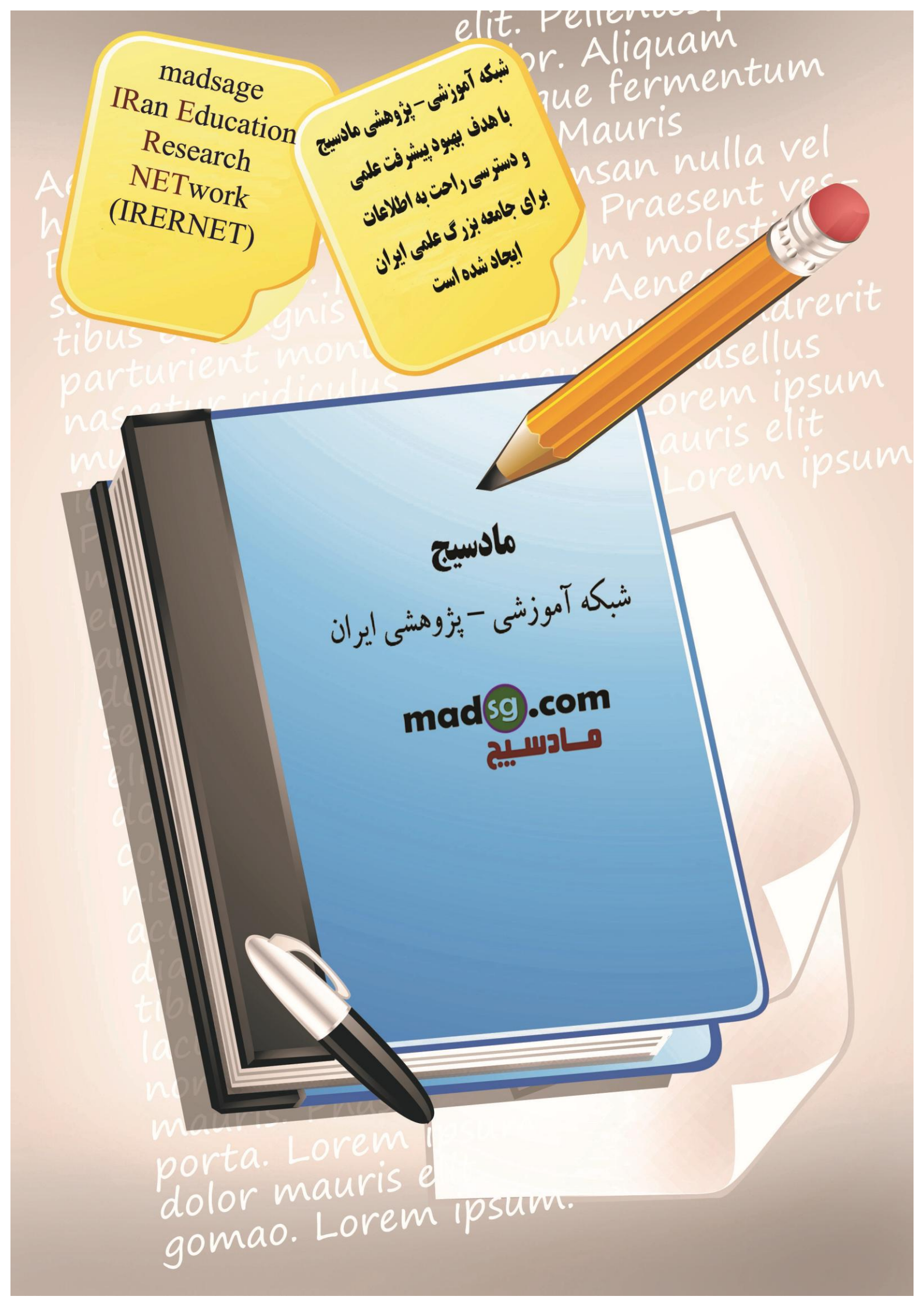
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ENGLISH

In

Library and Information Sciences (2)
(Library and information sciences)

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مقدمه

یادگیری زبان انگلیسی از ضروریات هر گونه مطالعه و پژوهش علمی در جهان امروز است. به ویژه در رشته کتابداری و اطلاع رسانی که با دنیای اطلاعات به زبان بین‌المللی (انگلیسی) سروکار دارد این مساله بیشتر نمایان است.کتاب متون تخصصی انگلیسی ۲ با توجه به نیاز دانشجویان رشته کتابداری و اطلاع رسانی ازمتون تخصصی و علمی روزآمد در زمینه علوم کتابداری و اطلاع رسانی و فن‌آوری‌های نوین، که امروزه در کتابخانه‌ها و مراکز اطلاع‌رسانی به‌کار گرفته می‌شود، تهیه و تدوین شده است.

مطالب کتاب در قالب هشت درس ارئه شده است. بجز درس اول که به طور مفصل و در چندین صفحه (در دو بخش) آمده است و دو درس را شامل می شود ، متن‌های دیگرشامل یک بخش و یک متن همراه با واژه ها، تمرین‌ها و نکات تکمیلی برای درک هرچه بیشتر مطالب آورده شده‌است. از ویژگی‌های مثبت کتاب، روزآمد بودن مطالب آن است. از جمله اشکالاتی که همواره بر کتاب‌های درسی زبان انگلیسی رشته کتابداری و اطلاع‌رسانی گرفته می شود، متون قدیمی و ناهماهنگ با مفاهیم نوین مطرح شده در جامعه علمی است. بر این اساس در این کتاب از متن هایی استفاده شده که عمدتا روزآمد و در عین حال قابل فهم و تخصصی هستند تا علاوه بر افزایش مهارت‌های خواندن و درک متون انگلیسی، اطلاعات علمی و تخصصی دانشجویان نیز افزایش یابد.

در این کتاب تلاش شده است تا دانشجویان پس از مطالعه هر درس با مهمترین واژه‌ها و مفاهیم مربوط به آن آشنا شوند به طوری که بتوانند از منابع و متون اصلی انگلیسی استفاده کنند و در پایان به سوال ها و تمرین های برگرفته از متن پاسخ گویند.

قطعا این کتاب علی رغم تلاش فراوان خالی از اشکال نیست. بسیار سپاسگزار خواهیم بود اگر استادان ارجمند و دانشجویان عزیز رشته کتابداری و اطلاع‌رسانی دانشگاه پیام‌نور، ما را از دیدگاه های خود برای بهبود و ارتقاء هرچه بیشتر این کار، آگاه سازند .

در پایان از همه کسانی که ما را در تهیه این کتاب یاری کرده اند، به ویژه جناب آقای دکتر محمود رمضان‌زاده استاد یار دانشگاه پیام نور که ویراستاری این اثر را بعهده داشته و راهنمایی های مفیدی برای تکمیل کتاب ارائه داده اند تشکر می شود.

هادی شریف مقدم
صالحه شریف مقدم

STUDY GUIDE

The objective of this book is to increase your reading skills in the field of Library and Information Sciences, and to help you become more independent readers. The book is divided to eight units, each unit comprising the following parts:

Word Definitions and Exemplifications

This part includes the definitions and exemplifications of the words that are assumed to be necessary to review before reading the main passage of each unit. The three exercises provided in the section will help you learn the meaning of the words and use them in sentences on various topics related to Library and Information Sciences.

Reading Passage

The reading passages of 8 units of the book have been taken from English essays on a variety of topics related to the field. The main purpose of this part is to familiarize the student with typical authentic reading selections; to increase his/her reading ability; and to help him/her perceive facts, ideas, arguments, etc. found in each passage. The four exercises provided in this section will help you get a better view of the topics related to library and Information Sciences.

Word Information Exercise

In this part, you can improve your vocabulary by understanding how words can be changed to form different parts of speech. Several words are derived from the main passage of each unit and their parts of speech are given in the Word Formation Chart. You should read this chart carefully and do the exercise that follows it. In this way, you will learn how to use a word in a variety of ways.

Translation

There is an ever-increasing demand for the student to become acquainted with the translation skills. The final part of all the units includes two exercises related to translation skills. Firstly, there is a short passage which should be translated into Persian. The student is required to read the whole passage carefully and translate it into fluent Persian. The translation must be technically correct, and the influence of English language should not be detected in the choice or order of words. Finally, several technical words and phrases are selected to be provided by their Persian equivalents.

The Answer Keys

Since the book is designed for independent study, the students can find the answers to all the questions of the various parts of each unit in the Answer Keys.

Unit 1&2

The Information Society: Conceptions and Critique

General Aims

This unit designed to help you learn a number of general and technical words involved in The Information Society, and to promote your technical reading comprehension.

Behavioral Objectives

After carefully reading this unit, you are expected to:

1. Define the meaning of the words presented at the beginning of this unit, and do the appropriate exercises.
2. Read the passage about The Information Society and do comprehension exercises.
3. Do word formation exercises.
4. Answer the questions according to the passage.

Word Definitions and Exemplifications

Accelerate **v.**
speed up, hurry up, go faster, move faster
The rate of inflation is **accelerating** quickly.

Analogous **adj.**
comparable, parallel, similar, like, related
Sleep is **analogous** to temporary death.

Appeal **n.**
attractiveness, charm, desirability
The **appeal** of video games for children is a source of worry for many parents.

Appear **v.**
become or be visible, seem, emerge, come out
The results of the search will **appear** on the screen in a few seconds.

Astonish **v.**
amaze, astound, stagger, surprise, confound
Doctors were **astonished** to see that the injured driver survived the accident.

Commentator **n.**
narrator, reporter, announcer, presenter
The ex-mayor has become a political **commentator** in a TV program.

Compare **v.**
express similarities in; liken; estimate the similarity of
The taste of instants coffee doesn't **compare** with freshly ground coffee beans.

Concede **v.**
admit, accept, allow, grant, recognize
He **conceded** the theft as soon as the police came.

Conceive **v.**
express, create, frame, understand, imagine
Freud's theory of development was **conceived** without studying children; rather, it was developed from patients' recollections, dreams and free associations**.**

Consequent **adj.**
resulting, following, subsequent, successive, sequential
All of us will learn someday how to face old age and its **consequent** infirmities.

Constraint **n.**
restriction, limitation, restraint, handicap
Time **constraints** make it impossible to do everything**.**

Converge **v.**
merge, meet, join, focus, concentrate
All the train lines **converge** at the central station.

Courtesy **n.**
politeness, good manner, civility, respect,
chivalry
Please do me the **courtesy** of listening to what I am saying.

Dexterity **n.**
deftness, adeptness, handiness, ability, capability, talent,
You need manual **dexterity** to be good at basketball.

Endorse **v.**
support, approve (of), be in agreement with, favor, sign

You need to **endorse** the other side of the check as well.

Envisage **v.**
foresee, predict, forecast, anticipate, foretell, expect

I cannot **envisage** being rich someday.

Epoch **n.**
era, age, period, time, span, stage, date

Napoleon's death ended an **epoch** in European history.

Erect **adj.**
upright, straight, vertical

Do not slouch. Sit up **erect**.

Evolve **v.**
develop gradually and naturally;

These countries are **evolving** toward becoming more democratic societies.

Executive **adj.**
administrative, decision-making, white-collar

She has an **executive** position at a branch of Samsung Company in Tehran.

Forebear **n.**
ancestor, forefather, predecessor, grandfather, parent, antecedent

He said his own **forebears** had come from central Europe in a previous wave of immigration.

Fortuitous **adj.**
chance, unexpected, unanticipated, unpredictable,

A **fortuitous** snow stopped the enemy in advance.

Gauge **n.**
measuring instrument, meter, indicator, scale

The fuel **gauge** indicates that the tank is half-full.

Genre **n.**
category, class, classification, categorization, group, list, type
Kiarostami has introduced a totally new **genre** into the world of cinema.

Germane **adj.**
relative, pertinent, applicable,
What you are saying is not **germane** to the discussion.

Grid **n.**
mesh, gauze, grille, lattice, framework, network, criss-cross
Tehran's grid of highways makes it very difficult at times to find their way.

Hew **v.**
chop, cut down, saw down
The statues were **hewed** out of huge pieces of rock.

Hitherto **adv.**
previously, formerly, earlier, before
Hitherto people thought that the Sun revolved around the Earth.

Impact **n.**
effect, influence, consequence
v.
affect, bear on, influence
The environmental **impacts** of the project will have to be studied before it is put into action.
The World Wide Web has **impacted** our lives like no other invention before it.

Impel **v.**
force, compel, constrain, oblige, necessitate, require, demand
Two reasons **impel** me to this conclusion.

Increment **n.**
increase, addition, gain
His salary had an annual increment of a thousand dollars.

Indices **n.**
plural of index
We should learn how to provide some **indices** for our reference books.

Individual **adj.**
of, for or characteristic of, single person; particular; not general, having a distinct character; unique
n.
single member of a class, single human being
The professor also allowed an office hour for **individual** queries of the students.
We will remember him as an **individual** who always tried to make people happy.

Infrastructure **n.**
base, fundamental, foundation
The transport **infrastructure** in Germany gained the first rate among the European countries.

Ingredient **adj.**
constituent, component, element, part, piece, integral part
Hard work is an essential **ingredient** of success.

Intense **adj.**
strong, violent, sharp, extreme, deep
The **intense** blue of the sea amazed me.

Intercourse **n.**
dealings, relationships, association, connections, communication
The importance of social intercourse among different age groups has to be stressed.

Intricacy **n.**
complexity, difficult, vague, problematic
The intricacies of political decisions make intercourse between nations more difficult.

Lexicon **n.**
dictionary, thesaurus, word book, vocabulary
The **lexicon** of a language consists of many kinds of signs other than nouns.

Likely **adj.**
probable; anticipated; achievable
It is **likely** that they will become angry with him for the decision he has made.

Manipulate **v.**
operate, handle, control, use, employ, utilize
Politicians are known for **manipulating** public opinion.

Marshal **v.**
gather, gather together, assemble, collect,
Police were brought in to **marshal** the crowd.

Prodigious **adj.**
enormous, huge, immense, vast, great, massive
Compact discs can store **prodigious** amounts of information.

Scrutiny **n.**
inspection, careful examination, survey, study
Foreign policy has recently come under close **scrutiny**.

Seminal **adj.**
influential, formative, pioneering, original, creative,
Hamlet is considered one of Shakespeare's **seminal** works.

Shrink **v.**
get /become smaller, contract, lessen, reduce
Hot water can **shrink** some clothes.

Spectacular **adj.**
impressive, magnificent, splendid, sensational
His efforts led to a **spectacular** achievement in his job.

Surveillance **n.**
observation, scrutiny, watch, view, inspection,
Their house is under police **surveillance**.

Threat **v.**
warning, ultimatum
He returned the money under a death **threat**.

Toils **n.**
trap, net, snare
It is difficult to escape the **toils** of an unpleasant feeling or situation.

Traverse **v.**
travel over/across, cross, journey over/across, negotiate, roam
A bridge **traverses** the river.

Usher **v.**
escort, accompany, help, assist, take, lead
He got his brother to **usher** him at the wedding.

Vie, (vying) **v.**
compete strongly
In today's market, companies use advertisement as a tool to vie with each other.

Virtuous **adj.**
righteous, moral, lawful, honest, honorable, respectable, noble

She lived a very **virtuous** life, turning her back on all that was sinful and immoral.

White-collar **adj.**
non-manual, clerical, professional, executive

Some people think that they are born to work as **white-collar** workers only.

1&2.1. Vocabulary Exercises

1&2.1.1. Match the words in Column A with their appropriate equivalents in Column B.

Column A	Column B
… 1. Lexicon	a. administrative
… 2. Executive	b. resulting
… 3. Marshal	c. similar, parallel
… 4. Accelerate	d. word list
… 5. Consequent	e. collect, gather
… 6. Grid	f. mesh, grille
… 7. Analogous	g. lessens, reduce
… 8. Envisage	h. speed up
… 9. Shrink	i. predict
… 10. Constraint	j. restriction
	k. respectable
	l. warning.
	m. moral

1&2.1.2. Match the words in Column A with their best Persian equivalents in Column B.

Column A	Column B
… 1. Commentator	a. ارتباط, تبادل
… 2. Interaction	b. معاصر
… 3. Intercourse	c. نقطه عطف
… 4. Gauge	d. زیرساخت, اساس
… 5. Epoch	e. گزارشگر
… 6. Infrastructure	f. شاخص اندازه گیری
… 7. Turning point	g. تعامل
… 8. Civil society	h. زمان– دوره
… 9. Contemporary	i. جامعه شهری
	j. اختتام
	k. استناد

1&2.1.3. Match the words in column (A) with their appropriate synonyms in column (B).

Column A	Column B
… 1. Conventional	a. customary
… 2. Germane	b. vertical
… 3. Speculator	c. relative
… 4. Erect	d. moral
… 5. Virtuous	e. constituent
… 6. Ingredient	f. administrative
… 7. Seminal	g. splendid
… 8. Executive	h. influential
… 9. Prodigious	i. enormous
… 10. Fortuitous	j. chance
	k. escort
	l. support.

Reading passage

The Information Society: Conceptions and Critiqu

IINTRODUCTION

Commentators increasingly talk about "information" as a defining feature of the modern world. We are told that we have entered an "information age" that a new "mode of information" predominates, that we have moved into a "global information economy." Many writers even go so far as to identify an entirely new phenomenon, "information societies", examples of which are found in the United States, Britain, Japan, Germany, etc. When conceptions of the information society enter the lexicon of corporate executives, then we know we have a term that is vying to be included in the conventional wisdom of our age. For that reason, if for no other, it calls for close and critical scrutiny.

It was curiosity about the currency of information that sparked the idea for a project on which I have worked for several years. It seemed that on many sides people were marshaling yet another grand concept to identify the germane features of our times. In theories of the information society (1995) I have considered various perspective on information in the contemporary era, discussing thinkers and theories such as Daniel Bell on "post industrialism", Jean-Francois Lyotard on "postmodernism", Kevin Wilson on "cybernetic capitalism", James Beniger on the "control revolution", and Jurgen Habermas on the "public sphere". In doing so, we may see that each has a distinct contribution to make toward our understanding of informational developments, whether it concerns the role of white collar employees, the extension of surveillance, the increase in regulation of daily life, or even the weakening of civil society.

While no one would deny that there has been an accelerating information expansion over recent decades, to some it signals nothing less than the arrival of a new type of social system, an *information society*, while to others this represents merely the informatization of established relations. On the one hand, there are thinkers who subscribe to the notion that in recent times we have seen emerge distinctive information societies that are marked by their *differences* from hitherto existing societies. Not all of these are altogether happy with the term information society, but insofar as they argue that the present era is special and different, marking a decisive turning point in social development, and then I think they can be describe as its endorsers. On the other hand, there are scholars who, while happy to

concede that information has taken on a special significance in the modern era, insist that the central feature of the present is its *continuities* with the past.

Definitions of the Information Society

What strikes one in reading the voluminous literature on the information society is that so many writers operate with undeveloped definitions of their subject. They write copiously about particular features of the information society, but are curiously vague about their operational criteria. Eager to make sense of changes in information, they rush to interpret these in terms of different forms of economic production, new forms of social interaction, innovative processes of production, or whatever. As they do so, however, they very often fail to set out clearly in what ways and why information is becoming more central today, so critical indeed that it is ushering in a new type of society. Just what is it about information that makes so many scholars think that it is at the core of the modern age?

It is possible to distinguish, analytically, at least five definitions of an information society, each of which present criteria for identifying the new. These criteria are technological, economic, occupational, spatial, and cultural. Let us examine each in turn.

Technological

The most common definition of the information society lays emphasis upon spectacular technological innovation. The key idea is that break, roughs in information processing, storage, and transmission have led to the application of information technologies (IT) in virtually all corners of society. The major concern here is the astonishing reductions in the costs of computers, their prodigious increases in power, and their consequent application anywhere and everywhere.

Somewhat more sophisticated versions of this technological route to the information society pay attention to the convergence and imbrications of telecommunications and computing. In these instance the arguments runs along the following lines: cheap information processing and storage technologies (computers) lead to their being extensively distributed; one of the major areas thus impacted is telecommunications, notably switching centers, which, in being computerized, in effect merge with the general development of computing and impel still more dramatic improvement of information management and distribution. This unification is especially for, tuitions because the widespread dissemination of computers means that for optimum use they require connection. In short, the computerization of telecommunications means that it is increasingly

the case that computer can be linked to computer, hence the prospect of links between terminals within and between offices, banks, homes, shops, factories, schools, and the globe itself.

This scenario of networked computers is often compared to the provision of electricity; the "Information grid" is seen as analogous to the electrical supply. As the electricity grid links every home, office, factory, and shop to provide energy, so the information grid offers information wherever it is needed. This is, of course, an evolutionary process, but with the spread of an ISDN (integrated services digital network) we have the fundamental elements of an information society.

Once established, these information networks become the highways of the modern age, akin to the roads, railways, and canals of the industrial age. As the latter were crucial because they carried back and forth the materials and goods that made the industrial revolution, so an ISDN will provide the infrastructure supporting the key ingredient of the postindustrial society- information.

Undoubtedly what we have here is a technological definition of an information society. Whether it is one that envisages this resulting from the impact of dramatically new technological innovations or as the outcome of a more incremental development of ISDN systems, all perceive technology to be the major distinguishing feature of the new order.

Economic

There is an established subdivision of economics that concerns itself with the "economics of information". From within this, and indeed as a founder of this specialism, the late Fritz Machlup (1902-1983) devoted much of his professional life to the goal of assessing the size and growth of the information industries.

Machlup attempted to trace the information industries in statistical terms. He distinguished five broad industry groups, namely the following:

1. Education (e.g., schools, colleges, libraries)
2. Media of communication (e.g., radio, television, advertising)
3. Information machines (e.g., computer equipment)
4. Information services (e.g., law, insurance, medicine)
5. Other information activities (e.g., R&D)

As early as the 1960s management guru Peter Drucker was contending that knowledge "has become the foundation of the modern economy" as we have shifted "from an economy of goods to a knowledge economy". Today it is commonplace to argue that we have evolved into a society where the "distinguishing characteristic is that knowledge and organization are the prime creators of wealth".

The primary information sector includes industries that in some way produce, process, disseminate, or transmit knowledge or messages. The unifying definition is that the goods and services that make up the primary sector must be fundamentally valued for their information producing, processing, or distributing characteristics.

The secondary information sector includes the informational activities of the public bureaucracy and private bureaucracies. The private bureaucracy is that portion of every non information form that engages in purely informational activities, such as research and development, planning, control, marketing and record keeping. The public bureaucracy includes all the informational functions of the federal, state and local governments.

Occupational

A popular measure of the emergence of an information society is the one that focuses on occupational change. But simply, the contention is that we have achieved an information society when the predominance of occupations is found in information work; that is, the information society has arrived when clerks, teachers, lawyers and entertainers outnumber coal miners, steelworkers, dockers, and builders.

On the surface the changing distribution of jobs seems an appropriate measure. After all, it appears obvious that as work that demands physical strength and manual dexterity (e.g., hewing coal and farming the land) declines, to be replaced by more and more manipulation of figures and text (e.g., as in education and large bureaucracies), then so we are entering a new type of society. Today "only a shrinking minority of the labor force toils in factories and the labor market is now dominated by information operative who make their living by virtue of the fact that they possess the information needed to get things done".

Certainly it is the case that most identifiers of an information society draw on occupational changes as indices of the approach of a new age, probably as many as see it in the introduction of new technologies. And a great number combine the two, regarding new technologies and new informational occupations almost as synonymous. However, it should be noted that the occupational definition is by no means the same as one that identifies an information society by the take-up of new technologies. Many information occupations (e.g., lawyers, teachers) may use little IT, while many distinctly non informational jobs have been impacted dramatically by new technologies (e.g., factory operatives, supermarket checkout workers).

Spatial

This conception of the information society, while it draws on sociology and economics, has at its core the geographer's distinctive stress on space. Here the major emphasis is on the information networks that connect locations and in consequence have dramatic effects on the organization of time and space. It has become an increasingly popular index of the information society during the 1990s.

Courtesy of immediate and effective information processing and exchange, economics has become truly global, and with this has come about a reduction in the constraints of space. Companies can now develop global strategies for production, storage, and distribution of goods and services, and financial interests operate continuously, respond immediately, and traverse the global. The boundaries erected by geographical location are being pushed further and further back- and with them to the limitations once imposed by time- thanks to the virtuoso ways in which information can be managed and manipulated in the contemporary period.

