

Innovation of Learning Arabic Calligraphy Digital Quran in The Cryan World

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Abstract

Digital Arabic calligraphy learning innovation which is a new trend to be studied in communication technology media. This can be seen from the few scientific works that discuss the Digital Arabic Calligraphy. The existence of Digital Arabic Calligraphy is basically inherent in our daily lives, almost every digital media we see a work of Arabic Calligraphy art in digital form in cyberspace/internet. However, this has never been investigated in Arabic calligraphy learning innovations because the usual thing is manual calligraphy in the world of learning. The innovation of learning digital calligraphy is internet-based while manual calligraphy is based on hand made (made by human hands) which is based on skills (expertise) in writing calligraphy so that it becomes a beautiful decorative work. While digital calligraphy is found on the internet, it contains various forms and types of decorative Arabic writing containing artistic values that follow the standard rules of science and technology writing. The research method used in this research is descriptive qualitative research method, in which problem solving procedures are carried out by collecting, classifying, interpreting, and analyzing data. Primary data were obtained from internet sites and secondary data were obtained from relevant literatures. The results of the study found that learning innovation is an update of digital-based Arabic writing facilities and a human-to-human approach, which contains aesthetic elements in the letters and their vowels, Calligraphy is a work of art that is the result of the human mind through a pen tongue of understanding and one of the means of information and communication. aesthetic branch of cultural value. The advantages of digital Arabic calligraphy are that a. Digital Arabic calligraphy is more efficient, because the manufacturing process uses computer digital media, so it doesn't cost too much compared to making manual calligraphy which uses more art tools and media, then it is more effective in making large amounts of art, creations in making Arabic calligraphy are more innovative and varied than manual calligraphy, specifically for storage, digital Arabic calligraphy is easier to store, through computer media, calligraphy artists or commonly called calligraphers, can save all their work on a computer in file form and publish them via the internet . The weakness of digital Arabic calligraphy is that it is at risk of being contaminated with various computer viruses, more at risk of being hijacked by others because it can be accessed easily by everyone, so this is certainly very detrimental to the owner of the artwork.

Keywords: innovation, learning, calligraphy

I. Introduction

Digital Arabic calligraphy learning innovation is a renewal idea in calligraphy learning which has been done manually or called manual calligraphy. Digital calligraphy is based on the internet, while manual calligraphy is based on hand made (made by human hands) which is based on skills (expertise) in writing calligraphy so that it becomes a beautiful decorative work. While digital calligraphy is found on the internet, it contains various forms and types of

decorative Arabic writing that contains artistic value, some follow the standard rules of science and technology writing, and some do not follow scientific rules. The term calligraphy comes from simplified English (calligraphy) taken from the Latin word "kalios" which means beautiful and "graph" which means writing or script. The Arabic language itself calls it khat (which means a line or beautiful writing. The latitude of the equator or the equator is taken from the Arabic word الإستوا) khattul istiwa (transversely dividing the earth into two parts. (Sirojuddin, 1992: 1).

Arabic calligraphy has paved the way for knowledge, as is writing in all languages. Islam requires its adherents to study reading and writing, as beautifully proclaimed in the noble scriptures, by repeating the word kalam (Kamil al-Baba., 1992) As stated in Q.S. al-'Alaq/96: 3-4 and Q.S. al-Qalam/68: 1. The letter al-Qalam states the meaning of Nûn (ink), "by the words of the word and what they inscribe."

One of the important phenomena throughout the history of the spread of Arab culture on the earth's surface is the emergence of Arabic calligraphy which is very strong in human life. It can be found in various regions, in various versions and in various ways of application. These calligraphy symptoms coincided with other elements of civilization that brought Arabic culture into something familiar to the local community, especially Muslims (Buckhard, 1976).

The Arabs are recognized as a nation that is very skilled in the field of literature, with a series of names of famous writers of its time, but in terms of writing traditions, it is still lagging behind when compared to several nations in other parts of the world. For example, the Egyptians with Hieroglyphic writing, the Indians with Devanagari, the Japanese with the Kaminomoji script, the Indians with Azteka, the Assyrians with Phonograms / cuneiform writing, and various other countries already have a typeface / script. This situation can be understood considering that the Arabs are a nomadic nation that is less concerned with the existence of a writing, so that they prefer oral tradition (communication by word of mouth). Whereas Arabic script has a second place after the Roman script in various writings until now (Sirojuddin AR, 1992). New writings were known for their use in the period leading up to the arrival of Islam marked by the display of al-mu'alaqat or masterpiece poems affixed to the Ukaz festival, which was written in gold ink, then hung on the wall of the Kaaba (Hitti, 2002).

In Arabic calligraphy is called khat which means lines, beautiful writing, and the plural (plural form) is Khuttuth. On the other hand, the definition of khat in terminology is actually revealed according to the experience of the calligraphers themselves so that each calligraphy can have its own style in interpreting calligraphy or Arabic khat (Huda, 2003: 3).

In Indonesia, this symptom has appeared since a very early period and is then seen in almost every object, both directly related to science, such as reading and writing instruments or on building objects that support worship. Even calligraphy has been used as a symbol of self such as signatures, and the subject matter that accompanies various ornaments carved on tombstones (Sijelmessi, 1976). The existence of a strong calligraphy, at the end of the 20th century, was also expanded by its presence in the treasures of contemporary art. Soewarjono, 1980). This element of Arab culture found a new path of development and future. Arabic

calligraphy in the context of art has won a wide enough appreciation so that it is maintained, especially by the people who use the script concerned, who are generally Muslims. However, in order not to stop in the middle of the road, this positive symptom needs to be supported by comprehensive support that involves various parties (Amri, 2001).

Arabic calligraphy or khat is part of Arabic culture itself. Arabic calligraphy has a fairly important role in the field of Islamic art in Indonesia where among Indonesian culture there is a competition that competes for the art of Islamic calligraphy, and this is also a routine annual activity in national and international MTQ activities. The term calligraphy comes from simplified English (calligraphy) taken from the Latin word "kalios" which means beautiful, and "graph" which means writing or script. The art of writing Arabic letters is called the science of khat, known as the science of Arabic calligraphy or Islamic calligraphy. Khat means to draw, trace a line, calligraphy, line of communication which means painting/painting, scratches, beautiful writing and lines which mean communication. The phrase calligraphy comes from Latin which consists of the word "kalios" which means beautiful, "graph" means writing or script. Calligraphy means beautiful writing (Madina, 1985).

There are three references to this footnote, namely Muhammad Sijelmessi and Abdulkabir Khatibi, *The Splendor of Islamic Calligraphy* (London: Thames and Hudson, 1976), p. 5; Ananbel Teh Gallop and Berhard Arps, *Golden Letters: Writing Tradition of Indonesia* (London: The British Library, 1991). Ali Zakaria, *Islamic Art: Southeast Asia 830 A.D-1570 A.D* (Kuala Lumpur: Ministry of Education Malaysia, Dewan Bahasa dan Pustaka, 1994).

Digital Arabic calligraphy learning innovations can contribute to science and technology supported by the discovery of new information and communication instruments or technologies, such as the internet, computers and communication satellites, the communication process brings very rapid changes in global communication and the life of the world community, so that the world feels small and interconnected. Like technology in general, information and communication technology also knows no boundaries, ideology, religion, nation and ethnicity. Since the horizon of information and communication technology is universal, we cannot escape its influence. After all, if humans close themselves, they will be left behind by the progress of the times.

Regarding the innovation of learning Arabic calligraphy as an effort to foster cultural progress in Indonesia, it can refer to Article 32 of the 1945 Constitution which states that cultural efforts must lead to the advancement of adab, culture and unity, by not rejecting new materials from foreign cultures that can develop or enrich culture. itself, as well as enhancing the humanity of the Indonesian nation. Therefore, we need to examine new information and communication technologies in depth to find elements that are beneficial for national development, especially the development of national education.

2. Literature review

2.1. Learning Innovation

In the world of education there are several terms about innovation that must be known

by educators, namely discovery, invention, and innovation. Discovery is the discovery of something that actually exists but is not yet known to people. Invention is the discovery of something completely new, meaning the work of humans. While innovation is an idea, item, event, method that is felt or observed as something new for a person or group of people or society.

