

## **Vygotsky's Activity Theory and Health Scholars' Web-based Information Practice**

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### **Abstract**

Vygotsky's Action Theory clarifies that humans' behaviors are mostly derived by socio-cultural backgrounds. It heavily relies on the fact that information interaction can be affected by afterbirth habits and historical knowledge. Health scholars' web-based information practice is hugely important since they learn while they teach and information practice is a such interaction. Drawing on viewpoint of Vygotsky's Action theory we studied health scholars' information practice and investigated the related factors using a qualitative grounded-based theory approach. On a voluntary basis 23 faculty members from School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran were selected and on two stages were asked about their information practice experiences during December 2015 to March 2016 and November to December 2017. Interviews were placed at their university offices, then transcribed, coded and carefully analyzed. We derived 3 themes of cultural, economic and socio-political factors for all barriers the faculties had during their information practice. Since students

directly, and the society at large collectively bear the brunt of the barriers, a suitable and effective modification of the current status is recommended. It looks as if the governing system contribute to help improving information practice of played-out scholars, we will have the cultural, economic, and socio-political development on an accelerating rate.

## Keywords

Information Practice; Health Scholar; Vygotsky's Activity Theory; Iran University of Medical Sciences

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## Introduction

In the prologue of "*Mind in Society*", we read a quote from Friedrich Engels that "It is precisely the alteration of nature by men, not nature as such, which is the most essential and immediate basis of human thought" (Vygotsky, 1987). This quote depicts the idea of human is trying to push back the constraints imposed by nature and build his own world, the idea that the human tends to construct the world upon his desires and thoughts. Seemingly, we interact with the things around us by receiving and sending information, by which we develop meaning internally within us. However, even our physicality, to a large amount, depends on the internalization of the information we receive from the outside world. We perceive the outside world by our senses through cognitive apparatuses within us of which get the signals and redevelops internally comprehensible information, known as meaning. The nature of information is really hard to grasp. After reviewing the scholars' works for a possible consensus on a unique definition of information, Case (2012) has come up with "*any difference that makes difference to a conscious*" or "*a perceived difference*" (introduced by Gregory Bateson), and "*any recognizable stimuli perceived from our environment*" (George Miller). Some other scholars have incorporated certain requirements as if any entity or assembly of data could be called "information", for example if it is *true* or *useful*, is *embodied in a form or object*, or as if it is *intentionally transmitted* (Case, 2012). However, it is clear that our perception, as well as cognition, rely heavily on the practice of information.

To add the complexity, information practice is somehow a complicated concept denoting the professional actions information agents perform while they dealing with the information objects. Practice, which seems very close in meaning to "behavior" in information seeking behavior context, refers to all activities and interactions a person has with information. Since 1950s the "information practice" has come into attention of information specialists. Information practice simply means how a person deals with information during an information interaction. Information practice from the expert side means application of information to deliver a message or do a treatment, like a practitioner. On the other hand, the client also practices information while he/she is delivering a message or applies a query. This process resembles "information

behavior” especially when it encompasses the process of perceiving an uncertainty, seeking and finding information, and finally application or consumption of information. Nonetheless, especially while standing out of the domain of information studies, “information behavior” term is not convincing as an umbrella term for that: 1) “information seeking behavior” has not been felicitous in fields other than LIS, 2) To some scholars it is even wrong grammatically (the correct form would be information-based seeking behavior), 3) It cannot shelter all the intended dimensions (e.g. reducing uncertainty, learning, value adding and disseminating) 4) It mostly reflects “externals and observables” than “internals and unobservable” stimuli that exert control over behavior, 5) Some models such as that of Dervin (sense making) hardly could fall under category of behavioral models and she herself preferred the term “practice”, 6) The constituents of “behavior” are ambiguous despite of attempts to make its boundaries clear (Savolainen, 2007). Therefore, “practice” seemingly can be a preferable alternative term for information behavior, though, there is a clear distinction between behavior and practice in that the behavior can be any action toward a goal but practice mostly refers to a framed expert’s action following information seeking behavior.