Such developments emphasize the centrality of *information networks* linking together locations within and between towns, regions, nations, continents, and, indeed, the entire world. As the electricity grid runs throughout an entire nation, extending down to the individual householder's electrical main, so too we may envisage now a "wired society" operating as the national, international, and global level to provide an "information electrical main" to each home, shop, or office. Increasingly we are all connected to the network – which itself is expanding its reach and capacities.

In short, the constraints of space have been dramatically limited, although certainly not eliminated. And simultaneously time has itself been "shrunk" as contact via computer communications and telecommunications is immediate. This "time/space compression," as Anthony Giddens terms it, provides corporations, governments, and even individuals with hitherto unachievable options.

No one could deny that information networks are an important feature of contemporary societies; satellites do allow instantaneous communications around the global, database can be accessed from Oxford to Los Angeles, Tokyo, and Paris, facsimile machines and interconnected computer systems are a routine part of modern business.

Cultural

The final conception of an information society is perhaps the most easily acknowledged, yet the least measured. Each of us is aware,

from the pattern of our everyday lives, that there has been an extraordinary increase in the information in social circulation. There is simply a great deal more of it about than ever before.

All of this testifies to the fact that we inhabit a media-laden society, but the informational features of our world are more thoroughly penetrative than a short list of television, radio, and other media systems suggests. This sort of listing implies that new media surround us, presenting us with messages to which we may or may not respond. But in truth the informational environment is a great deal more intimate more constitutive of us-than this suggests. One may consider, for example, the informational dimensions of the clothes we wear, the styling of our hair and faces, the very ways in which nowadays we work at our images. (From body shape to speech, people are intensely aware of the messages they may be projecting and how they feel about themselves in certain clothes, with a particular hairstyle, etc.) A few moments' reflection on the complexities of fashion, the intricacy of the ways in which we design ourselves for everyday presentation, makes one well aware that social intercourse nowadays involves a greater degree of information content than previously.

Contemporary culture is manifestly more heavily information-laden than any of its predecessors. We exist in a media-saturated environment, which means that life is quintessentially about symbolization, about exchanging and receiving-or trying to exchange and resisting reception to messages about ourselves and others. It is in acknowledgment of this explosion of signification that many writers conceive of our having entered an information society. They rarely attempt to gauge this development in quantitative terms, but rather start from the "obviousness" of our living in a sea of signs, one fuller than at any earlier epoch.

It is not difficult to explain why this should be so. For most of history people would have lived in relatively fixed conditions with neighbors who would have been well known to one another since all lived in the same location. Today life is characteristically one of the interactions of strangers, each with a heightened sense of their individuality and the choices open to them. Nowadays people live for only a few years in one place before moving on; every day they make decisions about what to wear, buy, eat and do from a range that to their forebears would have seemed astonishingly broad; during the day they are likely to meet others about whom they know little; urban dwelling is the norm, and so forth.

In a world of strangers it is essential that people have means of communication to reach out to others, to establish their own identities,

and to exchange information. Obviously the spoken world is central to this, and this vocabulary has expanded over two years, but so too are goods, cars, clothes, and so forth because they provide us with "languages" with which to connect to a changing world.

Into this- the familiar story of a shift from community to association that appears to be accelerating-needs to be placed the spectacular expansion of media technologies that help produce conditions in which much of life today is experienced symbolically rather than personally encountered. News is not passed from word of mouth by people who know one another, but electronically from around the globe; our work is very often concerned with exchanging symbols with others with whom we do not come into personal contact, but substitute for by writing or telephone communications; our entertainment is more often made by watching a screen than by personally attending a show.

Furthermore, it is easy to appreciate that this world of signification is also characterized by constant change and, accordingly, with persistent shifts and strains in the symbolic environment. Just think of the proliferation of lifestyle nowadays (among students, social classes, the young family forms, etc.), or reflect on the rapidly changing appeal of intellectual ideas, musical tastes and fashionable "looks", and consider the innovations, conflicts, misunderstandings, and tumult that this engenders.

Paradoxically, it is perhaps this very explosion of information that leads some writers to announce, as it were, the death of the sign. Unable to escape signs wherever we may go, the result is, oddly, a collapse of meaning. As Jean Baudrillard puts it, "there is more and more information and less and less meaning".

Conclusion

This article has focused on the criteria used by those who depict an information society. They have all been found wanting, chiefly because they forward inappropriate quantitative measures that cannot in themselves identify a qualitative change from one type of society to another. It was further demonstrated that conceptions of the information society operated with variable but uniformed, non-semantic definitions of information, whether it was conceived as so many bits, so much economic worth, or an explosion of signs. Such notions of information all of which ignore its meaning and content were useful in that they facilitate quantification, but they are unacceptable when it comes to suggesting that we are witnessing the emergence of a qualitatively new information society. Finally, the distinctively qualitative notion that the primacy of theoretical

knowledge is the distinguishing feature of the information/knowledge society was considered. While it has an initial appeal, the term was too vague and imprecise to persuade us that the undoubted expansion of some forms of theoretical knowledge signals a new type of society.

1&2.2. Reading Comprehension Exercises

1&2.2.1. True/False Items

Decide which idea is true (T) and which idea is false (F). Try to find a reason for your decision.

1. No one would deny that there has been an accelerating information expansion in recent decades. ( )
2. Cheap information processing and storage technologies (computers) lead to their being extensively distributed. ( )
3. Today, it is commonplace to argue that knowledge and organization are the prime creators of wealth. ( )
4. Nowadays social intercourse involves a lesser degree of information content than the past. ( )
5. Contemporary culture is manifestly less heavily information- laden than any of its predecessors. ( )
6. Much of life today is experienced symbolically rather than being personally encountered. ( )
7. According to Baudrillard, "there is less and less information, and more and more meaning nowadays". ( )
8. In a world of strangers it is not important to have a means of communication to exchange information. ( )
9. The boundaries erected for geographical regions are being pulled closer and closer in the information era. ( )
10. The primary information sector includes industries that in some way produce, process, disseminate, or transmit knowledge or messages. ( )

1&2.2.2. Using the information given in the passage, choose the best choice (a, b, c, or d) to answer the following questions.

1. Almost all the thinkers believe that the present era is a decisive turning point in (the) ……....
   a) information society b) social development
   c) industrial age d) technological innovation

2. The most common definition of the information society lays emphasis upon …… .
   a) technological innovation b) economic growth
   c) cultural exchange d) social interaction

3. According to the text, what are considered as the high ways of the modern age?
   a) railways b) switching centers
   c) information networks d) magazine articles

4. What is the major distinguishing feature of an information society?
   a) **t**echnology b) economy c) culture d) education

5. What is, according to Peter Drucker, the foundation of the modern economy?
   a) technology b) wealth c) knowledge d) information

6. Which of the following occupations have already been impacted by the new technologies?
   a) factory operatives b) lawyers
   c) teachers d) doctors

7. A wired society is a(n) …… society.
   a) networked b) economic c) cultural d) civil

1&2.2.3. Answer the following questions (according to the passage).

1. What are the characteristics of an information society? Name three important features.
2. What has led the libraries to an application of information technology?
3. Why are computers so popularly used everywhere nowadays?
4. Explain networked computers in depth?
5. What does ISDN stand for?
6. How can ISDN be compared with railways?
7. How can the infrastructures of an industrial revolution and that of an information society be compared?
8. What are the prime creators of wealth in the modern era?
9. How does information technology affect job opportunities in every society?
10. Draw lines on the impact of IT on cultural and ordinary life of the people of every society?
11. Why is contemporary culture considered to be more information-laden?
12. What do we understand by Jean Baudrillard's expression, "there is more and more information and less and less meaning"?

1&2.3. Word Formation Exercise.

1&2.3.1. Fill in the blanks with the appropriate form of the words given.

(N)	(V)	(Adj.)	(Adv.)
Fundamentals	economize fundamental	----	fundamentally
Economy	----	Economy economical	----
Virtue	----	virtual	Virtually
Identification	identify	identifiable	----
Distinction	Distinctive distinctive	-----	distinctively
Increase	increase	----	increasingly
Analysis	analyze	Analytical analytic	----
Acknowledgement	acknowledge	acknowledged	----
Predominance	predominate	predominant	predominantly

1. Mina …….. her attacker in a police line-up.
2. Many organizations must become larger if they are to remain…..…… .
3. They …….……. the suspect by the victim carries greater weight.
4. The governments have become ……..…. democratic these days.
5. It is very …… to buy a little car in big cities.
6. There is no easily ……..……. feature on the short line.
7. Gas demand is likely to ……..…….. during the coming winter.
8. They ……..….. by growing their own vegetables last year.
9. An ……..…. in demand of gas is predicted during the coming years.
10. DNA can be …….…… by various laboratory methods.
11. Any employee would fall into one of two ……..….. categories.
12. The old employee taught me the …… of his job.
13. The government ……..…….. the need to begin talks with the workers.
14. There are other reasons for the …….. of woman carriers.
15. A ……..….. political principal is needed now.
16. Each subculture developed a …….…….. dress style.
17. ….… ……. of the pottery fragments confirmed their Mediterranean origin.
18. The ……..… objectives of the organization were introduced.
19. They were ……..… different temperaments.
20. Although ……..… a disease of older men, it is not unknown in people of his age.
21. He was the ……..….. leader of the Turkish community.
22. Small- scale producers ……..….. in the south of the country.
23. The …….. between academic and vocational qualifications is quite meaningful.

24. A more …….. approach was needed for the bridge project.
25. There was ……..….. of the need to take new initiatives.
26. There is something ……..…. odd about the new student.

1&2.4. Translation exercises

1&2.4.1. Based on the text, give at least one appropriate Persian equivalent for each of the following technical terms.

1. Information age
2.Information society
3.Information transmission,
4.Information technology
5.Information grid
6.Information development
7.Global information economy
8.Control revolution, Public sphere
9.Turning point
10.Technological innovation
11.Silicon civilization
12.Post industrialism,
13.Contemporary era
14.Futurism
15. Digital network
16. Information storage
17.Information processing
18.Information management
19.Information environment
20.Mode of Information
21.Cybernetic capitalism
22.Civil society
23.Social interaction
24. Mighty micro
25.Networked computers
26.Post modernism
27.Telecommunication

Unit 3

Using the World Wide Web at the Reference Desk

General Aims
This unit designed to help you learn a number of general and technical words involved in using the World Wide Web at the reference desk, and their functions, and to promote your technical reading comprehension.

Behavioral Objectives
After carefully reading this unit, you are expected to:
1. Define the meaning of the words presented at the beginning of this unit, and do the appropriate exercises.
2. Read the passage about using the World Wide Web at the reference desk and do comprehension exercises.
3. Do word formation exercises.
4. Answer the questions according to the passage.

Word Definitions and Exemplifications

Address **v.**

To **address** the issue of environmental change, one has to consider the amount of pollution the developed countries have caused at the time of their development.

Burgeoning **adj.**
developing rapidly, e.g. burgeoning population

Manufacturers are keen to cash in on the *burgeoning* ***demand.***

Chamber of Commerce **n.**
a group of local business people who work together to help business and trade in a particular town.

The members of the **chambers of commerce** held a meeting to discuss promoting transactions between the two countries.

Compatible **adj.**
(of machines, computers) able to be used together e.g. compatible software.

The compatibility of the new system with the existing equipment has to be checked.

Confidently **adv.**
Doing something and feeling certain that something will happen in the way that you want.

Without a moment of doubt, she **confidently** decided to go abroad to continue her education.

Convenient **adj.**
easy, useful or quick to do. Ant. Inconvenient

I phoned your office to confirm that the date is **convenient** for you as well.

Counterpart **n.**
a person or thing that has the same position or function as sb/sth else in a different place or situation; opposite number
The prime minister held talks with his French **counterpart**.

Encounter **v.**
face; meet with; come across.
They have **encountered** a very big problem these days.

Encourage **v.**
to persuade somebody to do something by making them believe it is a good thing to do. inspire. Ant. discourage
Banks actively **encourage** people to borrow money.

Execute **v.**
implement; to carry out; perform
The government has been trying to **execute** a plan to reduce fuel consumption.

Exhaustive **adj.**
thorough, complete, absolute, utter
She has undergone **exhaustive** tests since becoming ill.

Expertise **n.**
expert knowledge or skill in a particular subject, activity or job; mastery; professional/ scientific/ technical expertise.
A librarian should have considerable **expertise** in working with the world wide web.

Extensive **adj.**
including a wide range of information; far-reaching
An **extensive** collection of reference books is what the library is known for.

Flexibility **adj.**
conformity; the ability to change with the situation; not stiff; supple
Computers offer a much greater degree of **flexibility** in the way work is organized**.**

Frequency **n.**
rate of recurrence; the number of times any action or occurrence is repeated in a given period
The publication **frequency** of the magazine doubled in the war period.

Frustrated **adj.**
annoyed; disappointed.
Lack of expertise mostly causes people to become **frustrated** with ***the system.***

Hesitate **v.**
to be slow to speak or act because of felling uncertain or nervous, pause, lapse.
I didn't **hesitate** for a moment about taking the job.

Hone **v.**
to develop and improve sth, especially a skill; excel.
Their appetites were **honed** by fresh air and exercise.

Inadequate **adj.**
not sufficient; not good enough
The system has proven **inadequate** in meeting the needs of the library.

Interactive **adj.**
(of systems) that allows information to be passed continuously and in both directions between a computer and the person who uses it.
Interactive teaching methods are those with user-friendly syllabus material.

Predictable **adj.**
you know in advance that it will happen or what it will be like.
The stock market is volatile and never **predictable**.

Proliferation **n.**
the sudden increase in the number of something.
The **proliferation** in the number of books he wrote made him very famous as an author.

Relentless **adj.**
not stopping or getting less strong, unrelenting, persistent.
The **relentless** heat of the desert killed too many animals.

Significant **adj.**
having a meaning; indicative, noteworthy; important
World war II was a **significant** event in world history.

3.1. Vocabulary Exercises

3.1.1. Match the words in Column A with their appropriate equivalents in Column B.

Column A	Column B
… 1. Relentless	a. Adaptable
… 2. Encounter	b. Decided
… 3. Confident	c. Broad
… 4. Encourage	d. Perform
… 5. Determined	e. Stimulate
… 6. Flexible	f. Persistent
… 7. Extensive	g. self-assured
… 8. Liaison	h. chance meeting
… 9. Expertise	i. skillfulness
… 10. Execute	j. interrelationship
	k. lead to
	l. leadership
	m. formulated
	n. nominate

3.1.2. Match the words in Column A with their best Persian equivalents in Column B.

Column A	Column B
1. Literature	a. رخداد
2. Overwhelming	b. بازیافتن
3. Organized	c. یکپارچه
4. Adjacency	d. ادبیات
5. Tip-off	e. جور بودن
6. Operator	f. سازمان یافته
7. Occurrence	g. گرداننده
8. Match	h. مجاورت
9. Retrieve	i. تحقیق کردن
10. Seamless	j. مجموعه
	k. ماهیت
	l. شدید ,قاطع
	m. محرمانه
	n. بی وقفه ، یک دست

3.1.3. Match the words in column (A) with their appropriate synonyms in column (B).

Column A	Column B
… 1. Analogous	a. foretell
… 2. Compile	b. show
… 3. Adequate	c. great number
… 4. Interaction	d. effect
… 5. Predict	e. focus
… 6. Reflect	f. peerless
… 7. Compatible	g. collect
… 8. Multitude	h. mutual influence
… 9. Impact	i. congenial
… 10. Unique	j. sufficient
	k. training

Reading passage

Using the World Wide Web at the Reference Desk

The proliferation of resources on the Web is relentless. It seems we cannot turn a page, a channel, or a corner without encountering a new Web address. Reference sources, like other forms of information on the Web, are burgeoning, and with good reason. The Internet is proving to be an especially suitable medium for accessing and using reference materials. From online catalogs to college catalogs, from dictionaries to directories, the Web provides a timely, quick, convenient, and direct way to get answers. With knowledge and practice, librarians can make full use of this electronic collection.

Often librarians hesitate to answer questions using the Web because they are frustrated by its unexpected nature. The helpful site we so confidently directed a patron to yesterday may not even be there today. Frustrating as such an experience can be, it is just this flexibility that makes the Web a unique tool for answering reference questions. Our ability to get information on events minutes after they happen draws us back to the Web again and again. We may lose the comfort of consulting a more predictable print copy, but we gain access to the timeliest sports scores or the latest medical information.

The professional literature has begun to reflect that librarians are recognizing the rise of this new medium as a reference tool. In her article “New Technologies and Reference Service”, Janice Simmons-Welburn depicts the effects of new technologies on reference librarians and users. She describes the increasingly complex process of choosing from a multitude of systems, as well as the learning curve involved in developing needed expertise. Don Lanier and Walter Wilkins predict that the Internet will have a significant impact on ready reference service. They encourage librarians to become familiar with Internet resources in order to assist users effectively. They emphasize the need for staff training and for evaluation of resources.

Determine if your question is best answered on the web

The overwhelming majority of reference resources on the Web have no print counterparts. The richness and variety of Internet sites have turned thousands of Web pages into potential reference sources. The pages of newspapers and news services, government agencies, chambers of commerce, museums, corporations, sports teams, and travel agencies all have distinct reference possibilities. Knowing what

categories of questions can best be answered on the Web is a helpful first step toward efficient use of the Web for providing reference services.

As Sara Ryan noted in "Using the Internet for Reference", not all reference questions are good candidates for the Web. To be sure, many questions can be answered using Web resources, but it may be easier to grab a familiar ready reference book than to search for the same information online. Also, the Web is not a likely source for much academic research. Scholarly journal articles, conference proceedings, statistical information, and reports on serious research initiatives are still best found in an academic library or a research library.

What types of questions are likely to be answered more easily using the Web? We have identified several categories. This is by no means an exhaustive list and will evolve and change as the Web grows and becomes more organized. Reference librarians should experiment and explore on their own and find other categories of information that have extensive Web resources.

When and How to Use Search Tools

Once you have chosen to use the Web to answer a reference question, the next choices are where and how to search. There are at least two approaches. One can use a mega-Web site that has organized links to Web sites by a subject index, or one can use a search engine for keyword searching.

Organized subject indexes: Search services such as Yahoo!, Lycos, and Excite organize links for the user. Sites are registered by Yahoo! Or Excite and are then grouped according to broad subject categories, such as business, entertainment, and sports. It is best to use the subject- organized sites when the search request is not specific and the request is for a general area of information. For example, if you wanted to find out what basketball teams had Web pages, as opposed to finding the Chicago Bulls home page, these mega-subject indexes would be the best way to begin. This might be analogous to scanning the bookshelves in the reference area by LC classification in order to locate an appropriate source, as opposed to going to a particular title.

Search engines: when subject-organized home pages prove inadequate and there is a need to find specific information on a topic, it is best to use a search engine such as Alta Vista, Excite, Infoseek, or WebCrawler. Search engines are automated programs that search the Web can compile a list of links to relevant sites based on keywords supplied by the user. Depending on the configuration of the search engine, retrieval will always include Web sites and may include

Usenet discussion threads, gopher, and FTP sites. Some search engines will only match search queries the Web page titles, and others will match against all the text on a Web page.

Search Statement Format or Syntax Is Important

A number of search engines are standardizing some common commands. For example, Alta Vista, Info seek, and Excite use quotation marks (“”) around phrases or multiple words to execute an adjacency command. They also use the plus (+) and minus (-) signs to either assure the occurrence or nonoccurrence of particular terms or concepts. The plus sign becomes the de facto AND operator, and the minus sign the Not operator. All the search engines have search tips for the advanced user, and we recommended their use.

Even when the search formulation appears correct, don’t expect to find the exact match right away. All of the search engines have some weighting system that lists matches in order of the frequency or relevancy of matched terms, however, the logic of the listings may not be apparent. One may find the exact match on the second or even third screen of the retrieved lists. As with all types of interactive search systems, studying the results of the search may frequently provide a clue as to how to reformulate a search for better retrieval.

Training and Practicing with the World Wide Web

As reference librarians, we hone our searching and finding skills of print and other resources by building a semantic map of our library’s reference room through the physical experience of browsing the stacks while helping patrons. We come to know where to find literary criticism of accounting reports in our collections from actually doing it. The World Wide Web is a much larger “collection”, but the comparison holds true. We must encourage our reference staff to spend time to systematically explore the electronic stacks on the Web. One way to encourage this is to have librarians build and maintain ready reference pages and use subject specialist pages or bookmarks.

When browsing the electronic ready reference shelves, librarians and patrons will find familiar standard sources. The World Fact book, the Encyclopedia Britannica, and the AT&T Toll-Free Internet-Directory can all line your online shelves. So, do you page or click? Again, librarians can build on the successful criteria they have used in the past to make sound reference decisions today. Despite the newness of the medium, such familiar criteria as scope, coverage, currency, accuracy, credibility, authority, and ease of use can all be applied when evaluating Web reference tools. In fact, there are already a

number of excellent ready reference meta-sites-Web sites that are well organized with links to many different ready reference sources.

Virtual Reference and Subject Specialist Pages

In order to facilitate the use of the many Web-based sources while working at the reference desk, librarians may want to use the bookmarks feature of their Web browsing software to create a "virtual reference room" or even a series of Web pages developed by subject specialists or bibliographers. Organizing bookmarks into logical categories with descriptive labels will help the reference staff begins to use and rely upon these online sources as they do the print resources on a ready reference shelf.

Another way to promote familiarity with Web-based reference sources is to encourage subject specialists or department liaisons to create Web pages that link the best sites in their fields of expertise. As we begin to use the Internet as a reference resource, librarians will now have to expand their traditional roles as reference book selectors to include selecting sites on the Web.

INDEXES AND JOURNALS ON THE WEB

Journal index vendors are now providing Web access to the many databases that they previously offered in print or CD-ROM versions. Silver Platter, through its WebSpirs software, Dialog with Dialog Web, and H.W. Wilson with Wilson Web, all offer Web access to most of their databases. This is a relatively new development, but a trend that is likely to continue as more libraries see the Web as a way of delivering not only Internet resources, but also the library's own online catalog and journal indexes or databases.

Finally, reference services are changing with the efforts to create a single Web based interface for all types of information. OCLC's Site Search offers libraries the opportunity to use one interface to search local library databases, any remote databases that are Z39.50 compatible, the library's online catalog, and the Web with one seamless interface. In short, the Web has become a major player in the way that much information is delivered to reference librarians and their users.

CONCLUSION

As we actively transform reference service, our central purpose remains the same to teach patrons to find, evaluate, and use information effectively. To accomplish this, we consult both ready reference collections and virtual reference materials. Our bookmark folders contain the electronic versions of familiar reference sources, as

well as recently developed home pages of online bookstores, medical information centers, and sports arenas. We apply traditional evaluation criteria to the unfiltered world of the Internet as we develop new criteria to match the changing forms of information access and delivery. We draw on our knowledge of how information is organized to provide our users with new search tools and new information-seeking strategies.

As we integrate the old with the new, the skills, experience, and perspective we gain from our reference work will uniquely position us to see and seize our information future. We can create reference services of unlimited possibility.

3.2. Reading Comprehension Exercises

3.2.1. True/False Items

Decide which idea is true (T) and which idea is false (F). Try to find a reason for your decision.

1. Librarians could recognize the web as a reference tool. ( )
2. A print copy of most of the material on the web is available. ( )
3. All reference questions can best be answered on the web. ( )
4. Bookmarks can only be used for organizing print resources on the reference shelves. ( )
5. Libraries' own online catalog and journal indexes can be delivered on the web. ( )
6. The web provides a timely, quick and convenient way to access dictionaries and directories. ( )
7. The unpredictable nature of the web makes it an unsuitable reference tool. ( )
8. Today, government agencies, newspapers, museums and other corporations have their own web pages. ( )
9. Mega-web sites have organized links to websites for keyword searching. ( )
10. An 'adjacency command' means using quotation marks to show that the words inside them go together as a phrase. ( )
11. It is the best to use search engines when the search request is for a general area and information. ( )

3.2.2. Using the information given in the passage, choose the best choice (a, b, c, or d) to answer the following questions.