Innovative learning has become a hot topic of discussion in various circles, including aspects of calligraphy. This discussion starts from the general public, teachers, education practitioners, lecturers and so does the government both at the center and local governments. Innovative (innovative) which means new ideas or techniques, is the adjective of innovation (innovation) which means renewal. Thompson and Eveland (1967) define innovation as the same as technology, which is a design used for instrumental action in order to reduce the irregularity of a causal relationship in achieving a certain goal. So, innovation can be seen as an effort to achieve certain goals. Rogers and Shoemaker (1971) define innovation as new ideas, new practices, or objects that can be perceived as something new by the target individual or society. The definition of innovation is not only limited to objects or goods produced, but also includes ideology, belief, attitude to life, information, behavior, or movement towards a process of change in all forms of community life (Rogers and Shoemaker, 1971).

Thus, innovation can be interpreted as an idea, product, information technology, institution, behavior, values, or new practices that are not yet widely known, and are used/applied by most members of society that can encourage changes for the better. .

For the people of Indonesia today, computers and the internet in big cities are considered a common thing through a Black Bery mobile phone that can be accessed. The rapid development of the electronics industry, such as the invention of silicon chips and robots, allows the production of computers and the internet to be used on a large scale at present and in the future, so that the price becomes relatively cheap/expensive and can be reached by people's purchasing power. In addition, the current ignorance of using computers is expected to be overcome with the discovery of a new computer language "LOGO" which allows kindergarten age children to learn well without going through formal education. This all shows that parents can use computers as a technology for children's education, especially to move their thinking potential

Several research results by Philip H. Combs and Manzoor Ahmed in China, South Korea, India, Senegal, Tanzania, Mexico and Ecuador show that the incorporation of several types of information and communication technology, such as posters, radio, film and traditional arts, as non-formal educational technology. formal efforts to increase agricultural production in these countries have been successful. This success strengthens the conclusion of the analysis of Everett M. Rogers and Floyd Shoemaker that the effect of mass communication media in farming communities in developing countries will be greater if the use of mass media is coupled with traditional media, such as interpersonal communication (Everett M. Rogers & Floyd). Shoemaker, 1971). If the role of information and communication technology for adults, especially farming communities is so great, then its role in renewing the thoughts, attitudes and behavior of people who are younger in age, especially students from courses or skills training,

would be even greater. . This means that non-formal education pathways can become pioneers in the application of new information and communication technologies and can even be used as research and development centers that are very useful for formal education.

In addition to being useful with distance teaching systems, cassette tape recorders, video cassettes and computers, both containing intra-curricular learning materials and enrichment materials and enrichment materials, are also useful for overcoming inequality in the quality of education due to the shortage of skilled teachers. Moreover, information and communication technology can be used to encourage students to become more aware of scientific knowledge, not just pursuing an academic degree. This means that the application of some advanced information and communication technologies, especially computers, is not only seen as a product, but also as a tool for developing knowledge. Prof. Andi Hakim Nasoetion stated that statistical methods and the ability to communicate with computers to handle data are requirements for understanding the language of instruction in research methods (Andi Hakim Nasution, 1984). Thus, communication technology can be utilized to encourage the development of higher education as a scientific community, namely as a center for the maintenance, research and development of science and technology as needed.

Researchers also look at the existence of digital Arabic calligraphy, but the public, especially academics, are lacking in understanding, researching, and learning more about digital Arabic calligraphy. This can be seen from the lack of scientific works that discuss the digital Arabic calligraphy. The existence of Digital Arabic Calligraphy is basically inherent in our daily lives, almost in every digital media we see a work of Arabic Calligraphy art in digital form on the internet. Therefore, research on digital Arabic calligraphy learning innovation is important to see new learning models and strategies in the world of education, especially USU Arabic Literature and generally in other higher education institutions.

2.2. Definition of Calligraphy

In Arabic calligraphy is called khat which means line. The word calligraphy is a simplification of "calligraphy" (English vocabulary). This word was adopted from the Greek language, which is taken from the word kallos which means beauty (beautiful) and graphein: to write (writing) means writing or script, which means: beautiful writing or the art of beautiful writing.

In terms it can be expressed, "calligraphy is handwriting as an art, to some calligraphy will mean formal penmanship, distinguish from writing only by its excellent quality". , the difference with ordinary writing is the quality of its beauty).

According to Islam, the art of calligraphy is seen as a field of art that is second only to architecture. Because figurative art is suspected to be illegal, calligraphy has become the most popular or most advanced art compared to other art fields. Furthermore, because Islam is a civilization that is based on the writings and words of the Qur'an, both of which are seen as originating from God, the art of writing contains a noble character (Smith, 1999).

The Arabic language itself calls it khat which means beautiful lines or writing. The

latitude of the equator or the equator is taken from the Arabic word khattul istiwa, transversely dividing the earth into two beautiful parts (Sirojuddin, 2005). In Arabic, calligraphy is called khat which means lines, beautiful writing, and the plural (plural form) is khuthuth. On the other hand, the definition of khat in terminology is actually revealed according to the experience of the calligraphers themselves so that each calligrapher can have its own style in interpreting calligraphy or Arabic khat (Huda, 2003).

Calligraphy is a science that introduces the forms of single letters, their locations and procedures for assembling them into a structured writing or what is written on lines, how to write them and determine which ones do not need to be written, change the spelling that needs to be changed. and determine how to compose it (Sirojuddin, 2005).

3. Methods

The approach used in this research is qualitative. A qualitative approach is a research approach in the social sciences that emphasizes aspects of people, life, language, culture and the terms used (Kirk, 1986). Qualitative research is a research procedure that produces data in the form of written and spoken words from humans and events that can be observed and analyzed following scientific rules (Bogdan, 1975). This approach is used to gain a deeper understanding of various social lives, in which events occur (Babie, 2002). It is very relevant to use the qualitative approach in the research entitled "Innovation of learning digital Arabic calligraphy" to see innovations, models and strategies for learning calligraphy that need to be preserved as a treasure trove of science and technology in the development aspect.

Researchers obtained data from two sources, namely primary data sources and secondary data sources. Primary data were obtained from observations in cyberspace and manual Arabic calligraphy in USU Arabic Literature and Arabic calligraphy lovers. While secondary data is obtained from library references both from books, journals, documents and other data sources that are relevant to this research.

The research design can be formulated as follows:

Create a research design for digital Arabic calligraphy learning innovation, concepts and understanding, its history and the advantages and disadvantages of digital Arabic calligraphy and Arabic calligraphy sites in cyberspace and this can help the student learning process taught by lecturers/instructors about a knowledge of calligraphy Digital Arabic or certain scientific disciplines that aim to provide an understanding of one scientific knowledge. This is a process of human change in understanding something from being ignorant to being knowledgeable. Research is a scientific endeavor that is carried out systematically by following scientific methods aimed at generating knowledge, discovering the latest scientific models, solving problems of life and development of a country (Mulyani et al, 2018). This learning and research is also included in the linguistic aspect and its relation to the development of science and technology.

Digital Arabic calligraphy learning innovation based on computer and internet

technology acts as a manager in the learning process known as "Computer Managed Instruction" (CMI). The role of computers and the internet as additional learning aids, their use includes the presentation of information on the content of the subject matter, exercises or both. This mode known as Computer Assisted Instruction (CAI) supports learning (Arsyad 2010). Learning Arabic calligraphy is more interesting and more integralistic and comprehensive assisted by using computer and internet media. The combination of text, graphics, animation, sound and video, slides and audio tapes all display information, messages and lesson content presented through computer and internet media.

The development of Arabic calligraphy learning and research facilities through the use of the convenience of information and communication technology as educational technology allows the use and mastery of communication technology by many people. Furthermore, with the increasing number of students, teachers, students and lecturers as well as the public who are able to take advantage of educational technology, especially computers and the internet, gradually we will be able to make hardware and develop software to use technology hardware in general. Thus, one day we will no longer only be the market for science and technology of developed countries, but also become producers and sources of information that shows the identity of the Indonesian nation itself towards the advancement of quality, innovative, creative, productive and dignified education in the international world.

