CONTEMPORARY ISSUES OF ISLAMIC ART

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APPRECIATION

Alhamdulillah, All praises to Allah SWT for all His bounties. Blessings and greetings to the noble Prophet Muhammad SAW, the bearer of the blessings of the world. Greetings and peace to the *Ahl Bayt* and Companions of His Majesty SAW who are always under the shadow of the mercy of Allah SWT.

Thanks to blessing from Allah SWT, this book can be presented to the public. The production of the book "Contemporary Issues in the Art of Islamic Education" is appropriate and timely when the interest and inclination of the Muslim community towards knowledge is increasing.

Taking the spirit of enthusiasm in conjunction with the UTM 2022 Khat and Jawi Seminar program that took place on March 22, 2022, appreciation is directed to the Honorable YBhg. Prof. Datuk Ts. Dr. Ahmad Fauzi Bin Ismail, Vice Chancellor of Universiti Teknologi Malaysia as officiant for the entire Program, YBrs Prof. Dr. Ts. Zaidatun binti Tasir, Dean of the Faculty of Social Sciences and Humanities and YBrs. Prof. Associate Dr. Nasrul Hisyam bin Nor Muhamad, Chairman of the Academy of Islamic Civilization, invited guests Mrs. Nor Asikin Binti Mohamad, Chief Librarian of UTM, Mrs. Zanita Binti Anuar, Deputy Director General (Operations), National Visual Arts Development Board, Ustaz Jainal Bin Sakiban, Chairman of the Association Seni Khat Johor is also the Chief Jury of the UTM 2022 Khat and Jawi Competition, representatives from Indonesia, Brunei, Singapore and Thailand, an art

discussion forum panel, paper presenters and a gathering of readers who are blessed by God.

Recalling the objective of holding UTM 2022 Khat and Jawi art to introduce to the community that art is part of Islam, even in Islamic Education cannot be separated from art and global change in showing that Islam appreciates every artist and work but needs to be guided by guidelines. The creation of the universe reveals the harmony and beauty of the art of God's creation. The words of Allah SWT in Surah Qaf, 50: 6.

أَفَلَمْ يَنْظُرُوٓا۟ إِلَى ٱلسَّمَآءِ فَوْقَهُمْ كَيْفَ بَنَيْنَٰهَا وَزَيَّنَّٰهَا وَمَا لَهَا مِن فُرُوجٍ

Translation: *"Have they not looked at the heaven above them – how We structured it and adorned it and [how] it has no rifts"*

The issue of art in Islamic Education needs to be highlighted to the community so that the community sees that art is included in Islam, and how Islamic Education requires an artistic method in conveying a message to every person who sees, contemplates, and studies it.

UTM 2022 Khat and Jawi Art Seminar organized by the Islamic Civilization Academy, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia (UTM) has successfully involved scholars and various parties with expertise from within and outside the country and achieved

As a result of long-term contributions of knowledge, the book entitled "Contemporary Issues in the Art of Islamic Education" contains as many as seven selected articles that have been presented in parallel presentation sessions that have been attended by nearly 30 academics from home and abroad.

In conclusion, it is hoped that this study can give exposure to Muslims in Malaysia about all fields of art-based studies in Islamic education. Hopefully this dwarf effort will be part of the contribution to Muslims from the point of view of the development of science.

Akhirul kalam, we ask Allah SWT for taufik and guidance and seek refuge in Him from all our shortcomings and weaknesses. What is good, comes from God. While what is bad, comes from self weakness.

Wallahu A`lam wa Ahkam.

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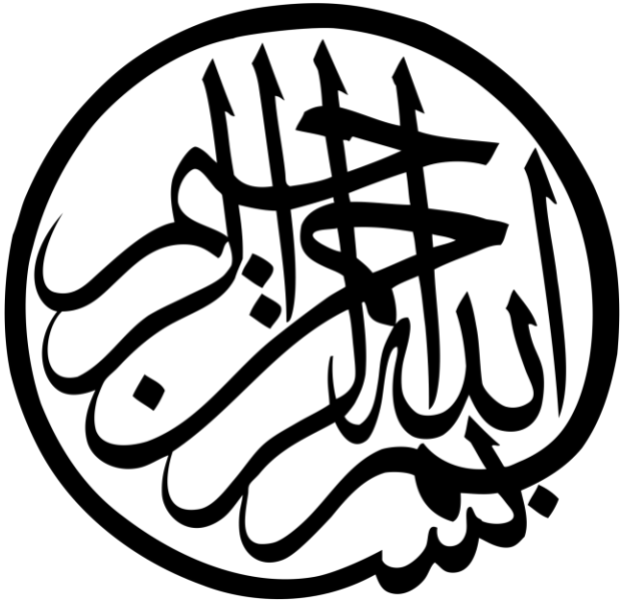
LIST OF PAPERS


بسم الله الرحمن الرحيم

CHAPTER 1
The Use of Stainless Steel to Create Contemporary Artistic Arabic Calligraphy Sculptures

Nor Azlin Hamidon and Zaneb Ali AbuAisha

1.0 ABSTRACT

This paper is entitled "The use of stainless steel in the create contemporary Arabic calligraphy sculptures". It discusses artworks unique, innovative and non-imitation stainless steel Arabic calligraphy. The focus of the paper is to shed light on this new field of contemporary Arabic calligraphy. Analysis is knowing how these artworks were created, the scripts or letters alphabets used, the type of calligraphy used, if possible. Also the type used includes verses from the Qur'an, poetry, famous sayings, non-Arabic poems translated into the Arabic letter. In addition to showing this type of contemporary art of Arabic calligraphy in three-dimensional styles,

the interaction between sculptural Arabic calligraphy, stainless steel, and the environment or surrounding factors led to a three-way contradictory interaction between them, which increased the sculptural artistic act, creativity. The data were analyzed using descriptive analysis method and observation method. The samples are fifteen sculptures. The finding: The stainless steel carvings include intertwined Arabic script and letters. Arabic calligraphy varied between leafy kufi, kufi, diwani, thuluth, Naskh and even contemporary Arabic calligraphy. The sculptures also varied between Quran, poetry, novel, sayings, and words and sentences from the artist himself. As for the style, it is also numerous. There is free Arabic calligraphy, new modern classic Arabic calligraphy, modern classic Arabic calligraphy.

1.1 INTRODUCTION

Since the discovery of the aesthetic value of Arabic calligraphy and its use in Islamic decoration of many materials and shapes. It became one of the three main elements of Islamic art, along with floral and geometric motifs. The Arabic calligraphy is an art in its own right. It can be used without the need for other Islamic art elements. Therefore, the Muslim artist developed Arabic calligraphy and its arts by using it in many things and materials such as tiles, carpets, wall , and others. The artist used wood, plaster, porcelain, and various metals. He used appropriate and appropriate letters, words and sentences of verses, hadiths, wisdom and poetry. The Muslim artist has developed several techniques for using Arabic calligraphy in his art, including pouring it into previously prepared models, whether letters or words, to form the work of the required technician. Arabic calligraphy bears properties and characteristics that make the artist able to use it in his art as well as the development of Arabic calligraphy and its arts (www.baianat.com).

1.2 RESEARCH PROBLEM

Arabic calligraphy is one of the main features of Islamic art. Arabic calligraphy has been applied to many materials such as tiles, carpets, and murals. In addition to the use of metals in the creation of various Arabic calligraphy works. Therefore, Arabic calligraphy is an endless source of creativity, inspiration and innovation. (Al Qahtni and A. Meghed, 2015).

