The Use of Arabic Electronic Dictionaries in The Industrial Revolution Era 4.0

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Abstract- **For students of Arabic in Indonesia who are non-native speakers, dictionaries are media and also learning resources that play an important role in understanding language. Now, along with the birth of the industrial revolution era 4.0, printed versions of Arabic dictionaries have evolved into electronic dictionaries, both website-based and in the form of mobile applications which are certainly more efficient and effective, easier to use and faster to update. In addition, the language learning model also began to shift from conventional learning to e-learning and blended learning by utilizing various application features in cyberspace. Therefore, it is important for the education world to know the ins and outs of electronic dictionaries about the type, type, systematics, advantages and disadvantages. This paper describes electronic dictionaries that are popularly used by teachers and students of Arabic language in Indonesia. Sources of data in writing come from the results of the author's dissertation after mapping Arabic dictionaries commonly used in Indonesia.**

Keywords- Electronic Dictionary; Industrial Revolution; E-learning

I. INTRODUCTION

The Industrial Revolution has entered a new phase, now known as the "4.0 Industrial Revolution". This era is marked by the use of the internet and digital technology as the backbone of the movement and network of human and machine connectivity that moves fast, without limits and comprehensively to enter all joints of human life, including in the field of education.[1] The use of the Internet of Things in the world of education is important so that there are shifts and changes in all things related to education.

Books turn into e-books, libraries become e-libraries, classroom management is enough to be operated through website pages and mobile-based applications such as: moodle, edmodo, google classroom, and so on. Likewise in the case of translating foreign languages, including Arabic, students in Indonesia have begun to leave print dictionaries and switch to electronic dictionaries that they can use quickly, anywhere and at any time only through the mobile in their hands.[2]

This change in learning styles and Arabic translation requires teachers, students and all those involved in the world of education to have literacy skills in the field of educational technology. Not only literacy skills in the field of teaching materials and curriculum development, but also in the field of programming languages, learning device development models, and periodic evaluations to find out the positive and negative aspects of the effects of industrial revolution 4.0 in the world of Arabic education and learning.

This article attempts to describe the author's research and observations for the past 10 years about the change and development of electronic Arabic dictionaries which are popularly used by teachers and students in Indonesia. The author sees that the industrial revolution era 4.0 has a major influence in the field of Arabic lexicology and lexicography.

If we look at the history of the development of Arabic dictionaries since the beginning of the emergence of Arabic dictionaries in the era of Kholil bin Ahmad al-Farahidi in 170 Hijriyah (2nd Century AD) until 1900, it is known that the systematic arrangement of Arabic dictionaries has evolved and many times new systematic emergence.[3] At least, according to the results of Imel Badi 'Ya'qub, there are 5 systematic Arabic dictionaries, namely: phonetic system (shauthi), letter system (hija'i), literary system (adabi), alphabet system (alfaba'i), and the articulation system (nuthqi).[4]

The five systems above have been used for several centuries in the field of lexicology-lexicography and implemented in print versions of Arabic dictionaries before electronic dictionaries appear. Each systematics has a special character and way of finding vocabulary, explaining and understanding meaning, and translating it from one language to another. However, after electronic dictionaries appeared, the five printed versions of the Arabic dictionary system began to be abandoned because apparently electronic dictionaries were much easier to use, developed and liked by teachers and students in learning Arabic and translating them into other languages, especially by non-native speakers like in Indonesia.

This phenomenon encourages researcher who have long concentrated in the field of lexicology-lexicography to return to the study of dictionaries, especially electronic dictionaries.

II. DICTIONARY AND ARABIC LEARNING

A dictionary is a book or reference that contains a large number of vocabulary which are generally arranged according to a particular systematics in alphabetical order, or thematically, or other systems according to the purpose of composing a dictionary.[5] A complete and perfect dictionary is a dictionary that is able to collect all the language vocabulary, equipped with meaning and interpretation of its meaning, there is a word pronunciation system, word derivation, to the example of the use of words in sentences so that users of dictionary can understand each word's meaning in context.[6]

In conjunction with learning Arabic, studies of dictionaries studied in lexicology and the art of composing dictionaries

were studied in lexicography. Lexicology is a part of pure linguistics, while lexicography is part of applied linguistics. Thus, lexicology and lexicography are branches of linguistics as pedagogy-linguistics or language education is also part of applied linguistics.[7]