The tools used to collect research data are:

1. Library research, the tools used are the internet, books, journals and so on in order to get references, documents related to this research.
2. Field research used in collecting data is observation in cyberspace and the calligraphy community

Data collection techniques in this study are:

1. Primary data collection techniques can be done by means of observation (observation) on the internet related to digital Arabic calligraphy
2. Secondary data collection techniques. In collecting secondary data, researchers conduct library research, namely taking data through reference books, journals or other reading materials related to research problems.

Analysis of the research data using Fishbone diagrams (fishbone diagrams because they are shaped like fish bones) are often also called Cause-and-Effect Diagrams or Ishikawa Diagrams introduced by Dr. Kaoru Ishikawa, a quality control expert from Japan, as one of the seven basic quality tools (7 basic quality tools). Fishbone diagrams are used when we want to identify possible causes of problems and especially when a team tends to think on a routine basis (Tague, 2005, p. 247).

This study uses a fishbone diagram that looks at the relationship between:

1. People (people and students who love Arabic calligraphy)
2. Materials (documents from literature related to Arabic calligraphy)
3. The process is the initial process of the importance of digital Arabic calligraphy learning innovation.

4. Equipment; research tools on digital Arabic calligraphy learning innovations.
5. Environment; students and lecturers of Arabic Literature, Faculty of Cultural Sciences, University of North Sumatra.
6. Management: research arrangement and implementation based on the research team's Human Resources
7. Problems: Analysis of the problem and problem solver, found innovations in learning digital Arabic calligraphy, its advantages and disadvantages compared to manual Arabic calligraphy.

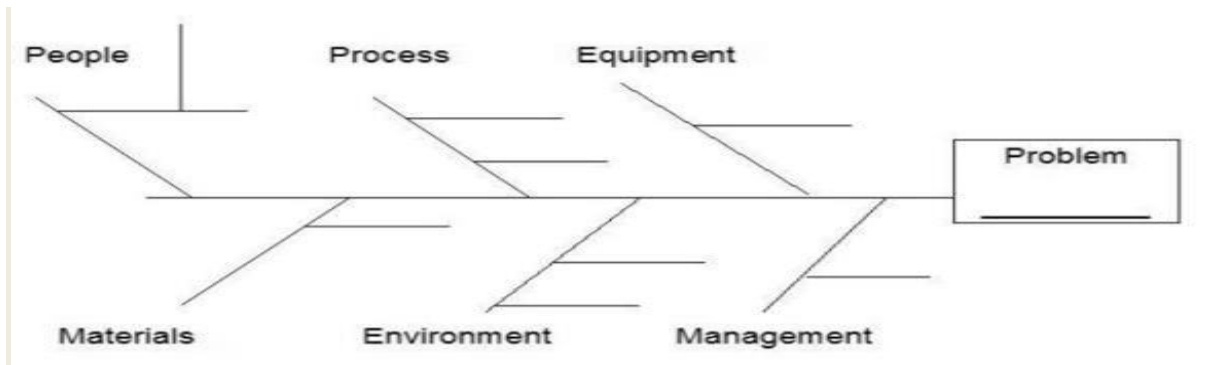


Figure 1: *Fishbone Diagram*

The analysis was carried out in accordance with a qualitative investigation by analyzing secondary data and primary data from the innovation of learning Arabic digital calligraphy.

4. Result and discussion

4.1. Result

4.1.1. History and Development of Arabic Calligraphy

The history of Arabic calligraphy is thought to have come from ancient Egyptian writing. While the oldest Arabic script is known as the musnad. In subsequent developments, the influence of the Musnad writing was defeated by the vegetable writing, which in essence still received the influence of the Musnad writing form. Nabati is easier to recognize than the previous writing, because several inscriptions were found that clearly describe the form of the writing. If the Musnad is written one letter one letter apart, on the other hand, the vegetable has been written together. However, until now the dots and signs of vowels (harakat) have not been known. (Sirojuddin, 2005). When Islam emerged, Arabic script had developed into several names that were spread across the Arabian peninsula. The names of the writings include hieri

(from the city of Hirah, Iraq which later came to be called Kufi), anbari (from the city of Anbar, Iraq), makki (from the city of Mecca) and madani (from the city of Medina). The last two names are often also called hejazi (because they are in the Land of the Hijaz, and later later called naskhi or naskhi hejazi). During the Daulah 'Abbasid period in 750-1285 AD, Arabic calligraphy writing al-Kufi has developed once until it is divided into 50 kinds. Fauziah .

Among the famous ones are the writings of al-muharrar, al-musyaijar, al-muraba, al-mudawwar, and al-mutadakhhal. These writings are still widely found in several historical buildings and in some currencies. The writings that take many names actually only consist of

two main types or forms. First, mabsuth wamustaqim (long and straight), and which belongs to this type is kuffi writing. Second, muqawwar wa Mudawwar (keluk and round), and which are included in this type are naskhi, aulua, Raihan and riq'ah writings (Sirojuddin, 2005).

In more detail, Habibullah Fadzoili in *Athlasul Khat wa al-Kutub* divides six periods of calligraphy development. First, namely the era of growth where at that time Arabic letters did not have punctuation marks or were still bald. The Kufi style emerged during this period. Second, namely the era of growth. The second period just started when the Umayyad Caliphate. At that time, the Kufi style began to develop more beautifully. The styles of tulus, naskhi, muhaqqaq, Rahani, riq'I, and tauqi' emerged in the period that lasted until the middle of the Abbasid dynasty's leadership.

Third, the period of refinement where calligraphy methods began to appear complete with standardization. The previous styles began to be modified and given rules. The fourth period, namely the development of rules and methods in the previous era. At that time began to appear harmonization of two styles in one canvas. Then, the next period, namely entering the processing.

The development of Arabic calligraphy has occurred along with the Arabic letters themselves. Through the Semitic route, namely Sam (Shem), the son of Noah, who after the split with the Hebrew and Arabic scripts was preserved by the Arabs from that time to the present. However, Linskey saw Arabic script as an evolution of writing originating from the Punesian writing system which reached its peak in the 7th century when the Qur'an was written. The development is widespread in the areas conquered by the Arabs, even reaching Western Europe (Yuwono, 2005).

Before the advent of digital media calligraphy was written with various art media, almost all media became a place for making or writing calligraphy such as written on leather or palm leaves, paper, canvas, and cloth. Naskhi style calligraphy is often used by Muslims in copying Arabic texts, magazines, and newspapers, (Huda). This khat is also widely written in the writing of the Qur'anic manuscripts, for book titles and for decoration. The media for writing khat aulua also penetrated the walls of buildings and book covers. The media for writing khat riq'ah is not as much as aulua and naskhi, only letters, drafts, and other paper-based media, (Israr, 1985). In the 10th century, when the qâ'idah was formulated, the writing of Kkhat naskhi was systematically used in the writing of the Koran until now, and as seen by many digital media that provide digital Koran services today, (Sirojuddin, 2005). Khat riq'ah is khat that is written quickly, approaching the speed of stenography, therefore the writing uses a lot of paper media used in several universities and madrasas such as al-Azhar University and Dâr al-'Ulûm in Cairo, (Israr, 1985).

4.1.2. Digital Arabic Calligraphy in the Virtual World

Digital Arabic calligraphy is a digital art of graphic design. Art (something beautiful) created using a computer in digital form. As the image is drawn or painted using vector graphics. With the help of digital media, digital calligraphy can be made. Digital technology has several unique features that cannot be found in analog technology, namely:

1. Able to transmit information at the speed of light which results in information being sent at high speed.
2. The repeated use of information does not affect the quality and quantity of the information itself.
3. Information can be easily processed and modified into various forms.
4. Can process very large amounts of information and send it interactively.

At this time more and more use of digital techniques in a system. The most important step is to determine which parts use analog techniques and which parts use digital techniques. And it can be predicted in the future that digital techniques will become cheaper and of higher quality.

Some examples of digital systems:

1. Digital clock
2. Digital camera
3. Digital temperature indicator
4. Digital calculator
5. Computer
6. Mobile Phones (Handphones)
7. Digital radio.

Schreibman et al explained that digital humanities (digital in general) are as follows: The digital humanities, then, and their interdisciplinary core found in the field of humanities computing, have a long and dynamic history best illustrated by examination of the locations at which specific disciplinary practices intersect with computation". "Then, digital science in general and the core of all the sciences related to it, also along with computer science, which has a long history and has a dynamic history that is very well illustrated by the examination of all specialized sciences related to computer science."