In contemporary art, Arabic calligraphy has been incorporated into all kinds of plastic art, whether paintings or sculptural works. It is not possible to include all Arabic fonts in plastic art, but the artist or calligrapher's experience, skill, foresight, and passion for his artwork or calligrapher can do that. He can also combine several lines with each other and form and install them to create a new linear composition. In addition, in sculpture, several materials are used to create unique and innovative Arabic calligraphy sculptures, including stainless steel, the focus of the study. In addition to that, the calligrapher and artist's ability to install Arabic letters carved from stainless steel, to form the required words and sentences, to take advantage of the characteristics of Arabic calligraphy in creating steel sculptures. Most important of all is the selection of sentences or verses that accept composition in their letters and carving (Arabic calligraphy, plastic art, 2020). The use of non-Arabic poems after translating them into the Arabic letter to compose the sculptural work.

1.3 METHODOLOGY

It is the descriptive analytical method, observation method and Nor Azlin's styles of contemporary theory on Islamic calligraphy artworks. This research aims at clarifying some of the characteristics and values of visual Arabic calligraphy, which enables it to survive, continue and develop, keeping pace with the techniques and developments of applied plastic art or sculpture. Arabic calligraphy

is executed by stainless steel in three-dimensional sculptural work. For artist Nja Al-Mahdaui, El Seed, Sabah Aribilli, Matter Bin Lahij. The research can contribute to reaching an analytical study of some steel sculptural works of contemporary artists who are inspired by the Arabic calligraphy and the Arab Islamic identity as an aesthetic value. It is also beneficial the type of contemporary plastic art and sculptural artwork of three-dimensional Arabic calligraphy.

1.4 DEFINITION OF TERMINOLOGIES

Arabic calligraphy "is the artistic practice of handwriting and calligraphy based on the Arabic alphabet. It is known in Arabic as khatt (Arabic: خـــط), derived from the word 'line', 'design', or 'construction', Kufic is the oldest form of the Arabic script" (wikipedia.org). **Islamic calligraphy**, "equally known as Arabic calligraphy, is the art of artistic handwriting, and by extension, of bookmaking (Ettinghausen, 2012). This art has most often employed the Arabic script, throughout many languages. Calligraphy is especially revered among Islamic arts since it was the primary means for the preservation of the Qur'an. The work of calligraphers was collected and appreciated. Consideration of figurative art as idolatrous led to calligraphy and abstract figures becoming the main forms of artistic"(m.marefa.org).

Stainless steel is an ferrous metal alloy containing a mixture of elements wherein the proportion of iron is not less than 50%, the proportion of chromium is from 5% to 30%, nickel and molybdenum are about 8.5% and the proportion of carbon is a maximum 2%, and its resistance to rust and corrosion is gained due to the "of a thin, cohesive and invisible layer of chromium oxide that adheres to the surface of the metal and protects it from corrosion. This layer is sufficiently protective whenever the percentage of chromium in steel is high" (en.m.Wikipedia.org)

Sculpture "is a branch of the visual arts and at the same time one of the types of plastic arts, as it is based on the creation of three-dimensional models. Originally, it was engraving (ie. removing part of the material) and forming (ie. adding material such as clay). This art is practiced on rocks, minerals, ceramics, wood and other materials. The art of sculpture has been known since ancient times, about 4500 BC. Since the modern era, changes in the sculpting process have led to freedom in the use of materials and processes. Many different materials can be worked through the removal process, such as carving, or the assembly process, such as welding, forming and casting. Sculpture is a figurative art based on the creation of three-dimensional figures of a human, animal, or abstract shapes. Plaster or wax can be used, or rocks, wood or metal are carved. Sculpture is one aspect of artistic creativity as it produces three-dimensional models" (en.m.wikipedia.org).

1.5 FINDINGS

1.5.1 Contemporary Arabic Calligraphy

In the contemporary world, all calligraphers and plastic artists (oil and applied paintings) agreed to consider Arabic calligraphy as one of the most beautiful, attractive and realistic arts. This is because it keeps pace with all technical developments, techniques and contemporary updates, and uses it on all kinds of different materials and raw materials. Arabic calligraphy is an art subject to renewal, development, adaptation, creativity and innovation (Duaa and others, 2019). It used traditional Arabic fonts and created new artistic fonts such as free and expressive fonts and others. Artists adapted traditional and innovative calligraphy, using ancient and contemporary techniques, to create three-dimensional Arabic calligraphy sculptures.

The paper explains the new addition to the art of Arabic calligraphy in applied plastic art or engraving with steel. These sculptures are decorated inside and outside the buildings. Four

artists became famous for these creative works, and their works were shown in many local and international museums and exhibitions. In addition to the use of Quranic verses, Arabic poetry, and others, a feature has been added which is the use of non-Arabic poems translated into Arabic to create Arabic calligraphy sculptures.

1.5.2 The Applied Art of Arabic Calligraphy

Actually, it is not possible to form all traditional fonts and use them in plastic art, whether paintings or sculpture, because of their strict rules and laws, but the calligrapher's experience, artistic imagination and passion for his work can choose the type of font in his art or combine several lines with each other to create new and innovative linear structures. A number of Arabic fonts have appeared in addition to the traditional Arabic fonts, such as the free Arabic calligraphy, expressive Arabic calligraphy, calligraphist and others. Arabic calligraphy is an art that is subject to renewal, innovation and creativity that does not want distinctive shapes and patterns and designs that make it more attractive and applicable, whether on paintings, sculptures, or various works of art (Arabic calligraphy is an art form, 2020).

The artist employed modern techniques and tools to create Arabic calligraphy sculptures such as collage and laser in addition to traditional techniques such as steel casting and shaping the desired shape. In the art of Arabic calligraphic steel sculpture, the letters of the words are carved individually and then collected or carved with the desired words and then collected, to finally form the required words and sentences using interlacing and overlapping or extending them along the required space.

Sculptural Arabic calligraphy works appeared in three-dimensional shapes, which adds another advantage to the artwork by watching it with infinite formations whenever the angle of view of the artwork changes.

1.5.3 Stainless Steel Sculpture Works for Calligraphy Art

This paper focuses on the use of stainless steel in the creation of Arabic calligraphy sculptures. The use of this material in creating Arabic calligraphic sculptures is not considered a product of the modern era, preceded by works of Arab art and calligraphy made of other metals such as gold, copper, steel and others. The methods of engraving, hammering, pressing, punching, unloading and piercing were used to create artworks, as well as the method of casting metal into prepared models (Eittenenhausen, 2012)

Since the Iranian Safavid era, the steel artworks have reached a very precise and ingenious as a continuation of the metal artworks of the previous Islamic eras. During this period, calligraphic steel artworks appeared that were used as flags for wars, tombstones, and on the doors of Iranian shrines, or as they are called increase panels (Eittenenhausen, 2012)

Figure 1.1 Perforated gold plate in steel from the Safavid period, Persia, 1109 AH / 1697-1698 AD

Stainless steel has been used in artistic works in general for its long-term strength and durability, ease of formation, resistance to various weather factors, its bright appearance reflects the movement, lights and surrounding factors around it, it can be colored and dyed in any color, ease of cleaning.