Based on the body of knowlegde above, it is known that there is a close relationship between dictionaries and Arabic learning. On the other hand, dictionaries also function as teaching media, learning resources, as well as curriculum content so that in the learning process of Arabic, dictionary positions are very important for teachers and students, especially non-native speakers.[8]

Historically, dictionaries were the culmination of language codification work. In other words, a nation's civilization can be measured by the codification of its language (dictionary). In the history of codification of Arabic, Arabs can be said to be late compared to other nations such as Ancient Egypt, Greece, China and India. The Arabs only codified the language in the form of a dictionary in 170 Hijriyah by Khalil bin Ahmad al-Farahidi with his dictionary entitled "Al-Ain".[9]

Why are Arabs late in codifying languages and composing dictionaries? According to Ahmad Amin because of three factors, namely: the nomadic tradition of the Arab nation, fond of fighting, and prioritizing spoken language rather than written language. [10] Now, in the era of the industrial revolution 4.0, the Arabs were also left behind in the field of composing an electronic dictionary. This is because the direction of digital technology development is still in the West such as Europe, America and Japan. Therefore, innovation and new research are needed related to the development of Arabic dictionaries along with the development of science, science and technology.

III. VARIOUS ELECTRONIC DICTIONARIES

Electronic dictionaries are dictionaries that can be accessed through electronic devices such as computers, cellphones, and so on.[11] Now, electronic devices are digital based start leaving analogues system. Databases stored in electronic devices also use Big Data technology and Cloud technology. In addition, almost all dictionary applications have been mobile-based which can be taken anywhere and accessed anytime via a mobile device.

In the past, the author divided electronic dictionaries into 3 parts, namely computer software-based dictionaries, website page-based dictionaries, and mobile application software-based dictionaries.[2] Now, almost all electronic dictionary applications can be accessed on all devices, both computers, websites, and mobile applications.[12] One of the most popular electronic dictionaries is Google Translate. This dictionary is not only based on websites, but also in the form of mobile applications. Not only can be accessed via a computer, but can also be used via a smartphone.

From a systematic aspect, electronic dictionaries are designed so easily that users simply type the word they want to know the meaning of, press enter, then the meaning of the word appears. Unlike the dictionary printed version that requires users to learn first the systematics of each dictionary

they use. In terms of language, almost all electronic dictionaries today are multi-lingual. Every electronic dictionary produced by developers has been able to translate from one language to several other languages with unlimited amounts of data. While the printed version dictionaries are almost impossible to contain more than 3 languages due to paper limitations.

In terms of content, in explaining the meaning of words, electronic dictionaries not only display text, but also sounds, images and videos so that users become more aware. Therefore, electronic dictionaries are multimedia because they have fulfilled 5 multimedia elements (text, images, sound, video, animation). This is clearly not possible to be filled by printed versions of conventional dictionaries.

IV. RESULTS OF ELECTRONIC DICTIONARY RESEARCH

Researchers distributed electronic questionnaires using the Google Form and WhatsApp applications to 120 respondents. They are students at the Department of Arabic Language Education, Faculty of Tarbiyah and Teacher Training, Maulana Malik Ibrahim State Islamic University, Malang. These students attend the shinaat al-mu'jam (lexicography) course and the researcher is the lecturer in the subject. This questionnaire contains questions about the Arabic dictionary they use in learning Arabic.