The history of Arabic calligraphy is thought to have come from ancient Egyptian writing. While the oldest Arabic script is known as the musnad. In subsequent developments, the influence of the Musnad writing was defeated by the Nabati writing, which essentially still gets the influence of the Musnad writing form. Nabati is easier to recognize than the previous writing, because several inscriptions were found that clearly describe the form of the writing. If the Musnad is written one letter one letter apart, on the other hand, the vegetable has been written together. However, until now the dots and signs of vowels (harakat) have not been known.

When Islam emerged, Arabic script had developed into several names that were spread throughout the Arabian Peninsula. The names of these writings include: hieri (from the city of Hirah, Iraq which later came to be called Kufi), Anbari (from the city of Anbar, Iraq), Makki (from the city of Mecca), Madan (from the city of Medina), and others. The last two names are often also called Hejazi (because they are in the Hejaz Land area, and later later called Naskhi or Naskhi Hejazi). The Abbasid period in 750-1285 AD Arabic calligraphy written by Al-Kufi has developed once until it is divided into 50 kinds. Among the famous are the writings of Al-Muharrar, Al-Musyaijar, Al-Muraba, Al-Mudawwar, and Al-Mutadakhhal. These writings are still widely found in several historical buildings and in several currencies. The writings that

take many names actually only consist of two main types or forms. Namely, first, Mabsuth wa Mustaqim (long and straight), and which belongs to this type is kuffi writing. The two are Muqawwar wa Mudawwar (loop and round), and those belonging to this type are Naskhi writings, uluś, Raihan, riq'ah.

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At this time more and more use of digital techniques in a system. The most important step is to determine which parts use analog techniques and which parts use digital techniques. It can be predicted in the future that digital techniques will become cheaper and of higher quality. Some examples of digital systems are digital clocks, digital cameras, digital temperature gauges, digital calculators, computers, mobile phones and digital radios. Schreibman et al. explained that digital humanities (digital in general) are as follows:

The digital humanities, then, and their interdisciplinary core found in the field of humanities computing, have a long and dynamic history best illustrated by examination of the locations at which specific disciplinary practices intersect with computation. [Then, digital science in general and the core of all the sciences related to it, also coincides with computer science, which has a long history and has a dynamic history that is very well illustrated by the examination of all related specialized sciences in computer science.] (Schreibman, 2004)

Now its development is very rapid so it is easy to see some Arabic calligraphy works in cyberspace every day. One of the multimedia-based calligraphy learning applications has been implemented at Madrasah Diniyah Awaliyah Bojongsana by using the Multimedia Development Live Cycle (MDLC) development method which can help students understand the material more clearly, interestingly and can be used as learning media for students, (al-Amin and Rizal). Digital calligraphy is calligraphy based on vector graphics and bitmaps. In the bitmap file, two important terms are known, namely the resolution or the number of points per unit area, which will affect the sharpness and detail of the bitmap file. Some examples of bitmap files are .bmp, .jpg, and .gif. Based on vector and bitmap, this calligraphy can be enlarged indefinitely according to the desired size with very sharp prints. This type is commonly used for digital printing with large sizes such as banners, banners, baleho, and even used as decoration in mosques to replace the manual calligraphy that is usually used. To create digital calligraphy, you need software that can edit vector graphics.

4.1.3. Digital Arabic Calligraphy Learning Innovation

Learning innovation is needed to train IQ intelligence and skill intelligence, where conventional learning needs to be reformed, especially Arabic calligraphy learning. calligraphy

contains knowledge because it is a science that must follow scientific standardization methods and contains an element of skill because it must be fulfilled by potential talents and competencies in the art of beautiful writing which are important skills in producing beautiful calligraphy works.

The conventional calligraphy learning system for the millennial generation is considered ineffective because the current era is a digital era that requires people to access every information and knowledge through the virtual world and the world of their fingers, both cellphones, computers, gadgets, tablets etc. Calligraphy writing through Handmade is needed as the basis for learning manual calligraphy and art can then be developed through innovations in digital calligraphy learning contained in cyberspace.

Conventionally, calligraphy learning sources are linear, supported by blackboards, books and paper, the atmosphere of the room is quiet, but learning like the conventional era is no longer interesting to maintain, because it needs innovation and reform of calligraphy learning that makes the virtual world a source of calligraphy learning. This opens wider access to learning, diverse media, activity and creativity are more challenged on an ongoing basis and responds to the demands of future generations. Linear transfer of knowledge in class, mandatory books that must be studied and structured exam models, are no longer an attractive learning option and train students' independence and creativity in producing calligraphy works. All aspects of conventional learning are considered to contain many weaknesses in the learning process and are considered to be aggregative and counter-productive in developing students' intellectual and independence in learning Arabic calligraphy. Multiple intelligence theory (the theory of multiple intelligences) as proposed by Howard Gardner 1983 (in Armstrong, 2004) that there are 8 intelligences that allow humans to develop optimally and objectively through the originality of their respective potentials: linguistic intelligence, mathematical-logical, spatial, kinesthetic -physical, musical, interpersonal, intrapersonal, naturalist, conventional, monotonous and static learning methods do not develop student intelligence learning effectively and optimally, therefore one of them is needed is the innovation of learning Arabic digital calligraphy of the Koran in cyberspace.

Learning innovation functions to give birth to a more creative education. The research results suggest the need for more creative learning handlers through learning innovations compared to conventional learning. More creative learning innovations are intended to provide more dynamic thinking stimuli for active brain cells (neurons). Learning, being imaginative and building network connections gives birth to creative and inspiring thinking intelligence. The connection occurs when we can think about the meaning of what we learn with what we think and what we think and we learn symbiosis to give birth to thinking intelligence (Gunawan, 2007). With 100 billion active cells of the human brain and 20,000 possible connections per cell, we can imagine how big the potential of the human brain is. The number of connections in the human brain is estimated to be more than the number of atoms in the universe (Dryden & Vos, 2003). It is now estimated that we only use under 10% of our brain.

The comparison of conventional approaches in learning and innovation/reform approaches in learning is in the following Table 1:

Table 1. *The Comparison of Conventional Approaches In Learning And Innovation/Reform Approaches*

Conventional Arabic Calligraphy Learning	Innovation Of Digital Arabic Calligraphy Learning
1. One-way instructional teaching	1. Interactive model
2. Under the strict control of lecturers	2. Students actively explore
3. Short instructions on a single subject	3. Multi-disciplinary approach, wide range of materials
4. Lecturer as a source of knowledge	4. Lecturer as facilitator
5. Individual activities	5. Collaborative activities
6. Grouping according to ability	6. Heterogeneous grouping or changing as needed
7. Evaluation of material mastery	7. Performance-based evaluation and discrete skills
	8. Efficiency, meaning that it can save time and not have many obstacles.
	9. The target target extends to cyber users and is easy to communicate

The paradigm shift from the orientation of educators to the orientation of the needs of students means that learning activities are dominated by students, lecturers only as mentors or facilitators. Responding to the changes that occur, it must be followed by various changes in daily learning activities. If traced further, it turns out that the changes are caused by one's awareness of the lack of ways they have (Soejono Soekanto, 1990). The method referred to here is directly related to the task of educators such as in teaching and learning activities, starting from setting learning objectives, selecting teaching materials, choosing approaches, media, methods, and assessment systems. As stated by (Ibrahim, 1988) that the innovation made by an educator is more emphasized on teaching activities, because he is entrusted with the task and authority to manage learning activities to achieve the learning objectives that have been set. In this context, the activities of educators are more than the work of a professional in general, because he is required not only to be an expert in his field but also to be able to manage learning in a changing human environment (Klasen and Collier, 1972).

In this case, educators try to find relevant models, so that each learning component runs effectively, and the goals that have been set will be achieved. These models can be obtained from other models or find a model that is believed to be more effective. However, what must be understood by educators in every use of learning models does not necessarily become effective because it will correlate with other situations, as stated by Saltman (in Ibrahim, 1998), the limits of an innovation will be influenced by:

- a. The level of financing, the more difficult the level of financing the easier it is to accept.
- b. Balance between the costs incurred with the results obtained.
- c. Efficiency, meaning that it can save time and not have many obstacles.
- d. Has no risk, especially with political and security issues.
- e. e.Easy to communicate.
- f. In accordance with the local socio-economic.
- g. It can be scientifically proven.
- h. h Feel the benefits immediately.
- i. The level of engagement acceptance of innovation.
- j. j. Interpersonal relations.
- k. k. Based on interests.