1.6 ANALYSIS OF THE WORK OF THE ARTIST NAJA AL-MAHDAUI

A famous Tunisian calligrapher and plastic artist who used Arabic calligraphy in exquisite plastic works in a new innovative way. He also used several materials, including stainless steel, to carve Arabic letters. With his new style, the Arabic letter has gained a new dimension, art and beauty inspired by the Arabic letter aesthetically (www.nja-mahdaoui.com).

Figure 1.2 Sample 1 for Naja Al-Mahdaui is a sculptural artwork in Arabic calligraphy made of stainless steel. The steel appears in its bright color with simple colors of gold. The type of Kufic calligraphy is leafy, and the text is not clear whether it is poetry or other. The method is to melt the steel and then form it. Source: www.nja-mahdaoui.com).

Figure 1.3 Sample 2 for Naja Al-Mahdaoui is a sculptural artwork in Arabic calligraphy made of stainless steel, with steel coloring. It is clearly a Kufic type of calligraphy. It is not clear whether the text is poetry or something else. The method is to melt the steel and then form it. Source: www.nja-mahdaoui.com.

Figure 1.4 Sample 3 for Naja Al-Mhdaoui. The three curves of the same artwork on three sides. Sculptural work of stainless steel plated with gold. It appears that the type of font is the Diwani font. Watching 3D artwork from three angles, the artwork appears endlessly. Unclear text type. letters separately, then forming, installing, and interweaving them according to the required sentence. Source: www.nja-mhdaoui.com.

1.7 ANALYSIS OF THE WORK OF THE ARTIST ELSEED

Elseed is French artist of Tunisian origin. He Invented the art of calligraffiti, an art that combines Arabic calligraphy and street art. Elseed does not depend in his works on a specific type of Arabic font, but rather on a free Arabic font. The advantage of the art of Arabic calligraphy sculpture is the establishment of steel Arabic calligraphic sculptural designs with non-Arabic poems and poetry translated into Arabic (instagram.com/elseed).

Figure 1.5 Sample 1 for Elseed and plates of the sculpture in several parts. In November 2017, this laser-cut steel artwork on the inter-Korean border was placed by South Korea in the demilitarized zone attached to the fence on the border between the two countries. The

goal is to advocate peace, unity and mutual respect. The statue, which extends horizontally more than 20 meters, represents the words of North Korean poet Kim Saul, who died before the two countries were divided. The artwork will remain unfinished until the rest of the statue is installed in the North Korean part. Words in non-Arabic language. The text has been translated into Arabic script to create the Arabic stainless steel calligraphy sculpture. The surrounding weather factors affected the sculpture, increasing its beauty and splendor.

The carved words (The bridge): “You may remember, unable to forget: yet live a lifetime, remember or forget, For you will have a day when you will come to forget. You may remember, unable to forget: Let your years flow by, remember or forget, For once in a while, you will forget. On the other hand it may be: “How could you forget, What you can never forget? Source: instagram.com/elseed.

The steel kept its usual color, and this suited the environment surrounding the artwork, in contrast to the weather factors and the surrounding environment, which added another aesthetic dimension to the artwork.

Figure 1.6 Sample 2 for Elseed it is Myreingues la Brumeuse sculpture from Claudo Marguerite. The carved French novel in Arabic calligraphy translated into the Arabic letter. Artist El Seed used a laser to cut the sculpture 120 meters long installation suspended between two budges along on the banks of the La Saone river in Lyon city France. The artwork consists of 81 panels. The river, the steel and the line created a mutual interaction between them.

(The fate of Lyon is no simpler than that of the river. Any city. undoubtedly, is a complicated being, Lyon more than another, which strikes the historian by its richness, its abrupt transformations, its originalities, even its oddities. It is not the same from one century to the next century and, more constrained than going of its own accord, It goes endlessly from one originality to another). (Source: instagram.com/elseed).

Arabic calligraphy with its beauty and creativity, steel with its luster and the reflection of movement, light and the surrounding environment, the river with its movement and the flow of water and its reflection on the sculpture. Create a tripartite interaction between the line, the steel and the river in the 3D sculpture. His works create contrast and interaction with the surrounding environment.

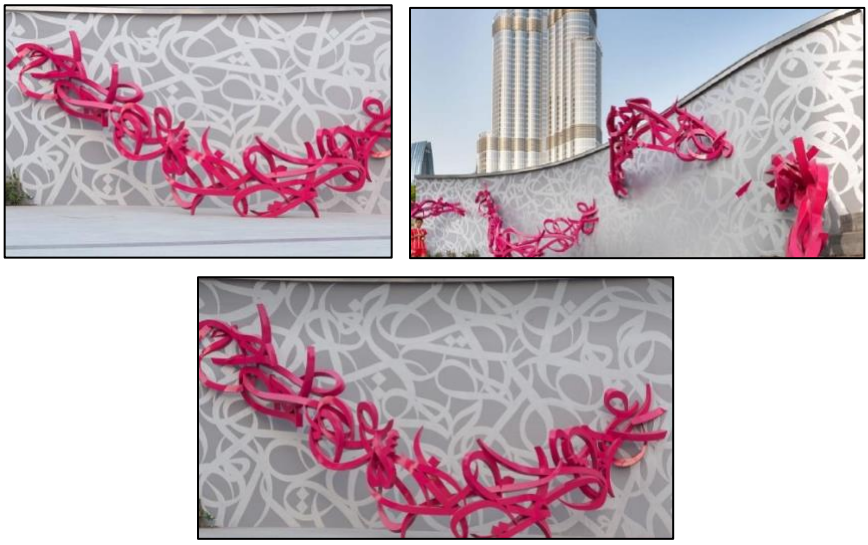


Figure 1.7 Sample 3 for the three-dimensional steel Arabic calligraphy sculpture, covered in bright pink, was placed in front of the Dubai Opera, 30 meters long and weighing 3 and a half tons of steel.

The words of the sculpture were said by Sheikh Mohammed bin Rashid Al Maktum, “Art in all its colors and types reflects the culture, history and civilization of nations.” It is noticed that the artwork has made its letters by casting and then forming the letters. Put the letters together to be the required saying. Interlacing, overlapping, and fitting is a way to collect Arabic letters to form an artistic sculpture. (source: instagram.com/elseed).

1.8 ANALYSIS OF THE WORK OF THE ARTIST SABAH ARIBILLI

Sabah is British artist of Iraqi origin. He An artist passionate about calligraphy and arts since his childhood. He has many works of art displayed in many international museums. Carving Arabic letters

and re-forming them into fine paintings and beautiful sculptures, adding Arabic calligraphy to another aesthetic dimension.

Figure 1.8 Sample 1 for Sabah made this steel sculpture in the form of individual letters and then assembled them to be the poem of the saying of Sheikh Jassim bin Muhammad Al Thani, ruler of Qatar. It was 7.5 meters high and 25 feet long from the Naskh line. Carved words: “And amongst the sultans stood out. As a lanneret floating over mountain peaks”. The sculpture was made on the occasion of the National Day of the State of Qatar. The Arabic calligraphy sculpture was placed on the Doha Corniche 2013. (Source: islamicartsmagazine.com).

Figure 1.9 Sample 2 for Sabah. This stainless steel sculpture was created by artist Sabah and named after the Decision Makers. 40×40×40cm each. Made for the Daralfanoon (Arthouse) (Kuwait, 2016). It is clear that the artist used the method of pushing, punching and laser cutting to implement the artwork. The artist added colors to stainless steel to look more beautiful, wonderful and new in the sculptural artistic medium. (Source: islamicartsmagazine.com).