From 1948 on (Wilson, 2000), many researchers have focused on underlying importance of the information practices of scholars due to the pivotal role they have in producing and disseminating academic information (Jamali & Nicholas, 2008). As Wilson puts, the field of information practice is replete with studies of “scholars’ information behavior”, so that the area could be called as information seeking behavior of scholars (Case, 2012). There are several factors suggesting importance of scholars’ information practice, some of them including:

1. They are somehow expensively hired staffs and thus should be helped to save unnecessary waste times during academic activities,
2. They could directly and indirectly affect the information behavior of their students and the society of research, as well. Thus, they themselves must be well-educated in information practice,
3. Having insight from information practice of scholars designing better interfaces and ultimately offering effective information services would be possible,
4. Scholars always are good at criticizing any presumed system, thus, their ideas on the information practice may pick apart available flaws,
5. They are expected to be pioneers of interacting with information systems as per their expertise and field, so their practice status may reflect the utmost current behavior in their field.

An exemplar investigation to find about information practice of scholars is the influential work of Donald Case named *Looking for information: A survey of research on information seeking, needs, and behavior*. He investigated more than of three decades research history of information seeking behavior and somehow has shaped our knowledge of the domain through the succeeding three editions of his book (2007, 2012, and 2016).

To investigate information practice, Case (2012) reports that researchers have invoked various paradigm and theories mainly from psychology (like Sigmund Freud, George Zipf, Albert Bandura, and Jean Piaget), philosophy (like to Michel Foucault, Jürgen Habermas and John Dewey), sociology (like to Pierre Bourdieu, Anthony Giddens, Emile Durkheim, and Erving Goffman), and mass communication (Stephen Littlejohn) fields. Among the very famous paradigms fairly assimilated in information practice field are Theory of needs (adopted essentially from the Freud's Pleasure Principle), Principle of Least Effort (George Zipf), Uses and Gratifications which is very close in application to Theory of needs (Elihu Katz, Jay Blumler, Mickael Gurevitch), Sense-Making (John Dewey & Brenda Dervin), Constructionism (mainly adopted from Mikhail Bakhtin and Michel Foucault theories), Play and Entertainment Theory (William Stephenson), Information Foraging Theory (mainly based on Peter Pirolli and Stuart Card's findings), and Activity theory (Lev Vygotsky, Alexi Leont'ev, & Yrjö Engeström).

Activity theory was proposed during 1920s as a Russian brewed alternative to Western psychology of behaviorism (Wilson, 2008). After 1980s the theory in various versions gained attention in Scandinavia, Canada, Australia, as well as continuing work in Russia (Kaptelinin & Nardi, 1997). It is mostly derived from Lev Vygotsky's ideas in developmental psychology and educational research. Activity theory accepts some alterations by some of Vygotsky's students such as Rubinshtein and Leont'ev. The latter had a major role in redeveloping the theory under the name of Cultural-historical Activity Theory. Core concept of Activity theory is the human consciousness which is located in everyday human practices. Central to this theory is that humans are whatever they are doing, implying the importance of activities and all factors inflicting those activities. Therefore, the status of activity is not stable by itself but highly dependable on activity conditions and people involved in that activity. In Activity theory socio-cultural factors influence the behavior of information practitioners (Pitocco, 2013). In case of information practice, activity theory elaborates on other than objective constituents of information practice and proposes that social and cultural factors all have distinctive effects on the activity, because the reality is composed of all of such elements (Kaptelinin & Nardi, 1997).

Unlike Piaget who believed humans' development necessarily precedes learning, Vygotsky insisted that social learning precedes development (McLeod, 2007). This means that most of our behavior has roots in a society's socio-cultural values. Vygotsky's Activity Theory has two principals at its core: More Knowledgeable Other (MKO), and Zone of Proximal Development (ZPD). The former refers to someone/something with a higher level of knowledge than the learner, and latter refers to the difference between what a person can learn individually and what he/she may obtain with guidance and encouragement of other (always most skillful) persons (McLeod, 2007).