Of the 120 respondents, 112 people (93%) claimed to have an Arabic dictionary, while 8 people (7%) claimed to have no Arabic dictionary. The reason they have an Arabic dictionary is because: (1) they need an Arabic dictionary to understand the meaning of the word, (2) make it easier to learn Arabic and translate it into Indonesian, (3) required by their teacher to have an Arabic dictionary.
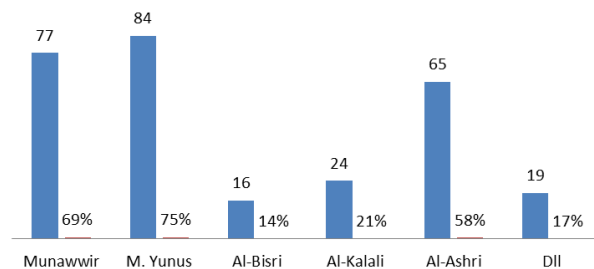
Of the 112 respondents who have Arabic dictionaries, it is known that there are 5 popular dictionary names that Arabic students have. 77 people (69%) possess the Arabic-Indonesian Al-Munawwir Dictionary by KH Warson Munawwir; 84 people (75%) have an Arabic-Indonesian Dictionary by Mahmud Yunus; 16 people (14%) had the Indonesian-Arabic Arabic-Indonesian Al-Bisri Dictionary Adib Bisri and Munawwir A. Fatah; 24 people (21%) have the Indonesian-Arabic Al-Kalali Dictionary by As'ad Muhammad Al-Kalali; 65 people (58%) had Al-Ashri Dictionary by Atabik Ali and Ahmad Zuhdi Muhdor. While 19 people (17%) have 1 of other dictionaries such as the As-Sayuti Dictionary by R. Taufiqurrochman, Al-Qolam Dictionary by Ahmad Sya'bi, Muthohhar Dictionary by Ali Mutahar, Modern Al-Kamal

Dictionary by Kasirun Rahman, Dictionary Al-Kamil by Ahmad Najih, and so on.
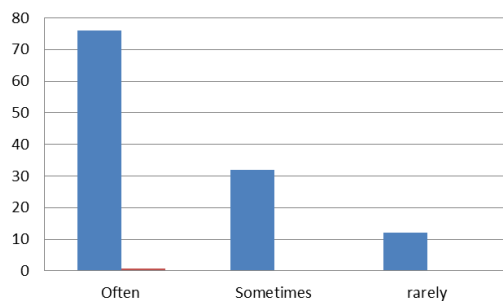
About electronic dictionaries, 120 respondents (100%) claimed to have used electronic dictionaries, both through computers and cellphones. 76 people (63%) admitted frequently, 32 people (27%) admitted sometimes, and 12 people (10%) claimed to rarely use electronic dictionaries.

From the questionnaire, researchers found several android-based electronic dictionary applications, including: Arabic Indonesian Dictionary (Muslim Research and Technology), Almaany Arabic Indonesian Dictionary, Arabic Indonesian Dictionary (Kodelokus), Complete Arabic Dictionary (Andi Unpam), Arabic Dictionary (Think Digital), Al-Munawir Arabic-Ind Dictionary (Nupnup), Offline Arabic Language Dictionary (Bali Media), Thematic Arabic-Indonesian Dictionary (ainStudio), Complete Indonesian Arabic Dictionary (Digital Yellow Book), Indonesian Arabic Translator (GK Apps), Arabic Indonesian Dictionary (FuiRegistrado), Arabic Indonesian Offline Dictionary (EasyGoing). All include bilingual dictionaries (Arabic and Indonesian).

While the multilingual Android-based electronic dictionary used by respondents, among others: Google Translator (Google), Free Language Translator (Best 2017), Multilingual Dictionary Free (anshulapppz). Multi-Language Translator (NyxCore). All of these dictionaries support multi-language translations from Indonesian to Arabic, English, and several other languages.

The reason for the respondents using an android-based electronic dictionary, among others: (1) easy to use, (2) faster in the search for the meaning of words, (3) utilizing the functions of smartphones owned, (4) dictionaries printed versiondifficult to carry while electronic dictionaries are more practical, (5) vocabulary in the print dictionary is relatively incomplete, (6) electronic dictionary features are more complete and varied, (7) electronic dictionaries are cheaper, even free.

V. ELECTRONIC DICTIONARY ANALYSIS

Looking at the profiles of the respondents, they are part of Generation Z because they were born above 1995. On average they were born in 1999 and 2000. That is, since they were born into the world, they have been in the computer and digital era. Another proof of Generation Z is that they all have smartphones and have accounts on social media such as Facebook, Instagram, Twitter, etc. so they are not blind to modern digital-based technology. Therefore, it is natural that they use electronic dictionaries to help them learn foreign languages such as Arabic.

Based on the authors' observations, it was found that electronic dictionaries developed rapidly, including Arabic dictionaries. Electronic dictionary application developers not only come from overseas Indonesia or large companies that are specialized in producing mobile applications. However, there are many developers who come from Indonesia and even produced individually. This is because the Android-based application is indeed open source, giving the opportunity for anyone to compete to create electronic dictionaries.