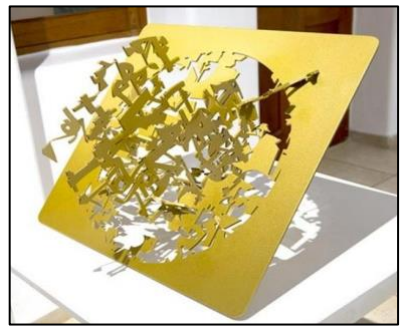


Figure 1.10 Sample 3 for Sabah is Immigration sculpture. counted 60×60×60cm. Exhibited at the Kuwait Exhibition for Arabic Calligraphy 2016. It seems that the artist used the laser to cut, shape and install the Arabic letters for the sculpture 2016 Kuwait. (Source: islamicartsmagazine.com).

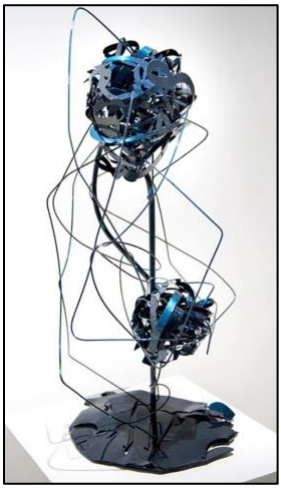


Figure 1.11 Sample 4 for Sabah is Inner control sculpture. 70×40×40cm 2016 Kuwait. The interweaving of the Arabic letters, their overlapping and their installation in stainless steel, the sculpture increased its beauty with the change of the color of the steel to this beautiful color, adding another feature to the three-dimensional Arabic calligraphy sculpture. (Source: islamicartsmagazine.com).

The artist Sabah's works are different, innovative and new in design and creativity. He has new ideas to express his art using stainless steel.

1.9 ANALYSIS OF THE WORK OF THE ARTIST MATTER BIN LAHIJ

Matter is young Emirati artist adopts the Thuluth script in his oil and stainless steel artworks. He has many works of Arabic calligraphy of steel, some even called him the Man of Steel. With his passion for calligraphy and steel, he made small and giant steel sculptures.

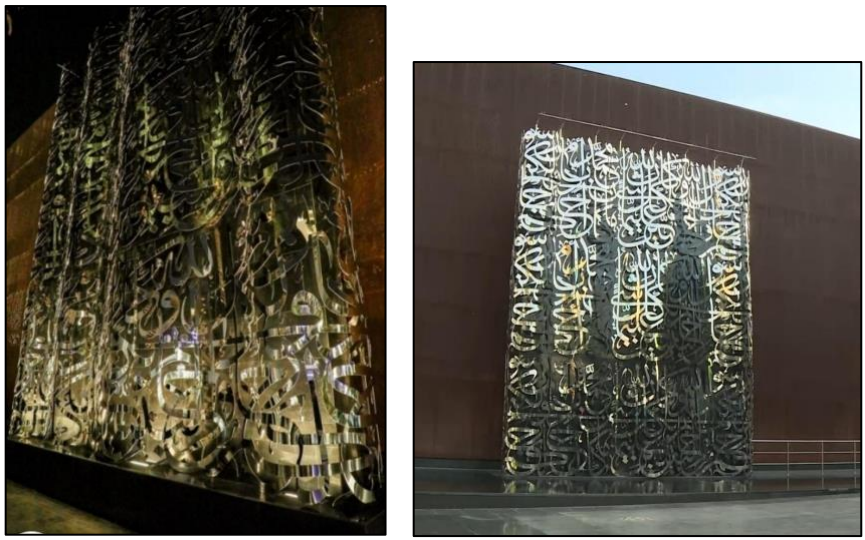


Figure 1.12 Sample 1 for Matter is Sculpted verse (Aya). It is a sculpture by artist Matar in 2018. It is verse 40 of Surat Muhammad. Its height is 8 meters and its width is 6 and was placed in front of City Walk in Dubai, near the mosque. It is Weighs four tons of stainless steel. Sculpted in traditional hollowed-out thuluth script, made of gilded stainless steel on a 3D black background. Incorporating Arabic calligraphy and stainless steel using modern techniques, the sculpture increased creativity and beauty. The Arabic calligraphy sculpture, the artist corrugated its letters, placed it on a pool of water, and added movement to it. Its unique shape created a state of balance between the eye of the beholder and its surroundings, in addition to the influence of weather factors on it. (Source: matter bin lahij page Facebook).

Figure 1.13 Sample 2 for Matter is Gold-plated stainless steel of speech energy sculpture at Qasr Al Watan in Abu Dhabi. Made of stainless steel grade 1316l marine. He made three large sculptures, one placed in the palace, weighing 6 tons, two smaller ones were placed in the palace garden, each weighing 4 tons.

The carvings reflect the aesthetics of Arabic calligraphy, the third, with its beautiful letters, and large curves. The carved letters are hollowed out from the inside, very precise and balanced. The sculpture is hollowed out from the inside, allowing the audience to enter it to explore its artistic dimensions from a different perspective. The sculptures represent a saying of Sheikh Zayed bin Al Nahyan. The main sculpture is “Real wealth is the wealth of men, not money and oil, and money is of no use if it is not harnessed to serve the people.” Other Sculptures “Science and history go hand in hand. With knowledge, anyone can write their history and preserve it for generations. So that they can look at it and know what grandparents and fathers did”. “Education and culturing people in itself is a great wealth that we cherish. Science is a wealth. We are building the future on a scientific foundation”. (Source: www.emaratalyoum.com.).

Figure 1.14 Sculpture Moons of Forgiveness The steel sculpture represents the flow and aesthetics of letters. It is located next to a waterfall of 12 square meters and two meters high. Circular rings linked together with Arabic letters seem to flow out of the water stream in a continuous dynamic. In addition, the reflection of the water movement on the stainless steel generates additional movement. Each episode is a part of Surat Al-Ikhlas. The crescent is formed to become a full moon. The luster of steel and the reflection of light and water added more beauty to the sculpture. The Dubai Mall, Dubai, 2013. (Source: Matter bin Lahij page Facebook.

1.8 TABLE OF NOTES

Artist and name his work	Scripts or letters	Type of calligraphy	Style
Naja Al-Mahdauio. No name	ت،ف،ح،ن	Leafy kufic	Free calligraphy
Naja, no name	م، ث،ب،	Kufic	Free calligraphy
Naja,no name	ع،ث،خ، ح،	Diwani	Free calligraphy
Elseed, The bridge	The artist mentioned what he carved from a poem by a Korean poet. The poem in a foreign language was translated by the artist into the Arabic letter.	Free calligraphy	Free calligraphy

Elseed, Myreingues la Brumeuse	The artist mentioned what he carved from the text of a historical novel about the city of Lyon. Translate the text from the French language to the Arabic letter.	Free calligraphy	Free calligraphy
Elseed, no name	The artist mentioned what he carved from a saying by Sheikh Mohammed bin Rashid, ruler of the United Arab Emirates	Free calligraphy	Free calligraphy
Sabah Aribilli, no name	The artist mentioned what he carved from a saying by Sheikh Jassim Al Thani, ruler of the State of Qatar	Naskh	Modern Classical Calligraphy
Sabah, the decision maker	Not clear	Naskh	Modern classical
Sabah, immigration	هجرة , repitation	Naskh	Modern classical
Sabah, inner control	Not clear	Naskh	Modern classical
Matter Bin Lahij, Aya.	It is Aya 40 of Surat Mohammef, the artist mentioned that.	Thuluth	Neo-modern classical
Matter, speech energy	The three sculptures, sayings of the late Sheikh Zayed bin Al Nahyan. The artist mentioned it	Thuluth	Free calligraphy
Matter, moons of forgiveness	Surat Al-Ikhlas	Thuluth	Free calligraphy

1.10 CONCLUSION

Arabic calligraphy is a source of inspiration for many calligraphers to create their own unique art. Arabic calligraphy continues to be compatible with both classical and modern ideas. The study combines traditional and contemporary Arabic calligraphy with stainless steel in creating creative and stunning sculptures using modern technologies. The steel Arabic calligraphy carvings appeared very accurate and beautiful in endless forms whenever the angle of view changed. The use of non-Arabic poetry and narration was added, then translated into the Arabic letter. Besides, stainless steel was a prominent element in the sculptures, which increased the

beauty of the sculpture on the one hand, and reflected the weather and surrounding factors on the other. These factors gave the sculptures a sense of movement, dynamism and life.

