Cybersecurity: An Etymological Perspective A Research Paper

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Abstract

This paper is an attempt to carefully examine the term "cyber" from the etymological perspective. During the course of the development of language, new words appear and old words may disappear. This phenomenon occurs according to the urgent need of language users inasmuch as the many and various disciplines and concepts develop and attain new representations for which there are no expressions; hence, the newly born words are expressive of them. The word "cyber" (first use was known in 1992, according to Webster's Merriam Dictionary) has been first used as a prefix taken from the Greek expression "cybernetics" which means science of communication and control theory and next as a noun used to form many and various compounds according to the urgent needs of language to modify new representations developed according to the fast development of science and technology. There are many words derivations of this expression when used as a prefix, accompanied with words used in disciplines such as banking, insurance companies, automobiles, finance, mobile phones, software, computers, travelling, school, colleges, studies, health and others. There may be similar terms related to the internet category. When the term "cyber" is entered into the box of the website for searching, one can check out many full forms given so as to find the choice of one's needs. Hence, there appears the development of terms such as "cyberpet, cyberphobia, cyberpunk, cybersecurity, cybersex, cyberspace, for example (see the Appendix at the end of this paper).

المستخلص

يعد هذا البحث محاولة اختبار دقيق لمصطلح (سيبر) من منظور دراسة أصل الكلمات. فمن خلال تطور اللغة تظهر كلمات جديدة وقد تختفي كلمات قديمة، وتحصل هذه الظاهرة وفقا للحاجة الملحة لمستخدمي اللغة الناتجة عن تطور العلوم والمفاهيم المختلفة وترتقي الى مخرجات جديدة ليس لها اي تعبير مسبق. ان كلمة (سيبر) التي كان الاستخدام الاول لها في العام ١٩٩٢ وفقا لمعجم ميريم وببستر، وقد استخدمت اولاً كعبارة بادئة مأخوذة من العبارة الاغريقية (سيبرنتيكس) التي تعني علم الاتصالات ونظرية السيطرة او علم الضبط، وقد استخدمت ايضا كاسم لصياغة كلمات مركبة ومتنوعة وفقا لحاجة اللغة الملحة الى وصف معلومات جديدة تطورت بحسب التطور السريع للعلم والتكنولوجيا. وهناك العديد من الكلمات المشتقة لهذه العبارة عندما تستخدم كبادئة مصحوبة مع كلمات تستخدم في مختلف العلوم المصرفية وشركات التأمين والمركبات والاموال والهاتف النقال وبرامج العقل الالكتروني والحواسيب والسفر والمدارس والكليات والدراسات والصحة وغيرها من العلوم. ربما تكون هنالك كلمات مشابهة لهذه الفئة الالكترونية، فعندما تم إدخال المصطلح (سيبر) في صندوق المواقع الالكترونية لغرض البحث كيما نجد الكلمة التي نحتاجها تظهر للعيان العديد من العبارات الكاملة ذات الصلة. لذلك نجد نشوء المصطلحات مثل اللعبة السبرانية و الخوف السبراني و لعبة الفيديو السيبرانية والأمن السيبراني والجنس السيبراني والفضاء السيبراني، على سبيل المثال (انظر الملحق في نهاية البحث).

Cybersecurity: An Etymological Perspective

This research paper intends to trace the origin and significance of the term "cyber" and how it has been entered into dictionaries whatsoever. One of the methods of creating new words is the method of blending an initial of a word with a part of another word such as the blending of the term "text" with the term "expectation" so that the new term is "textpectation" which means "the anticipation one feels when waiting for a response to a text message" (Nordquist, 2019). This blending may also be called, as Lewis Carroll suggests, a portmanteau word which may be defined as "a word or morpheme whose form and meaning are derived from a blending of two or more distinct forms (such as *smog* from smoke and fog)" (Webster's Merriam Dictionary). One of the ways that gives access to new words in the English language is the method of blending, not to mention the invention of new words.

Language is an ever changing means of communication. As to the English language, it has developed over centuries, whose new words have come from two sources—the adjacent languages and the loan words from other languages. As a matter of fact, there are different words having various forms giving the same meaning. This phenomenon occurs due to the fact that the English language has been based on many different languages from which it borrows its resources. At the same time, one cannot deny the fact of word formation which has so far been eligible and which has enriched the language. Since language always evolves and expands, some of its words disappear insofar as they are no longer in use, and some words assume themselves into being due to the changing context of place and time and the needs of society. The process of creating new words is called word derivation (Nordquist, 2019). The most common types of word derivations are many and various, which guide the researcher to illuminate the ways how the term "cyber security" comes into being, of which affixation is of paramount importance in this respect:

Most of the words in the English language have been created by means of using prefixes and suffixes—affixation—which occurs in words such as "semi-vowel," "handsomeness" and "deployable":

From a logical perspective, affixation is probably the type of new work formation that is easiest to figure out or to use to "create" new words in casual speech. It relies on the fact that these suffixes or prefixes have known, stable definitions, so they can be attached to any existing word to layer their meaning. Affixation may create "official", formal words as well as slang. (Nordquist, 2019)

