over the internet stirs bias and influence among a group of people settling on common grounds.

2.4. Attribution Theory

According to Biddle and Mutrie [21], attributions are the perceived causes and reasons people give for an outcome or behavior. It suggests that a person will attribute the behavior of another, either to internal causes (e.g. personality, motivation, etc.) or to external causes such as situational factors [22]. It concerns people's causal explanations for events. This is largely due to a premise posited by Martinko and Weiner that people have the innate need to

understand and control their environments and explain their own successes or failures [22]. Further, the attribution dimensions consisting of causality, stability and controllability are related to the consequences that attributions (Table 2) may have for motivation, cognition and emotion [22].

Table 2. Typical Classification of four specific Attributions and Locus/stability Model [22].

Attribution	Locus of Causality	Stability
Ability	Internal	Stable
Effort	Internal	Unstable
Task difficulty	External	Stable
Luck	External	Unstable

Martinko and Weiner have proposed four major attribution elements which he used in his research. And these are: ability, effort, task difficulty and luck. The locus of causality dimension classifies attributions as they relate to the individual (internal) or reside outside of the individual (external). The stability dimension refers to the classification of attributions in relation to their temporal stability, with some attributions being contingent (unstable) while others are relatively permanent (stable) over time.

Since the focus is often on the causality of behavior, a great deal of research on attribution theory is applied in the context of vocational successes and failures. It has also been suggested that attribution theory can be applied to organizational research studies pertaining to turnover, performance appraisal and feedback [22]. Biddle and Mutrie [21], applied attribution theory in their research on health and physical exercises; projected towards the aim of understanding motivational factors, self-determination and belief in one's innate ability. However, the criticism associated with the attribution theory is the lack of psychometrically sound instruments for measuring attribution and it remains a problematic issue. Mstinko et al. [22] identified three obvious difficulties. First, with the exception of the open-ended method, all of the associated methods to this research limit the number of attributions a subject can make. Second, methods applied have either questionable or completely unknown psychometric properties; and third, the use of a variety of methods indifferent studies makes it extremely difficult to aggregate findings across studies in order to gain a more complete understanding of the phenomena.

3. Social Cognitive Career Theory

Social Cognitive Career Theory (SCCT) developed by Wingfield and Eccles [18, 22] traces its roots from the general social cognitive theory [7] which postulated two sets of expectations as the major cognitive forces that guide behavior choices, and these are: outcome expectations and efficacy expectations [18]. Outcome expectations refer to a person's estimation that a given behavior will lead to a certain expected outcome, while efficacy expectations refer to the belief of a person's ability to perform the behavior required in expectation of a desired outcome [20].

Moreover, by emphasizing on the interplay between self-referent thought and social processes in guiding human behavior, SCCT complements and build conceptual linkages with other theories of career development; finding application in a wide range of psycho-social domains such as educational achievement, health behaviors, organizational management and

affective reactions [18]. The SCCT framework organizes career-related interest, choice and performance into three segmental processes [24], namely: how career and academic interests develop; how career choices are made and enacted; and how performance outcomes are achieved.

According to Conrad and Serlin [25] an important strength of SCCT is the recognition of the impact of learning experiences and contextual factors on the development of self-efficacy expectations. Patton and McMahon [24] refers to self-efficacy as the individuals' beliefs about their capacity to organize and execute courses of action to attain designated types of performances. It does not only enable some delineation between barriers and self-efficacy, but also offers a method for studying the mediating effects of self-efficacy expectations in the SCCT model. Hence, there is a specific need to determine the quality of barrier that an individual confronts since it could either be a regressive or developmental form of barrier. Furthermore, SCCT addresses the impact of both personal factors (e.g. gender, predispositions, race, ethnicity, etc.) and the background contextual factors like family and socioeconomic; and their relationship with learning experiences, which lead to self-efficacy and outcome expectations. Moreover, environmental supports and barriers are assessed [25].

Patton and McMahon [24] firmly believe that SCCT stands as a valuable additional theoretical model designed to explain individual variability in career interests, choice and performance. It is particularly prudent as it embraces a constructivist of the individual as an active shaper of his or her life within the constraints of personal and environmental or contextual factors. The contextual factors have received increasing attention over the past decade, with attention being given to personal, family, and social factors so as to understand the individual's life in context [2].