1. The role of the agent (extension) innovation.

According to the Indonesian Dictionary (2003) the word "innovation" means the introduction of new things or renewal. Innovation also means new inventions that are different from existing or previously known ones (ideas, methods, or tools). So innovative learning can be interpreted as learning that uses new strategies/methods resulting from its own discoveries or applying new methods found by experts and designed in such a way that it can create conducive learning.

Innovative learning also means learning that is packaged by teachers or other instructors which is a form of ideas or techniques that are considered new in order to be able to facilitate students to make progress in the learning process and results. Innovative learning can adapt from a fun learning model. "Learning is fun" is the key applied in innovative learning. If students have planted this in their minds there will be no more passive students in class, feelings of pressure, possible failure, limited choices, and of course boredom. Building innovative learning methods yourself can be done by accommodating each of your own characteristics. This means measuring the ability to absorb knowledge of each person.

Syah and Kariadinata (2009) Innovative learning can balance left and right brain functions if it is done by integrating media/tools, especially those based on new/advanced technology into the learning process. Thus, there is a mental renovation process, including building students' self-confidence. The use of learning materials, multimedia software, and Microsoft PowerPoint is one alternative. Innovative learning is expected to be able to make students who have the capacity to think critically and are skilled in solving problems. Students like this are able to use clear reasoning in the process of understanding something and are easy to make choices and make decisions. This is possible because of the understanding of the interconnections between systems or subsystems related to the problems they face. Also seen is the ability to identify and find the right questions that can lead to better problem solving. The information obtained will be framed and analyzed so that it will be able to answer these questions properly. Innovative learning is also reflected in the results shown by students who are communicative and collaborative in articulating thoughts and ideas clearly and effectively through oral and written speech. Students with these characteristics can demonstrate the ability to work effectively in diverse teams, to exercise flexibility and willingness to compromise in achieving common goals.

1. Starting from an innovative concept, a number of changes must be made by an educator. The changes around us are so fast, it is no longer possible to rely on the old ways of learning, in fact there are still a number of educators who still teach in the ways their teachers did when they first studied. For the purposes of this change, in the early stages educators have the motivation and attitude to want to change (Huberman and Miles, 1984: 43), never feel satisfied, try to work professionally and so on, so that they get something new, because the core of the notion of innovation is itself is a change to find something new (Ibrahim, 1998:46). Or as stated by Callahan and Clark (1977: 6) that teachers must have a creative attitude. Creative in the sense of responding to various changes that exist, because every change will always be accompanied by various ways

to implement it (Ruddock, 1991).

2. One of the important phenomena throughout the history of the spread of Arab culture on the surface of the earth is the emergence of Arabic calligraphy which is very strong in human life. It can be found in various regions, in various versions and in various ways of application. This calligraphy phenomenon along with other elements of civilization brought Arab culture into something familiar to the local community, especially Muslims.
3. Digital Arabic calligraphy as one of the arts and Arab culture, where so far what is widely found in the market and the discussion is manual calligraphy. Therefore, it is important to discuss digital calligraphy which is a new trend to be studied in communication technology media. This can be seen from the few scientific works that discuss the Digital Arabic Calligraphy. The existence of Digital Arabic Calligraphy is basically inherent in our daily lives, almost every digital media we see a work of Arabic Calligraphy art in digital form in cyberspace/internet.

The functions of calligraphy in individual lives include:

1. Calligraphy has a special function for its lovers who feel spiritual pleasure when processing and creating their writings.
2. Calligraphy is one of the means of communication and approach between humans, because of the large writing relationship between them in all fields of life.
3. Some appreciators feel the pleasure of looking at and studying it because of the aesthetic elements in the letters and vowels.
4. Calligraphy is a means of seeking sustenance, considering that it is an art that has a high value with the highest position ever achieved by its experts. For a poor person, calligraphy is money; for a rich man, he is beauty.

The function of calligraphy from a social point of view are:

1. Calligraphy is a means or connecting line of society which is part of the means of transitioning culture and civilization.
2. Calligraphy is used for textbooks, culture, Al-Qur'an manuscripts, magazines, newspapers and information facilities such as television and so on.
3. Calligraphy is a social means of smoothing taste because it is the spirit of an advanced society that has artistic and beauty values. This art and beauty has origins in old history and a fascinating growth story in modern history.
4. Calligraphy is always present in art mediums, pamphlets, brochures and advertisements. Every individual of us always sees directly from the work of calligraphy in every place.

Calligraphy roles include:

1. Calligraphy is one of the cultural mediums born of religion, social, economics, and others and is a medium for science and scientific research.
2. Calligraphy is a means of communication between humans. Calligraphy has succeeded in carrying centuries of cultural heritage from grandparents to grandchildren.
3. Calligraphy is one of the means of conveying history throughout the ages, records of

- events and the history of nations
4. Calligraphy is an extension of the human mind, and the pen is one of the ingredients. Thus, the pen is the mouthpiece of understanding.
 5. Calligraphy is a means of information and a branch of aesthetics that has cultural value.

Arabic Calligraphy Benefits

1. Beauty (Jamal)

The beauty of calligraphy gives full aesthetic tendencies and artistic enjoyment to every individual. Anyone who learns it will be touched by its beauty as well as feel the unity, beauty, and satisfaction when struggling in it.

2. Clarity (wuduh). Clarity can eliminate doubts and facilitate correct reading, further clarifying the meaning of words to sentences.
3. Speed (Sura). The beauty of calligraphy helps the writing that is written quickly, while the speed helps the perfection of the tasks of lessons, offices, and so on.
4. Neatness (Tansiq). Arranging words in one line with standards of size and discipline encourages the habit of always being neat, disciplined, careful, and precise in all conditions that are specific and general to each individual.
5. Unification of forms (Wihdah Al-syakl). Each writing style has a character unit of form that is interrelated and contains special advantages that make writing beautiful, structured, and has a charming shape. In accordance with the rules of processing the results of the exercise, each coach will be able to apply the theories of the use of form units as part of social discipline in his life. (source: <http://iecha1494.blogspot.co.id/2013/02/kaligrafi-bagai>)

If you mention the art of calligraphy, it is not necessarily written in Arabic or writing down the holy verses of the Koran. Calligraphy has a special place in Islamic art because it aims to beautify the pronunciation of Allah. Many other writings, such as Japanese, Chinese, and Greek, also have visual arts. Linguistically, calligraphy does mean the art of beautiful writing, namely from the Greek *allos* which means beautiful and *graphein*, which means writing.

Arabic calligraphy (khat arabic) or what is often known as Islamic calligraphy, is just one of them. Only, Indonesian Muslims are used to calligraphy on beautiful Arabic letters that write the Koran. For Arabs, writing is actually not the main thing. The Arabs in the past were more proud of their good oral poetry than their beautiful writing. The writing culture is minimal. If there is a very beautiful poem, it is only written if it will be hung on the Kaaba. Even when Islam came.

The Qur'an is only stored in the memory of the Companions. The new book of Allah was written after many hafiz died on the battlefield. So, it was only then that the writing of the Qur'an began during the caliphate of Abu Bakr Ash Shidiq and only began to be neatly arranged during the caliphate of Uthman bin Affan.

In the early generations of Islam, calligraphy was not something that was noticed.

Although Arabic script is thought to have appeared a century before Islam came, calligraphy only appeared in the second and third centuries of Hijriyah. Although its development was slow, calligraphy began to gain a place in the hearts of the Muslim community.

Philip K Hitti in his History of the Arab said, the art of calligraphy got its own popularity and place in Islamic art because its initial goal was to beautify the pronunciation of Allah and it was supported by the verses of the Koran surah 68 verse 1 and 96 verse 4. kalam and what they write”, surah al-Qalam verse 1 and “Those who teach (humans) through kalam”, surah al-Alaq verse 4. So, when it appeared in the second and third centuries Hijriyah, calligraphy immediately became the prima donna of Islamic art. .