It is generally accepted that the word "cyber" is not an acronym. Rather it is a prefix derived from the term "cybernetics" which is employed to point to subject matters related to computers and/or networks. In its broad meaning, the term "cybernetics" denotes the science of communication and control theory that is concerned especially with the comparative study of automatic control systems and brain (such as the nervous system and brain and mechanical-electrical communication systems) (Merriam Webster's Dictionary). Hence, this prefix has been attached to many words to form new words with new meanings. According to "the ability of a word to endure and carry meaning across industries and cultures [which] relies on the intrinsic torque it contains to move through generations and innovations – and how well it endures colloquial adaptations" (Dawkins, 2022). Dawkins further comments that the prefix "cyber" has come to be used as a noun covering all ethereal things so as we imagine that we are living in "a cyber space" (Dawkins, 2022). Concerning the definition of the term "cybersecurity," it can be inferred that it means all the representations—physical and abstract—employed to protect all things related to the information preserved by the network in all its

manifestations and as Craigen, Diakun-Thibault, and Purse (2014) put it: "Cybersecurity is the organization and collection of resources, processes, and structures used to protect cyberspace and cyberspace-enabled systems from occurrences that misalign de jure from de facto property rights."

Dawkins asserts that the term "cyber" has not been a blend of two words, or it is a portmanteau formed from other expressions, and that the evolution of this term has been morphed and discussed across time. However, Dawkins confirms that the term "cyber" has been rooted in the English vernacular, whose origin is very old, for it can be traced to the Greek "translations of the Old Testament" (Dawkins, 2022). It has been pointed out that before the appearance of the term "cybersecurity," there exists the term "cybernetics," which was highlighted in the late 1940s to indicate "control systems and communications between people and machines." (Dawkins, 2022). Hence the term cybernetics influences many disciplines. The term "cybernetics" has been of Greek origin. It can be traced to the Greek term "kubernēsis," and as it has been explicated by Dawkins (2022):

Cybernetics derives from the Greek kubernētēs, which refers to a pilot or steersman. Related is the Greek word kubernēsis which means "the gift of governance" and applies to leadership. Because the study of cybernetics involves the fields of computer science, engineering, and biology and their advancements, it calls to mind all things futuristic. (Dawkins, 2022)

Therefore, the term cybersecurity points to all the practices employed for the sake of protecting all kinds of electronic systems such as computers and computer programs which manage access to a centralized resource or service in a network. It also indicates protecting data from malicious attacks; hence, cybersecurity is intended to protect information and this is the reason why it is often called (INFOSEC) which is the acronym of Information Security, or is sometimes called (IA) which means Information Assurance, and System Security.

It has been noted that cybersecurity has come to existence virally and has developed a highly innocent pure virus in this regard, and the rapid evolution of the cybersecurity appears because of the viral yet faultless development of cybercrimes which requires a cybercrime law:

Cybersecurity is becoming increasingly significant due to the increased reliance on computer systems, the Internet and wireless network standards such as Bluetooth and Wi-Fi, and due to the growth of smart devices and the various devices that constitute the 'Internet of things'. Owing to its complexity, both in terms of politics and technology, cybersecurity is also one of the major challenges in the contemporary world. Where did it all begin? We take a look at the history of cybersecurity from inception to the present day.
(Vikki Davies, 2021)

As to the way how the term "cyber" comes to existence, it can be suggested that the term "cyber" is a new term complete in itself, based on the term sybernetics from which some derivational words such as "cyberspace" and "cyberpunk" and others come into being to protect all things related to the internet tasks from crime down to retail happenings. Concerning the idea whether the term "cybersecurity" is one or two words, it must be pointed out that it is considered one word inasmuch as many literary media and dictionaries such as the Merriam Dictionary consider it one word, not to mention the fact that it should not be hyphenated.

Conclusion

It appears that the term cybersecurty comes into being after the breakthroughs concerning the tasks of the internet. The term "cyber" has long been existent as part of the Latin word

"cybernetics" which means the theory of protection. Since network information has been pervious to strange attackers, there appears the need to borrow the term and blend it with security.

Due to the need of using new words that have been stipulated by the needs of society, new words and terms appear to the surface. Because of the invention of particular breakthroughs concerning the revolution of communication and information, there appears the need for the process to protect the latter from damage, pirating and terrorism. It has been found that the best term to represent such a process is the term "cyber" that is based on the Greek term "cybernetics" which means, in simple terms, the study of controls of any system by using technology. This points to the system that is capable of receiving, preserving, keeping and processing bits of information to be used for its own. Hence, there appears a pretty good group of terms according to the development of communicative and informational representations throughout the network (see the Appendix).

References

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Appendix

Here is an item-by-item review of some common words that have been associated with the term "cyber" and their definitions according to Webster's Merriam Dictionary unless otherwise indicated.