In addition, Bialaszewski [7] recommend the SCCT and Attribution Theory in expanded studies venturing to evaluate the interactions between gender, ethnic and cultural identity development and, perceived career barriers. They further suggest that more focus should be given on untapped areas, such as evaluating differences in perceived barriers along the context of social class, cultural worldview, and sexual orientation or even towards the impact on people with disability. Suzuki et al [26] on the other hand, share a similar observation with Bialaszewski [7] but stressed that; the SCCT is one theoretical model that holds much promise in environmental and contextual variables as it has a feature that enables the interplay between the individual and the environment and, the person's perceptions of his/her environment. Furthermore, SCCT supports sophisticated analysis procedures whilst at the current time [25] believe that SCCT is perhaps the most effect career theory of identifying and examining the complex relationships among personal characteristics, learning experiences and contextual factors.

3.1. Technology Acceptance Model

Prior computer experience [20], representing the individual use, skills, ease and comfort with the technologies play a crucial role in influencing user beliefs (both in its perceived usefulness and ease of use) toward computer technologies. Increased experience is likely to lead and enhance users' confidence in their ability to master and use computers in performing their tasks [20].

As Erickson and Meyer [27] have proposed, students must have a relevant knowledge base which permits them to respond to any novel situation and elicit a potentially wide range

of responses to performance task which are consequentially relevant to an active and constructive part of the student. The type of knowledge that students have is often the result of physical encounters and experiences. This provides part of the conceptual foundation that enables students to construct an appropriate response.

TAM is a well-respected model of IT adoption and use. It represents a significant contribution towards establishing a valid motivational model of the user and reflects the impact of design choices since it is a key element in the success of user-acceptance testing procedures [28].

TAM was used by Kendall [20] as an adjunctive or supportive theory along with SCCT, in a study on media appropriateness, engaging MBA students of different social backgrounds as subjects/respondents. According to Al-Ghatani [28], as of January 2000, the Institute for Scientific Information – Social Science Citation Index has recorded 424 journal citations on and about TAM, only confirming its robust usability and dependability in predicting user acceptance.

3.2. Cultural Dimensions of Information Systems

Cultural perspective can have an enormous influence on the ways in which the purposes, tasks and outcomes of testing are given meaning and understood [29]. Progress in understanding the roles of gender, race, ethnicity, history and socio-cultural determinants in the career development process has generally not been fully integrated conceptually in the vocational literature, or given an extensive empirical attention within the dominant psychology of a specific vocation [18, 29]. Myers and Tan [30] argue that over the past decade however, there has been an increasing interest in the IS research literature in the impact of cultural differences on the development and use of information and communications technologies. Thereby, studies on the role of culture in the development of IS and other social issues in a particular community or country, are examined with specificity [31]. Tubaishat et al. [32] argued that in IS research, the culture of subjects and respondents is problematic as it is typically an overly simplistic categorization. IS research nearly always assuming that an individual living in a particular place and time belongs to a single culture which obviously is never the case. This may explain why cross-cultural research has been so extremely difficult to conduct [32].

Adding difficulty is the criticism some people have towards the use of vocational assessment inventories. The practice is confronted with accusations of racial, gender, and even class bias in both the inventories and the theories underlying the assessments. Because many, if not all, have originated in White, Western, English-speaking perspectives; strong arguments are being raised whether any of these are fully applicable to many people with differing racial, cultural, class, sexual and gender identities [26].

A study by Myers and Tan [30] reveal that, there are cultural and non-cultural factors involved which could be easily overlooked if important exclusive elements that are inherent upon a society are ignored. Hence, a researcher must have a predefined cultural archetype of the community or of the country before embarking into a full-scale research.

As what Jones and Alonyhave stressed, when people interface with information technology through IS, human cultural values must be taken into consideration. For in fact, the

design and management choices in IS are the result of individual values and those values are a product of socio-cultural background [33].

4. Establishing Career-Barrier Predictors

The influence of virtual societies, internet content and ICT-based communication: According to Tubaishat et al. [32], in the Middle Eastern culture, students often lack opportunity to freely meet, communicate, and collaborate. More so, the practice of segregating male and the female has contributed to this phenomenon. The result is shyness and lack of confidence to express opinion in front of members of the opposite sex. However, with the use of ICT, students, particularly those who live in a conservative Arab society can overcome family restrictions and could collaborate with their peers after campus hours. All which along with others, could not be made possible without technology. Moreover, the use of technology has improved students' communication skills; allowed students to become more independent; has improved motivation and confidence levels of students; and enabling them to express their feelings and ideas more openly with others.