Shin, Ishman and Sanders (2007) investigated the effects of cultural factors on information practice and found them significant. They categorized the factors into 3 items and noted that

although people have changed during current decade but they to some degree yet rely on their classic cultures. Savolainen (2016b) has categorized all factors inflicting information practice into six categories including barriers due to language problem, social stigma and cultural taboo, small-world related issues, institutional, organizational, and barriers due to lack of social and economic capital. Drawing on the Savolainen categories, the scholars' information practice should be analyzed by comparative investigations.

Overall, there is paucity of research for scholars' web-based information practice, specifically those that guided by Activity Theory or any of its sibling models presented by Leont'Ve or Ergenstrom. Current study invokes Vygotsky's theory to examine socio-cultural factors affecting health scholar's web-based information practice.

## Materials and Methods

This is a qualitative grounded-based study to investigate health scholars' web-based information practice in an academic setting. In current research, health scholars were 23 health faculty members of School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran who were recruited on voluntary basis. A semi-structured interview was conducted at the offices of participants at two stages. The first stage was during December 2015 to March 2016, and the second stage was from November to December 2017. The second stage was carried out to have a clearer picture of how health scholars perform information practice. The interview procedures and settings were identical with the same participants at both stages. Fortunately, all participants were present at the two stages of interview. Each interview took about 30 minutes, recorded via a voice recorder and then transcribed for further analysis. Three stages of open, selected and axial coding were conducted initially by the first author, then checked and modified by the third author who also checked the initial transcriptions with final derived items. For credibility measures, the collected data were re-affirmed by the interviewees and any violation corrected as per participants' opinions. Suitable measures were considered to ensure trust and transferability of the findings. Ultimately, we refined the first stage study results well as the derived categories and themes on the basis of the second stage data collection.

## Findings

Twenty-three scholars participated to our study. They aged  $48 \pm 11$ , 13 were female and 10 were male. Except for two who were Master of Science, all had a PhD degree in Health or health related disciplines.

The identified underpinning factors affecting information practice of health scholars were categorized into 3 general themes: cultural, economic, and socio-political factors. Each of these themes covered different categories and subcategories as shown in Table 1.

**Table 1. Socio-cultural factors affecting the health scholars' web-based information interaction**

Themes	Categories	Sub-categories	Sample narratives
Cultural factors	Global culture	Mixture of cultures	<p><i>"Globalization has changed many things among them cultural values are disappearing, we are losing our connections with young students" P.12.</i></p> <p><i>"although we have a unique culture, for us, there is nothing as aboriginal one and we see the same everywhere go, is that matter?" P.2</i></p>
		Cultural dominance	<i>"Western culture is now everywhere, cultural bombardment in apparent. Our culture is washed out through media airing" P.8.</i>
		Cultural alienation	<p><i>"New students almost know nothing about their home culture" P.2.</i></p> <p><i>"we've missed many of habits, especially those valued ones" P.3</i></p>
	Small-world culture	Poor reading culture	<p><i>"this is by reading that we call for understanding, having this in mind why we are so bad in reading" P.1</i></p> <p><i>"Reading insufficiently unless be enforced to..." P.14.</i></p>
		Language role	<p><i>"No cultural links exist among Farsi speaking countries, we must engage in more talks" P.10.</i></p> <p><i>"language is a building block of interaction, we connect to each other by language and build ourselves" P.10</i></p> <p><i>"We're not even good at speaking with Arab neighbors, maybe they don't understand us" P.13.</i></p>
		Cultural communication	<i>"Not very organized in waving the flag for diversity of domestic cultures" P.23.</i>
		Information Literacy	<i>"I wonder if they, as well as we, have enough literacy of finding relevant materials" P.7.</i>
		Use of Technology	<i>"Everyone is carrying their personal facility, they feel like they're independent to university" P.9.</i>
		Ineffective Learning and teaching style	<i>For teaching many of us yet are riding on our personal experiences, web is OK for leisure</i>
		Interactive learning	<i>"We always talk and they [students] listen, I know we should do something interactive" P.16.</i>
		Updating	<p><i>"Here things are slow; we rarely need immediate update to an issue" P.18.</i></p> <p><i>"things go slow and we need no update as to the oldies are always fine" P.10.</i></p>
		Grants and funding	<i>"We don't believe to external funding for research, the government's is reachable" P.5.</i>
		Publishing	<i>"Publishing has remained as burning issue within our society, dare not to say, but wonder if anyone is happy with current publishing trends" P.4.</i>
Economic factors	Financial affairs	Financial restrictions	<i>"Finding money always ties up most researchers, it seems to be an endless struggle" P.1.</i>