1. Using the web might be a frustrating experience because of the web's ……. nature.
   a) incredible b) flexible
   c) unique d) unexpected

2. Which of the following categories are not likely to be answered easily on the web?
   a) academic b) popular culture information
   c) directory-type information d) sports information

3. …….. are automated programs that search the web and compile a list of links to relevant sites based on keywords supplied by the user.

a) mega-Web sites
b) organized subject indexes
c) search engines
d) reference sites

4. Which of the following criteria is not necessarily taken into view when evaluating Web reference tools?
   a) accuracy
   b) authority
   c) currency
   d) popularity

5. Don Lanier and Walter Wilkins emphasize the need for …… in order to assist users in using the Web effectively.
   a) evaluation of resources
   b) checking print counterparts
   c) staff training
   d) both a & c

6. The retrieval of information will always depend upon …….. .
   a) complexity of the search
   b) speed of the search
   c) configuration of the search engine
   d) both b & c

7. If you are searching on Alta Vista, the search question "French Revolution", should mean you are searching for:
   a) French people and their revolutions in history.
   b) Traditions, styles of life, cuisines and revolutions in France.
   c) What the French people did in reaction to revolutions in the world.
   d) The revolution in France that took place in …. .

8. What does the term 'virtual reference room' mean?
   a) A semantic map of the libraries reference room.
   b) Evaluating the scope, coverage, accuracy and authority of a reference room.
   c) Building electronic stacks on the web by bookmarking ready reference.
   d) Delivering libraries own catalog and journal indexes on the web.

3.3. Word Formation Exercise.

3.3.1. Fill in the blanks with the appropriate form of the words given.

(N)	(V)	(Adj.)	(Adv.)
proliferation	prolific	prolifically	proliferate
convenience	convenient	conveniently	---------
hesitation	hesitant	hesitantly	hesitate
confidence	confident	confidently	confide
prediction/ predictability	predictable	predictably	predict
encouragement	encouraging	encouragingly	encourage
determinate	determined	determinedly	determine
extension	extensive/ extended/extendable	extensively	extend
frustration	frustrated/ frustrating	frustratingly	frustrate
compatibility	compatible	compatibly	----

1. The teacher …….. the students to use all their dexterity in completing the project.
2. …….. authors are those who have written a large number of books in their life time.
3. In this resort you can enjoy all the comfort and …… of modern life.
4. Doctors are …… to comment on the new treatment.
5. The students all have …… in their teacher.
6. I'm …….that you will pass the examination this time if you study harder.
7. In March and April, the weather is much less ……
8. Nowadays there are reliable methods for …….. earthquakes .
9. He is …… to go. No one can stop him.
10. How can you ……the amount of money needed if you don't know all the costs?
11. The visa is for 15 days, ……upto one month.
12. The university will start it ……. plans as the students are proliferating every year, and there is not enough space to accommodate them.

13. Do you know the ……..of the damage to the horse!
14. The new software was not …….. with the previously existing ones. Therefore, the boss ordered that the …… of each new program be checked first.
15. The …… of diseases in the last century has been reported to be due to an increase in the resistance of microbes to antibiotics.
16. He sat there ……., thinking about his dreams that now seemed so real.
17. She …….. asked if there was anything she could do to calm down her grieving friend.
18. The teacher was so …… with the students' inattentiveness that she left the class.
19. Her mark sheet has been so …….. bad. She will have to study harder to pass the examinations.

3.4. Translation exercises

3.4.1. Match the words in Column A with their best Persian equivalents in Column B.

Column A	Column B
… 1. timely … 2. authority … 3. accuracy … 4. currency … 5. credibility … 6. scope … 7. reflect … 8. supply … 9. approach … 10. register … 11. sound	a. ثبت کردن b. عرضه کردن c. رواج d. نشان دادن e. سریع f. مرجعیت g. به موقع h. صحت i. انعکاس j. گستره k. اعتبار l. روش

3.4.2. Give at least one appropriate Persian equivalent for each of the following terms.

1. subject index
2.directories
3. configuration and search engine
4. reference material
5. retrieval, predefined syntax (of the search engine)
6. reference desk
7. adjacency command
8. staff training
9. semantic map
10. reference tool
11. electronic stacks
12. potential reference sources
13. virtual reference room
14. reference question
15. Interface
16. reference librarians
17. LC classification
18. web resources
19. mega-web site

Unit 4

Search Engines

General Aims
This unit designed to help you learn a number of general and technical words involved in Search Engines, and their functions, and to promote your technical reading comprehension.

Behavioral Objectives
After carefully reading this unit, you are expected to:
1. Define the meaning of the words presented at the beginning of this unit, and do the appropriate exercises.
2. Read the passage about using Search Engines and do comprehension exercises.
3. Do word formation exercises.
4. Answer the questions according to the passage.

Word Definitions and Exemplifications

Apt **n.**
[**with infinitive**] Having a tendency to do something;**,** appropriate or suitable in the circumstances

Babies are **apt** to put objects into their mouths.

Assumption **n.**
a thing that is accepted as true or as certain to happen, without proof

They made certain **assumptions** about the market before investing in it.

Capability **n.**
the power or ability to do something

The company's **capability** to increase productivity is very important.

Circumstances **n.**
situation; condition; event

He was found dead, but there were no suspicious **circumstances**.

Combination **n.**
a joining of different parts or qualities

A magnificent **combination** of drama and music was performed.

Command **v.**
give an authoritative order

'Stop arguing!' he **commanded**.

Commonly **adv.**
very often; frequently

Although Google is used most **commonly** today, it could give its place to another search engine in the future.

Complex **adj.**
consisting of many different and connected parts, not easy to

analyze or understand; complicated

The situation is more **complex** than it appears.

Computation **n.**
the action of mathematical calculation, the use of computers, especially as a subject of research or study

Statistical **computations** are sometimes used to predict the stock market.

Concept **n.**
an abstract idea

The **concept** of social class became more prominent after the industrial revolution in Europe.

Contain **v.**
have or hold (someone or something) inside

The drink doesn't **contain** any alcohol.

Coordinate **v.**
organize, manage, arrange

He was responsible for **coordinating** London's transport services.

Depend on **v.**
be based on, rely on

The success or failure of a search engine **depends on** a wide variety of factors.

Discern **v.**
recognize or find out

I cannot **discern** any differences between the two policies.

Discipline **n.**
a branch of knowledge

Sociology is a fairly new **discipline**.

Distinction **n.**
a difference or contrast between similar things or people

There is a sharp distinction **between** domestic and international politics.

Elaborate **adj.**
detailed

An **elaborate** computer system is required to enhance the library's online catalogues.

Element **n.**
an essential or characteristic part of something abstract

Water is one of nature's most essential **elements**.

Emulate **v.**
match or surpass (a person or achievement) typically by imitation; copy

Most rulers wished to **emulate** Alexander the Great.

Hunt **v.**
Search determinedly for someone or something

He desperately **hunted** for a new job.

Initial **Adj.**
existing or occurring at the beginning

Our **initial** decision on the matter paved the way for the later ones.

Interact **v.**
communicate, connect

For a system to be user-friendly, it has to be easy for the users to **interact** with it.

Interface **n.**
The point of interaction or communication between a computer and any other entity,

such as a printer or human operator.

Imagination system features are brought to the user under windows user-friendly **interface**.

Interpret **v.**
explain the meaning of sth; render

The data can be **interpreted** in many different ways depending on the system of analysis used.

Irrelevant **adj.**
not connected with or relevant to something

Many people consider politics **irrelevant** to their lives.

Mandate **n.**
an official order or commission to do something

A **mandate** for the release of political prisoners is expected.

Misinterpret **v.**
interpret (sth or sb) wrongly

The judge misinterpreted **the case and sent the man to prison.**

Modify **v.**
make partial or minor changes in sth; adjust

She may be prepared to **modify** her views.

Occur **v.**
happen, take place

The accident **occurred** at about 3.30 p.m.

Opportunity **n.**
a time or set of circumstances that makes it possible to do something

Increased **opportunities** for export can provide a suitable profit for the merchants.

Outcome **n.**
the way a thing turns out; a consequence
It is the **outcome** of the election that is important.

Permanently **adj.**
in a way that lasts or remains unchanged indefinitely; for all time
Smoking can **permanently** damage the lungs.

Permit **v.**
officially allow (someone) to do something
The law **permits** councils to monitor any factory emitting smoke.

Precise **adj.**
exact, accurate
I want as **precise** a time of death as I can get.

Probabilistic **adj.**
based on or adapted to a theory of probability; subject to or involving chance variation
The main approaches are either rule-based or **probabilistic**.

Quantify **v.**
express or measure the quantity of sth
It is impossible to **quantify** the extent of the black economy.

Ranking ***n.***
position on a scale in relation to others; rating
Search Engine Optimization (SEO) is the adaptation of a website to improve its **ranking** on search engines.

Refining **v.**
remove impurities or unwanted elements from (a substance), typically as part of an industrial process

In the past, sugar was **refined** by boiling it in huge iron vats.

Retrieval **n.**
the process of getting something back from somewhere

The investigation was completed after the **retrieval** of plane wreckage.

Statement **n.**
a definite or clear expression of something in speech or writing; assertion

Do you agree with this **statement**?

Statistical **adj.**
relating to the use of statistics (**Statistic:** a fact or piece of data obtained from a study of a large quantity of numerical data)

The winners are chosen on a purely **statistical** basis following an analysis of all the results in each category.

Thus **adv.**
as a result or consequence of this; therefore

Burke knocked out Byrne, **thus** becoming champion.

Trained **v., adj.**
(usually as adjective, **trained**) develop and improve (a mental or physical faculty) through instruction or practice.

An alert mind and **trained** eye give astute evaluations.

Variation **n.**
a change or slight difference in condition, amount, or level

Surprisingly there is little regional **variation** in building costs.

4.1. Vocabulary Exercises

4.1.1. Match the words in Column A with their appropriate equivalents in Column B.

Column A	Column B
… 1. Depend on … 2. Command … 3. Apt … 4. Coordinate … 5. Thus … 6. Assumption … 7. Trained … 8. Length	a. a thing that is accepted as true or as certain to happen b. as a result or consequence of this c. be controlled or determined by d. bring the different elements e. develop and improve through instruction or practice. f. give an authoritative order g. Having a tendency to do something h. be measurement or extent of something from end to end

4.1.2. Match the words in Column A with their best Persian equivalents in Column B.

Column A	Column B
… 1. Retrieving information … 2. A search query … 3. Cross discipline search … 4. Sorting information … 5. Search engine … 6. Database … 7. Thesaurus … 8. Subject heading … 9. Combination … 10. Interpreting a query … 11. Citation … 12. Standardized vocabulary … 13. Entry point … 14. False Drops	a. موتور جستجو b. تفسیر سؤال مورد جستجو c. سؤال جستجو d. بازیابی اطلاعاتی e. پایگاه اطلاعاتی f. اصطلاح نامه g. جستجوی بین رشته ای h. طبقه بندی اطلاعات i. سرعنوان موضوعی j. استناد k. ترکیب آزاد واژه ای l. مدخل m. واژه معیار n. ریزش کاذب o. همآرایی

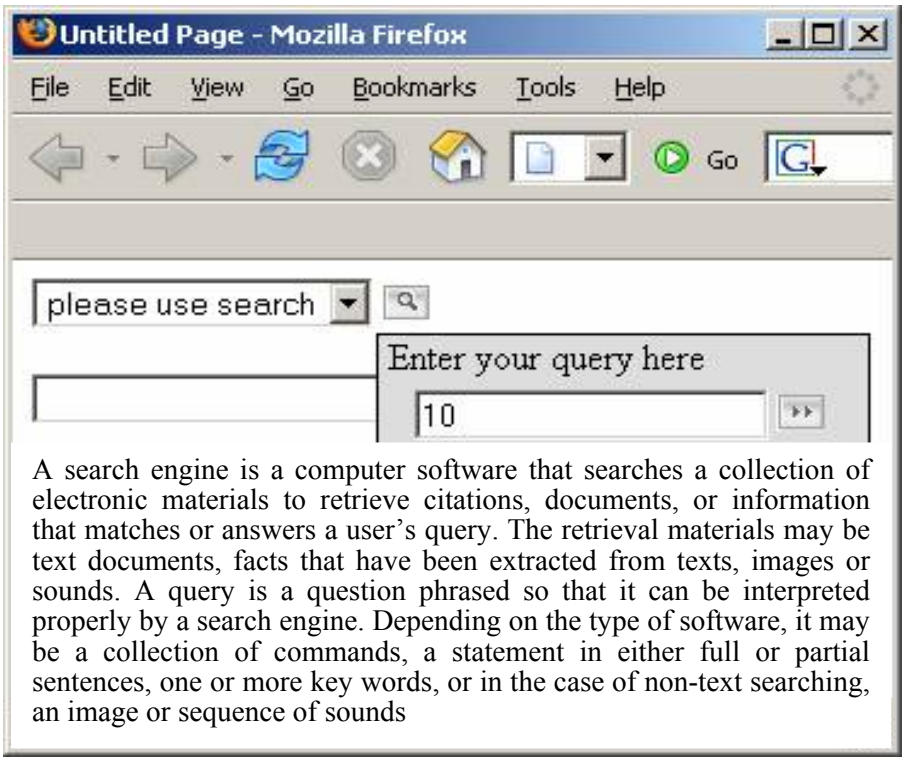
4.1.3. Match the words in column (A) with their appropriate synonyms in column (B).

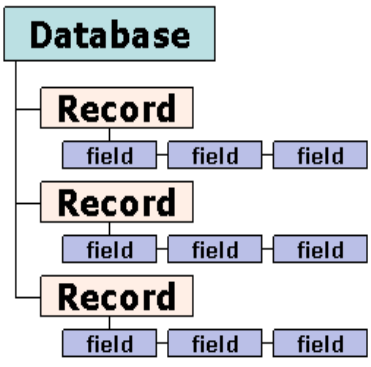
Column A	Column B
… 1. Variation	a. adapt
… 2. Traditional	b. allow
… 3. Strategy	c. chance
… 4. Retrieval	d. difference
… 5. Precise	e. hold
… 6. Permit	f. ideal
… 7. Perfect	g. old
… 8. Opportunity	h. plan
… 9. Modify	i. recovery
… 10. Contain	j. specific
	k. modern
	l. respective
	m. reference

Reading passage

Search Engines

Definition

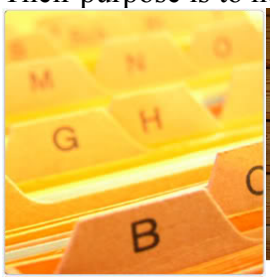


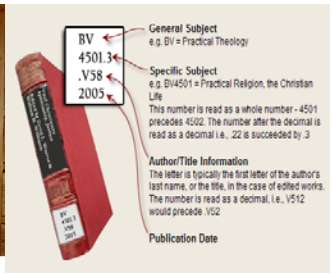


Search engines are most commonly associated with searching text and data. Collections of electronic text are commonly referred to as databases. A *database* is a collection of either citations or full text articles. Each article or citation is called a *record*. Each record in a database contains the same elements, referred to as *fields.* Commonly occurring fields include title, author, publisher, date, journal title, key words, and abstracts, as well as the full text of the article.

History

Large unorganized collections of information are of minimal use to anyone until they have been sorted into a discernible pattern. For that reason, methods for creating access to printed materials were developed as early as the Babylonian era. These methods are commonly referred to as indexing, cataloging, and classification. Their purpose is to help users find materials within a collection.





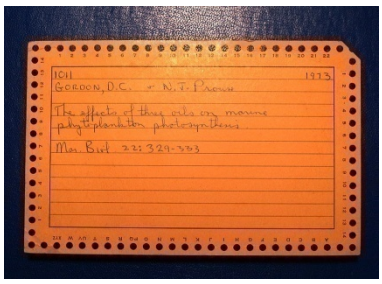
Indexing Cataloging Classification

Libraries create order by sorting information by subject, author, or even by cover color. However, the need to physically place the work somewhere on a shelf has limited the ability of the library to create subject groupings that merge two or more disciplines. The object to be cataloged can be shelved in only one location. Works that are on more than one topic must be placed in a single spot. To solve this problem, libraries created card catalogs. The card catalogue enabled the users to find the same book under multiple entry points, such as author, subject, title, or series name.

Library subject heading are standardized in controlled vocabularies so that, for example, works about "skin diving" are not scattered through the catalog under alternate terms, such as "scuba diving", because of the indexer's mistake. These standardized subject headings were established centrally in a controlled vocabulary or in a thesaurus such as the *Library of Congress Subject Headings*, or the Sears *List of Subject Headings*. Both these traditional thesauri are examples of *pre-coordinate indexing*; that is, indexing that permanently establishes relationships between two or more subjects in a single heading. These relationships are fixed so that no matter what library is used, materials will be located under the same predictable heading. Thus the Library of Congress mandates that Provencal cooking will be forever found under "cookery, French- Provencal style", not under "Provencal cooking". Once officially established, these subject headings are rarely altered.

Post-coordinate indexing was a different retrieval approach developed in 1940s and 1950s to answer the need for quick access to

current and precise topics. Post-coordinate *indexing* assigns single terms to documents. They are not pre-coordinated as they are in a library thesaurus or controlled vocabulary. The purpose of post-coordinate indexing is to permit any combination of two or more terms. Cross-discipline searching is facilitated, and the searcher need not know the established terminology or format in order to locate relevant materials. In other words, Provencal and cooking are assigned separately, to be combined only at the time of the search. In general, systems that arose from this tradition were more apt to include new terms as they arose.

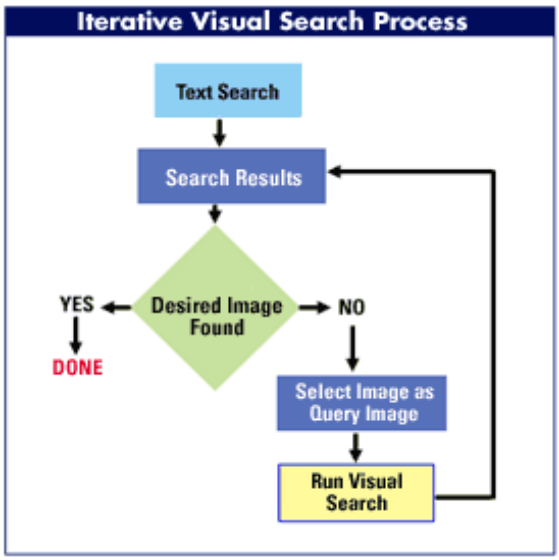


An edge-notched card

Post-coordinate indexing permitted the free combination of all or any terms that were assigned to a document. Mortimer Taube's Uniterm system is an example of this type of index. Edge-notched cards that are punched for subject terms are another example.

The distinction between post- and pre-coordinate indexing is that post-coordinate indexing allows for any terms to be searched for in combination with any other term, in addition, it does not rely on elaborate thesauri. Both pre-coordinate and post coordinate indexing led the user to the physical location of the actual document. A document could simultaneously appear to exist at any entry point; thus the possibilities of retrieving a work were suddenly expanded.

The Search Process



Hunting for information is an iterative process. It begins as an initial question or query, usually a broad one. Based on the first retrieved set of information, the user may modify or completely change the initial search strategy, refining it in successive iterations until it brings him what he needs. In the best embodiment of this process, the user is able to interact with enough intelligence to give him guidance on where to look and how to describe his information need effectively. Search engines are effective to the extent to which they can ease and emulate the search process.

The Perfect Search Engine

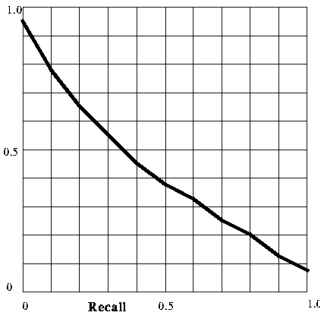
- Finds good answers to questions
- Finds answers quickly
- Interprets a question well enough to search on the ideas and concepts expressed, not just on the terms used in a query
- Is easy to interact with, requires no special formats or commands
- Lets the user know what is happening, and prompts him when the system is in doubt
- Presents the retrieved information in perfect relevance rank order, with the most relevant information at the top.
- Provides full text with illustrations through the same search interface when requested
- Returns no irrelevant information, but includes partially relevant material.

Issues in Text Retrieval Performance

While a human has no trouble determining whether or not a document is about the subject he is interested in, computers must have some means for translating the effectiveness of retrieval (whether a document is "about" a subject) into more precise terms. *Precision* and *recall* measure the effectiveness of search engines. Precision measures

the ability of the search engine to match a query exactly, without retrieving irrelevant materials. Recall measures the percentage of relevant documents in a database that are retrieved by the query. In general, the greater the precision, the lower the recall. Similarly, the greater the recall, the lower the precision. This is shown clearly in the figure below which is a typical precision-recall graph. In designing a search engine, each of the following factors must be considered, and each decision affects the precision and recall of a system.

A third measure, which is yet to be quantified, is the usability of a system. In other words, how easy it is to get answers from it without prior training or without expertise in the subject matter contained in the database. Speed, interface design, opportunities for interaction with the system, and the ability to interpret a query in plain language all influence the usability of the system.



What Is Searched

Should a search engine search every Word in each document for every search, or can some shortcuts increase the speed of retrieval? A text record often contains some predefinable elements. For instance, documents typically contain a title, an author, a data, the name of the publication, and the publisher, as well as indexing words, an abstract, and the full text. Each of these elements can be considered a separate text field. Searching on a single defined field speeds up the retrieval time, so that seeking an author's name only in the author field should be very fast. However, searching by field reduces the chances that a relevant document will be found if the search term does not occur in that field, but occurs somewhere else in the document. It is more likely that a query term will appear in the full text of a document than in only its title or its indexing terms, simply because full text contains more words. In addition, many searchers assume that every field is being searched, and create queries based on this assumption. Yet even most full-text retrieval systems do not search some words contained in a document. In particular, stop words and simple string matching limit what a system can retrieve.

- Stop words. Vey common words are usually eliminated from the default search of most retrieval systems. These words typically include *a, the, an, to, and, or,* and *but.*
- *String matching vs. more complex types of retrieval.* Matching short strings of letters is much faster than matching phrases or sentences or noting the relative position of terms in order to retrieve adjacent words or words in the same paragraph. Is the search unit the words, or can phrases or sentences be retrieved as well? Every step to a larger unit increases the possibility of retrieving documents that match the user's query more precisely.

False Drops

False drops occur because either a word is used in a different sense in an article or the query terms all appear in an article but are not related to each other. A good example of this would be a search for American foreign policy in Japan which retrieves a news digest containing brief paragraphs on American foreign policy in China and news of a tsunami in Japan. This false drop contains all the query terms, but not in the right context. Any text retrieval system that searches solely by matching terms is likely to retrieve false drops under these circumstances. Another cause of false drops is misinterpretation of a term.

The ultimate search engine requires a degree of intelligence in order to interpret a user's question correctly. This is because users are seeking information about which they know relatively little or about which they have incomplete or inaccurate information. The best search engine would be able to act like a knowledgeable human to help the user enlarge the scope of the question or change its focus. Artificial intelligence is only beginning to emulate that capability.

Types of Text Retrieval Systems

We can divide text retrieval search engines into three broad categories: Boolean, probabilistic or statistical, and natural language processing. Each has its particular advantages and faults. At this time, no commercially available search engine finds every relevant item within a database. This is partially due to varieties of the English language, which is rich in synonyms and homonyms, and partially due to the difficulty most users have in framing their information need precisely. Most users, however, are interested in finding *an* answer to their question, not in finding everything on a subject. In fact, if they were given everything on a topic, they might be overwhelmed with too much information. Therefore, if they retrieve enough information

of value to fill their information need, they are satisfied with the results.

The choice of a search engine partially depends on the type of database to be searched and who will be searching it. Boolean systems work well with trained users and with well-indexed contents. They are useful for document records that do not contain full text and for finding precise answers such as known authors or titles. Statistical and natural language processing require full text (or at least abstracts) in order to function to their potential. They excel in finding information about subjects or poorly defined questions. Both, however, benefit from well-designed and carefully executed indexing.

Boolean Systems

Boolean searching is the foundation of today's traditional online information retrieval services such as DIALOG, MEDLINE, LEXIS/NEXIS, or Westlaw. A Boolean search matches the terms in a document with the terms in the user's query. Boolean searching is based on Boolean logic. The searcher is trained to make semi-mathematical statements in order to enter a search request or query. Commands like *and, or, not* and * are combined with query terms to *create* mathematically logical statements that group words using parentheses. For example, in order to find articles on child labor laws in the United States and the United Kingdom, a Boolean system would require a query such as the following:

(child () labo*r () law*) and (U.S. or (United () States) or American or British or UK or (United () Kingdom))

This Boolean statement tells the system that a phrase consisting of *child* (preceded and next to) *labor* (in which any number of extra letters may come between the "o" and the "r"), and *law* (which immediately follows labo*r, and which may end in anything after law such as *laws, lawless,* or *lawsuit*) must appear in any document retrieved, as long as it is accompanied by any of the following: U.S. or United (next to and preceding) States or American or British or UK or United (next to and preceding) Kingdom.