In addition, the addition of colors to stainless steel was another aesthetic element that increased the beauty of the Arabic calligraphy sculpture. Finally, Arabic calligraphy of its various types obliges the calligrapher and the artist of Arabic calligraphy to be creative and innovative and not to imitate the works of art.

The following can be noted. Precision polishing, laser cutting and shaping of letters, selection of stainless steel. The sculptural work added beauty. The balance between the sculptural work and its letters. Fill the workspace and find the appropriate shape to form the sculpted steel letters into an eye-catching shape. The balance of the Arabic calligraphy sculptural artwork horizontally or vertically from stainless steel. The artwork increased creativity and innovation.

These are works by four artists who used stainless steel to create Arabic calligraphy sculptures. I recommend further researching other artists who have used the same material to create new creative line sculptures in their own styles to get a broader and more comprehensive view of this type of art.

The stainless steel carvings include intertwined Arabic script and letters. Arabic calligraphy varied between leafy kufi, kufi, diwani, thuluth, Naskh and even contemporary Arabic calligraphy. The sculptures also varied between Quran, poetry, novel, sayings, and words and sentences from the artist himself. As for the style, it is also numerous. There is free Arabic calligraphy, new modern classic Arabic calligraphy, modern classic Arabic calligraphy

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CHAPTER 2
Karya Jawi Sebagai Sumber Pengoperasian Sains Islam: Satu Penelitian

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2.0 ABSTRAK

Sains Islam harus berperanan secara operasional bagi menangani positivism dalam sains moden dan indeterminisme dalam sains pascamoden. Makalah ini meneliti sains Islam dari sudut pengoperasian memfokuskan kepada satu persoalan kajian iaitu bagaimanakah karya jawi ulama tempatan di Alam Melayu dapat diposisikan sebagai sumber pengoperasian sains Islam? Metodologi penelitian ini berasaskan kaedah analisis kandungan teks dan kaedah eksperimental. Sampel karya jawi dalam penelitian ini adalah kitab *al-Durr al-Thamīn* karangan Syaikh Daud bin Abdullah al-Fatani, manakala model ujikaji saintifik untuk memaparkan pengoperasian sains Islam adalah kajian kecerahan langit syafak semasa terbenam matahari pada nilai 107.99° ± 0.16° di Pantai Tanjung Aru, Sabah, Malaysia dan kemunculan fajar semasa terbit matahari pada nilai 110.17° ± 0.17° di Pantai Bak-bak, Kudat, Sabah. Nilai sudut

junaman matahari terbabit telah diperolehi daripada hasil cerapan langit menggunakan Sky Quality Meter (SQM). Penelitian mendapati intisari terpenting dalam karya jawi sebagai sumber pengoperasian sains Islam melalui model kajian kecerahan langit fajar dan syafak terletak pada hukum kebersebaban. Hukum berkenaan merupakan manifestasi Syariah Islam dalam menghuraikan hubungan sebab dan akibat. Disamping sebagai paradigma sains Ahli Sunnah Wal Jamaah di Alam Melayu, sudah sampai masanya hukum terbabit diimplementasikan secara operasional dalam ujikaji saintifik untuk menangani positivisme dan indeterminisme dalam ekosistem sains semasa.

Kata Kunci: Jawi, Sains Islam, Etnosains, Pengoperasian Sains, Integrasi Ilmu

2.1 PENGENALAN

Dalam sejarah perkembangan peradaban manusia, sumbangan tamadun Islam terhadap kemajuan sains dan teknologi adalah jelas signifikan dan ia memuncak ketika zaman Andalusia menjadi pusat transmisi ilmu daripada tamadun Islam ke benua Eropah. Bagaimanapun, semenjak lahirnya sains moden melalui kemajuan yang dikecapi tamadun Barat bermula pada abad ke-17 kemudian transisinya kepada sains pascamoden pada abad ke-20 yang dapat dilihat tanda perkembangannya daripada paradigma fizik Newton kepada paradigma fizik Einstein, keberadaan sains Islam kelihatan hanya sebagai bahan pengkajian sejarah dan falsafah. Hakikatnya tidaklah sedemikian, ini kerana sains Islam merupakan satu aktiviti ujikaji yang operasional yang berpaksikan nilai ketauhidan, kehambaan, keadilan dan keihsanan. Nilai-nilai sedemikian terus dihidupkan dan ditelaah oleh ahli saintis Muslim pada masa kini yang memiliki kesedaran iman dan itulah yang membezakan sains Islam dengan sains moden yang membawa nilai determinisme atau positivisme dan sains pascamoden dengan nilai indeterminisme. Namun, sekiranya budaya saintifik Islam tidak diterjemahkan dalam

bentuk tindakan untuk kegunaan aktiviti sains semasa, sudah tentu sains Islam hanya tinggal sebagai bahan pengkajian sejarah dan perbincangan falsafah semata-mata serta sukar menjadi alternatif bagi menangani dominasi sains moden dan pascamoden.

Justeru, pemerkasaan sains Islam dalam konteks semasa bukan sahaja harus memberi perhatian terhadap penguasaan epistemologi dan metodologi sains masa kini, tetapi juga harus mengambilkira pemeliharaan sumber keilmuan tradisi Islam antaranya adalah karya jawi ulama tempatan di Alam Melayu. Seperti kata ibarat, "al-muhafazah ala al-qadim al-salih wa al-akhzu bi al-jadid al-aslah" yang bermaksud memelihara tradisi lama yang baik dan mengambil perkara baru yang lebih baik. Untuk itu, penelitian ini memberi tumpuan kepada satu persoalan kajian iaitu bagaimanakah karya jawi ulama tempatan di Alam Melayu dapat diketengahkan sebagai sumber pengoperasian sains Islam? Persoalan kajian terbabit akan cuba dijawab berpandu satu hipotesis nol iaitu karya jawi ulama tempatan di Alam Melayu tidak dapat diketengahkan sebagai sumber pengoperasian sains Islam.

2.2 TINJAUAN LITERATUR

Berdasarkan tema karya jawi dan sains, dapat dilihat beberapa kajian penting antaranya oleh Abdullah Sulaiman (2010). Melalui penelitian terbabit, karya jawi bukan sahaja menyampaikan kandungan ilmu pengetahuan Islam pada akidah, fiqh dan akhlak, tetapi ia juga menyalurkan ilmu pengetahuan sains dan teknologi khususnya ilmu falak atau astronomi serta matematik kerana gunaan dan kepentingannya yang turut disentuh oleh al-Qur'an. Karya jawi yang diberi perhatian dalam kajian Abdullah Sulaiman adalah 'Alam al-Hussab fi 'Ilm al-Hisab karangan Syaikh Ahmad Khatib Minangkabau dan ia menyerlahkan dimensi ilmu matematik.