4.1.4. The advantages and disadvantages of digital Arabic calligraphy

Everything has advantages and disadvantages, so does this digital Arabic calligraphy. Pujiati (2016) stated that digital Arabic calligraphy is the art of calligraphy based on Arabic letters which is done through a digital process and can be applied in real form. The process of making digital Arabic calligraphy so far uses a computer as the main tool, it can be in the form of writing, and it can also be in the form of calligraphy in real form which is reprocessed with digital media. By using digital media, researchers found more of the advantages of this calligraphy than its weaknesses, some of the advantages of digital Arabic calligraphy are as follows:

1. Digital Arabic calligraphy is more efficient, because the manufacturing process uses computer digital media, so it doesn't cost too much, while making manual calligraphy uses more art tools and media.
2. Digital Arabic calligraphy is more effective in making a large number of works of art. Because for its manufacture, calligraphers only need to reprint the results of the finished calligraphy, unlike manual calligraphy which is remade from scratch if the calligraphers want to make the same work.
3. Creations in making Arabic calligraphy are more innovative and varied than manual calligraphy, because in computers there are many graphic design applications that can develop the imagination of calligraphers in their manufacture, especially in processing colors and graphic art attributes, and combining colors in this calligraphy will continues to grow in accordance with the vocabulary of his calligrapher knowledge.
4. Especially for storage, of course digital Arabic calligraphy is easier to store. Through computer media, calligraphy artists or commonly called calligraphers can save all their work on a computer in the form of files.
5. In terms of publishing, digital Arabic calligraphy art can be published via the internet.

Meanwhile, the weaknesses of this digital Arabic calligraphy are as follows:

1. 1. As mentioned above, that storage of digital Arabic calligraphy art is easier to store because the storage is on a computer in the form of files, but actually it is still at risk of being contaminated with various computer viruses that are now widely spread, whether they are contained in flash drives, hard disks, etc. as as a medium for storing data other than a computer so that it can damage data.
2. The art of calligraphy is a part of culture and in the sense that culture is all human creations that are accepted by the community and passed down from generation to generation, and calligraphy is one of the cultures whose process depends on the skill

and shrewdness of the artist, while for digital calligraphy other than the ability of the artist is also a lot of help from the computer, therefore if an artist is too focused on working on the digital process, it is possible to reduce his calligraphy writing ability in terms of manuals.

3. Digital calligraphy is actually easier to publish to the general public through internet media, but this art is more at risk of being hijacked by others because it can be accessed easily by everyone, so this is certainly very detrimental to the owner of the artwork.

In conclusion, the advantages of digital Arabic calligraphy are: more efficient, more effective in making large amounts of art, more innovative and varied, easier to save in file form, can be published via the internet, making it easier for calligraphers to introduce and even commercialize it to the public. general. While the weaknesses of this digital Arabic calligraphy are as follows: risk of contamination with various computer viruses, reduced ability to write calligraphy in manual terms, risk of being hijacked by others

In the next stage, continued Hitti, calligraphy will fully become a work of Islamic art and have an influence on painting which is recognized by many people. Through calligraphy, a Muslim expresses his artistic talent that cannot be expressed through the representation of living objects. A calligrapher or calligrapher occupies an honorable and noble position beyond that of a painter.

Calligraphy, or the art of beautiful writing, is the most cherished art in Muslim history. According to The Oxford Encyclopedia of the Modern Islamic World, the Qur'an had a major influence on the development of calligraphy. Because the feeling that pushed the Koran to be written beautifully, gave birth to various styles of calligraphy.

There is another calligraphy term that appears as 'khat', which means writing or lines, and refers to beautiful writing. The Islamic Encyclopedia published by PT Ichtiar Baru van Hoeve explained that the term khat was proposed by Sheikh Syamsuddin al-Akfani. He is the author of various branches of science, such as Sufism and medicine.

In his book entitled *Isryad al-Qasid* which discusses the morals of Sufism, especially on Hasyrul Ulum, Sheikh Syamsuddin said that khat is a science that introduces the forms of single letters, their placement, and how to assemble them into writing.

Khat, according to him also, what is written in lines, how to write it, and determine which ones do not need to be written, change the spellings that need to be changed, and how to compose them. This definition refers to the requirements for the realization of good writing, including perfection, layout, and letter processing.

A calligrapher named Yaqut al-Musta'simi (died 1298 AD) explained, a writing can be said to be beautiful if the writing spreads the influence of its beauty to the heart, soul, and mind. In fact, he gave birth to a famous statement. Calligraphy, he said, is a spiritual architecture born through material furniture.

In the early days of Islam, namely the time of the Prophet and his main companions, the calligraphy style was still ancient and referred to the place where the calligraphy was used.

For example, Makki is the calligraphy used in Mecca, Madani is the calligraphy in Medina, and Kufi is defined as the calligraphy that is commonly found in Kufa.

Of all that, Kufi became the favorite and the only calligraphy used to write the Qur'anic manuscripts until the end of the power of the companions, from Abu Bakr to Ali bin Abu Talib. In addition to reading and writing skills, Muslim interest in calligraphy was strengthened by the desire to beautify the writings of the Koran.

On the other hand, other triggers come from Qur'anic verses, such as qalam (pen), Kitab, and yasturun (scratch). There is also the Prophet's statement regarding this matter. "Good calligraphy will add more real truth". During the reign of the Umayyads, there were changes. There is dissatisfaction with the Kufic style. This is because the Kufi style is considered rigid and difficult to scratch.

Based on that condition, a softer style of writing was born. The famous patterns are Tumar, Jalil, Nisf, Sulus, and Sulusain. Caliph Muawiyah bin Abu Sufyan became an important figure who urged the search for alternative styles of calligraphy other than Kufi.

When the caliphate was under the control of the Abbasids, calligraphy also experienced its own dynamics. At that time there were styles of Khafif Sulus, Khafif Sulusain, Riyasi, and Al-Aqlam as-Sittah. The leading figures are Al-Ahwal and Ibn Muqlah. The Oxford Encyclopedia of the Modern Islamic World says it was Ibn Muqlah who set the standard for letters.

In later times, calligraphy also underwent many changes. Not only in its traditional form, but also modern. Many calligraphy activists and lovers have sprung up. The International Research Center for Islamic Culture and Art (IRCICA) in Istanbul, Turkey almost every year holds a traditional calligraphy competition.

4.1.5. Arabic Calligraphy Sites in cyberspace

Researchers found that there were approximately 100 sites that publish Digital Arabic Calligraphy, but the researchers only listed 10 sites that were selected based on the popularity of the site, which was seen from the number of visitors or viewers of the site each month. Some of the sites below are sites that publish digital Arabic calligraphy works that are only on one type or all of the types of digital Arabic calligraphy and these sites can be said to be popular because they have many viewers or visitors every day. Some sites that publish calligraphy in digital form:

1. www.artislamic.com.

This site is a site that publishes all kinds of digital art, be it photography, 2D and 3D image design. On this site there are also landscape photos, landscapes, digital images, flower photos, a mixture of digital motifs and works of art that are religious or religious. On this site we can see digital preparations, submit our works, and download some of the works displayed on this site. This site can reach 32000 visitors every month. Some examples of digital calligraphy artwork published on this site are as follows:



Figure 1: <http://artislamic.com>, by: Ibrahim

The picture above is a type of Digital Arabic calligraphy that is in accordance with Qāwā'id which reads:

/Allah/'Allah'

الله /

The calligraphy is made using Khat uluṣ which is part of the Qāwā'id type of calligraphy that has a three-dimensional (3D) Glossy design and reflection effect.



Figure 2: <http://artislamic.com>.

The Figure 2 above is a type of Digital Arabic calligraphy that is in accordance with Qāwā'id taken from a hadith of the Prophet Muhammad which reads:

لا يَشْبَعُ الْمُؤْمِنُ مِنْ جَارِهِ

/lāyasyba'ul mu'min na jārih/

'A believer cannot eat his fill while his neighbor is hungry (who needs food).'

The calligraphy is written with Khat uluṣ which is part of the type of calligraphy according to Qāwā'id which is decorated with classical middle eastern ornaments so the digital Arabic calligraphy above is categorized as the type of Digital Arabic Calligraphy that is in accordance with Qāwā'id. 1. www.oweis.com.