The development of this open source Android-based electronic dictionary, in terms of quantity, is good because it is capable of producing as many dictionaries as possible with various advantages and features that continue to innovate and be creative. However, from the aspect of quality, electronic dictionaries in the Playstore market are not all guaranteed in language translation, especially if produced by individuals or companies that are not supported by linguists experts in the field of language and research. Therefore, the accuracy of the truth in the translation of electronic dictionaries needs to be considered and selected.

The problem of accuracy of truth in Arabic electronic dictionaries must be a common concern because dictionaries are positioned as learning resources and references for students. If there is an error in the dictionary contents, then the dictionary misleads its users. What's more, the majority of dictionary users learn languages independently so that sometimes they don't realize that the electronic dictionaries they are currently studying are need to revisions and corrections.

When viewed from the features in the application of electronic dictionaries, researchers found a very rapid development compared to a few years ago. Electronic dictionaries are currently able to translate words, texts, sentences to phrases. Users can choose multiple languages simultaneously and one click, they have got their meaning. In addition, the electronic dictionary has also been able to translate sounds, listen to translations, voice input and output, copy translations (clipboard), features attractive graphics, artistic color themes, supports multiple languages up to more than 100 languages in only one application electronic dictionary.

One of the fundamental drawbacks of electronic dictionaries, according to researchers, is the translation of text or sentences from one language to another, including Arabic.[6] According to the results of the experiments conducted by the researcher, it was found that the text translation feature in the Arabic electronic dictionary was unable to produce good and correct translations. Researchers found many grammatical errors in the translation of Arabic such as the translation of single and plural words, the words *mudzakkar* (masculine) and *muannas* (feminine), the use of *dhomir* (pronouns), the words *ma'rifat* and *nakirah*, and others. From the grammatical aspect, researchers still have not

found an electronic dictionary that is able to translate text or sentences properly and correctly so that text translation features in electronic dictionaries can cause fatal errors for dictionary users.

From the hardware aspect, all mobile-based electronic dictionaries can be installed on various brands of smartphones, both cellphones that use Android, Apple, Blackberry, and so on. Among electronic dictionaries, there are those that use an internet connection (online), some of which do not need an internet connection (offline). In addition, if there is a Wifi or Hotspot connection, users can also enjoy electronic dictionaries for free without spending internet quota. This ease and generosity encourage students to use electronic dictionaries through smartphones in their hands.

From the data the researchers obtained, there were several dictionaries in print version in Indonesia which began to be developed into electronic versions such as Indonesian-Arabic Al-Munawwir Dictionary and Arabic-Indonesian Dictionary. This fact shows that the development of Arabic dictionaries in Indonesia has followed the trend of digital technology. Therefore, the study of dictionaries (lexicography) in the Arabic education curriculum should not be limited to the analysis and development of printed version dictionaries, but also should lead to the development of digital-based electronic dictionaries and mobile applications.

VI. CONCLUSION

The development of Arabic dictionaries began to run rapidly and experienced changes from the dictionary by print version of to the dictionary by electronic version of the along with the rolling of the industrial revolution 4.0. Electronic dictionaries are accessed by many users, especially generation Z who are familiar with internet technology and have smartphones. Electronic dictionaries are more accessible, more varied, complete, inexpensive, easily updated and revised, and can be developed by anyone and at any time, both by companies and individuals.

Systematics in the preparation of Arabic electronic dictionaries is much better and is not limited to the five traditional systematics that have been set by classical Arabic lexicologists. However, in terms of content, dictionary by print version that classical scholars have written are far more accurate and remain sources of reference for modern dictionaries today. In addition, the text translation feature in the electronic dictionary is still unable to translate text correctly according to Arabic grammatical rules.

Therefore, the lecture material in the Arabic lexicology-lexicology course needs to be developed by including teaching materials that examine electronic dictionaries. Educational institutions or language institutions, both public and private, need to produce quality and credible Arabic electronic dictionaries so that they can be used by users (lecturers, students, researchers, and the community) so that they get a good and correct electronic dictionary application in translation Arabic.

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