Lebih terperinci mengenai pemikiran Syeikh Ahmad Khatib dapat diamati menerusi kajian Mat Rofa Ismail (2010), Menerokai

Etnomatematik Melayu-Islam: Teori Kombinatorikal-Khatib dalam ‘Alam al-Ḥussab dan Rauḍah al-Ḥussab. Kemudian, Abdul Latif Samian (2013) dalam kajiannya, *Newton’s Phenomena and Malay Cosmology: A Comparative Perspective* turut memberi tumpuan terhadap karya ‘Alam al-Hussab fi ‘Ilm al-Hisab karangan Syaikh Ahmad Khatib Minangkabau dan membandingkannya dengan karya *Principia Mathematica* oleh Sir Isaac Newton. Kajian Mat Rofa Ismail dan Abdul Latif Samian membuka dimensi baharu dalam kajian terhadap pemikiran ulama tradisional iaitu menerusi wacana etnosains dan etnomatematik. Namun begitu, bagaimana seharusnya karya jawi diketengahkan sebagai sumber pengoperasian sains Islam tidak diberi perhatian dalam fokus kajian Mat Rofa Ismail dan Abdul Latif Samian.

Untuk tema wacana sains Islam, penelitian Osman Bakar (2011) menyerlahkan kepentingan pendekatan sintesis terhadap sains Islam, sains moden dan sains pascamoden. Pendekatan sedemikian penting bagi membantu umat menghadapi cabaran abad ke-21 dan ia perlu berasaskan prinsip tauhid al-Qur’an. Bagaimanapun, apakah model atau contoh praktikal untuk melaksanakan paradigma sintesis tidak dihuraikan. Selanjutnya, penelitian Mat Rofa Ismail (2013, 2014) dan Shaharir Mohamad Zain (2000, 2015) berkaitan sains Islam turut menyentuh kepentingan prinsip tauhid al-Qur’an sebagai landasan kepada paradigma sains bersepadu serta kedudukan prinsip kebersebaban dan hukum tabi’i atau sunnatullah. Namun, bagaimanakah karya jawi dapat diposisikan sebagai sumber pengoperasian sains Islam tidak disentuh dalam penelitian beliau.

Kemudian, Mohammad Hafiz Mad Rashid (2018) tampil memperkenalkan konsep sains tauhidik sebagai satu bidang sains yang berteraskan konsep tauhid yang tidak memisahkan kegiatan sains daripada konsep ketuhanan. Tujuan penerapan konsep sains tauhidik adalah sebagai usaha ke arah membangunkan Tamadun Melayu mengikut landasan dan kerangka agama Islam. Pun begitu, format sains tauhidik yang diperkenalkan menjurus kepada

pendekatan sejarah, falsafah dan etika. Bagaimana karya jawi dapat diketengahkan dalam format terbabit dan bagaimana pengoperasian sains Islam secara praktikal tidak disentuh.

Berkaitan kajian kecerahan langit untuk penentuan waktu solat Subuh atau Isyak, ia dapat dibahagikan kepada dua pendekatan iaitu kualitatif dan kuantitatif. Antara kajian kualitatif berkenaan ialah Raihana Abdul Wahab (2016), Nurulhuda Ahmad Zaki (2014), Susiknan Azhari (2013) dan Nur Nafhatun (2013). Manakala, antara kajian kuantitatif dan secara eksperimental dapat ditelaah antaranya dalam Ngadiman (2020), Nihayatur Rohmah (2016), A.H. Hassan (2014) dan Dhani Herdiwijaya (2014). Bagaimanapun, belum terdapat kajian kecerahan langit yang diketengahkan sebagai satu bentuk pengoperasian sains Islam, apatah lagi menyentuh soal meletakkan karya jawi sebagai satu sumber pengoperasian sains.

Berdasarkan tinjauan literatur beberapa kajian lepas itu, dapat dirumuskan bahawa belum terdapat pengkajian yang memposisikan karya jawi sebagai satu sumber pengoperasian sains Islam menerusi model kajian kecerahan langit. Sehubungan itu, penelitian ini akan memberi perhatian terhadap perkara terbabit.

2.3 METODOLOGI KAJIAN

Rekabentuk penelitian ini menggabungkan metodologi kualitatif dan kuantitatif. Pendekatan kualitatif yang digunakan adalah kaedah dokumentasi atau disebut juga sebagai kaedah kepustakaan tertumpu kepada penelitian terhadap sumber dokumentasi seperti manuskrip, buku-buku, artikel jurnal dan bahan bertulis yang lain. Menerusi sumber dokumentasi itu, pengambilan data dan pengumpulan maklumat daripada kitab jawi dibuat dengan meneliti bahan-bahan yang relevan terhadap persoalan kajian. Manakala, pendekatan kuantitatif yang diaplikasikan adalah berasaskan kaedah eksperimental, kaedah analisis statistik deskriptif untuk merumus data kecerahan langit dan kaedah visualisasi data.

Dari sudut persampelan, penelitian ini menggunakan persampelan bertujuan (purposive sampling) untuk menjawab persoalan kajian. Sampel karya jawi yang dipilih adalah kitab al-Durr al-Thamīn karangan Syaikh Daud bin Abdullah al-Fatani, manakala model ujikaji saintifik untuk memaparkan pengoperasian sains Islam adalah kajian kehilangan syafak semasa terbenam matahari pada nilai 107.99° ± 0.16° di Pantai Tanjung Aru, Sabah, Malaysia yang telah kami kaji bermula tahun 2008 hingga 2011 dan fenomena kemunculan fajar semasa terbit matahari pada nilai 110.17° ± 0.17° di Pantai Bak-bak, Kudat, Sabah yang dikaji pada tahun 2017. Alat cerapan utama yang digunakan dalam kajian ini ialah *Sky Quality Meter* (SQM).

2.4 LATAR BELAKANG KARYA

Al-Durr al-Thamīn merupakan kitab Syeikh Daud bin Abdullah al-Fatani yang menerangkan dasar-dasar agama atau ilmu usuluddin. Selain itu, ia turut menerapkan elemen fiqh dan tasawwuf. Ia selesai ditulis oleh pengarang pada waktu Zohor, hari Sabtu, 17 Syawal 1232H bersamaan dengan 1816M di Makkah. Dalam bahasa Melayu, judul tersebut bermaksud Permata Yang Berharga. Sebagaimana kitab jawi yang lain, pengarang meletakkan judul dalam bahasa Arab kemudian beliau menyusun isi kandungannya dalam bahasa Melayu sebagai suatu kemudahan untuk masyarakat awam tempatan.

Dari segi manuskrip, kajian-kajian lepas jelas menunjukkan kitab ini adalah hasil penulisan al-Fatani. Kitab ini merupakan sebuah karya pengarang yang masyhur diketahui umum sebagaimana kitab Munyah al-Muṣallī dan dipelajari oleh para penuntut ilmu agama di Alam Melayu. Perpustakaan Universiti Malaya memiliki manuskrip kitab ini di bawah katalog Mss. 246. Dalam koleksi PMM-PNM, kitab ini di bawah katalog MS 64, 599, 771, 579, 827 dan 919. Koleksi PIKL meletakkan manuskrip kitab ini di bawah katalog ML 224 (VI 117) dan ML 793 (VI 118).