Venn diagrams are visual portrayals of how a search system matches query terms to retrieve documents from its database. Each circle represents the set of documents that contain one query term. Overlapping areas among the circles represent those documents that contain both terms, or even all three. The following diagrams show a Boolean AND and OR search on three terms. Boolean systems are exact match systems. Their goal is precision, not recall. They rely on the training, cleverness, and experience of the searcher to use complex commands.

Statistical and Probabilistic Retrieval Systems

Statistical and probabilistic search engines use statistics and probability to predict the similarity of any document in a database to a query. This methodology can be quiet complex, and the algorithm for computing the degree of relevance of any document in any database to a query differs from one search engine to another. The underlying assumption, though, is that the more times a term appear in a document, the more likely it is that the document will be about that subject. This is known as *term frequency* (TF). The second assumption on which these systems is based is that terms that appear more frequently in a document than they do in the database as a whole further indicate that the term or word in question is a major topic of that document. If the term appears *frequently* in the database as a whole, the chances are that the document is about that subject. This measure is known as *inverse document frequency* (IDF).

These search engines are more computationally complex than the straightforward matching of the Boolean system, and numerous factors are adjusted differently for each search engine, so that statistical search engines rarely retrieve exactly equivalent sets from the same database, since their algorithms differ. Search algorithms for statistical systems may include the following:

- Normalization: adjusting the algorithm to take the length of the document into account. Longer documents are more likely to have more occurrences of any term. To prevent long documents from receiving higher relevance rankings, the length of the document is factored into determining the weight to assign to a term.
- Proximity and adjacency: if query terms appear close to or adjacent to each other, they give the document a higher ranking. This reduces the problem of false drops.
- Position of query terms: terms that appear at the beginning of a document often receive a higher weight. Terms that appear in the title field or in the descriptor field may also be weighted more heavily.
- Stemming: many statistical systems automatically search for both plural and singular forms of the word. They may also extract the stem of a word and search for variations on the stem. In other words, if I ask for *law*, the system may also retrieve *laws, lawless, lawsuit,* and *in-laws*. This may serve to improve or degrade the outcome of a search depending on the degree to which stemming is applied.

- Stop words: most statistical systems ignore the same stop words that Boolean systems ignore. They also eliminate very common and very rare terms as well when calculating relevance.

Statistical systems usually allow the user to enter queries in plain English without commands. They substitute smart programming for some of the knowledge that professional searches have been required to learn.

Recognizing that one of the shortcomings of the Boolean searching is the inability to match the *idea* or *concept* of a query to documents in the database, some statistically based systems use either of two methods to match query concepts. The first is to match concepts by co-occurrence of terms. In other words, terms that occur in the same documents are expected to be about the same topic. While this is often useful, the entire list of terms that co-occur frequently with the query term is unpredictable in its accuracy because it is based on the statistics of occurrence rather than on the meaning of the word. A second approach is to add a lexicon to the software that is consulted by the system to provide additional pertinent document matches. This process gives better results, but is not adequate for deducing the meaning of new terms in the language. They must be added to the lexicon manually.

The statistical system finds all the documents located by a Boolean OR search, as well as some that contained misspellings or alternate forms of the query term. The ranked retrieval set allows the user to find the most relevant documents first**.**

4.2. Reading Comprehension Exercises

4.2.1. True/False Items

Decide which idea is true (T) and which idea is false (F). Try to find a reason for your decision.

1. A database is only a collection of full text articles. ( )
2. Boolean searching is the foundation of today's traditional online information retrieval services such as DIALOG, MEDLINE, LEXIS/NEXIS, or Westlaw. ( )
3. if query terms appear close to or adjacent to each other, they give the document a higher ranking. ( )
4. Statistical systems usually don`t allow the user to enter queries in plain English without commands. ( )
5. We can divide text retrieval search engines into three broad categories: Boolean, probabilistic or statistical, and natural language processing. ( )
6. False drops occur because either a word is used in a same sense in an article or the query terms all appear in an article but are not related to each other. ( )
7. Hunting for information is not an iterative process. ( )
8. Libraries create order by sorting information by subject, author, or even by cover color. ( )
9. *Precision* and *recall* measure the effectiveness of search engines. ( )
10. If the term appears *always* in the database as a whole, the chances are that the document is about that subject. This measure is known as inverse document frequency (IDF). ( )

4.2.2. Using the information given in the passage, choose the best choice (a, b, c, or d) to answer the following questions.

1. What types of information is a search engine not able to retrieve? (More than one choice may be selected)

a) Pictures	b) sounds sequences	c) books
d) articles	e) facts	f) people's nam
g) citations		

2. The information in a library can be sorted according to ……. (More than one choice may be selected)

a) subject	b) title	c) author
d) cover color	e) book size	f) date of publication
g) language	h) paper material	g) series name

3. How can we bring unorganized collections of information into order?
4. Can we give names to all the topics available in a library collection? Explain.
5. Suppose we give names to all the topics and write them in a thesaurus. What do we do if a new word is added to the language?

4.3. Word Formation Exercise.

4.3.1. Fill in the blanks with the appropriate form of the words given.

(N)	**(V)**	**(Adj.)**	**(Adv.)**
Prediction	predict	predictive	predictively
Use	use	useful	usefully
Collection	collect	collective	collectively
Elimination	eliminate	eliminative	----
Addition	add	additional	additionally
Entrance	enter	----	----

1.Statistical and probabilistic search engines use statistics and probability to ……..…..the similarity of any document in a database to a query.
2.They are ……..… for document records that do not contain full text and for finding precise answers such as known authors or titles.
3.Depending on the type of software, it may be a ……..…. of commands, a statement in either full or partial sentences, one or more key words, or in the case of non-text searching, an image or sequence of sounds.
4.They also ……..… very common and very rare terms as well when calculating relevance.
5. A second approach is to add a lexicon to the software that is consulted by the system to provide …… pertinent document matches.
6. Statistical systems usually allow the user to ……..…. queries in plain English without commands.

4.4. Translation exercises

4.4.1. Match the words in column (A) with their best Persian equivalents in column (B)

Column A	Column B
… 1. Combination … 2. Complex … 3. Coordinate … 4. Initial … 5. Interact … 6. Interpret … 7. Modify … 8. Occur … 9. Perfect … 10. Permit	a. تفسیر کردن b. کامل c. اتفاق افتادن d. پیچیده e. اجازه دادن f. موجودی g. منابع h. تعریف کردن i. آغازین j. فریاد کشیدن k. ترکیب l. تعامل m. هماهنگ کردن

4.4.2. Give at least one appropriate Persian equivalent for each of the following technical terms.

1.Possibility
2.Usability
3.False Drop
4.Variation
5.Text Retrieval System
6.Refining
7.Boolean System
8.Opportunity
9.Retrieval Systems
10.Misinterpretation

Unit 5

From Bibliographic Models to New Cataloging Rules

General Aims

This unit designed to help you learn a number of general and technical words involved in Bibliographic Models and New Cataloging Rules, and their functions, and to promote your technical reading comprehension.

Behavioral Objectives

After carefully reading this unit, you are expected to:

1. Define the meaning of the words presented at the beginning of this unit, and do the appropriate exercises.
2. Read the passage about Bibliographic Models and New Cataloging Rules and do comprehension exercises.
3. Do word formation exercises.
4. Answer the questions according to the passage.

Word Definitions and Exemplifications

Ambiguous **adj.**
having an obscure or double meaning. difficult to classify

As usual he said some **ambiguous** things that only he himself understood.

Argue **v.**
exchange views forcefully; indicate; reason

She often **argues** with her parents on issues of education and marriage.

Attribute **n.**
a special characteristic quality ascribed to a person or thing

His best **attribute** is his patience.

Collocate **v.**
to place together or in proper order

Practicing word **collocations** is an essential part of the process of language learning.

Community **n.**
a body of people living in one place, district, or country, or a body of people having a religion, ethnic origin, profession, etc. in common

Life in a small fishing **community** is very different from life in a big city.

Conceptual **adj.**
of mental conceptions or concepts

One can improve children's **conceptual** skills by training them with mentally demanding exercises.

Conflict **n.**
a state of opposition; fight; struggle.

The story tells of a classic **conflict** between love and duty.

Considerable **adj.**
much, a lot of (considerable pain), notable, important
The car costs a **considerable** amount of money.

Creation **n.**
the act of bringing it into existence; something original created by imagination, invention, or design; production; founding
Along with content **creation**, link building is an essential step in the search engine optimization process.

Consideration **n.**
careful thought; thoughtfulness for others
He only thinks of himself, showing no **consideration** for anyone else.

Description **n.**
the act, process, or technique of describing
I have given the police a detailed **description** of the thief.

Dimension **n.**
measurable extent, as length, breadth, depth, etc.; (in pl.) size, aspect, facet
No one understood the **dimensions** of the problem.

Emphasis **n.**
importance or prominence attached to a thing; vigor or intensity of expression, feeling, etc.
The main **emphasis** of this speech was the budget and taxes.

Endeavor **v.**
make an effort or attempt
I will **endeavor** to do my best for my children.

Enormous **adj.**
extremely large. enormously adv.
I eat an **enormous** breakfast in the morning and a small sandwich at night.

Equivalent **adj.**
equal in value, amount, importance, etc.
Eight kilometers is roughly **equivalent** to five miles.

Establish **v.**
(a business, system) set up on a permanent basis; achieve permanent acceptance for a custom, belief, etc.); place (a fact, etc.) beyond dispute.
The construction company was **established** in 2008.

Expression **n.**
a word or phrase expressed; conveying of feeling in music, speaking, dance, etc.
Freedom of **expression** is a basic human right.

Functional **adj.**
practical rather than attractive
Bathrooms don't have to be purely **functional**. One can also consider the aesthetic parameters in their construction.

Fundamental **adj.**
of or being a base or foundation; essential; primary
One of the **fundamental** factors in the success of a new interface is its user-friendliness.

Identification **n.**
designation; determination; finding
The **identification** of bodies after the accident was difficult.

Implement **v.**
put a decision, plan, contract, etc. into effect
The plan has to be revised before it is **implemented** into the project.

Incidental **adj.**
small and relatively unimportant; minor; not essential
The discovery was **incidental** to their main research.

Innovate **v.**
bring in new methods, ideas, etc.; make changes
Every company must constantly **innovate** to stay alive in the market.

Inventory **v.**
make a list of goods, etc.; enter something in an inventory
After the robbery, they had to check the **inventory** to see how much of the stock was missing.

Mandatory **adj.**
compulsory
The **mandatory** budget cuts have greatly disappointed the people.

Preliminary **adj.**
introductory, preparatory
The **preliminary** results of the election were in favor of the labor party.

Prescribe **v.**
to establish rules, laws, or directions; to order a medicine or other treatment
The doctor **prescribed** some tablets for her cold.

Procedure **n.**
process; operation; activity
The **procedure** of obtaining a driver's license can take up to six months.

Prompt **adj.**
quick or ready to act or respond; without delay
She gave me a **prompt** answer without thinking over it for long.

Representation **n.**
portrayal; depiction; picturing; an account or statement of something
In the school of realism, a **representation** of the society is the focus of the art work.

Requirement **n.**
a need; a necessity; something obligatory; a prerequisite
Latin is no longer a **requirement** for entry to university.

Revise **v.**
examine or re-examine; improve; amend; study
The new edition of the book has been thoroughly and extensively **revised** and updated.

Simultaneous **adj.**
occurring or operating at the same time
There were several **simultaneous** attacks by the rebels.

Snapshot **n.**
casual or informal photograph.
She showed us her holiday **snapshots**.

Solely **adv.**
alone (solely responsible).
only (did it solely out of duty).
Selection is based **solely** on merit.

Surrogates **n.**
substitute; deputy
Sometimes, the original volume is discarded and the electronic **surrogate** is kept as the primary resource.

Syndetic **adj.**
connected; adjoining; continuous

In a catalog or index, the **syndetic** structure comprises the system of "see" and "see also" cross references to other indexing terms.

Terminology **n.**
system of specialized terms;
science of the use of terms

Much of computer **terminology** has entered everyday English.

5.1. Vocabulary Exercises

5.1.1. Match the words in Column A with their appropriate equivalents in Column B.

Column A	Column B
… 1. Terminology	a. juxtapose (a word, etc.) with another
… 2. Prompt	b. representation, esp. in words
… 3. Incidental	c. science of the use of terms
… 4. Collocate	d. person's facial appearance
… 5. Description	e. not essential
… 6. Expression	f. make out or bring out the meaning of (creative work)
… 7. Revise	g. acting, made, or done with alacrity
… 8. Practice	h. deferential esteem felt or shown towards a person or quality
… 9. Interpret	i. only
… 10. Respect	j. examines or re-examine and improve or amend
… 11. Solely	k. do something as an expert

5.1.2. Match the words in Column A with their best Persian equivalents in Column B.

Column A	Column B
… 1. Argue	a. ابداع کردن
… 2. Attribute	b. بحث و مشاجره کردن
… 3. Conflict	c. بنیان نهادن
… 4. Equivalent	d. تاکید
… 5. Emphasis	e. تمرین، پرداختن
… 6. Establish	f. خاصیت، ویژگی
… 7. Functional	g. ربطی، متصل شده
… 8. Hierarchical	h. سلسله مراتبی
… 9. Innovate	i. کشاکش
… 10. Practice	j. مبهم
… 11. Syndetic	k. معادل، هم ارز
… 12. Solely	l. منحصرا
… 13. Ambiguous	m. پنهان کردن

5.1.3. Match the words in column (A) with their appropriate synonyms in column (B).

Column A	Column B
… 1.Inventory	a. list
… 2.Respect	b. admiration
… 3.Equivalent	c. similar
… 4.Solely	d. exclusively
… 5.Community	e. society
… 6.Establish	f. found
… 7.Functional	g. practical
… 8.Practice	h. do
… 9.Interact	i. interrelate
… 10.Revise	j. modify

Reading passage

From Bibliographic Models to New Cataloging Rules

IINTRODUCTION

The international cataloging community is dealing with enormous changes in cataloging principles, standards, and rules. Managing these changes is not easy, as they are both highly complex and strongly inter-related. Change implies a major movement from one state to another. In the case of cataloging, this means that we have to deal with our cataloging theory and practice being completely restructured on the basis of the Functional Requirements for Bibliographic Records (FRBR).

We are asked to think in terms of *FRBR*, but we are using pre-FRBR designed catalogs and there is a growing sense that they are not completely adequate for our needs and wishes, or for those of our users. Further, we also have to take into consideration the fact that cataloging no longer applies just to libraries, but also to a wider range of institutions, with models, needs, and wishes that are similar to ours in some respects and different in others. The process of revising our cataloging principles, and switching from the functions of the catalog to the needs of more general users, is under way. The IFLA Meeting of Experts on an International Cataloging Code (IME ICC) is very close to formulating a definitive Statement of International Cataloging Principles (ICP).

Work has also proceeded on improving the International Standard Bibliographic Description (ISBD); the preliminary consolidated edition has been published. Also, many countries are changing their national cataloging codes, both to update them to the new context and to create new structures for future catalogs. For many reasons, this is a very difficult process. Not only is each change complex, but many changes are going on simultaneously and none of them can rely on any of the others, because everything is changing at the same time. Complexity is greater than it would be for each single process. For this reason, each change has to be considered with an increasing level of care. Unfortunately, this is not enough. This is the question we should consider: Who is looking after the whole process of the renewal of cataloging? To put it another way: Who is guiding the relationships among FRBR, the new Cataloging Principles (ICP), the ISBD consolidated edition, and national and multinational and international cataloging codes (e.g., RDA—Resource Description and

Access)? The bibliographic universe can be managed only through unceasing interaction between theory and practice.

We now have the strong influence of a theoretical model (FRBR) on all our practices, but there is no productive interaction between that theory and cataloging practice. We believe there must be a fundamental break with past practice, in order to make room for completely new models and tools. However, the shift from past to future must not prevent us from thinking of the present, too. In particular, we urgently need to reach agreement on a definition of the correct relationships Between FRBR, ISBD, and national, multinational, and international codes—chiefly RDA. Recently, two critical points in the relationship between ISBD and RDA have arisen. The first, a problem partly solved recently, centered on important differences in mandatory elements in ISBD and RDA.

In a recent decision, advocated strongly by the ISBD Review Group and the FRBR Review Group, the JSC agreed that a statement of responsibility following a title proper and transcription of an additional edition statement are important for identification and selection and therefore would be added to the RDA core element set. With this decision, the body responsible for RDA—the Joint Steering Committee for Development of RDA (JSC)—gave a clear sign of its prompt attention to requests coming from the international cataloging community. The second point is a more general problem. It refers to the role given to ISBD within RDA, and to description within FRBR. This issue will be discussed here in the frame of a general need for coordination of the numerous and different changes that are occurring and are yet to occur.

FROM BOOK CATALOGS TO OPACS: ARE WE LOSING SIGHT OF SOMETHING?

In book and other pre-card catalogs, bibliographic descriptions took the form of entries displayed hierarchically. As Svenonius notes "under each (main) author's name were listed alphabetically by title the works written by him. The first edition of a work held by the library was described in full. If the library held a second edition, its entry was listed under that for the first as: '———— another edition.' If needed, information that served to distinguish it from the first would be given. If the library held more than a copy of an edition, it was described as: '————another copy.'

This solution was a good way to save time and money, but its primary function was to collocate in hierarchical structure entities such as works, publications, editions, and copies. Further, "in book catalogs, relationships of a non-hierarchical kind (that is, other than

membership and inclusion) were indicated by cross-references." Book catalogs gave way to card catalogs, but these brought with them some disadvantages, and caused a change in the way bibliographic information was represented: "specifically, dashed entries no longer were appropriate; instead each document had to be described *in full* [our emphasis], using (normally) one card per document. As a result some of the *economy and Structure* [our emphasis] afforded by hierarchical representation was lost. [. . .] Elaborate filing rules were created for this purpose, so that the order of records in a card catalog mimicked the hierarchical ordering of entries in a book catalog." Dashes were relevant not as display format, but as expression of a hidden strong bibliographic structure.

The change from card to online catalogs involved a "loss of bibliographic structure. The tiered structure, so neatly displayed in book catalogs and more or less preserved by strict filing rules in card catalogs, has been lost almost altogether [. . . and] the syndetic structure, the structure used to guide users [. . .] has not been implemented." In fact, in card catalogs, the *See also* references provided a syndetic structure. Lastly, the use of new forms of catalog created a conflict between the finding (specific search) and collocating (search for like materials) functions of the catalog "so that records designed for one function do not suffice for the other" and the question of the purpose of bibliographic records has become more and more urgent. Technological advances have caused catalogs to be seen as bibliographic tools designed to meet user-oriented objectives. The inventory and finding functions are still important, but "it does not follow, however, that inventorying still requires a one-to-one relationship between items and their surrogates."

Two inferences can be drawn from the transition from book to online catalogs: (a) some economy in representation of bibliographic information was lost and (b) the syndetic structure of catalogs has not been fully implemented in online catalogs. Lubetzky observed "using the capacity of the computer to retrieve a certain book by means of a few uncommon elements from the title page obviates the whole problem incidental to the use of the author's name. But note that the online catalog serves only the first objective of the catalog—to help the reader find the particular book he or she wants." Ever since the publication of the first international cataloging code of 1908, provision has been made for the use of both main entry and added entries.

But the "use of an added entry—would vitiate the purpose of the main entry. For if a reader looked in the catalog under the title of the book he or she wants and finds it there that would end the search."

Catalogs should take full advantage of new technologies, to create structures able to satisfy both the inventory and collocating functions of the catalog. In his bibliographic masterpiece, Konrad Gesner suggested a way to meet both functions: he suggested using his *Bibliotheca Universalis* as a list of books to which any library could add book numbers to obtain its own catalog. This idea would go to another level with Panizzi's *Rules* because each user of the catalog constructed in accordance with those rules finds each item in its proper and complete bibliographic context. From the point of view of the user, how can the catalogs of today be browsed? Although modern catalogs offer many access points, they still lack a way to express their syndetic structure fully, to define their arrangement, and to represent in one structure the whole bibliographic universe (or of that part of the bibliographic universe that is represented in the holdings of the library and matches a user's search).

FUNCTIONAL REQUIREMENTS FOR BIBLIOGRAPHIC RECORDS (FRBR)

The currently accepted theoretical model for cataloging is FRBR. The ideas behind this model are developed at a very high level of logic. It is founded on well-defined ideas about the objects that constitute our bibliographic universe (works, documents, authors, publishers, etc.) and it places those objects into groups with special attributes and relationships. A model is, essentially, a complex of ideas; to speak in FRBR terms; we could say that the FRBR model is "a work" in the minds of the cataloging community.

The conceptual model of our bibliographic universe based on FRBR study is evolving too, as the recently published object-oriented version of FRBR proves. In fact, as an abstract model, the idea of the bibliographic universe can take many shapes; it can be carried out in many different "expressions." To represent the bibliographic universe, the Paris Principles provided for the functions of the library catalog; now FRBR is centered on the perceived informational needs of users or "user tasks": that's why there is now a need for new expressions of the same principles.

FRBR has two objectives: "to provide a clearly defined, structured framework for relating the data that are recorded in bibliographic records to the needs of the users of those records," and "to recommend a basic level of functionality for records created by national bibliographic agencies." We would argue that FRBR is an innovative and helpful snapshot obtained—not solely—from the examination of bibliographic records based on ISBD. In other words,

all the objects (entities, relationships, and attributes) delineated by FRBR are found within the ISBDs.

Because the FRBR model "does not cover the extended range of attributes and relationships that are normally reflected in authority records," the proposed Functional Requirements for Authority Data (FRAD) and Functional Requirements for Subject Authority Records (FRSAR) need to be developed. Another very important feature of FRBR must be remembered here, because it is directly related to our topic: the approach adopted within FRBR "endeavors to define in a systematic way what it is that the user expects to find information about in a bibliographic record and how that information is used."

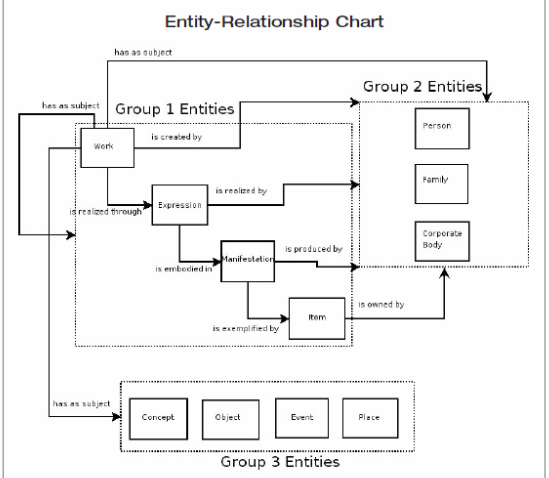
The focus is both on the function of the data (how information is used) and on entities (what information is about). FRBR is a conceptual model of the entities and relationships, so it never deals with data description and presentation and does not deal with how data can or must be communicated. The FRBR report based its analysis on ISBD (the international standard for bibliographic description) and establishes the important elements for a national bibliographic record, but is not interested in description and does not prescribe cataloging rules. Nowhere in FRBR can one find information about central matters such as sources of bibliographic information, language or script of the description, abridgements and abbreviations, capitalization, misprints, and so on. Even less is it possible to find in FRBR information about the analysis of the item in hand, or about how the catalog communicates with the users, or about the order of the data within a single bibliographic record or in the catalog as a whole. It is, after all, a conceptual model, not a set of cataloging rules.

In this perspective, the expression "FRBR catalog" makes no sense (or so ambiguous a sense to not be useful), because the use of the FRBR model in catalog requires at least the adoption of a bibliographic language and a code of cataloging rules. For example, merely possessing a ball, does not tell us how to play football nor volleyball, absent the dimensions of the pitch, the number of players, and a more or less complex set of rules. In this case, the expression "FRBR catalog" is the logical equivalent of "to play with a ball" and about as much use in practical application.