		Accessibility to resources	<i>"Subscription has always been and yet a major problem in information retrieval" P.3.</i>
	Technical issues	Off-campus access	<i>"Being stuck in every day traffic jam, Mobile access is a must" P.21.</i>
		Software issues	<i>"Limited number of software are pre-installed, no space for new ones" P.1. "All stations are infected with viruses" P.12.</i>
	Structural facilities	Internet connectivity	<i>"On regular days, we're cursed with even checking emails... they always put the blame on ISP" P.8.</i>
		Hardware issues	<i>"University computers are ancient; the worst is maintenance services" P.20.</i>
		Facility/network phobia	<i>"They even not eager to improve systems, there are voices outside to limit access" P.11.</i>
	Ethics	Copyright	<i>"For saving time, Ctrl+C/V is always OK with most students and many of us" P.13. "I'm not sure, is that really a serious matter, many of our prestigious scholars avoid this frankly, we're living in a third world country" P 10. "I'm not sure my information privacy is guaranteed in the Web interaction, Do I need always use a proxy?"</i>
		Plagiarism checking	<i>"I'm not sure all students are honest in doing their assignments, especially when everything is accessible on the Web" P.18. "We should have something to check their works against" P.1.</i>
Socio-political factors	International issues	Independence intolerance	<i>"We're a nation, but it seems to be intolerable for some powers, this affects our global communication and information interaction" P.9.</i>
		Information inaccessibility	<i>"Our access to many apps and sites is restricted mainly due to the US regulations" P.14.</i>
	National issues	Negative adverts	<i>"Domestic negative ads abound in our society" P.15. The decided policies in the society echoes, to some extent, the expected quality of information practice" P.20.</i>
		Filtering	<i>"As a major barrier to free access to information, filtering in health domain is repulsive" P.19.</i>
		Inter-organizational information sharing	<i>"Acquiring information from other organizations seems impossible" P.5.</i>
		Information acquisition policies	<i>"Sometimes we have access but it is not always, maybe it's because of top decisions" P.10.</i>
		Information Privacy	<i>"Knowing the fact that they're always watching us, makes me feel to stop surfing on the Web. Feeling much better with old [print] books" P.22.</i>

We found 3 themes namely cultural, economic and socio-political factors inflicting the practice of health scholars in the Web. Also, ineffective learning and teaching style, poor language skills,

and poor infrastructure and notably shallow consideration of ethical issues may hinder an effective practice of information.

## Conclusion

Activity theory, also known as cultural-historical activity theory, prompts on the notion that an activity must be understood in its cultural and social context (Kaptelinin, 2005). Action theory puts forward the idea that all activities are derived by mediating factors of which mediates and also mediated by primary (physical), secondary (language, ideas and models) or tertiary (context) psychological and physical tools the evolve to hold historical knowledge of how a society works and organized (Hasan & Kazlauskas, 2014). Therefore, cultural, economic and social factors, which form our historical knowledge, may enhance the quality of information practice or may totally curb the interaction so that no successful outcome of such a practice would come out. To this ground and up to Vygotsky's theory, the quality and quantity of information practice fairly depends on the socio-cultural context.