Term	Definition
Cyber	**Computer; computer network**
Cyber-	**Computer; computer network**
Cyberactivist	**Online activist**
Cyberart	**Digital art**
Cyberattack	**an attempt to gain illegal access to a computer or computer system for the purpose of causing damage or harm**
Cyberattacker	**In the sense above**
Cyberattackers	**In the sense above**
Cyberattacks	**In the sense above**
Cyberbullied	**the electronic posting of mean-spirited messages about a person (such as a student) often done anonymously**
Cyberbullies	**cyberbullying. noun. cy·ber·bul·ly·ing ˈsī-bər-ˈbu̇l-ē-iŋ : the electronic posting of mean-spirited messages about a person often done anonymously**

Cyberbully	cyberbullying. noun. cy·ber·bul·ly·ing ˈsī-bər-ˈbu̇l-ē-iŋ : the electronic posting of mean-spirited messages about a person often done anonymously
Cyberbullying	In the sense above
Cyberbullyings	In the sense above
Cybercafe	noun. cy·ber·ca·fe ˈsī-bər-ka-ˈfā : a café or coffee shop providing computers for access to the Internet.
Cybercafes	In the sense above
Cybercharacter	Online informational character
Cybercitizen	an active participant in the online community of the Internet cybercitizens have an obligation to treat one another with respect.
Cybercitizens	In the sense above
Cyberconference	Online conference
Cybercrime	cybercrime. noun. cy·ber·crime. ˈsī-bər-ˌkrīm. criminal activity (as fraud or theft) committed using a computer especially to illegally access, transmit, or manipulate data.
Cybercrimes	In the sense above
Cybercriminal	criminal activity (such as fraud, theft, or distribution of child pornography) committed using a computer especially to illegally access, transmit, or manipulate data.
Cybercriminals	In the sense above
Cyberculture	a set of shared attitudes, practices, and goals associated with the world of computers and the Internet.
Cybercultures	In the sense above
Cyberdefense	Also known as cybersecurity, it's the detection, prevention, and response to cybercrime. It more often relates to military and government systems. (Jerald Dawkins, 2022)
Cyberdelic	Made from cyber and psychedelic, cyberdelic can refer to art, raves, or immersive experiences meshing the internet with psychedelic drugs. (Jerald Dawkins, 2022)
Cyberdissident	Online opponent
cyberdouble	Online alternative (informational)
cyberimmortality	Online immortality
Cybernated	In the sense below
Cybernation	the automatic control of a process or operation (as in manufacturing) by means of computers
Cybernations	In the sense above
Cyberfraud	Online perversion of truth

Cybernaut	an active participant in the online community of the Interneta *cybernaut* who bookmarks all of the weird sites that he stumbles across
Cybernauts	active participants in the online community of the Interneta *cybernaut* who bookmark all of the weird sites that he stumbles across
Cybernetic	the science of communication and control theory that is concerned especially with the comparative study of automatic control systems (such as the nervous system and brain and mechanical-electrical communication systems)
Cybernetical	In the sense above
Cybernetically	Adverb of the sense above
Cybernetician	A specialist in cybernetics
Cyberneticians	Cyberneticians
Cybereneticist	Cybernetician
Cyberneticists	Cyberneticians
Cybernetics	the science of communication and control theory that is concerned especially with the comparative study of automatic control systems (such as the nervous system and brain and mechanical-electrical communication systems)
Cyberops	Short for cyber operations, cyberops is an interdisciplinary area of study that covers cyberspace and operations and ranges from technical to non-technical. (Jerald Dawkins, 2022)
Cyberporn	pornography accessible online especially via the Internet.
Cyberporns	In the sense above
Cyberpunk	science fiction dealing with future urban societies dominated by computer technology.
Cyberpunks	In the sense above
Cybersafty	safe practices when using the Internet to prevent personal attacks or criminal activity.
Cybersecurities	measures taken to protect a computer or computer system (as on the Internet) against unauthorized access
Cybersecurity	measures taken to protect a computer or computer system (as on the Internet) against unauthorized access or attack/ The first use of cybersecurity as a word dates to 1989 (the same year cyberporn came into usage) but only cybersecurity prevailed as an expression (Jerald Dawkins, 2022)
Cybersexes	online sex-oriented conversations and exchanges.
Cyberspace	the online world of computer networks and especially the Internet
Cyberspaces	In the sense above
Cyberspeak	jargon relating to or used in online communications

Cyberspeaks	In the sense above
Cybersufer	one who surfers the Internet
Cybersufers	In the sense above
Cyberterrorism	terrorist activities intended to damage or disrupt vital computer systems
Cyborg	This technically is the marriage of cybernetic and organism, it refers to something composed of both organic and biomechatronic parts. (Jerald Dawkins, 2022)
Cybrarian	A cyber librarian, or cybrarian for short, is a researcher or librarian that relies mostly on the internet for their information. (Jerald Dawkins, 2022)
And last but not least: Cyber Monday	While neither a portmanteau nor compound word, is one of the most well-known phrases associated with the word cyber. It follows Black Friday (the day after Thanksgiving) and is an online shopping day that has now expanded to Cyber Week. (Jerald Dawkins, 2022)