Resource Description and Access (RDA), set to be released in the third quarter of 2009, is a new set of descriptive cataloging rules developed to replace the longstanding Anglo American Cataloguing Rules 2 (AACR2), first released in 1978. The principal goal of the new rules is to facilitate resource discovery through library catalogs in

a more consistent and powerful way than is currently possible with AACR2. To understand this new rule set, it is necessary to understand the critical concepts found within Functional Requirements for Bibliographic Records (FRBR) and Functional Requirements for Authority Data (FRAD), two publications developed through International Federation of Library Association (IFLA) that are used to form the backbone of the RDA.

FIGURE 1. Entity-Relationship chart (from www.frbr.org/files/entity-relationships.png, at the FRBR blog at www.frbr.org/) [9]



The change in cataloging rules is much needed, but not welcomed by all. Blogs and listservs such as Planet Cataloging or RDA-L within the global cataloging community are ablaze with talk on RDA and functional requirements, raising more questions and offering critical and constructive analysis (for example, see comments by the Cataloguing Committee of the Swedish Library Association Swedish Library). They are also very often portals for venting frustrations brought on by an imminent change in comfortable cataloging procedures. The main questions being asked are “How do we use it?” and “How do we implement it in our library?” and “Are the vendors creating new systems that use it?” Perhaps the most challenging aspect will be learning the complexity of the FRBR entity relationship models in which information resources are classified as Works, Expressions, Manifestations and Items (often referred to asWEMI). The FRBR and FRAD conceptual models resulted from the international cataloguing community’s effort to address a constantly changing information environment, the emergence of new forms of information resources and increasing density of networked information systems.

In 2007 Howarth and Weihs wrote The cataloguing community is clearly at a crossroad, navigating the transition from forty years of creating bibliographic records using the Anglo-American Cataloguing Rules within a print-dominant environment to a proposed new content standard that reaches beyond the library domain to a world of digital

objects and multipurpose metadata. (p. 15) The Joint Steering Community for the Development of RDA (JSC) has called for constituency reviews of several drafts of the new rules, with the intent of reviewing all submissions and incorporating comments and edits when and where possible. AACR2 arranges chapters by the type of information resource and then by type of main or added access points.

In AACR2's Part I, chapters 2-12 each focus on a separate format and address only the description of the resources. The code is weak on access points, even though Part II is devoted to choice and formation of personal, corporate body and title access points and discusses main and added access points (always a sore point for many catalogers, especially in the digital environment). Catalogers have to look all over Part II for access point provisions (for example, title access points are mentioned in chapter 21 only – and then just as a default provision and with little direction). Most importantly, AACR2 is not based on the idea of a work. Rather, it is very much based on the unit record system (that is, the item). RDA puts considerably more emphasis on authority control as well as having a vastly different structure from its predecessor.

As outlined in the "RDA Scope and Structure" the new rules are "…divided into ten sections: sections 1-4 cover elements corresponding to the entity attributes defined in FRBR and FRAD; sections 5-10 cover elements corresponding to the relationships defined in FRBR and FRAD." (p. 7). Furthermore the choice of what type of record to create, once based on the format, is shifted to what "type of description" the record should represent – comprehensive, analytical or multilevel (that is, both comprehensive and analytical). In cataloging terminology an entry is "analytical" if it includes a description or analysis of the sub-parts of the resource being cataloged. In other words, with the RDA, the variety of resource formats represented in a library catalog is not in question. The question now centers more heavily on the scope of the representation. This shift in focus allows the catalog to accommodate the interpretation and/or depiction of relationships between resources more readily within a dynamic library environment. Current catalogs mostly operate on the premise that one record represents one resource.

It is now possible with RDA to create records that may represent more than one resource, should the cataloger choose to do so, or to group and display single-item records in order to show more clearly how they are related. However, as Oliver points out: RDA is a content standard, not a display standard and not a metadata schema. RDA is a set of guidelines that indicates how to describe a resource, focusing on the pieces of information (or attributes) that a user is most likely to

need to know. It also encourages the description of relationships between related resources and between resources and persons or bodies that contributed to creation of that resource. (p. 251) Despite the fact that it is not an actual display standard, the possibilities of new display options in catalog systems is intriguing.

5.2. Reading Comprehension Exercises

5.2.1. True/False Items

Decide which idea is true (T) and which idea is false (F). Try to find a reason for your decision.

1. No one would deny that there has been an accelerating information expansion in recent decades. ( )
2. Cheap information processing and storage technologies (computers) lead to their being extensively distributed. ( )
3. Today, it is commonplace to argue that knowledge and organization are the prime creators of wealth. ( )
4. Nowadays social intercourse involves a lesser degree of information content than the past. ( )
5. Contemporary culture is manifestly less heavily information- laden than any of its predecessors. ( )
6. Much of life today is experienced symbolically rather than being personally encountered. ( )
7. According to Baudrillard, "there is less and less information, and more and more meaning nowadays". ( )
8. In a world of strangers it is not important to have a means of communication to exchange information. ( )
9. The boundaries erected for geographical regions are being pulled closer and closer in the information era. ( )
10. The primary information sector includes industries that in some way produce, process, disseminate, or transmit knowledge or messages. ( )

1.2.2. Using the information given in the passage, choose the best choice (a, b, c, or d) to answer the following questions.

1. The currently accepted theoretical model for cataloging is …….. .
   a) RDA b) FRBR
   c) AACR2 d) FRAD

2. In book and other pre-card catalogs, bibliographic descriptions took the form of entries displayed ……... .
   a) alphabetically b) orderly
   c) hierarchically d) comprehensively

3. The FRBR and FRAD ……. models resulted from the international cataloguing community's effort to address a

constantly changing information environment, the emergence of new forms of information resources and increasing density of networked information systems.

a) conceptual b) hierarchical
c. pragmatical d) social

4. The international cataloging community is dealing with ……..…… changes in cataloging principles, standards, and rules.

a) handful b) little
c) multilevel d) enormous

5. The bibliographic ……. can be managed only through unceasing interaction between theory and practice.

a) universe b) data
c) knowledge d) resources

6. Because the FRBR model "does not cover the extended range of attributes and relationships that are normally reflected in ……..…… records," the proposed Functional Requirements for Authority Data (FRAD) and Functional Requirements for Subject Authority Records (FRSAR) need to be developed.

a) bibliographic b) authority
c) author d) subject

7. RDA is a set of …… that indicates how to describe a resource, focusing on the pieces of information (or attributes) that a user is most likely to need to know.

a) rules b) subjects
c) guidelines d) objects

8. RDA puts considerably more emphasis on authority control as well as having a vastly different structure from its ……. .

a) origins b) guidelines
c) rules d) predecessor

9. Although ……. catalogs offer many access points, they still lack a way to express their syndetic structure fully, to define their arrangement, and to represent in one structure the whole bibliographic universe.

a) new b) modern
c) classic d) online

10. The FRBR report based its analysis on ……..…. and establishes the important elements for a national bibliographic record, but is not interested in description and does not prescribe cataloging rules.
    a) ISBN b) ISSN
    c) ISBD d) MARC

5.2.3. Answer the following questions (according to the passage).

1. What are the two critical points that have arisen in the relationship between ISBD and RDA?
2. What are the objectives of FRBR?
3. How can RDA be defined?
4. Is RDA a standard content?
5. What is the currently accepted theoretical model for cataloging?

5.3. Word Formation Exercise.

5.3.1. Fill in the blanks with the appropriate form of the words given.

(N)	(V)	(Adj.)	(Adv.)
communication	communicate	communicative	communicatively
creation	create	creative	creatively
expression	express	expressive	expressively
relation	relate	relative	relatively

1. If you use something in a ……. way, you use it in a new way that produces interesting and unusual results.
2. …… are the systems and processes that are used to communicate or broadcast information.
3. People sometimes refer to the entire universe as……
4. The ……. between two people, groups, or countries is the way they feel and behave towards each other.
5. Your …….. is the way that your face shows what you are thinking or feeling.
6. When you ……..… an idea or feeling, you show what you think or feel by saying or doing something.
7. If you ……..... with someone, you give them information, for example by speaking, writing, or sending radio signals.

5.4. Translation exercises

5.4.1. Give an appropriate Persian definition for each of the following terms used in the passage.

1. ICP
2. ISBD
3. FRBR
4. RDA
5. JSC
6. OPACS
7. user-oriented
8. Panizzi's *Rules*
9. FRAD
10. FRSAR
11. AACR2
12. IFLA
13. WEMI
14. corporate body
15. digital environment

5.4.2. Give at least one appropriate Persian equivalent for each of the following technical terms.

1. Implement
2. Attribute
3. Description
4. Hierarchically
5. Surrogates
6. Incidental
7. Consideration
8. Interaction
9. Responsibility
10. Suggested
11. Possible
12. Establish

Unit 6

Information Retrieval

General Aims
This unit designed to help you learn a number of general and technical words involved in Information Retrieval, and their functions, and to promote your technical reading comprehension.

Behavioral Objectives
After carefully reading this unit, you are expected to:
1. Define the meaning of the words presented at the beginning of this unit, and do the appropriate exercises.
2. Read the passage about Information Retrieval and do comprehension exercises.
3. Do word formation exercises.
4. Answer the questions according to the passage.

Word Definitions and Exemplifications

Algorithm **n.**
process or set of rules used for calculation etc., esp. with a computer.

All Indian movies follow just one **algorithm**: two people fall in love but are not able to marry each other.

Architecture **n.**
design and construction of buildings; style of a building.

The architecture of mosques is somehow different in every Islamic country.

Assume **v.**
take to be true

The little child assumed that I was his father.

Binary **adj.**
of two parts; dual

Computers do all their calculations using the **binary** system.

Cognitive **adj.**
knowing, perceiving, or conceiving as an act or faculty distinct from emotion and volition

Parents can choose **cognitive** training games to improve memory and attention.

Cumulative **adj.**
increasing or increased progressively in amount, force, etc.

There is a **cumulative** development across the years so that each year builds on what has gone before.

Denominator **n.**

The **denominator** of both the fractions is number thirty-five.

Efficient **adj.**
productive with minimum waste or effort; capable; acting effectively

A relatively simple page format is used throughout which enables **efficient** searching.

Evaluation **v.**
Assess; appraise; find or state the number or amount of

No test should be introduced until it has been subjected to rigorous **evaluation.**

Fuzzy **adj.**
Blurred, indistinct.

Due to copyright issues, some sound files are slightly **fuzzy.**

Infrastructure **n.**
basic structural foundations of a society or enterprise; roads, bridges, etc., regarded as a country's economic foundation

Is the **infrastructure** of a digital library planned out in your country?

Interdisciplinary **adj.**
of or between more than one branches of learning.

Library and information sciences is an **interdisciplinary** field, related to IT, management, psychology, documentation, etc.

Obsolescence **n.**
becoming obsolete; no longer used; antiquated.

Planned **obsolescence** in industrial design is a policy of deliberately designing a product with a limited useful life.

Overlap **v.**
partly cover and extend beyond; partly coincide.

The titles on the roof **overlap**.

Performance **n.**
act, process, or manner of functioning

A poor network **performance** will not allow you to gain the full benefit of your operations.

Popularize **v.**
make popular; present (a difficult subject) in a readily understandable form

His film **popularizes** army life.

Precision **n.**
Accuracy; degree of refinement in measurement etc.

Camera lenses with great **precision** are made to take pictures of the space.

Premise **n.**
an assumption or proposition upon which an argument is based.

The general attacked on a false **premise** that the enemy was unprepared.

Recall **v.**
recollect; remember; bring back to memory

I can't **recall** the name of the hotel.

Refine **v.**
free from impurities or defects; make or become more polished, elegant, or cultured.

First, we must **refine** the oil from the ocean.

Sophisticated **adj.**
very complex or complicated

Some philosophers are of the view that **sophisticated** technological devices only make life for man more difficult.

Vector	**n.** (Math. and physics) quantity having direction as well as magnitude

Acceleration and velocity are both **vectors**.

6.1. Vocabulary Exercises

6.1.1. Match the words in Column A with their appropriate equivalents in Column B.

Column A	Column B
… 1. Curve	a. between more than one branch of learning
… 2. Fraction	b. a basic structural foundations of a society or enterprise
… 3. Infrastructure	c. ask or inquire
… 4. Interdependence	d. size or quantity
… 5. Interdisciplinary	e. part of a whole
… 6. Measure	f. extent to which an event is likely to occur
… 7. Premise	g. grade of dignity or achievement
… 8. Probability	h.dependent on each other
… 9. Query	i. degree of refinement in measurement etc.
… 10. Rank	j. line or surface of which no part is straight or flat

6.1.2. Match the words in Column A with their best Persian equivalents in Column B.

Column A	Column B
… 1. Average	a. کاربرد
… 2. Cognitive	b. فرضیه
… 3. Efficient	c. کارآمد
… 4. Evaluation	d. قضیه
… 5. Interdisciplinary	e. میانه
… 6. Premise	f. ارزیابی
… 7. Scalar	g. ادراک
… 7. Usage	h. بین رشته‌ای
… 8. Vector	i. بردار
… 9. Assumption	j. نردبانی شکل، قابل سنجش
	k. تحقیق
	l. ساختار
	m. استنادات

6.1.3. Match the words in column (A) with their appropriate synonyms in column (B).

Column A	Column B
… 1. Average	a. partly cover
… 2. Behavior	b. custom
… 3. Emphasize	c. structural design
… 4. Evaluation	d. well-known
… 5. However	e. estimate
… 6. Overlap	f. purify
… 7. Perfect	g. presentation
… 8. Performance	h. bough
… 9. Popular	i. responsive
… 10. Precision	j. answer
… 11. Refine	k. student
… 12. Response	l. reform
… 13. Sensitive	m. regular
… 14. Usage	n. accuracy
… 15. Architecture	o. highlight
	p. ideal
	q. but

Reading passage

Information Retrieval

IINTRODUCTION

Information Retrieval (IR) is the science of searching for documents, for information within documents, and for metadata about documents, as well as that of searching relational databases and the World Wide Web. There is overlap in the usage of the terms data retrieval, document retrieval, information retrieval, and text retrieval, but each also has its own body of literature, theory, praxis, and technologies. IR is interdisciplinary, based on computer science, mathematics, library science, information science, information architecture, cognitive psychology, linguistics, and statistics.

Automated information retrieval systems are used to reduce what has been called "information overload". Many universities and public libraries use IR systems to provide access to books, journals and other documents. Web search engines are the most visible IR applications.

History

The idea of using computers to search for relevant pieces of information was popularized in the article *As We May Think* by Vannevar Bush in 1945. The first automated information retrieval systems were introduced in the 1950s and 1960s. By 1970 several different techniques had been shown to perform well on small text corpora such as the Cranfield collection (several thousand documents).[1] Large-scale retrieval systems, such as the Lockheed Dialog system, came into use early in the 1970s.

In 1992, the US Department of Defense along with the National Institute of Standards and Technology (NIST), cosponsored the Text Retrieval Conference (TREC) as part of the TIPSTER text program. The aim of this was to look into the information retrieval community by supplying the infrastructure that was needed for evaluation of text retrieval methodologies on a very large text collection. This catalyzed research on methods that scale to huge corpora. The introduction of web search engines has boosted the need for very large scale retrieval systems even further.

The use of digital methods for storing and retrieving information has led to the phenomenon of digital obsolescence, where a digital resource ceases to be readable because the physical media, the reader required reading the media, the hardware, or the software that runs on

it, is no longer available. The information is initially easier to retrieve than if it were on paper, but is then effectively lost.

Overview

An information retrieval process begins when a user enters a query into the system. Queries are formal statements of information needs, for example search strings in web search engines. In information retrieval a query does not uniquely identify a single object in the collection. Instead, several objects may match the query, perhaps with different degrees of relevancy.

An object is an entity that is represented by information in a database. User queries are matched against the database information. Depending on the application the data objects may be, for example, text documents, images, audio, mind maps or videos. Often the documents themselves are not kept or stored directly in the IR system, but are instead represented in the system by document surrogates or metadata.

Most IR systems compute a numeric score on how well each object in the database match the query, and rank the objects according to this value. The top ranking objects are then shown to the user. The process may then be iterated if the user wishes to refine the query.

Performance measures

Many different measures for evaluating the performance of information retrieval systems have been proposed. The measures require a collection of documents and a query. All common measures described here assume a ground truth notion of relevancy: every document is known to be either relevant or non-relevant to a particular query. In practice queries may be ill-posed and there may be different shades of relevancy.

Precision

Precision is the fraction of the documents retrieved that are relevant to the user's information need.

$$\text{precision} = \frac{|\{\text{relevant documents}\} \cap \{\text{retrieved documents}\}|}{|\{\text{retrieved documents}\}|}$$

In binary classification, precision is analogous to positive predictive value. Precision takes all retrieved documents into account. It can also be evaluated at a given cut-off rank, considering only the topmost results returned by the system. This measure is called *precision at n* or "*P@n*".

Note that the meaning and usage of "precision" in the field of Information Retrieval differs from the definition of accuracy and precision within other branches of science and technology.

Recall

Recall is the fraction of the documents that are relevant to the query that are successfully retrieved.

$$\text{recall} = \frac{|\{\text{relevant documents}\} \cap \{\text{retrieved documents}\}|}{|\{\text{relevant documents}\}|}$$

In binary classification, recall is called sensitivity. So it can be looked at as *the probability that a relevant document is retrieved by the query*.

It is trivial to achieve recall of 100% by returning all documents in response to any query. Therefore recall alone is not enough but one needs to measure the number of non-relevant documents also, for example by computing the precision.

Fall-Out

The proportion of non-relevant documents that are retrieved, out of all non-relevant documents available:

$$\text{fall-out} = \frac{|\{\text{non-relevant documents}\} \cap \{\text{retrieved documents}\}|}{|\{\text{non-relevant documents}\}|}$$

In binary classification, fall-out is closely related to specificity. It can be looked at as *the probability that a non-relevant document is retrieved by the query*.

It is trivial to achieve fall-out of 0% by returning zero documents in response to any query.

F-measure

The weighted harmonic mean of precision and recall, the traditional F-measure or balanced F-score is:

$$F = \frac{2 \cdot \text{precision} \cdot \text{recall}}{(\text{precision} + \text{recall})}.$$

This is also known as the F_1 measure, because recall and precision are evenly weighted.

The general formula for non-negative real β is:

$$F_\beta = \frac{(1 + \beta^2) \cdot (\text{precision} \cdot \text{recall})}{(\beta^2 \cdot \text{precision} + \text{recall})}.$$

Mean Average precision

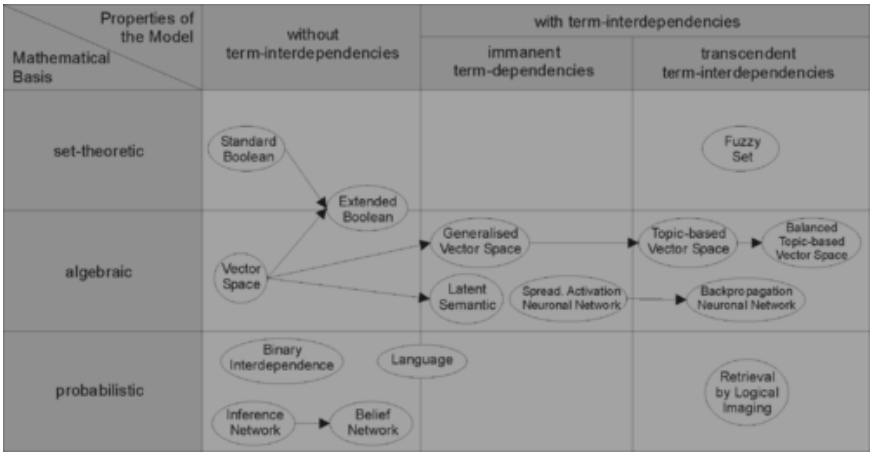
Precision and recall are single-value metrics based on the whole list of documents returned by the system. For systems that return a ranked sequence of documents, it is desirable to also consider the order in which the returned documents are presented. Average precision emphasizes ranking relevant documents higher. It is the average of precisions computed at the point of each of the relevant documents in the ranked sequence:

$$\text{AveP} = \frac{\sum_{r=1}^{N} (P(r) \times \text{rel}(r))}{\text{number of relevant documents}}$$

This metric is also sometimes referred to geometrically as the area under the Precision-Recall curve.

Note that the denominator (number of relevant documents) is the number of relevant documents in the entire collection, so that the metric reflects performance over all relevant documents, regardless of a retrieval cutoff.

Model types



Categorization of IR-models (translated from German entry, original source Dominik Kuropka).

For the information retrieval to be efficient, the documents are typically transformed into a suitable representation. There are several representations. The picture on the right illustrates the relationship of some common models. In the picture, the models are categorized

according to two dimensions: the mathematical basis and the properties of the model.

First dimension: mathematical basis

- *Set-theoretic models represent documents as sets of words or phrases. Similarities are usually derived from set-theoretic operations on those sets. Common models are:*
    - Standard Boolean model
    - Extended Boolean model
    - Fuzzy retrieval
- *Algebraic models* represent documents and queries usually as vectors, matrices, or tuples. The similarity of the query vector and document vector is represented as a scalar value.
    - Vector space model
    - Generalized vector space model
    - (Enhanced) Topic-based Vector Space Model
    - Extended Boolean model
    - Latent semantic indexing aka latent semantic analysis
- *Probabilistic models* treat the process of document retrieval as a probabilistic inference. Similarities are computed as probabilities that a document is relevant for a given query. Probabilistic theorems like the Bayes' theorem are often used in these models.
    - Binary Independence Model
    - Probabilistic relevance model on which is based the okapi (BM25) relevance function
    - Uncertain inference
    - Language models
    - Divergence-from-randomness model
    - Latent Dirichlet allocation
- *Machine-learned ranking* models view documents as vectors of ranking features (some of which often incorporate other ranking models mentioned above) and try to find the best way to combine these features into a single relevance score by machine learning methods.

Second dimension: properties of the model

- *Models without term-interdependencies* treat different terms/words as independent. This fact is usually represented in vector space models by the orthogonality assumption of term vectors or in probabilistic models by an independency assumption for term variables.

- *Models with immanent term interdependencies* allow a representation of interdependencies between terms. However the degree of the interdependency between two terms is defined by the model itself. It is usually directly or indirectly derived (e.g. by dimensional reduction) from the co-occurrence of those terms in the whole set of documents.
- *Models with transcendent term interdependencies* allow a representation of interdependencies between terms, but they do not allege how the interdependency between two terms is defined. They relay an external source for the degree of interdependency between two terms. (For example a human or sophisticated algorithms.)

6.2. Reading Comprehension Exercises

6.2.1. True/False Items

Decide which idea is true (T) and which idea is false (F). Try to find a reason for your decision.

1. In information retrieval a query does uniquely identify a single object in the collection.( )
2. Precision and recall are single-value metrics based on the whole list of documents returned by the system. ( )
3. Recall is the fraction of the documents that are relevant to the query that are successfully retrieved. ( )
4. Precision is the fraction of the documents retrieved that are irrelevant to the user's information need. ( )
5. Probabilistic models treat the process of document retrieval as a probabilistic inference.( )
6. The first automated information retrieval systems were introduced in the 1970s. ( )
7. Often the documents themselves are kept or stored directly in the IR system. ( )
8. Information retrieval (IR) is the science of searching for documents, for information within documents, and for metadata about documents, as well as that of searching relational databases and the World Wide Web. ( )
9. Models with transcendent term interdependencies allow a representation of interdependencies between terms, but they do not allege how the interdependency between two terms is defined. ( )
10. The idea of using computers to search for relevant pieces of information was popularized in the article As We May Think by Vannevar Bush in 1965. ( )

6.2.2. Using the information given in the passage, choose the best choice (a, b, c, or d) to answer the following questions.