Dari sudut cetakan, ia telah dibuat antaranya oleh Maṭba‘ah Dār al-Ma‘ārif Pulau Pinang, Maktabah Dār al-Ṭibā'ah al-Miṣriyyah Singapura, Maṭba‘ah Bin Halābī Patani dan Penerbit al-Hidayah. Untuk bahan kajian, pengkaji menggunakan cetakan Maṭba‘ah Bin Halābī, Patani sebagai rujukan utama. Ia dicetak dalam tulisan jawi dan mengandungi 103 halaman berserta dengan ḥāmish iaitu catatan tepi kitab Ḍiyā’ al-Murīd yang juga merupakan karangan al-Fatani. Kitab Ḍiyā’ al-Murīd menerangkan amalan zikir menurut kaedah tarekat Syatariyyah. Manakala, cetakan Penerbit al-Hidayah dijadikan rujukan semakan dan ia mengandungi 311 halaman dalam tulisan rumi. Dari aspek kandungan, perbincangan kitab ini berkaitan akidah berlandaskan pendekatan al-Ashā‘irah. Ia menyalurkan maklumat asasi kepada umum mengenai ketuhanan (‘uluhiyyah), kenabian (nubuwwah) dan perkara-perkara ghaib (sam‘iyyāt).

Meneliti susunan penulisannya lebih lanjut, bahagian awal kitab ini membentangkan maklumat berkaitan dengan prinsip ilmu (mabādi’), pengenalan kepada ilmu usuluddin, taksonomi hukum yang terdiri daripada hukum adat kebiasaan, hukum syarak dan hukum akal, tanggungjawab mukallaf menurut hukum Islam, konsep penelitian (naẓar) dan akhir sekali konsep alam. Kelebihan ilmu turut diterangkan pada bahagian tengah kitab. Sehubungan dengan itu, analisis yang dibuat terhadap karya ini adalah tertumpu hanya kepada maklumat hukum kebersebaban.

2.5 DAPATAN DAN PERBINCANGAN

Berikut adalah penjelasan hukum kebersebaban atau diterangkan juga sebagai hukum adat dalam karya al-Durr al-Thamīn yang relevan dengan pengoperasian sains Islam.

“Maka hukum ‘adi (adat) itu iaitu kita ithbatkan tambatan antara satu pekerjaan dan satu pekerjaan pada wujudnya atau ‘adamnya dengan menengahi berulang-ulang serta sah bersalah-

salahan dan ketiadaan memberi bekas salah suatu daripada keduanya pada yang lainnya sekali-kali. Bermula bahagi tambatan itu empat bahagi. Pertama, tambat wujud dengan wujud seperti kita tambatkan wujud kenyang sebab ada wujud makan. Keduanya, tambat ‘adam dengan ‘adam seperti kita tambat ketiadaan kenyang sebab ketiadaan makan. Dan ketiga, tambat wujud dengan ‘adam seperti kita tambatkan ada lapar dengan ketiadaan makan. Keempat, tambat ‘adam dengan wujud seperti kita tambatkan ketiadaan lapar sebab keadaan makan.”

Berdasarkan maklumat di atas, dapat diketahui bahawa hukum kebersebaban di atas adalah mengikut pola pemikiran al-Asya’irah Ahli Sunnah Wal Jama’ah. Untuk aplikasinya dalam cerapan saintifik, dasar-dasarnya telah diterangkan oleh al-Ghazālī dimana sumber empirik dibahagikan kepada dua bahagian iaitu pancaindera zahir (al-maḥsūsāt al-ẓāhirah) dan eksperimen atau ujikaji (tajribah). Pancaindera zahir merupakan sebagai aspek fundamental, manakala ujikaji sebagai aspek lanjutan. Kedua-duanya itu menyalurkan kualiti maklumat empirikal yang berbeza kepada pencerap.

Pancaindera zahir merujuk kepada deria asas manusia iaitu pendengaran, penglihatan, rasa, bunyi dan hidu. Ia adalah asas kepada ujikaji. Tanpa pancaindera zahir, mustahil kegiatan ujikaji dapat dilaksanakan. Sekiranya pancaindera dioperasikan juga tanpa melalui ujikaji, maklumat yang disalurkannya terdedah kepada nilai ralat yang tinggi dan tidak mustahil ia adalah maklumat yang salah. Contohnya, cerapan mata kasar (naked-eye) mendapati matahari mengelilingi bumi disebabkan setiap hari ia terbit di timur dan terbenam di barat. Hasil cerapan mata kasar itu mendapati bumi sebagai pegun manakala matahari dan objek samawi yang lain mengelilingi bumi. Kesimpulan itu jelas bersalahan dengan realiti alam tabii yang sebenar. Melalui ujikaji, didapati bumi beredar mengelilingi matahari bukan sebaliknya. Contoh lain adalah bayang-bayang, penglihatan mata kasar mendapatinya sebagai pegun. Bagaimanapun, apabila diperiksa semula dengan

pemerhatian berulang-ulang iaitu melalui ujikaji, didapati bayang-bayang bukanlah pegun sebaliknya ia bergerak. Demikian juga penglihatan mata terhadap bintang. Saiznya didapati kecil dan berkedudukan statik. Apabila ujikaji dilakukan dengan teliti dan berulang-ulang ternyata ia sebenarnya bergerak dan lebih besar daripada bumi.

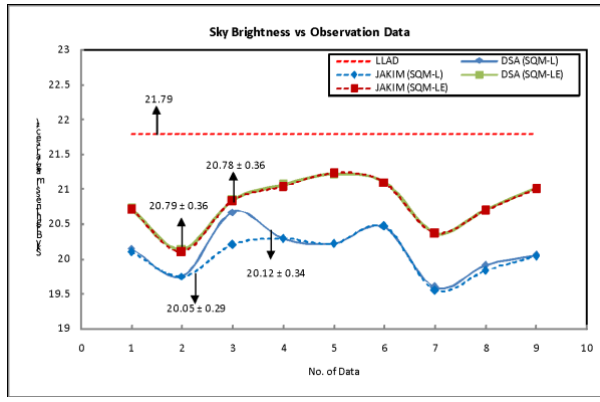
Sehubungan itu, maklumat yang disampaikan menerusi pancaindera tidak boleh diterima secara mutlak dan ia perlu ditahkik. Fungsinya cukup terbatas mengikut persekitarannya. Misalnya cerapan mata kasar, ia hanya boleh digunakan ketika ada cahaya. Dalam keadaan gelap, deria mata tidak boleh berfungsi untuk mendapatkan maklumat. Oleh sebab itu, pancaindera zahir perlu diletakkan dalam kerangka ujikaji supaya menghasilkan maklumat yang lebih tepat dengan nilai ralat yang lebih rendah dan dapat diketahui. Dengan pengetahuan terhadap ralat itu, maka pembaikan berterusan dapat dilakukan.

Adapun ujikaji merujuk kepada kegiatan pemerhatian secara sistematik yang melibatkan pengumpulan data, pengujian teori, penggunaan instrumentasi tertentu dan penghasilan maklumat. Ujikaji dilakukan berulang-ulang untuk menghasilkan maklumat empirikal yang lebih tepat. Selain daripada pancaindera zahir, ujikaji juga memerlukan kemampuan akal yang tinggi kerana pencerap perlu mengamati dan merumuskan hukum alam yang wujud di sebalik pengulangan pemerhatian. Oleh sebab itu, maklumat empirikal yang disalurkan menerusi ujikaji adalah lebih kompleks.