In our study it was revealed that the dominant learning and teaching style that have roots in the dominant education culture plays a crucial role in a successful information practice, thus, any dysfunctional education system would bring about complications and many problems for its serving community.

Kaptelinin (2005) states that consciousness is “the human mind as a whole” and activity refers to all interactive “objective reality”. With privacy threatening factors at play, such consciousness is damaged seriously and consequently the information practice is doomed to failure. To this regard, current study showed that one of the most inflicting factors during information practice is lack of information privacy. The participants were almost sure that they lack suitable privacy, and if they were not forced to, they might have ignored many of their information practice. It is clear that information privacy is violated at international level so that no one is excluded from such unethical dominant surveillance.

As the other mediating factor partly attributed to education system, was the phenomenon of poor reading which seems prevalent in many under-developing and even developing countries including Iran. The controversy is that the phenomenon is not hidden and every year authorities are giving disappointing statistics about such a disabling factor, surprising though, “*every year we see no significant improvement in this area*” p.12. Vygotsky's MKO principal which calls for necessity of having knowledgeable persons during learning process depicts that we have to help health scholars during their information practice as well as providing such assistance to improve clients' information behaviors. The other Vygotsky's principal, i.e. Zone of Proximal Development (ZPD) portrays larger picture of a society where most of people are capable of



effective information practice and those with limited abilities may learn from them in a steady fast pace.

Almost all the 6 barriers noted by Savolainen were observed in our study. Specifically, the small-world issue of which is about acceptable or unacceptable things was shown to be a restrictive factor in access to information sources and thus a major barrier of information interaction. Although this factor stresses on globalization, it must not weaken national socio-cultural ties by no means. Economic factors were also noted as restrictive barriers making Web-based information interaction hard for some information poor. Paucity of information, when it comes to organizational levels, refers mainly to lack of access to many of useful databases of which require subscription payment for access to their products. This is a serious issue for the participated scholars as they had difficulty with accessing the databases of the kind.

Drawing on appraisal theories, Savolainen (2016b) states that some barriers originate from negative emotions that information practice invoke the risk of unpleasant experiences. This simply clarifies the participants' hesitations as they mentioned fears of intrusion in their privacy. We invoked Vigotsky's Action Theory to examine health scholars web-based information interaction in an academic setting. As to the theory, much of our cognition is built upon the socio-cultural grounds as well as merging merge of thoughts with the language. This is to notify that human development mostly depends on the socio-cultural grounds he/she grows up in.

Socio-political decisions can affect all other factors in that they play role in the uppermost level of the policy-making, though some are directly or indirectly affected by international affairs. This issue was very critical for the studied scholars since they believed that the imposed sanctions has had tough effects on their quantity and quality of their information practice. As one participant said, *"The decided policies in the society echoes, to some extent, the expected quality of information practice"* P.20.

Thus, we must scrutinize on our socio-cultural merits as well as its pitfalls. In addition, we must pay a rapt attention to either clinical or non-clinical scholars who are leading lights of our society as per their expertise. Providing health care and maintaining health status of people at a standard level require devoting full attention to such and also other scholars. The society is upbringing and then hiring scholars in high hopes that they may help ameliorate the country conditions, however, it seems that they are encountering damaging mediating factors in their everyday information practice, some of which were discussed in this study. In addition of mentioned factors, financial and funding issues have always been and currently are among crippling difficulties on the way of information practice of scholars. This is also a universal issue and even scholars from a wealthy neighbor country such as Saudi Arabia are suffering from such a phenomenon (Alrahlah, 2016).

We highly recommend the findings of this study be considered by the authorities in national and international level, while interventional amendment to their current status of information practice is encouraged.

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