1. IR is ……..…., based on computer science, mathematics, library science, information science, information architecture, cognitive psychology, linguistics, and statistics.
   a) knowledge b) data
   c) skill d) interdisciplinary

2. Precision is the fraction of the documents retrieved that are relevant to the user's ..……. .
   a) information Need b) query

c) search Terms d) goals

3. Automated information retrieval systems are used to reduce what has been called "information ……".
   a) needs b) overload
   c) systems d) bias

4. An information retrieval process begins when a user enters a …… into the system.
   a) terms b) query
   c) names d) information Needs

5. Information retrieval (IR) is the science of searching for documents, for information within documents, and for ……..…….. about documents.
   a) data b) information
   c) metadata d) knowledge

6.In binary classification, fall-out is closely related to …… .
   a) probability b) sensitivity
   c) specificity d) positive predictive value

7. In binary classification, precision is analogous to …… .
   a) probability b) sensitivity
   c) specificity d) positive predictive value

8.…….…. models represent documents and queries usually as vectors, matrices, or tuples.
   a) algebraic b) set-theoretic
   c) probabilistic d) machine-learned ranking

9. ……. models represent documents as sets of words or phrases.
   a) algebraic b) set-theoretic
   c) probabilistic d) machine-learned ranking

10. Queries are ……..…. statements of information needs.
   a) simple b) complex
   c) informal d) formal

6.2.3. Answer the following questions (according to the passage).

1. Are data retrieval, document retrieval, information retrieval, and text retrieval different from one another?
2. What is the formula of precision? Write it down, explicating the two sides of the equation.
3. Describe the models that exist on the mathematical basis.
4. What is the formula of "fall-out"?
5. What are, according to the text, the two dimensions of IR models?

6.3. Word Formation Exercise.

6.3.1. Fill in the blanks with the appropriate form of the words given.

(N)	(V)	(Adj.)	(Adv.)
Precision	----	precise	precisely
Emphasis	emphasize	emphatic	emphatically
Proposition	propose	propositional	propositionally
cognition	cognitive	-----	cognitively
iteration	iterate	iterant	
concept	conceptualize	conceptual	conceptually
function	function	functional	functionally

1. Alzheimer's can …….. impair individuals thereby affecting their mental processes.
2. She kept on …….. her request until it was replied to by the authorities.
3. The machine is so …….. that it can even capture a baby's heartbeat and help the doctor make a clear diagnosis
4. Globalization has allowed us to be able to …… the idea of one fully integrated world, although we still need time to get rid of our religious, racial and cultural biases.
5. Eating is like other bodily ……..: sleeping, peeing, walking, and sneezing
6. The dean did not accept the …… regarding change in the structure of the university's main library.
7. Although I have said it many times, I would like to ……. that I am not an economist.
8. Using natural fiber, she designs fabrics that are …… as well as decorative art pieces
9. A perception, sensation, idea, or intuition could result from the process of ……..
10. Roy Thomson was …… to be the chairman of the company.

6.4. Translation exercises

6.4.1. Based on the text, give at least one appropriate Persian equivalent for each of the following technical terms.

1. World Wide Web
2. information sciences
3. information architecture
4. library sciences
5. public libraries
6. Web search engines
7. Boolean logic
8. relevancy
9. information needs
10. digital obsolescence

6.4.2.Give at least one appropriate Persian equivalent for each of the following terms.

1. Recall
2. Sensitive
3. Probability
4. In response to
5. Precision
6. Curve
7. Cumulative
8. Rank
9. Perfect
10. Efficient
11. Interdisciplinary
12. Cognitive
13. Popularize
14. Evaluation
15. Obsolescence
16. Query
17. Statement
18. Performance
19. Fraction
20. Binary

Unit 7

Digital library

General Aims
This unit designed to help you learn a number of general and technical words involved in digital library, and their functions, and to promote your technical reading comprehension.

Behavioral Objectives
After carefully reading this unit, you are expected to:
1. Define the meaning of the words presented at the beginning of this unit, and do the appropriate exercises.
2. Read the passage about Digital library and do comprehension exercises.
3. To be able to do word formation exercises.
4. To be able to answer the questions according to the passage.

Word Definitions and Exemplifications

Accessible **adj.**
reachable or obtainable; easy to understand
That mountaintop is only **accessible** by helicopters.

Acquire **v.**
gain for oneself; possess
She **acquired** a good knowledge of French in Paris.

Afford **v.**
(with can or be able to) a have enough money, time, etc. to be able to do sth.
I cannot **afford** a new car.

Aggregate **v.**
collect, combine into one mass or a whole
An empire consists of many states **aggregating** under one common head.

Alternative **n.**
available as another choice; any of two or more possibilities; choice
They had no **alternative** but divorce.

Cluster **v.**
Gather to form a bunch; assemble; group
While learning a new language, one can make a list and **cluster** all words with similar meanings together.

Codify **v.**
arrange systematically into a code
We want to **codify** the procedures we use for writing our dictionary.

Commercial **adj.**
of or engaged in commerce; having financial profit as its primary aim ; for industrial use

Microsoft Office offers a non-**commercial** version for home computers.

Comprehensive **adj.**
including all or nearly all; inclusive

This is a **comprehensive** list of all the dentists in Tehran.

Conflict **n.**
state of opposition, fight or struggle

The **conflict** between Western an Eastern ideology goes back to the civilizations from which this way of thinking was inspired.

Conservation **n.**
preservation; maintenance; protection

Certain online libraries are created for the purpose of **conservation** of library, archives and museum materials.

Conventional **adj.**
traditional; prevailing; customary

In some villages, **conventional** medical methods still remain the main source of treatment.

Degrade **v.**
humiliate, dishonor, reduce to a lower rank

The poster was considered inappropriate because it **degraded** women.

Demonstrate **v.**
show; describe and explain by experiment, practical use, etc

These results of the research **demonstrate** that smoking causes cancer.

Depository **n.**
A place where things are put for storage or safekeeping; a repository

There exists a **depository** library for the United Nations and for the organization for economic cooperation and development.

Dilute **v.**
weaken or reduce in effect; reduce the strength of (a fluid) by adding water etc.
Large classes **dilute** the quality of education.

Distinct **adj.**
not identical; separate; different
In complex systems, the existence of functionally **distinct** subsystems is necessary.

Draw on **phr. v.**
employ; rely on; use to advantage
We would have to **draw on** the field of humanities to save man from the technological world that he unhappily finds himself in.

Drawback **n.**
disadvantage
The main **drawback** of the new car is its high price.

Eliminate **v.**
Remove; get rid of; exclude from consideration
Credit cards have **eliminated** the need to carry a lot of cash.

Elsewhere **adv.**
in or to some other place.
The price of fruit in this area is higher than **elsewhere**.

Emulate **v.**
try to equal or excel; imitate
A lot of poets have tried to **emulate** Hafiz, but none have been able to excel in that genre.

Expire **v.**
(of a period of time, validity, etc.) come to an end; cease to be valid; die
My driver's license will be **expired** at the end of this month.

Fee **n.**
payment made for professional advice or services etc.
The bank charges a $10 **fee** for setting up new accounts.

Hamper **v.**
prevent the free movement of; hinder
The work of the researcher was **hampered** by the absence of relevant books or articles.

Initiative **n.**
ability to initiate things; first step
The scheme is a new **initiative** for national energy conservation policy.

Institution **n.**
organization or society founded for a particular purpose
I borrowed this money from a financial **institution**.

Intellectual **n./ adj.**
(n.) a person who enjoys mental activity and has highly developed tastes in art, literature; (adj.) mental; cognitive; scholarly
Ensuring **intellectual** property rights is one of the university's most challenging tasks today.

Interchangeably **adv.**
in an exchangeable manner esp. without affecting the way a thing works
The words "meantime" and "meanwhile" can be used **interchangeably** as adverbs.

Legibility **n.**
(**adj**. legible) clear enough to read; readable.
The letter had faded over time reducing its **legibility**.

Maintenance **n.**
the work of keeping something in proper condition; upkeep

Digital libraries that contain informal and dynamic material will have substantially greater **maintenance** problems.

Migrate **v.**
move from one place and settle in another

If a server is not able to address the needs of its users, it would have to **migrate** the existing email accounts to another domain.

Otherwise **adv.**
or else; in different circumstances; in other respects

Internationally applicable policies have to be put into practice; **otherwise**, global warming is going to cause an over flooding of many countries.

Remotely **adv.**
operating or controlling from a distance

For his birthday, he wished a toy car that could be **remotely** controlled.

Repository **n.**
place where things are stored or may be found, esp. warehouse or museum

One may argue Google and Amazon are spectacular examples of centralized **repositories**.

Respective **adj.**
corresponding; relevant; particular; each

The UN members voted according to the problems of their **respective** countries.

Revolutionary **adj.**
resulting in radical change

The World Wide Web was a **revolutionary** invention as a global information medium.

Set out **v.**
display; exhibit; show for public viewing; create
He **set out** his plan for the further extension of the building.

Substantiality **n.**
importance or value; size or amount; essentiality
The **substantiality** of the book was questioned when it became apparent it was missing half the pages.

Typically **adv.**
commonly; usually; as a rule
Typically, you will find my son playing PS3 every day after he comes home from school.

Venture **v.**
to do or go at some risk; dare to go, make, or put forward; take risks
Nima Yushij **ventured** into a new style of modern Persian poetry.

Via **prep.**
through
She corresponded with her father **via** email.

Vision **n.**
eyesight; image; perception; concept; fantasy
The vision of humanity's future cannot be left to be drawn by the imperialist powers, excluding the good of the rest of the world.

Wrap up **v.**
finish; bring to a close; terminate
The manager **wrapped up** the meeting by thanking the collaborators of the project.

7.1. Vocabulary Exercises

7.1.1. Match the words in Column A with their appropriate equivalents in Column B.

Column A	Column B
… 1. Alternative	a. through
… 2. Convention	b. any of two or more possibilities
… 3. Fee	c. risky undertaking
… 4. Focus	d. manufacture or prepare
… 5. Maintenance	e. center of attention
… 5. Procedure	f. use or consume (time or energy)
… 6. Produce	g. cause to continue
… 7. Spend	h. charge for a privilege
… 8. Venture	i. a general agreement
… 9. Via	j. way of performing a task

7.1.2. Match the words in Column A with their best Persian equivalents in Column B.

Column A	Column B
… 1. Comprehensive	a. جای دیگر
… 2. Preserve	b. حذف کردن
… 3. Initiative	c. نخستین
… 4. Distinction	d. نمادین
… 5. Initial	e. مقدماتی
… 6. Typical	f. محافظت کردن
… 7. Content	g. تمایز
… 8. Elsewhere	h. اثبات کردن
… 9. Demonstrate	i. محتوا، مندرجات
… 10. Eliminate	j. جامع
	k. جایگزین کردن
	l. معرفی کردن
	m. نمایش

7.1.3. Match the words in column (A) with their appropriate synonyms in column (B).

Column A	Column B
… 1. Accessible	a. easy to get to
… 2. Acquire	b. complete
… 3. Comprehensive	c. useful
… 4. Enhance	d. boundary
… 5. Expire	e. symbol
… 6. Functional	f. get hold of
… 7. Intellectual	g. thinker
… 8. Interface	h. understand
… 9. Interpret	i. improve
… 10. Representation	j. run out

Reading passage

Digital library

IINTRODUCTION

A digital library is a library in which collections are stored in digital formats (as opposed to print, microform, or other media) and accessible by computers. The digital content may be stored locally, or accessed remotely via computer networks. A digital library is a type of information retrieval system.

The DELOS Digital Library Reference Model defines a digital library as:

An organization, which might be virtual, that comprehensively collects, manages and preserves for the long term rich digital content, and offers to its user communities specialized functionality on that content, of measurable quality and according to codified policies.

The first use of the term *digital library* in print may have been in a 1988 report to the Corporation for National Research Initiatives The term *digital libraries* was first popularized by the NSF/DARPA/NASA Digital Libraries Initiative in 1994. These draw heavily on As We May Think by Vannevar Bush in 1945, which set out a vision not in terms of technology, but user experience. The term *virtual library* was initially used interchangeably with *digital library*, but is now primarily used for libraries that are virtual in other senses (such as libraries which aggregate distributed content).

A distinction is often made between content that was created in a digital format, known as born-digital, and information that has been converted from a physical medium, e.g., paper, by digitizing. The term hybrid library is sometimes used for libraries that have both physical collections and digital collections. For example, American Memory is a digital library within the Library of Congress. Some important digital libraries also serve as long term archives, for example, the ePrintarXiv, and the Internet Archive.

Digital archives

Physical archives differ from physical libraries in several ways. Traditionally, archives were defined as:

1. Containing primary sources of information (typically letters and papers directly produced by an individual or organization) rather than the secondary sources found in a library (books, periodicals, etc);

2. Having their contents organized in groups rather than individual items.
3. Having unique contents.

The technology used to create digital libraries has been even more for archives since it breaks down the second and third of these general rules. In other words, "digital archives" or "online archives" will still generally contain primary sources, but they are likely to be described individually rather than (or in addition to) in groups or collections, and because they are digital their contents are easily reproducible and may indeed have been reproduced from elsewhere. The Oxford Text Archive is generally considered to be the oldest digital archive of academic physical primary source materials.

The future

Large scale digitization projects are underway at Google, the Million Book Project, and Internet Archive. With continued improvements in book handling and presentation technologies such as optical character recognition and eBooks, and development of alternative depositories and business models, digital libraries are rapidly growing in popularity as demonstrated by Google, Yahoo!, and MSN's efforts. Just as libraries have ventured into audio and video collections, so have digital libraries such as the Internet Archive.

According to Larry Lennon, Director of Information Management Technology at the nonprofit Corporation for National Research Initiatives, “all the problems associated with digital libraries are wrapped up in archiving.” He goes on to state, “If in 100 years people can still read your article, we’ll have solved the problem.” Daniel Akst, author of The Webster Chronicle, proposes that “the future of libraries—and of information—is digital.” Peter Lyman and Hal Varian, information scientists at the University of California, Berkeley, estimate that “the world’s total yearly production of print, film, optical, and magnetic content would require roughly 1.5 billion gigabytes of storage.” Therefore, they believe that “soon it will be technologically possible for an average person to access virtually all recorded information.”

Searching

Most digital libraries provide a search interface which allows resources to be found. These resources are typically deep web (or invisible web) resources since they frequently cannot be located by engine crawlers. Some digital libraries create special pages or sitemaps to allow search engines to find all their resources. Digital libraries frequently use the Open Archives Initiative Protocol for

Metadata Harvesting (OAI-PMH) to expose their metadata to other digital libraries, and search engines like Google Scholar, Yahoo! and Scirus can also use OAI-PMH to find these deep web resources.

There are two general strategies for searching a federation of digital libraries:

1. distributed searching, and
2. Searching previously harvested metadata.

Distributed searching typically involves a client sending multiple search requests in parallel to a number of servers in the federation. The results are gathered, duplicates are eliminated or clustered, and the remaining items are sorted and presented back to the client. Protocols like Z39.50 are frequently used in distributed searching. A benefit to this approach is that the resource-intensive tasks of indexing and storage are left to the respective servers in the federation. A drawback to this approach is that the search mechanism is limited by the different indexing and ranking capabilities of each database, making it difficult to assemble a combined result consisting of the most relevant found items.

Searching over previously harvested metadata involves searching a locally stored index of information that has previously been collected from the libraries in the federation. When a search is performed, the search mechanism does not need to make connections with the digital libraries it is searching - it already has a local representation of the information. This approach requires the creation of an indexing and harvesting mechanism which operates regularly, connecting to all the digital libraries and querying the whole collection in order to discover new and updated resources. OAI-PMH is frequently used by digital libraries for allowing metadata to be harvested. A benefit to this approach is that the search mechanism has full control over indexing and ranking algorithms, possibly allowing more consistent results. A drawback is that harvesting and indexing systems are more resource-intensive and therefore expensive.

Frameworks

The formal reference models include the DELOS Digital Library Reference Model (Agosti, et al., 2006) and the Streams, Structures, Spaces, Scenarios; Societies (5S) formal framework The Reference Model for an Open Archival Information System (OAIS) provides a framework to address digital preservation.

Construction and organization

Software

There are a number of software packages for use in general digital libraries, for notable ones see Digital library software. Institutional repository software, which focuses primarily on ingest, preservation and access of locally produced documents, particularly locally-produced academic outputs, can be found in Institutional repository software.

Digitization

In the past few years, procedures for digitizing books at high speed and comparatively low cost have improved considerably with the result that it is now possible to plan the digitization of millions of books per year for creating digital libraries.

Advantages

The advantages of digital libraries as a means of easily and rapidly accessing books, archives and images of various types are now widely recognized by commercial interests and public bodies alike.

Traditional libraries are limited by storage space; digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain it. As such, the cost of maintaining a digital library is much lower than that of a traditional library.

A traditional library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Digital libraries may reduce or, in some instances, do away with these fees. Both types of library require cataloguing input to allow users to locate and retrieve material. Digital libraries may be more willing to adopt innovations in technology providing users with improvements in electronic and audio book technology as well as presenting new forms of communication such as wikis and blogs; conventional libraries may consider that providing online access to their OPAC catalogue is sufficient. An important advantage to digital conversion is increased accessibility to users. They also increase availability to individuals who may not be traditional patrons of a library, due to geographic location or organizational affiliation.

- **No physical boundary**. The user of a digital library need not to go to the library physically; people from all over the world can gain access to the same information, as long as an Internet connection is available.
- **Round the clock availability** A major advantage of digital libraries is that people can gain access 24/7 to the information.

- **Multiple accesses**. The same resources can be used simultaneously by a number of institutions and patrons. This may not be the case for copyrighted material: a library may have a license for "lending out" only one copy at a time; this is achieved with a system of digital rights management where a resource can become inaccessible after expiration of the lending period or after the lender chooses to make it inaccessible (equivalent to returning the resource).
- **Information retrieval**. The user is able to use any search term (word, phrase, title, name, and subject) to search the entire collection. Digital libraries can provide very user-friendly interfaces, giving clickable access to its resources.
- **Preservation and conservation**. Digitization is not a long-term preservation solution for physical collections, but does succeed in providing access copies for materials that would otherwise fall to degradation from repeated use. Digitized collections and born-digital objects pose many preservation and conservation concerns that analog materials do not.
- **Space**. Whereas traditional libraries are limited by storage space, digital libraries have the potential to store much more information; simply because digital information requires very little physical space to contain them and media storage technologies are more affordable than ever before.
- **Added value**. Certain characteristics of objects, primarily the quality of images, may be improved. Digitization can enhance legibility and remove visible flaws such as stains and discoloration.
- **Easily accessible**.

Challenges

Digital preservation

Digital preservation aims to ensure that digital media and information systems are still interpretable into the indefinite future. Each necessary component must be migrated, preserved or emulated. Typically lower levels of systems (floppy disks for example) are emulated, bit-streams (the actual files stored in the disks) are preserved and operating systems are emulated as a virtual machine. Only where the there meaning and content of digital media and information systems are well understood is migration possible, as is the case for office documents.

Copyright and licensing

Some people have criticized that digital libraries are hampered by copyright law, because works cannot be shared over different periods of time in the manner of a traditional library. The republication of

material on the Web by libraries may require permission from rights holders, and there is a conflict of interest between them and publishers who may wish to create online versions of their acquired content for commercial purposes.

There is a dilution of responsibility that occurs as a result of the spread-out nature of digital resources. Complex intellectual property matters may become involved since digital material is not always owned by a library. The content is, in many cases, public domain or self-generated content only. Some digital libraries, such as Project Gutenberg, work to digitize out-of-copyright works and make them freely available to the public. An estimate of the number of distinct books still existent in library catalogues from 2000BC to 1960, has been made.

The Fair Use Provisions (17 USC § 107) under copyright law provide specific guidelines under which circumstances libraries are allowed to copy digital resources. Four factors that constitute fair use are purpose of use, nature of the work, market impact, and amount or substantiality used.

Some digital libraries acquire a license to "lend out" their resources. This may involve the restriction of lending out only one copy at a time for each license, and applying a system of digital rights management for this purpose.

7.2. Reading Comprehension Exercises

7.2.1. True/False Items

Decide which idea is true (T) and which idea is false (F). Try to find a reason for your decision.

1. Some people have criticized that digital libraries are hampered by copyright law, because works can be shared over different periods of time in the manner of a traditional library. ( )
2. The users of a digital library need not to go to the library physically. ( )
3. The term Digital library is sometimes used for libraries that have both physical collections and digital collections. 4. A digital library is a type of information retrieval system. ( )
5. More digital libraries acquire a license to "lend out" their resources. ( )
6. Only digital library require cataloguing input to allow users to locate and retrieve material. ( )
7. A digital library is a library in which collections are stored in digital formats (as opposed to print, microform, or other media) and accessible by networks. ( )
8. To handle the growing volume of electronic publications, new tools and technologies have to be designed to allow effective automated semantic classification and searching. ( )
9. Digital preservation aims to ensure that digital media and information systems are still interpretable into the definite future. ( )
10. Digital libraries can provide very user-friendly interfaces, giving clickable access to its resources. ( )

7.2.2. Using the information given in the passage, choose the best choice (a, b, c, or d) to answer the following questions.

1. Digital libraries have the potential to store much more …… .
   a) data b) knowledge
   c) information d) resources

2. In…….……., the ability to find works of interest was directly related to how well they were catalogued.
   a) digital Libraries b) traditional Libraries
   c) hybrid Libraries d) OPAC

3. Digitization is not a long-term …….…. solution for physical collections, but does succeed in providing access copies for materials that would otherwise fall to degradation from repeated use.
   a) physical b) digital
   c) best d) preservation

4. A digital library is a library in which collections are stored in digital formats (as opposed to print, microform, or other media) and accessible by ……....
   a) computers b) networks
   c) libraries d) internet

5.Archives have …….. contents.
   a) unique b) digital
   c) physical d) information
6. The term ……... library is sometimes used for libraries that have both physical collections and digital collections.
   a) digital b) hybrid
   c) internet d) physical
7. Distributed searching typically involves a ……..… sending multiple search requests in parallel to a number of servers in the federation.
   a) server b) receiver
   c) computer d) client
8. Most digital libraries provide a search ……..…., which allows resources to be found.
   a) tool b) function
   c) query d) interface
9. …… can enhance legibility and remove visible flaws such as stains and discoloration.
   a) digital Library b) digitalization
   c) visibility d) Painting

10. Digital information requires very little physical ……..….. to contain them.
   a) storage b) space
   c) data d) A, B

7.2.3. Answer the following questions (according to the passage).

1. What are the general strategies for searching the federation of digital libraries?
2. How would you precisely define a digital library?
3. What are the advantages of digital libraries?
4. When is 'fair use' employed for digital libraries?
5. What are the differences between physical and digital archives?

7.3. Word Formation Exercise.

7.3.1. Fill in the blanks with the appropriate form of the words given.

(N)	(V)	(Adj.)	(Adv.)
representation	represent	representative	representively
responsibility	response	responsible	responsibly
----	----	particular	particularly
measurement	measure	measurable	measurably
Organization	organize	organized	----
reduction	reduce	reducible	reducibly

1. If something is ……..….., it is large enough to be noticed or to be significant.
2. The…….. of a system is the way in which its different parts are related and how they work together.
3. Your ……..… are the duties that you have because of your job or position.
4. You use ……..… to indicate that what you are saying applies especially to one situation, person, or thing.
5. If you say that someone is ……..….. to a weaker or inferior state, you mean that they change to this state as a result of something that happens to them.
6. …….. customs or beliefs have existed for a long time without changing.
7. You can describe a picture or statue of someone as a …… of them.

7.4. Translation exercises

7.4.1. Based on the text, give at least one appropriate Persian equivalent for each of the following technical terms.

1. digital library
2. information retrieval system

3. virtual library
4. primarily used for libraries
5. physical medium
6. American Memory
7. Internet Archive
8. Physical archives
9. invisible web
10. Google Scholar

7.4.2. Give at least one appropriate Persian equivalent for each of the following terms.

1. Preservation
2. Conservation
3. Migrate
4. Acquire
5. Metadata
6. Z39.50
7. 5S
8. Institutional repository software.
9. Digitization
10. 24/7 Access
11. functionality
12. Codify
13. Vision
14. Popularize
15. Initial
16. Traditional
17. Individual
18. Content
19. Drawback
20. Period

Unit 8

Bibliometrics to Webometrics

General Aims
This unit designed to help you learn a number of general and technical words involved in Bibliometric and Webometric, and their functions, and to promote your technical reading comprehension.

Behavioral Objectives
After carefully reading this unit, you are expected to:
1. Define the meaning of the words presented at the beginning of this unit, and do the appropriate exercises.
2. Read the passage about Bibliometric to Webometric and do comprehension exercises.
3. Do word formation exercises.
4. Answer the questions raised from the passage.

Word Definitions and Exemplifications

Assess — **v.** estimate the size or quality of; evaluate

After his death, they had to **assess** the value of his house for taxation purposes.

At face value — **prep. Phrase** from outward appearance; from what something first appears to be

Don't just accept her offer **at face value**. Think of the consequences it will have.