This site is a circus that focuses on Arabic art which contains Arabic poetry, Arab-American art encyclopedias, Arab countries' cultures, and includes digital Arabic calligraphy. This site has 8000 visitors every month.



Figure 3: digital calligraphy artwork (Sources <http://oweis.com>, by Fayeq Oweis, Ph.D)

Some examples of digital calligraphy artwork published on this site are as follows. The picture above is a type of digital Arabic calligraphy that is in accordance with Qāwā'id which reads:

/maḥabbatullah/

‘God's love’

محبة الله/

The word: الله written using Khat uluṣ which is part of digital Arabic calligraphy of the type that corresponds to Qāwā'id, but in sentences محبة written using Khat uluṣ as well, and written repeatedly and around the first sentence to form an ornament.



Figure 4: digital Arabic calligraphy (Sources <http://oweis.com>, by: Fayeq Oweis, Ph.D)

The Figure above is digital Arabic calligraphy that reads:

وجعلناكم شعوبا وقبائل لتعارفوا

/waja'alnākum syu'uba wa qabail lita'ārafū'/

And We created you into tribes and nations so that you might know one another'

In the sentence وجعلناكم شعوبا وقبائل written using khat uluṣ which is part of digital Arabic calligraphy of the type that is suitable for Qāwā'id, but in sentences لتعارفوا written using Kufic script which is part of digital Arabic calligraphy of the Qāwā'id type and is written repeatedly and surrounds the first sentence to form an ornament.

1. *freeislamiccalligraphy.com*.

This site is a non-profit site owned by Prince Ghazi bin Muhammad bin Talal which was created in 1433 H / 2012 AD and is managed by an Islamic charitable foundation. This site focuses on the development of calligraphy and its application in the real world and the digital world. On this site, we can see calligraphy processing with various creations but still basic processing of calligraphy texts. The site also allows people to upload their own calligraphy samples to it in order to create a hub for free Islamic and Quranic Calligraphy. This site has up to 60,000 visitors every month. Some examples of digital calligraphy artwork published on this site are as follows:

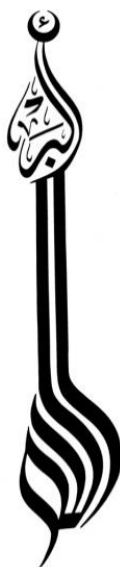


Figure 5: <http://freeislamiccalligraphy.com>, by: Hasan Kan'an

The Figure above is Digital Arabic calligraphy which is a blend of contemporary and in accordance with Qawa'id which reads:

/Allahu Akbar/'

Allah is the Greatest'/

الله اكبر

The picture above is categorized as a mix between contemporary and in accordance with Qawa'id because in the text الله do not follow any Khat Rule, but on writing اكبر follow the Khat Diwani Rules. The calligraphy above is made to resemble the shape of a mosque minaret.

2. iconshots.com

Iconshot is a community site that focuses on digital works where this site also provides services for making several digital designs such as: blog design, blog icons, graphic design tutorials, vector graphics and tutorials in design programs. Each month this site has up to 40,000 visitors. Most of the digital calligraphy works displayed on this site are calligraphy with a type that is in accordance with Qāwā'id but processed with modern designs. Some examples of digital calligraphy artwork published on this site are as follows:



Figure 6 . <http://iconshots.com>

The Figure above is a contemporary type of Digital Arabic Calligraphy that reads:

/Allah/

‘Allah’/

الله

The Arabic calligraphy above is a contemporary type of digital Arabic calligraphy that is written repeatedly so that it forms a pattern that resembles a flower. At first glance it looks like khat diwani, but the calligraphy does not follow the rules or Qāwā'id that are in accordance with khat diwani.

3. graphicmania.net

Graphicmania is a site managed by a senior designer named Rafiq Elmansy, he is also the owner of a design studio. On this site there are several graphic design tutorials, tutorials or animation creation processes, and tutorials on using Photoshop and Corel Draw. This site also publishes some examples of graphic designs, website icons and how to make them through digital media. There are a lot of fans of this site, which is around 1,000,000 visitors per month.



Figure7: <http://graphicmania.net>, by: Ibrahim Abutouq

This site also publishes various digital calligraphy arts. Some examples of digital calligraphy artwork published on this site are as follows:

The picture above is a digital Arabic calligraphy in accordance with Qawa'id which reads:

ولكني ما زلت احبك فانت عشقي

/walakinni māzaltu uḥibbuki fa'anti asyqī/

'but I still love you, so you are my love'

The calligraphy is made using Khat uluṣ which is part of the type of calligraphy that is in accordance with Qāwā'id.

4. *hongkiat.com*

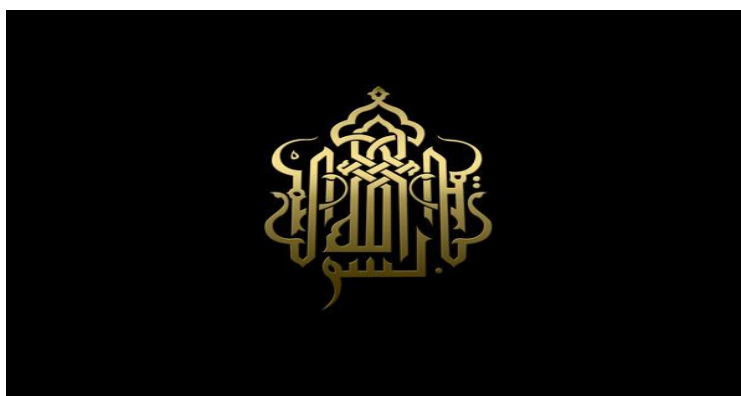


Figure 8: <http://hongkiat.com>, by: Muhammad Abdulmateen

This site is a site that displays tips, tricks and tutorials for designers and people who are interested in graphic design, and also displays some of the results of digital media graphic designs and processing which was founded by Hongkiat Lim starting in 2007, and this site is quite popular. Visitors from this site reach 39 million visitors every month. This site also publishes various digital calligraphy arts. Some examples of digital calligraphy artwork published on this site are as follows:

The picture above is Digital Arabic Calligraphy in accordance with Qawa'id which reads:

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

/bismillahi rāḥmānirāḥīm/

'in the name of Allah, the Most Gracious, the Most Merciful'.

The digital Arabic calligraphy is categorized as a calligraphy that is in accordance with Qawa'id because as a whole this writing is written following the Qa'idah Khat Kufi, and is made with a Floral theme with various carvings at the ends of the letters.

5. *islamic-arts.org*.

This site provides a glimpse of the cultural heritage of the Muslim World and the important role that Muslims play in the advancement of knowledge. This site aims to reveal the creativity of Islamic art and architecture. It traces the history of the development of Islamic regions and dynasties, highlighting their diversity of artistic expression from the beginning of the faith to the present day. This site is still in its infancy and a work in progress. The founders of this site started work on this during the first week of March 2011 and had the first post published on March 8th. Every month visitors from this site reach 43,000 visitors. The site also publishes various Islamic arts and includes digital calligraphy. Some examples of digital calligraphy artwork published on this site are as follows (<http://islamic-arts.org/2011/modern-Arabic-calligraphy-works/>)



Figure 9: <http://islamic-arts.org>

The Figure above is Digital Arabic Calligraphy, a blend of contemporary and in accordance with Qawa'id which uses a reflection effect and reads:

/Iqra'/'

/read it'/'

اقرأ

On the letter **ل** the first time this calligraphy uses a type of calligraphy that does not have a Qāwā'id, but on the letter **ق** using Qāwā'id khat uluṣ, and on the letter **ا** again using calligraphy that does not have Qāwā'id, so it can be concluded that the above calligraphy is a combination of digital Arabic calligraphy that is suitable for Qāwā'id and contemporary.