The effect of prejudice or social stigma against Arabs on the Internet and the impact to the self-identity and self-esteem of young Omanis: Conjunctive to the attribution theory, attributional ambiguity is understood as the ability to protect one's self esteem by attributing negative feedback to prejudice and discrimination [22, 23]. According to Hancock [23], attributional ambiguity has been used to explain the mechanism of preserving self-esteem. Members of stigmatized groups have the greater propensity of suffering from negative effect and problems with self-esteem. Any of which could be: individual self-esteem, group or collective self-esteem and stigmatized or oppressed groups. Negative or low self-esteem is believed to be one of the major causes of career-failure.

Job market conditions: The present conditions as well as the manner of fulfilling most of the labor requirements in Oman, provide a pragmatic view of the difficulties faced by the Government to produce a competent-breed of indigenous force. Despite the drive to Omanize the workforce, foreign workers still constitute the majority of workers, whilst the proportion of Omanis versus expatriates has in fact declined. According to the most recent updates [34], unemployment is particularly high among graduates albeit, the Government employs a large segment of indigenous citizens under her employment. Furthermore, the study reveals that the Arab-Moslem world has made no significant representation and contribution to science and technology. According to Al-Buraik [35], the number of Arabic professionals who have technological expertise that are critical to the oil industry is ageing. Whilst today's youth in Arabic societies have shown little or no interest in pursuing careers that may entail substantive contribution to the economy in the near future. Although the unlimited-term employment contract is still the main legal framework used in employment relations, a hefty proportion of jobs are fulfilled by foreign workers employed on contractual bases. Little progress was noted since the 1970s when oil revenues provided the means to improve the country's economic and social conditions [36].

Strong patriarchal society: A study on possible existence of role-modelling effects and the influence of a father among young Omani men [18] was attempted to understand the possible effects of fathers, role models, social support and career intervention programs on the career development of Afro-American men. They used unstructured interviews of Afro-American men of various demographic backgrounds and career paths. Several major themes were evident: 1) The importance of financial support and role modelling effects of a father; 2) Social

support, especially parental support, influences the educational and vocational decisions of some individuals; 3) School programs that help ethnic minority students to explore various career-opportunities seem influential to the development of career aspirations, 4) Experiences with racism continue to be a career obstacle of Afro-American men.

Dropping-out: Bergeson et al [37] offer sets of contributing factors on why students drop out and leave school prematurely, as categorized as follows: (1) personal factors; (2) family factors; (3) economic; (4) socio-cultural, and (5) education and school related factors. Further five alternative theories of dropout [31] focusing on these predictions are referred as: (1) academic mediation theory that focuses on academic; (2) general deviance theory that focuses on deviant behaviors; (3) deviant affiliation theory that focuses on peer relationships, (4) family socialization theory that focuses on family practices and expectations, and (5) structural strains theory that focuses on demographic factors such as gender, race and ethnicity, and family socioeconomic status. Rumberger and Lim [31] added that these models differ with respect to predictive factors inasmuch as whether any of these would create influence on dropout behavior or diffused by other elements such as academic achievement.

Although it can be argued that obstacles are more problematic among younger students who are expected to spend longer years in college than those graduating students bound to leave shortly to find work. Peron and Corbiere [38] may partly agree with this observation but not fully. They stress that, outbound students also face considerable obstacles in attempting to enter the labor market. Individuals also encounter frustrations over job-search activities and make attributional analyses in understanding and resolving failure over success and vice versa; until towards the end of the job-hunting process.

5. Conclusions

The focus of this review have been made more simplistic and closer to the traditional presentation of a socio-cultural research literature, if all that had been discussed were strictly on valuable theories and empirical antecedents without any fleshing out and about the influence and impact of ICT, IS or IT to the socio-cultural awareness of every individual. Indeed, the coming of the digital age into our daily lives created a powerful dimension on its own, needing and wanting serious empirical attention. The discussion in this research had progressed from a straightforward introduction on viable and proven theories down to the point of opening a new socio-cultural dimension from a virtual perspective though affective and influential. Thereby, theories found in the disciplines of psychology, sociology and perhaps tapping some of anthropology or ethnography, were integrated with some of the learning and pedagogical philosophies in IS/IT education. Career barriers and its influencing factors cover a broad range of elements and components that are too enormous to discuss. Due to the limits of space allowed, only the salient points were raised and brought up. The purpose of this research was primarily exploratory. And as observed, it covered a very broad range of subjects to develop a sturdy philosophical framework towards identifying potential indicators. Albeit efforts to produce bases as empirically possible; the researcher has the limitations of time, financial and scientific resources to generate analyses with more accuracy, reliability and dependability. Indeed, such an endeavor requires funding and professionalized services of an able research organization.

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