Arbitrary — **adj.** random; based on chance; without any specific reason or rule

She made two **arbitrary** lists of the students to fairly divide the class into two groups.

Casual — **adj.** not regular or permanent; unconcerned; careless; unthinking; (of clothes) informal

He was very **casual** with his job. So he was dismissed from the company after a few months.

Commission — **v.** to make or become operative or operable; authorize; empower; license

The state has **commissioned** the ethical and safe use of internet in schools for educational purposes.

Complementary — **adj.** completing; forming a complement

If two different things are **complementary**, they form a complete unit when they are brought together, or fit well together.

Comprehensive **adj.**
including all or nearly all; all-inclusive; including everything necessary or relevant; exhaustive

They put forward **comprehensive** legislation to revise the rules for financing political campaigns.

Conduct **v.**
carry on, lead, guide, direct, manage

Mary Curry died of being exposed to too much radiation while **conducting** her experiments.

Considerable **adj.**
much; a lot of; notable; important; great in amount or degree

He exhibited **considerable** skill in the driving through the snowstorm.

Consistent **adj.**
compatible, in harmony, in accord, steady

The witness's story is **consistent** with the police report.

Contrast **n.**
distinction; juxtaposition or comparison showing differences; dissimilarity; unlikeness;

She is quite short in **contrast** with her tall sister.

Coordinate **v.**
cause (parts, movements, etc.) to function together efficiently; work or act together effectively

In physiotherapy, patients learn how to **coordinate** the movement of their arms and legs.

Disciplinary **adj.**
of or relating to a specific field of academic study

The boundaries of **disciplinary** science are pushed every once in a while, and new forms of science are evolved.

Encompass **v.**
contain, include, surround, comprise

Noam Chomsky's interdisciplinary research **encompasses** areas such as linguistics, mathematics, computer sciences, politics, and philosophy.

Evidence **n.**
available facts, circumstances, etc. indicating whether or not a thing is true or valid; proof; indication

The FBI has found no **evidence** of a crime.

Except **prep.**
not including; other than; with the exclusion of; leaving out

Everyone is here **except** your elder sister.

Extensively **adv.**
widely; broadly; greatly; largely; in a widespread way

Part of information literacy training includes instructing users to employ search engines extensively.

Extract **v.**
derive or obtain (information or data) from a source; deduce (a principle or doctrine); pull out; draw out

One can use the website of PNU to **extract** email addresses of the faculty members.

Function **v.**
perform, run, work, operate

To keep your computer **functioning** properly, you need to install an antivirus software.

Funding **n.**
financial support; financial backing

The **funding** for the project comes from the Ministry of Culture and Higher Education.

In response to **prep. phrase**
as a consequence of

In response to the growing needs of the university, the committee has decided to expand the library.

In Contrast to **prep. Phrase**
against, adverse to, in opposition to, to the contrary

In contrast to the difficulties of controlling CO_2, other kinds of greenhouse gases can already be captured or eliminated using existing technologies.

In turn **adv.**
in the proper order or in sequence; one at a time; successively

Each generation **in turn** must deal with the same budget problems.

Indicator **n.**
a number or ratio derived from a series of observed facts; signal

The company has gathered performance **indicators** to quantitatively measure the efficiency of its employees.

Initial **adj.**
of or at the beginning; primary; introductory; original; fundamental

The president's **initial** popularity soon disappeared.

Institute **n.**
society or organization for the promotion of science, education, etc.

The National **Institute** of Health funds medical research in many areas.

Interpretation **n.**
understanding; explanation; representation

The **interpretation** of the statistics without knowing how they were obtained is difficult.

Investigator **n.**
researcher, expert, inspector
The United Nations **investigator** was sent to monitor and report on the situation of the protesters in the country.

Mainstream **adj.**
prevailing, accepted, conventional
The publishing of **mainstream** newspapers and journals on paper has been questioned since the invention of iPads.

Measurement **n.**
the act of measuring or the process of being measured; a system of measuring
The metric system of **measurement** is also used in Iran.

Motivation **n.**
interest (of a person in an activity); reason; impulse
The main **motivation** for war has been proved to be gaining control over natural resources.

Overlook **v.**
fail to notice; miss; neglect
Although she had reviewed her paper, she **overlooked** many of the spelling mistakes.

Patent **n.**
an official document granting a right or privilege
He had a number of **patents** for his inventions, securing the copyright for himself.

Phenomenon **n.**
an occurrence, circumstance, or fact that is perceptible by the senses; any remarkable occurrence or person
Terrorism is not just a **phenomenon** of the 20th century.

Primarily **adv.**
of first importance; chief; fundamental; basic

Their income is **primarily** from farming.

Quantitative **adj.**
relating to the size or amount of something;
of quantity as opposed to quality

Whereas in qualitative research methods words are used to describe the outcome of the research, in the **quantitative** methods we use numbers.

Referee **v.**
evaluate professionally a colleague's work; judge; peer review

The process of **refereeing** an article can take up to a year depending on the journal.

Relevant **adj.**
having a bearing on or connection with the matter at hand; related; fitting

One good way of improving your vocabulary is learning the words in a **relevant** context.

Retrospective **adj.**
directed to the past; looking back on; contemplating

A **retrospective** look at the Nazi history can remind us of the crimes that human beings are capable of committing against humanity.

Robust **adj.**
physically strong; powerfully built; strong in constitution

A decrease in the unemployment rate was an indicator of **robust** economic activity in the region.

Scattered **adj.**
spread, diffused, separate

Before it unexpectedly started to rain, the sky was clear with a few **scattered** clouds.

Scholarly — **adj.**
(piece of writing or discussion) serious and careful, usually written by an academic at a university; intellectual

Her **scholarly** work including dozens of books and hundreds of articles were put on display.

Statistics — **n.**
facts or data of a numerical kind, assembled, classified, and tabulated so as to present significant information about a given subject

Although many people are scared of flying, official **statistics** proves that one is safer in an airplane than in a car.

Stem from something — **idiom**
result from something

The problems of the company all stem from the mismanagement of the directors.

Submission — **n.**
offering as a proposition or contention; handing in; the act of submitting something to another for decision, consideration

They lawyer prepared a report of the crime for **submission** to the judge.

Supplement — **v.**
add to, reinforce, complement, extend

The doctor put me on a diet **supplemented** with vitamin pills.

The state of the art — **n. phrase**
the highest degree of development of an art or technique at a particular time

This new television set reflects **the state of the art** in screen technology.

Timely **adj.**
occurring at a suitable or opportune time; well-timed

The library also relies on its users for help in its efforts to provide equal and **timely** access to the materials in its collections.

Trigger **v.**
bring about, cause, generate, result in

The actions of the government **triggered** widespread protests throughout the country.

Underlying **adj.**
basic, fundamental, implicit, not obvious

The **underlying** theme of the story is the battle between good and evil.

Well-known **adj.**
known to many

It is a **well-known** fact that Shakespeare chose his plots from ancient Greek stories.

8.1. Vocabulary Exercises

8.1.1. Match the words in Column A with their appropriate equivalents in Column B.

Column A	Column B
… 1. Assess	a. make or become smaller or less
… 2. Casual	b. society or organization for the promotion
… 3. Conduct	c. estimate the value of
… 4. Evolve	d. strong effect or impression
… 5. Impact	e. lie under
… 6. Indicator	f. a number of thing spread over a large area
… 7. Individuals	g. person or thing that indicates
… 8. Institute	h. single human being
… 9. Interpret	i. develop gradually and naturally
… 10. reduce	j. explain the meaning of
… 11. Scattering	k. not regular or permanent
… 12. Underlying	l. activity or manner of directing or managing

8.1.2. Match the words in Column A with their best Persian equivalents in Column B.

Column A	Column B
… 1. Compare … 2. Comprehensive … 3. Considerable … 4. Consistent … 5. Construction … 6. Evidence … 7. Extract … 8. Initial … 9. Motivate … 10. Significant	a. مهم- بامعنا b. انگیختن c. شایان توجه d. سازگار e. جامع- وسیع f. مقایسه کردن g. استخراج کردن h. گواه - شاهد i. ابتدایی j. ساختمان- ساختار k. امنیت l. کار آمد m. رسوا شدن

8.1.3. Match the words in column (A) with their appropriate synonyms in column (B).

Column A	Column B
…1.Afford	a. mainly
… 2.Compare	b. understanding
… 3.Comprehensive	c. person
… 4.Coordinate	d. take
… 5.Except	e. organize
… 6.Individual	f. fail to notice
… 7.Initial	g. examination
… 8.Interpret	h. original
… 9.Interpretation	i. pay for
… 10.Investigation	j. complete
… 11.Overlook	k. apart from
… 12.Primarily	l. contrast

Reading passage

Bibliometrics to Webometrics

IINTRODUCTION

The last 50 years have seen two major technological changes in scholarly publishing and two major changes in the way research can be quantitatively analyzed, alongside numerous less significant developments. The two publishing changes are the computerization of the printing process, reducing costs significantly and allowing more journals and books to appear in print; and the conversion of the entire publishing cycle (submission of articles, refereeing and publication) to the internet, allowing faster and possibly cheaper communication throughout. Historically, the first major change for the development of quantitative analysis of academic publishing (bibliometrics) was the creation of the Institute for Scientific Information (ISI, now Thomson Scientific) citation database, which began functioning in 1962 together with associated post-war sociological theory allowing it to be used to assess the impact of scientific work. Since then there has been a continuous increase in the computing power available in universities, which has helped to make increasing numbers of bibliometric analyses possible. The second major development for bibliometrics was the web publishing of an increasingly broad range of research-related documents, from articles to email discussion lists, allowing the creation of a range of new metrics relating to their access and use.

BIBLIOMETRICS

Bibliometrics encompasses the measurement of ‘properties of documents, and of document-related processes’. The range of bibliometric techniques includes word frequency analysis, citation analysis, co-word analysis and simple document counting, such as the number of publications by an author, research group or country. In practice, however, bibliometrics is primarily applied to science-related documents and hence has considerable overlap with scientometrics, the science measurement field. Although recognizably bibliometric techniques have been applied for at least a century, the emergence of bibliometrics as a scientific field was triggered (in the 1960s) by the development of the Institute for Scientific Information (ISI) Science Citation Index (SCI) by Eugene Garfield, as a logical continuation of his drive to support scientific literature searching.

The SCI was created as a database of the references made by authors, to earlier articles, in their articles published in the top scientific journals, originally focusing on general science and genetics. The underlying idea, still highly relevant today, is that if a scientist reads an article, then s/he would benefit from knowing which articles cited it, since they may cover a similar topic and might update or correct the original article. The importance of the SCI is also consistent with Bradford's law of scattering: although a scientist may keep up-to-date with a research specialism by reading all relevant journals when they appear, a minority of relevant articles will be scattered throughout other journals. Hence citation searching protects researchers from missing relevant articles in non-core journals.

Almost a by-product of the SCI, and later also the Social Sciences Citation Index (SSCI) and the Arts and Humanities Citation Index (AHCI), was the ability to generate easily a range of new statistics: not just the number of citations to any given article but also, using other fields in the SCI database, aggregated publication and citation counts. These aggregated statistics include the number of citations to all articles in a journal or all articles by an author, research group, or country. Some were further developed into named indicators with supporting theories and reasonably well accepted standard interpretations. Perhaps the most well known is the journal impact factor (JIF), defined below. Since the publication of the SCI, two types of bibliometric application have arisen: evaluative and relational. Evaluative bibliometrics seeks to assess the impact of scholarly work, usually to compare the relative scientific contributions of two or more individuals or groups. These evaluations are sometimes used to inform research policy and to help direct research funding. In contrast, relational bibliometrics seeks to illuminate relationships within research, such as the cognitive structure of research fields, the emergence of new research fronts, or national and international co-authorship patterns.

Mainstream bibliometrics has evolved rather than undergone revolutionary change in response to the web and web-related developments. The core citation-based impact measures are still in place, but are now supplemented by a range of complementary techniques. In addition, there is now a body of theory and case studies to draw upon so that an experienced bibliometrician can be reasonably sure of finding good ways to generate indicators from citations for any common task and also of how to interpret the results. In particular there has been an ongoing debate about the validity of using citations to measure impact, in parallel with the development of theories of citer motivations, which have recently been extensively reviewed.

Aside from the core citation analysis methods, the biggest change in bibliometrics stems from the availability of new significant sources of information about scholarly communication, such as patents, web pages, and digital library usage statistics. Of course, the wider field of scientometrics has never been exclusively interested in academic papers and has also used other data such as funding as well as qualitative indicators, such as peer review judgments. There are perhaps three main trends in the recent history of bibliometrics, and citation analysis in particular. These are to improve the quality of results through improved metrics and careful data cleaning, to develop metrics for new tasks, and to apply bibliometrics to an increasing range of problems, particularly in descriptive relational contexts.

Bibliometrics has changed out of all recognition since 1958, when it did not exist as a field or even as a coordinated group of researchers. Today it is taught widely in library and information science schools, and is at the core of a number of science evaluation research groups around the world, such as the Centre for Science and Technology Studies in the Netherlands. A number of bibliometric indicators are now internationally well known, principally the JIF, and bibliometrics are at least taken into account in a number of countries when making important policy decisions about the future of government funded research. At the same time the state of the art for bibliometrics indicators has moved on so that most of the indicators that are well known and easy to calculate also have significant flaws in which practitioners will be well versed, but casual users may overlook. Hence one important task for bibliometric practitioners seems to be to convince policy makers of the importance of commissioning high quality robust indicators, as well as ensuring that no indicator is taken at face value.

Bibliometrics has also changed in the sense of expanding the number of data sources that can be drawn upon. Currently, Scopus and Google Scholar are the most important international bibliometric databases to challenge those of Thomson Scientific. More importantly, large-scale patent analysis is now much easier than before with the digitization and indexing of patent databases. This opens up an aspect of the commercial value of scientific research for bibliometric study. Finally, bibliometrics has also changed by expanding the range of tasks investigated. In particular, the current wide range of relational bibliometric studies opens up new ways of understanding the scholarly communication process and the structure of science through citation relationships between journals, between scholars and between

papers. Moreover, citation analysis in conjunction with visualization also helps to understand the structure of individual fields, and is particularly useful for emerging and rapidly developing important research areas, such as nanotechnology and biotechnology.

WEBOMETRICS

Webometrics is the quantitative analysis of web phenomena, drawing upon informetric methods [55], and typically addressing problems related to bibliometrics. Webometrics was triggered by the realization that the web is an enormous document repository with many of these documents being academic-related. Moreover, the web has its own citation indexes in the form of commercial search engines, and so it is ready for researchers to exploit. In fact, several major search engines can also deliver their results automatically to investigators' computer programs, allowing large-scale investigations. One of the most visible outputs of webometrics is the ranking of world universities based upon their web sites and online impact. Webometrics includes link analysis, web citation analysis, search engine evaluation and purely descriptive studies of the web. Note that there is also some research into developing web-based metrics for web sites to evaluate various aspects of their construction, such as usability and information content, but this will not be reviewed here.

Webometrics research has been conducted by both information scientists and computer scientists, with different motivations. Within information science, webometrics has expanded from its initial focus on bibliometric-style investigations to more descriptive and social science-oriented research. It seems likely that webometric techniques will continue to evolve in response to new web developments, seeking to provide valuable descriptive results and perhaps also commercially applicable data mining techniques. There are three main appeals of webometrics in contrast to traditional bibliometrics.

First, the web can be timelier than the ISI databases. A typical research project might get funded, conduct research, report findings and then submit articles to journals. The time lag between the start of the project and the publication of the results in a journal is likely to be at least two years. Hence ISI-based bibliometrics is inevitably always retrospective, describing the research of years ago. In contrast, a research project might start by publishing a web site and could therefore be analysed with webometrics long before its research is published.

The second advantage of the web is that it contains a wide range of scholarly-related artefacts, including presentations, patents, data, software and general web sites. Hence webometrics is potentially able to gather a wide range of evidence of research impact or connections. Finally, the web is free to access for all web users and so it potentially opens bibliometric-style analyses to those who could not access or afford ISI data. Research into webometrics has also revealed many shortcomings, some of which are related to its advantages.

First, the web is not quality controlled, unlike the ISI publication lists. Hence web data tends to be of lower quality, which means that webometric results are normally indicative rather than providing robust evidence. Second, web data is not standardized and so it is difficult to extract all except the simplest data (e.g. link counts). In particular, it is difficult to separate out the different types of publication. For example, there does not seem to be a simple way to separate out web citations in online journal articles from those in online course reading lists. Hence webometric results (e.g. link counts, web citation counts) tend to be the total of a mix of sources with variable value [e.g. 68, 108].

Second, it can be used to assess the extent to which researchers are successful in publicizing their work online, given that this is an important activity. Third, it can be used for relational analyses of communication in disciplinary or geographic areas of science. Finally, its methods can help the analysis of Web 2.0 and online repositories for social sciences and humanities research goals.

Third, although web data can be very timely, it can be impossible to find the publication date of a web page and so webometric results typically combine new and old web pages into one data set. Finally, web data is incomplete in several senses and in arbitrary ways. Although some academic articles are freely available online, the majority probably are not. Similarly, some researchers and research groups maintain extensive and comprehensive web sites but others do not. Hence the results reflect the web, which in turn is a very partial reflection of the activities of research. Comparing the advantages and disadvantages of webometrics, it seems that it is unlikely to replace traditional bibliometrics but can be useful for several other purposes. First, it can be used for fast pilot studies to identify areas for follow-up systematic bibliometric analyses.

8.2. Reading Comprehension Exercises

8.2.1. True/False Items

Decide which idea is true (T) and which idea is false (F). Try to find a reason for your decision.

1. Bibliometrics encompasses the measurement of 'properties of documents, and of document-related processes'. ( )
2. Webometrics is the qualitative analysis of web phenomena. ( )
3. Within information science, webometrics has expanded from its initial focus on bibliometric-style investigations to more descriptive and social science-oriented research.( )
4. There seems to be a simple way to separate out web citations in online journal articles from those in online course reading lists.( )
5. The web has its own citation indexes in the form of commercial search engines, and so it is ready for researchers to exploit.( )
6. Webometrics includes only link analysis.( )
7. One of the most visible outputs of webometrics is the ranking of world universities based upon their web sites and online impact.( )
8. The web is quality controlled.( )
9. The second major development for bibliometrics was the web publishing of an increasingly broad range of research-related documents, from articles to email discussion lists, allowing the creation of a range of new metrics relating to their access and use. ( )
10. The range of bibliometric techniques includes word frequency analysis, citation analysis, co-word analysis and simple document counting, such as the number of publications by an author, research group or country.( )

8.2.2. Using the information given in the passage, choose the best choice (a, b, c, or d) to answer the following questions.

1. Webometrics is the …….. analysis of web phenomena.
   a) complex b) quantitative
   c) compound d) qualitative

2. Webometrics research has been …… by both information scientists and computer scientists, with different motivations.
   a) simplified b) initiated
   c) grouped d) conducted

3. The two publishing changes are the computerization of the printing process, reducing costs significantly and allowing more journals and books to …… in print; and the conversion of the entire publishing cycle (submission of articles, refereeing and publication) to the internet.
   a) appear b) vanish
   c) show d) work

4. The importance of the SCI is also consistent with Bradford's law of …… .
   a) scientific output b) at least effort
   c) scattering d) citation analysis

5. In particular, there has been an ongoing debate about the validity of using citations to measure ……..…. .
   a) output b) usefulness
   c) impact d) size

6. Bibliometrics encompasses the ……..…….. of 'properties of documents, and of document-related processes'.
   a) measurement b) design
   c) usefulness d) estimate
7. A number of bibliometric …….. are now internationally well known.
   a) kinds b) factors
   c) measurements d) indicators
8. Webometrics includes ……..…. analysis, web citation analysis, search engine evaluation and purely descriptive studies of the web.
   a) website b) link
   c) weblog d) web

9. It seems likely that ……..…….. techniques will continue to evolve in response to new web developments, seeking to provide valuable descriptive results and perhaps also commercially applicable data mining techniques.
   a) bibliometric b) statistical
   c) webometric d) webological

10. Relational bibliometrics seeks to ……..…….. relationships within research, such as the cognitive structure of research fields, the emergence of new research fronts, or national and international co-authorship patterns.

a) appear b) Show
c) illuminated. d) make

8.2.3. Answer the following questions (according to the passage).

1. What are the two major technological changes in scholarly publishing and two major changes in the way research can be quantitatively analyzed?
2. What does bibliometrics mean?
3. Give a short definition of webometrics.
4. What are the shortcomings that researchers in webometrics have revealed?
5. What are the three main appeals of webometrics in comparison to traditional bibliometrics?

8.3. Word Formation Exercise.

8.3.1. Fill in the blanks with the appropriate form of the words given.

(N)	**(V)**	**(Adj.)**	**(Adv.)**
reflection	reflect	reflective	reflectively
conduct	conduct	conductive	conductively
interpretation	interpret	interpretive	interpretively
measurement	measure	measurable	measurably

1. If you ……..……what someone is saying, you translate it immediately into another language.
2. When you ……..….an activity or task, you organize it and do it.
3. If something is……, it is large enough to be noticed or to be significant.
4. A ……..…on something is also a situation or event which has the effect of making people aware of a particular aspect of someone or something.
5. You can use ……..to refer to an amount or degree of something abstract.
6. If you are……., you are thinking deeply about something.
7. Your ……..……..are the size of your chest, waist, hips, and other parts of your body.

8.4. Translation exercises

8.4.1. Based on the text, give at least one appropriate Persian equivalent for each of the following technical terms.

1. Science-related documents
2. ISI
3. SCI
4. AHCI
5. SSCI
6. Case studies
7. Scholarly communication
8. JIF
9. Science-oriented
10. Web 2.0

8.4.2. Give at least one appropriate Persian equivalent for each of the following technical terms.

1. Encompasses
2. Measurement
3. Consistent
4. Aggregate
5. Evolve
6. Contrast
7. Response
8. Complementary
9. Supplemented
10. Interpret
11. Significant
12. Coordinate
13. Casual
14. Commission
15. Investigation
16. quantitative
17. reduce
18. submission
19. creation
20. Functioning

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Answer Keys

Unit 1&2

Exercise 1.1.1.: Match the words in column (A) with their appropriate definitions in column (B)

1.d 2.a 3.e 4.h 5.b 6.f 7.c 8.i 9.g 10.j

Exercise 1.1.2.: Match the words in column (A) with their best Persian equivalents in column (B)

1.e 2.g 3.a 4.f 5.h 6.d 7.c 8.i 9.b

Exercise 1.1.3.: Match the words in column (A) with their appropriate synonyms in column (B)

1. a 2.c 3.g 4.b 5.d 6.e 7.h 8.f 9.i 10.j

Exercise 1.2.1 : True/False Items:

1.F 2.T 3.T 4.F 5.F 6.T 7.F 8.F 9.F 10.T

Exercise 1.2.2 : Choose the best choice (a, b, c, or d):

1.b 2.a 3.c 4.a 5.c 6.a 7.a

1.3.1 : Word Formation Exercises.

1. identified	2. economical	3. identify
4. distinctively	5. economical	6. identifiable
7. increase	8. economized	9. increase
10. analyzed	11. distinctive	12. virtue
13. acknowledged	14. virtue	15. fundamental
16. identifiable	17. analysis	18. fundamental
19. identifiable	20. increasingly	21. predominant
22. predominate	23. distinction	24. fundamental
25. predominantly	26. virtually	

1.4.1. Base on the text, give at least one appropriate Persian equivalent for each of the following technical terms.

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Unit 3

Exercise 3.1.1.: Match the words in column (A) with their appropriate definitions in column (B)

1.f 2.h 3.g 4.e 5.b 6.a 7.c 8.j 9.i

10.d

Exercise 3.1.2.: Match the words in column (A) with their appropriate definitions in column (B)
1.d 2.l 3.f 4.h 5. m 6.g 7.a 8.e 9.b
10.n

Exercise 3.1.3.: Match the words in column (A) with their appropriate definitions in column (B)
1.i 2.g 3.j 4.h 5.a 6.b 7.e 8.c 9.d
10.f

Exercise 3.2.1.:True/False Items:
1.T 2.F 3.F 4.F 5.T 6.T 7.F 8.T 9.F
10.T 11.F

Exercise 3.2.2: Best choice (a, b, c, or d):
1. d 2.a 3.c 4.d 5.d 6.c 7.d 8.c

Exercise 3.3.1.: Fill in the blanks with the appropriate form of the words given.