6. behance.net

Behance.net is a site that is engaged in creativity broadly. This site also provides designer services, be it digital design or real form design, some of the design services available on this site are: logo design, product branding, toys, industrial design, web design, animation, and illustration. This site also publishes some of their works and we can download their works for free, and don't forget that on this site there are many designs of digital Arabic calligraphy, the majority of which are modern and contemporary. This site is a popular site, and the number of visitors to this site reaches 27,391,290 visitors every month. Examples of digital calligraphy artwork published on this site are as follows:



Figure 10: <http://www.behance.net/gallery/Antara-Ibn-Shaddad-/12984017>, by: *Ibn Shaddad*
The picture above is a Contemporary type of Digital Arabic Calligraphy which reads:
/Īman/

'believe'/

إيمان

The type of calligraphy above is a type of contemporary calligraphy, although its shape almost resembles khat diwani but does not follow the Qa'idah khat diwani, therefore this calligraphy is categorized as contemporary calligraphy.

1. khawarbilal.com

This site was founded by Khawar Bilal, a real-life calligraphy artist and graphic designer. This site publishes the work of Khawar Bilal himself. This site also provides Arabic text-based logo creation services and digital cligraphies. This site has approximately 7,000 visitors per month.

Some examples of digital calligraphy artwork published on this site are as follows:

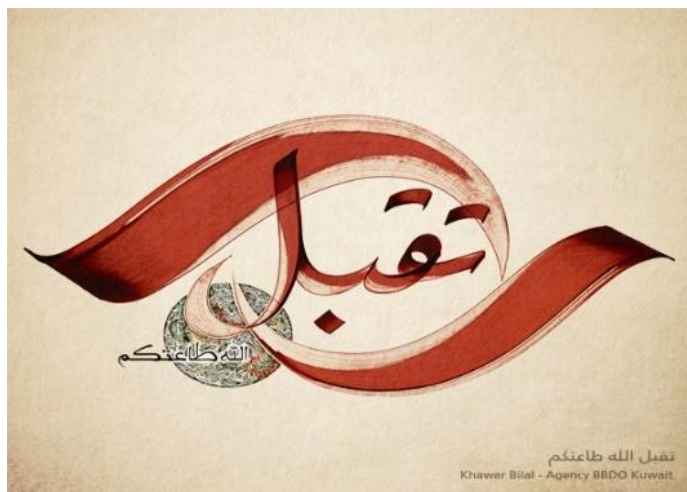


Figure XI. <http://khawarbilal.com>, By the: Khawar Bilal

The picture above is a contemporary type of calligraphy that reads:

تقبل الله طاعتكم

/taqbalallahu a'atikum/

'May Allah accept all your obedience'

The digital Arabic calligraphy above is a contemporary type of calligraphy, because as a whole the writing is not bound by any rules. Even in writing **تقبل** looks like Khat Riq'ah but does not follow the Qa'idah that applies to the khat.

1. deviantart.com.

This site is a forum site for visitors to publish all digital-based visual arts and also as a place for photography and digital processing. This site is included in a popular site, visitors to this site reach 242,308,140 visitors per month. Some examples of digital calligraphy artwork published on this site are as follows:



Figure XII: <http://deviantart.com>

The picture above is a contemporary type of Digital Arabic Calligraphy that reads the letter Al-Waqi'ah verse 77 which reads:

إِنَّهُ لَفُرْقَانٌ كَرِيمٌ

/Innahul Qur'ānukarīm/'

Verily this Qur'an is a noble reading'

Discussion

The digital Arabic calligraphy above is a contemporary type of calligraphy, because overall the writing is not bound by any rules. Basically, the type of calligraphy above already has a name, namely Khat Moalla, but researchers have not found any Qawa'id Khat that has been patented and ratified. Khat moalla is a modern type of khat that emerged in Persia, as Raika revealed on her website (http://www.raika-design.com/persian_calligraphy.htm) in 2014:

In the last two centuries, there has not been any movement in the development of a new style in the Islamic world of calligraphy or among various peoples who write in Arabic or Persian Script. Today, after a two hundred years, we have received such an endowment with the advent of the Moalla style of Persian Calligraphy, pioneered by Ostaad (Acknowledged Master of Calligraphy) Hamid Ajami, son of Ostād Hedayatollah a respected poet and a prestigious calligrapher. Ostaad Ajami, an honoree at the Persian Calligraphy Association and a master of the "Nast'aliq" Script, after 22 years dedication to the art of calligraphy has perfected and introduced the calligraphic script of "Moalla". "In the last two centuries, there has not been any movement in the development of a new style in the Islamic world of calligraphy or among the various nations who wrote in Arabic or Persian Script. Today, after two hundred years, we have received such a donation with the advent of the Moalla Persian Calligraphy style, pioneered by Ostaad (Acknowledged Master of Calligraphy) Hamid Ajami, son of Ostād Hedayatollah a respected poet and prestigious calligrapher. Ostaad Ajami, an honorary at the Persian Calligraphy Association and master of the "Nast'aliq" Script, after 22 years of dedication to the art of calligraphy has perfected and introduced the "Moalla" calligraphy script.

Moalla calligraphy is based on the calligrapher's own subjective and imaginative interpretation of various calligraphic styles which influence the new style indirectly as visual models. Nevertheless, a calligraphic style is considered as such when it follows the traditional calligraphy and previous known principles governing the form, and letter and word format. Moalla style is also based on the same principles of calligraphy and respects the rules governing the traditional calligraphy. This explains why the new style (Moalla) shares clear similarities with other calligraphic styles. Moalla calligraphy is based on the calligrapher's own subjective and imaginative interpretation of various calligraphy styles that influence the new style indirectly as a visual model. Nevertheless, a calligraphic style is considered as it is when it follows traditional calligraphy and previously known principles governing form, and lettering and word formatting. The Moalla style is also based on the same principles of calligraphy and respects the rules that govern traditional calligraphy. This explains why the new style (Moalla) shares clear similarities with other styles of calligraphy .

5. Conclusion and Suggestion

Digital Arabic calligraphy learning innovation is a renewal idea in calligraphy learning

which has been done manually or called manual calligraphy. Digital calligraphy is based on the internet, while manual calligraphy is based on hand made (made by human hands) which is based on skills (expertise) in writing calligraphy so that it becomes a beautiful decorative work. While digital calligraphy is found on the internet, it contains various forms and types of decorative Arabic writing that contains artistic value, some follow the standard rules of science and technology writing, and some do not follow scientific rules.

For the millennial generation, conventional calligraphy learning systems are considered ineffective because the current era is a digital era that requires people to access every information and knowledge through the virtual world and the world of their fingers, both cellphones, computers, gadgets, tablets, etc. Calligraphy writing through Handmade is needed as the basis for learning manual calligraphy and art can then be developed through innovations in digital calligraphy learning contained in cyberspace.

The results of the study found that the advantages are the advantages of digital Arabic calligraphy are a. Digital Arabic calligraphy is more efficient, because the manufacturing process uses computer digital media, so it doesn't cost too much compared to making manual calligraphy using more art tools and media. b. Digital Arabic calligraphy is more effective in making a large number of works of art. Creations in making Arabic calligraphy are more innovative and varied than manual calligraphy. c. Especially for storage, of course digital Arabic calligraphy is easier to store. Through computer media, calligraphy artists or commonly called calligraphers can save all their work on a computer in the form of files. d. In terms of publishing it, digital Arabic calligraphy art can be published via the internet.

The weaknesses of digital Arabic calligraphy are: a. Digital Arabic calligraphy art is easier to store because it is stored on a computer in the form of files, but actually it is still at risk of being contaminated with various computer viruses. b. An artist who is too focused on working on the digital process may reduce his calligraphy writing skills in manual terms. c. The art of digital calligraphy is actually easier to publish to the general public through internet media, but this art is more at risk of being hijacked by others because it can be accessed easily by everyone, so this is of course very detrimental to the owner of the artwork.

The development of Arabic calligraphy is very rapid in cyberspace and the form of Arabic calligraphy writing does not come out of the qawaid and contemporary rules, including khat sulus and khat Diwani. Digital Arabic calligraphy has advantages, including: more innovative and varied, more efficient, more effective in the number of productions that are more as works of art, more practical to store in file form, easy to publish via the internet, making it easier for calligraphers to introduce and commercialize it to the public. .

Researchers found that there were approximately 100 sites that publish Digital Arabic Calligraphy, but the researchers only listed 10 sites that were selected based on the popularity of the site, which was seen from the number of visitors or viewers of the site each month. Some of the sites below are sites that publish digital Arabic calligraphy works that are only on one type or all of the types of digital Arabic calligraphy and these sites can be said to be popular because they have many viewers or visitors every day.

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