1. encouraged	2. Prolific	3. convenience
4. hesitant	5. confidence	6. confident
7. predictable	8. predicting	9. Determined
10. determine	11. extendable	12. extension
13. extent	14. compatible	15. proliferation
16. conveniently	17. hesitantly	18. frustrated
19. Frustratingly		

Exercise 3.4.1.: Choose an appropriate Persian equivalent for each of the following terms used in the passage.
1.g 2.f 3.h 4.c 5.k 6.j 7.i 8.b 9.l
10.a 11.e

3.4.2. Give at least one appropriate Persian equivalent for each of the following terms.

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Unit 4

Exercise 4.1.1.: Match the words in column (A) with their appropriate definitions in column (B)
1.c 2.f 3.g 4 d 5.b 6.a 7.e 8.h

Exercise 4.1.2.: Match the words in column (A) with their appropriate definitions in column (B)

1.d 2.c 3.g 4.h 5.a 6.e 7.f 8.i 9.k
10.b 11.j 12.m 13.l 14.n

Exercise 4.1.3.: Match the words in column (A) with their appropriate definitions in column (B)

1.g 2.h 3.i 4.j 5.b 6.f 7.c 8.a 9.d
10.e

Exercise 4.2.1: True/False Items:

1.F 2.T 3.T 4.F 5.T 6.F 7.F 8.T 9.T
10.F

Exercise 4.2.2.: Using the information given in the passage, choose the best choice or answer the questions.

1.g 2.a 3.b 4.c 5.d 6.g

Exercise 4.3.1. : Word Formation Exercise:

1.predict	2.useful	3.collection
4.eliminate	5.additional	6.enter

Exercise 4.4.1.: Match the words in column (A) with their best Persian equivalents in column (B)

1.k 2.d 3.m 4.i 5.l 6.a 7.h 8.c 9.b
10.e

Exercise 4.4.2: Give at least one appropriate Persian equivalent for each of the following technical terms.

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Exercise 4.1.3. Match the words in column (A) with their appropriate definitions in column (B)

۱. امکان ۲. قابلیت استفاده ۳.ریزش کاذب ٤. تفاوت
٥. نظام بازیابی متنی ٦. اصلاح ۷. نظام بولی ۸. فرصت
۹. نظام بازیابی ۱۰. تعبیر سو

Unit 5

Exercise 5 .1.1: Match the words in column (A) with their appropriate definitions in column (B)

1.c 2.g 3.e 4.a 5.d 6.b 7.j 8.k 9.f
10.h 11.i

Exercise 5.2.1. Match the words in column (A) with their appropriate definitions in column (B)
1.b 2.f 3.i 4.k 5.d 6.c 7.g 8.h 9.a
10.e 11.m 12.l 13.j

Exercise 5.1.3.: Match the words in column (A) with their appropriate definitions in column (B)
1.a 2.b 3.c 4.d 5.e 6.f 7.g 8.h 9.i
10.

Exercise 5.2.1.: True/False Items:
1.F 2.T 3.T 4.F 5.F 6.T 7.F 8.T 9.T
10.T

Exercise 5.2.2. : Best choice (a, b, c, or d):
1. b 2.c 3.a 4.d 5.a 6.b 7.c 8.d 9.b
10.c

Exercise 5.3.1. :Word Formation Exercise:
1.creative 2. Communications 3.creation
4.relationship 5.expression 6.express
7.communicate

5.4. Translation exercises
5.4.1 Give an appropriate Persian definition for each of the following terms used in the passage.

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5.4.2. Give at least one appropriate Persian equivalent for each of the following technical terms.

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Unit 6

Exercise 6.1.1..: Match the words in column (A) with their appropriate definitions in column (B)
1.j 2.e 3.b 4.h 5.a 6.d 7.i 8.f 9.c
10.g

Exercise 6.1.2.: Match the words in column (A) with their appropriate definitions in column (B)
1.e 2.g 3.c 4.f 5.h 6.d 7.j 8.a 9.i
10.b

Exercise 6.1.3.: Match the words in column (A) with their appropriate definitions in column (B)

1.m 2.b 3.o 4.e 5.q 6.a 7.p 8.g 9.d
10.n 11.f 12.j 13.i 14.h 15.c

Exercise 6.2.1.: True/False Items:

1. F 2.T 3.T 4.F 5.T 6.F 7.F 8.T 9.T
10.F

Exercise 6.2.2.: Best choice (a, b, c, or d):

1.d 2.a 3.b 4.b 5.c 6.c 7.d 8.a 9.b
10.d

Exercise 6.3.1.: Word Formation Exercise:

1.cognitively	2.iterating	3.precise
4.conceptualize	5.functions	6.proposition
7.emphasize	8.functional	9.cognition
10.proposed		

6.4. Translation Exercises

6.4.1. Give an appropriate Persian equivalent for each of the following terms used in the passage.

۱. وب جهان گستر	۲. علوم اطلاع رسانی	۳. معماری اطلاعات
٤. علوم کتابداری	٥. کتابخانه های عمومی	٦. موتورهای کاوش وب
۷. منطق بولی	۸. ربط	۹.نیاز های اطلاعاتی
۱۰. کهنگی رقومی		

6.4.2. Give at least one appropriate Persian equivalent for each of the following terms.

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Unit 7

7.1. Vocabulary Exercises.

Exercise 7.1.1: Match the words in column (A) with their appropriate definitions in column (B)

1.b 2.i 3.h 4.e 5.g 6.j 7.d 8.f 9.c
10.a

Exercise 7.1.2.: Match the words in column (A) with their appropriate definitions in column (B)

1.j 2.f 3.e 4.g 5.c 6.d 7.i 8.a 9.h

10.b

Exercise 7.1.3.: Match the words in column (A) with their appropriate definitions in column (B)
1.a 2.f 3.b 4.i 5.j 6.c 7.g 8.d 9.h
10.e

Exercise 7.2..1 :True/False Items:
1.F 2.T 3.F 4.T 5.F 6.F 7.T 8.T 9.F
10.T

Exercise 7.2.2.: Best choice (a, b, c, or d):
1.c 2.c 3.b 4.d 5.a 6.a 7.b 8.d 9.d
10.b 11.d

7.3. Word Formation Exercise.
Exercise 7.3.1.: Word Formation Exercise:
1.Measurable 2.organization 3.responsibilities
4.particularly 5.reduced 6.traditional
7.representation

Unit 8

Exercise 8.1.1.: Match the words in column (A) with their appropriate definitions in column (B)
1.c 2.k 3.l 4.i 5.d 6.g 7.h 8.b 9.j
10.a 11.f 12.e

Exercise 8.1.2.: Match the words in column (A) with their appropriate definitions in column (B)
1.f 2.e 3.c 4.d 5.j 6.h 7.g 8.i 9.b
10.a

Exercise 8.1.3.: Match the words in column (A) with their appropriate definitions in column (B)
1.i 2.l 3.a 4.e 5.k 6.c 7.h 8.d 9.b
10.g 11.f

Exercise 8.2.1: True/False Items:
1.T 2.F 3.T 4.F 5.T 6.F 7.T 8.F 9.T
10.T

Exercise 8.2.2.: Best choice (a, b, c, or d):
1.b 2.d 3.a 4.c 5.c 6.a 7.d 8.b 9.c
10.c

Exercise 8.3.1.: Word Formation Exercise:

1.interpret	2. Conduct	3.measurable
4.reflection	5.measure	6.reflective
7.measurements		

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8.4.1. Give an appropriate Persian definition for each of the following terms derived from the passage.

8.4.2. Give at least one appropriate Persian equivalent for each of the following technical terms.

Glossary

A	
Accelerate	شتاباندن، تسریع کردن
Accessible	در دسترس، دست یافتنی
Acquire	به دست آوردن، اندوختن
Afford	تهیه کردن، موجب شدن، استطاعت داشتن
Aggregate	به هم پیوسته، متراکم
Algorithm	الگوریتم، محاسبه عددی
Alternative	متناوب، دیگر
Ambiguous	مبهم، دوپهلو
Analogous	متشابه، مانند، قابل مقایسه
Appear	ظاهر شدن، پدید آمدن
Architecture	معماری، سبک معماری
Argue	بحث و گفتگو کردن، مشاجره کردن
Assumption	فرض، قصد، گمان
Astonish	متحیر کردن، گیج کردن
Attribute	نشان، خصوصیت، نسبت دادن
Average	میانگین، حد وسط
Accelerate	شتاباندن، تسریع کردن
Accessible	در دسترس، دست یافتنی
Acquire	به دست آوردن، اندوختن
Afford	تهیه کردن، موجب شدن، استطاعت داشتن
Aggregate	به هم پیوسته، متراکم
B	
Binary	دودویی، دوتایی، جفتی
Boolean	بولی، بولین
Branch	شاخه، شعبه، بخش، رشته
Burgeon	جوانه زدن، شروع به رشد کردن
C	
Capability	قابلیت، توانایی

Casual	اتفاقی، غیرمهم، غیرجدی
Circumstance	شرح و تفصیل، رویداد
Clever	زرنگ، زیرک، باهوش
Cluster	خوشه، دسته، دسته بندی کردن
Codify	رمزی کردن، تدوین کردن
Cognitive	ادراکی، شناختی
Collar	یقه، گریبان
Commentator	مفسر
Commercial	تجاری
Commission	ماموریت، تصدی، فرمان
Commonly	بطور عادی، معمول
Community	اجتماع، تجمع
Compare	مقایسه کردن، قیاس
Compatible	همساز ، جور ، موافق ، سازگار
Complementary	متمم، متممی
Completely	تمام، کامل، کاملا
Complex	پیچیده، مختلط
Comprehensive	جامع، فراگیر، بسیط، گسترده
Computation	شمارش، محاسبه
Concede	واگذار کردن، تصدیق کردن
Conceivability	قابلیت تصور، امکان پذیری
Concept	مفهوم، فکر، عقیده
Conceptual	تصوری، درکی
Conduct	هدایت کردن
Confidently	مطمئن، مطمئنا
Conflict	کشمکش، برخورد، تضاد
Consequent	نتیجه بخش، نتیجه
Conservation	نگهداری، حفاظت
Consider	رسیدگی کردن، ملاحظه کردن، تفکر
Considerable	شایان، قابل توجه، مهم
Consideration	ملاحظه، رسیدگی، توجه
Consistent	سازگار، استوار ، نا متناقض

Constraint	اجبار، اضطرار، قید
Construction	ساختمان، عمارت، ساخت
Contains	شامل بودن، در بر داشتن، محتوی
Collocate	مرتب کردن، پهلوی هم گذاردن
Combination	ترکیب، آمیزش
Content	محتوا، گنجایش، حجم، مندرجات
Contrast	همسنجی، تباین، مغایرت، تقابل
Convenient	راحت، مناسب
Convention	عرف، قرارداد
Converge	توجه به یک نقطه مشترک، همگرایی
Coordinate	متناسب کردن، هماهنگ کردن، همپایه
Counterpart	نقطه مقابل، قرین، رونوشت، همتا
Courtesy	ادب و مهربانی، تواضع
Creation	آفرینش، ایجاد، خلق
Cumulative	انباشته، یکجا
Curve	منحنی، خم
D	
Degrade	تنزل کردن، تنزل دادن
Demonstrate	نشان دادن، ثابت کردن
Denominator	تقسیم کننده، مشتق کننده
Description	تشریح، توصیف
Dexterity	زبردستی، تردستی، چالاکی
Dilute	رقیق کردن، آ بکی کردن
Dimension	اندازه، بعد، ابعاد
Disadvantage	زیان، وضع نامساعد، اشکال، بی فایدگی
Discern	تشخیص دادن، تمیز دادن
Disciplinary	نظم دهنده، انضباطی، تعلیمی
Discipline	نظم، ترتیب، رشته
Distinction	فرق، تشخیص، امتیاز و برتری
Divide	تقسیم کردن، پخش کردن
Drawback	اشکال، مانع، زیان، بی فایدگی

E	
Effective	موثر، کاری
Efficient	کارآمد، موثر، باکفایت
Elaborate	استادانه ساخته شده، به زحمت ساخته شده
Encompass	احاطه کردن، حلقه زدن، شامل بودن
Encounter	رویارویی، مصادف شدن، دست به گریبان شدن
Encourage	تشویق کردن، تقویت کردن
Endeavor	تلاش، کوشش، جهد
Endorse	پشت نویسی کردن، امضا کردن
Enhance	بالا بردن، زیاد کردن
Enormous	بزرگ، عظیم، هنگفت
Envisage	روبرو شدن، درنظر داشتن، انتظار داشتن
Epoch	عصر، دوره، مبدا
Equivalent	هم ارض، معادل
Erect	عمودی، برپا کردن، بنا کردن
Establish	تاسیس کردن، بنا کردن
Estimate	تخمین زدن، ارزیابی، برآورد
Evaluation	ارزیابی
Evidence	گواه، مدرک، شاهد، ثابت کردن
Evolve	باز کردن، استنتاج، نمو
Except	مستثنی کردن، بجز، مگر
Execute	اجرا کردن
Executive	اجرایی، مجری، هیات رئیسه
Experience	تجربه، آزمایش، تحمل کردن
Expertise	تفتیش و رسیدگی، کارشناسی
Expire	منقضی شدن، سپری شدن
Expression	مبین، بیان
Extensive	پهناور، بسیط و وسیع
Extract	استخراج کردن، خلاصه، عصاره، بیرون کشیدن
F	
Fee	دستمزد، پول، شهریه
Element	عنصر

Eliminate	حذف و محو کردن، بیرون کردن، برطرف کردن
Elsewhere	درجای دیگر، به جای دیگر
Emphasis	تاکید، اهمیت، قوت
Emulate	رقابت کردن با، برابری جستن، پهلوزدن
Focus	نقطه تقاطع، کانون، متمرکز کردن
Forebear	نیا، جد
Fortuitous	اتفاقی، شانسی
Fraction	شکستن، ترک خوردکی، قسمت ، کسر
Frequency	بسامد، تکرار، تناوب
Frustrated	خنثی کردن، باطل کردن، ناامید کردن
Functional	کاربردی، وابسته به وظایف اعضا
Functioning	در حال کار
Fundamental	بنیادی، اساسی
Fuzzy	فازی
G	
Gauge	فرق، اندازه , درجه , مقیاس
Genre	نوع، قسم، طبقه، جنس
Germane	وابسته، مربوط، منتسب
Grid	درهم، تنیده، مجهز
H	
Hamper	مانع شدن، مختل کردن
Hesitate	تامل کردن، مردد بودن
Hew	بریدن، قطع کردن، شکاف
Hierarchical	سلسله مراتبی
Hitherto	تاکنون، تابحال، سابق بر این
Hone	صاف کردن
However	به هر حال، هنوز، ولی
Hunting	صید کردن، جستجو کردن در
I	
Identification	شناسایی، تعیین هویت، تطبیق، تمیز
Impact	تاثیر، فشار، تماس

Impel	وادار کردن، مجبور کردن
Implement	تکمیل کردن، انجام دادن
Improve	بهبود بخشیدن، اصلاح کردن
Incidental	شایع، ضمنی، حتمی
Increment	افزایش، ترقی، سود، توسعه
Flexibility	قابلیت انعطاف، خمش
Indicator	شاخص، مقیاس
Indices	Indexجمع کلمه
Individual	منحصر بفرد، شخصی
Infrastructure	پیدایش، شالوده، زیربنا، ساختمان
Ingredient	جزء، عوامل، عناصر
Initial	نخستین، اصلی، بنیادین، ابتدایی
Initiative	ابتکار، قریحه، پیشقدمی
Innovate	نوآوری، ابتکار، بدعت نهادن
Institute	تاسیس کردن، موسسه، مقررات
Institution	موسسه، بنگاه، عرف
Intellectual	عقلانی، ذهنی، فکری
Intelligence	هوش و زیرکی، آگاهی، خبرگیری
Intense	زیاد، سخت، فشرده
Interact	اثرگذاری، اثرمتقابل
Interchange	مبادله کردن، تبدیل کردن
Intercourse	مراوده، معامله، داد و ستد
Interdependence	اتکا، وابستگی
Interdisciplinary	میان رشته ای
Interface	رابط
Interpret	تفسیر کردن، ترجمه کردن
Interpretation	شرح، بیان، تعبیر و تفسیر
Intricacy	پیچیدگی، تودرتویی، ریزه کاری
Inventory	دارایی، فهرست اموال، سیاهه
Investigation	رسیدگی، تحقیقق، بررسی
Irrelevant	نامربوط، بی ربط

L	
Legibility	خوانایی، خوانا بودن
Length	درجه، درازا، مدت
Lexicon	فرهنگ، کتاب لغت، قاموس
M	
Mandatory	اجباری
Manipulate	اداره کردن، درست کردن، دستکاری کردن
Marshal	سردسته، به ترتیب نشان دادن، مرتب کردن
Measure	اندازه گیری، سنجیدن، اندازه
Measurement	اندازه، سنجش
Maintenance	نگهداری، ابقاء، تعمیر
Mandate	وکالتنامه، اختیار، حکم
Migrate	مهاجرت کردن، کوچیدن
Misinterpret	به غلط تفسیر کردن
Modify	اصلاح کردن، تغییر دادن، تعدیل کردن
Motivate	انگیختن، برانگیختن، به حرکت در آوردن
O	
Obsolescence	کهنگی، منسوخی، متروکی
Occur	رخ دادن، واقع شدن، اتفاق افتادن
Opportunity	فرصت، مجال، فراغت
Organization	سازماندهی، سازمان و تشکیلات
Otherwise	طور دیگر، وگرنه، در غیراینصورت
Outcome	برآمد، حاصل، نتیجه
Overlap	همپوشانی، رویهم افتادن دو لبه چیزی
Overlook	مسلط یا مشرف بودن، چشم پوشی کردن
P	
Particular	مخصوص، ویژه، منحصر بفرد
Perfect	کامل، بی عیب، تمام عیار، کامل کردن
Performance	اجرا، کارآیی، انجام
Period	دوره، نقطه
Permanently	پایدار، ثابت، ماندنی

Permit	اجازه دادن، اجازه، ندیده گرفتن
Phenomenon	پدیده، نمود، تجلی
Popularize	مشهور کردن، عامه پسند کردن
Possibility	امکان، احتمال
Practice	تکرار، تمرین، ممارست
Precise	دقیق و مختصر کردن، مختصر و مفید، صریح
Predict	پیشگویی کردن، پیش بینی کردن
Predictable	قابل پیشگویی یا پیش بینی
Preliminary	مقدماتی
Premise	قضیه اثبات شده، فرضیه
Prescribe	تجویز کردن، نسخه نوشتن، تعیین کردن
Preserve	حفظ کردن، نگه داشتن، باقی نگهداشتن
Primarily	ابتدایی، مقدماتی، اصلی، بنیادی
Probabilistic	احتمالی
Probability	احتمال
Procedure	رویه، طرز عمل، روش
Process	فرایند، مراحل، روند
Prodigious	حیرت آور، شگفت انگیز، خارق العاده
Produce	تولید کردن، ارائه کردن، محصول
Proliferation	تکثیر، ازدیاد
Prompt	بی درنگ، سریع، برانگیختن
Provide	آماده کردن، فراهم کردن، تدارک دیدن
Q	
Quantify	کمی کردن، کمیت را بیان کردن، محدود کردن
Quantitative	کمی
Query	پرس و جو
R	
Rank	نظم و ترتیب، دسته بندی
Recall	بازیابی، فراخواندن، بیادآوردن
Reduce	کاستن، تقلیل دادن، کم کردن
Refine	پالودن، تصفیه و خالص کردن، تصحیح کردن

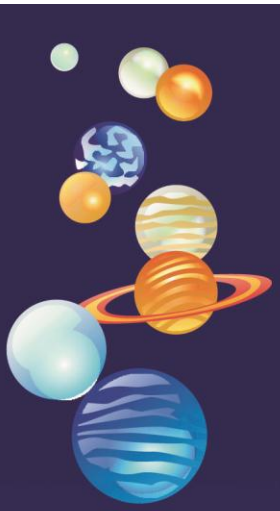
Relentless	بی رحم
Relevant	مربوط، مناسب، مطابق
Repository	واسپاری، انبار، مخزن
Representation	نمایش، ارائه، نمایندگی
Requirement	نیاز، تقاضا، لازم
Respect	احترام، ملاحظه، رابطه، نسبت
Response	واکنش، پاسخ
Responsibility	مسئولیت، عهده، ضمانت، پاسخگویی
Retrieval	بازیابی
Retrieve	بازیافتن، دوباره بدست آوردن، حصول مجدد
Retrieving	بازیافتی
Revise	تجدید نظر کردن، اصلاح کردن، بازبینی
Revolution	شورش، انقلاب، گردش
Revolutionary	انقلابی، چرخشی
S	
Scalar	نردبانی شکل، قابل سنجش، سنجیدن
Scattering	پراکندگی، تفرق
Scholar	دانشور، محقق
Scrutiny	موشکافی، بررسی، مداقه
Seminal	بدوی، اصلی
Sensitive	حساس
Separate	مجزا، تفکیک کردن، جداگانه
Shrink	جمع شدن، خالی شدن، عقب کشیدن
Significant	مهم، بامعنا
Simultaneous	همزمان، وقوع با هم
Snapshot	تصویر لحظه ای، عکس فوری
Solely	فقط، منحصرا، به تنهایی
Sophisticate	خبره و پیشرفته کردن، سفسطه کردن
Specific	ویژه، مخصوص، معین
Spectacular	تماشایی، دیدنی، غیر عادی
Spend	صرف کردن، گذراندن، خرج کردن، تحلیل رفتن
Statement	اظهار، اعلامیه، شرح، توضیح

Statistical	آماری
Statistics	آمار، فن آمارگیری، آمار شناسی
Steering Committee	کمیته راهبری
Storage, Store	ذخیره سازی، مخزن، اندوختن، موجودی
Strategy	فن و تدبیر، استراتژی، لشکر آرایی
String	به صف کردن، رشته، منفصل شده، ریش ریش
Submission	واگذاری، مطیع، فرمانبرداری
Substantial	ذاتی، جسمی، اساسی، مهم
Supplement	متمم، مکمل، ضمیمه
Surrogate	جانشین، قائم مقام، وکیل شدن
Surveillance	نظارت، مراقبت، پایداری
Syndetic	متصل شده، پیوسته، ربطی
T	
Terminology	اصطلاح شناسی، مجموعه اصطلاحات
Threat	تهدید، تهدید کردن، ترساندن
Toil	رنج و محنت، کشمکش، مجادله، دام
Traditional	سنتی، معمول، معمولی، سنت گرایی
Traverse	مانع، اشکال، معبر، مسیر
Typical	نوعی، نمونه
U	
Underlying	اساسی، اصولی، متضمن
Usability	قابلیت استفاده، کارآیی
Usage	کاربرد، استعمال، عرف، معمول
Usher	راهنما، راهنمایی کردن
V	
Variation	تنوع، بی ثباتی، تغییر، دگرگونی
Vector	بُردار
Venture	جرات و جسارت، مخاطره، اقدام کردن
Via	از طریق، توسط، بوسیله...
Virtuous	بافضیلت، باتقوا، ارزشمند

Vision	دید، تصور، منظره
W	
Well known	مشهور، شناخته شده، محبوب

مادسیج

شبکه آموزشی – پژوهشی ایران



مادسیج، پنجره ای به یادگیری نوین

مادسیج مخفف کلمه madsage **به معنای شیفته دانایی و در مفهوم بومی به معنای دهکده علم و دانش ایران می باشد. در این مفهوم اشاره به دو کلمه سیج (یکی از روستاهای زیبای کشورمان) و ماد (یکی از اولین اقوام ایران) می باشد.**

شبکه آموزشی– پژوهشی مادسیج (IRESNET**) با هدف بهبود پیشرفت علمی و دسترسی هرچه راحت تر جامعه بزرگ علمی ایران، در فضای مجازی ایجاد شده است. هسته اولیه مادسیج از طرح پایان نامه کارشناسی ارشد جناب آقای رضا محمودی دانش آموخته رشته مدیریت آموزشی دانشگاه تهران که با راهنمایی استاد گرانقدر جناب آقای دکتر عبادی معاون دانشگاه مجازی مهر البرز می باشد، بر گرفته شده است .**

IRan Education & Research NETwork