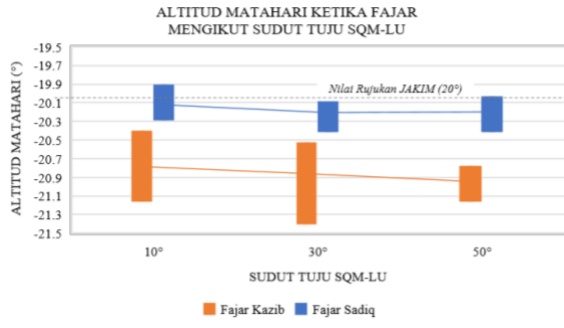
Cerapan Kecerahan Langit Menggunakan SQM	**Lokasi**	**Sudut Junaman Matahari (°)**
Ketika munculnya fenomena fajar untuk permulaan waktu Subuh	Pantai Bak-bak, Kudat, Sabah	110.17° ± 0.17°

Ketika hilangnya fenomena shafaq untuk permulaan waktu Isyak	Pantai Tanjung Aru, Kota Kinabalu, Sabah	107.99° ± 0.16°

Jadual 2.1: Sudut junaman matahari untuk fenomena fajar dan syafak (Niri, M.A., 2012 & 2019)



Rajah 2.1: Keterangan Langit dan Data



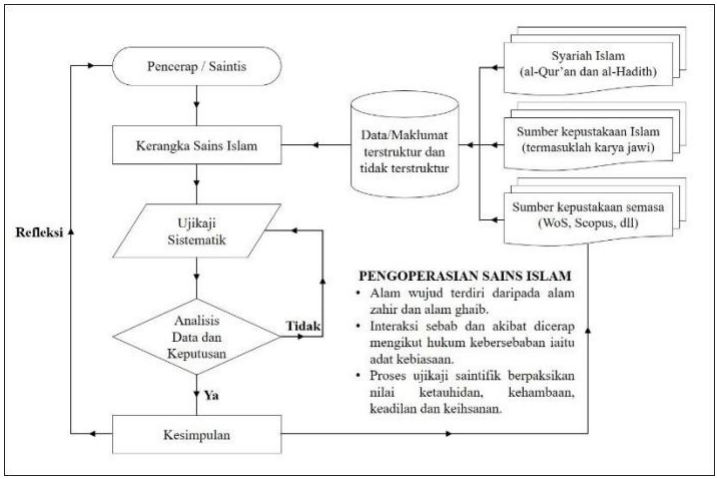
Rajah 2.2: Altitud Matahari ketika Fajar Mengikut Sudut Tuju SQM-LE

Sebagai contoh, Rajah 2.1 dan 2.2 di atas menjelaskan proses menentukan sudut junaman matahari berdasarkan kemunculan fajar untuk permulaan waktu Subuh dan kehilangan syafak untuk permulaan waktu Isyak. Teori astronomi yang menunjukkan sudut

junaman matahari untuk permulaan siang dan malam adalah pada nilai 108°. Teori tersebut hanya jangkaan yang kelihatan konsisten dengan realiti alam. Lebih tepat, berdasarkan hukum kebersebaban ia hanya kebiasaan sebab-akibat (talāzum al-asbāb wa al-musabbabāt) atau disebut juga sebagai hukum adat. Ia merupakan persepsi minda, adapun hakikat sebab dan akibat adalah tertakluk kepada qudrah dan irādah Allah SWT.

Kemudian, penggunaan alatan SQM dalam cerapan kecerahan langit fajar dan syafak adalah berasaskan aplikasi konsep cahaya sebagai foton. Hukum kebersebaban di sebalik ciri cahaya sebagai foton dapat dicerap dalam makmal bilik gelap misalnya melalui ujikaji pembelauan cahaya iaitu Eksperimen Dwi Celah Young. Cahaya diketahui terdiri daripada foton yang menunjukkan sifatnya sebagai zarah. Apabila ia melalui dua celah, pola interferens terbentuk di hadapan skrin. Hal demikian menunjukkan cahaya bersifat gelombang. Manakala, apabila hanya satu sahaja celah yang dibuka, pola interferens hilang daripada skrin dan cahaya kembali menampakkan sifatnya sebagai zarah. Ujikaji itu membuktikan kelaziman sifat cahaya. Ketika cahaya menzahirkan sifatnya sebagai zarah, maka sifat gelombang terpendam. Begitu juga apabila cahaya menyatakan sifatnya sebagai gelombang, maka sifat zarah terpendam.

2.6 KESIMPULAN



Rajah 2.3: Sumber Pengoperasian Sains Islam

Sebagai kesimpulan, Rajah 3 di atas menjelaskan bagaimana karya jawi diposisikan sebagai sumber pengoperasian sains Islam. Ia boleh diletakkan sebagai penghurai kepada al-Qur'an dan al-Hadith yang merupakan hakikat Syariah Islam itu sendiri. Dalam penelitian ini, posisi karya jawi terutamanya pada aspek hukum kebersebaban seperti dikemukakan dalam al-Durr al-Thamīn karangan Syaikh Daud bin Abdullah al-Fatani disintesiskan dalam kajian kecerahan langit fajar dan syafak sebagai model pengoperasian sains Islam. Sintesis sedemikian penting untuk mengatur cara berfikir dan cara bertindak dalam pelaksanaan ujikaji. Selain itu, maklumat yang diperolehi daripada ujikaji hanya sebagai tanda daripada alam fizikal yang akhir sekali ditanggapi oleh minda dan perlu diproses oleh akal serta disaring dengan pegangan akidah yang benar untuk menjadi paradigma sains Islam. Contohnya, kajian kecerahan langit syafak semasa terbenam matahari pada nilai 107.99° ± 0.16° di Pantai Tanjung Aru, Sabah, Malaysia dan kemunculan fajar semasa terbit matahari pada nilai 110.17° ± 0.17° di Pantai Bak-bak, Kudat, Sabah. Nilai kuantitatif terbabit adalah hasil cerapan sistematik dan

hitungan akal untuk memahami adat kebiasaan fenomena kecerahan langit semasa kehilangan syafak dan kemunculan fajar. Akhir sekali, pemprosesan maklumat ujikaji dilakukan oleh pencerap atau saintis dengan nilai ketauhidan, kehambaan, keadilan dan keihsanan. Selain kekuatan kapasiti akal, pencerap boleh dibantu oleh hati yang bersih menerusi ilham yang benar dan bermuafakat dengan syarak sebagai hidayah daripada Allah SWT. Hal demikian berbeza dengan kerangka positivisme sains moden dan indeterminisme sains pascamoden yang memandang pemprosesan maklumat hanya tertakluk dalam taakulan akal pencerap semata-mata tanpa menerima peranan Allah SWT Tuhan Maha Esa dalam pembentukan ilmu dalam diri insan dan pentadbiran alam tabi'i.

RUJUKAN

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CHAPTER 3
Application Of Jawi In The Current Astronomical Science: A Summary

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3.0 ABSTRACT

Based on the Terengganu inscription stone, the development of the Jawi script since the 14th century had covered the astronomical elements. Later, the elements were progressively expanded in Malay literature and then classified in Islamic science as ilmu falak, for instance, Sullam al-Nayyirain by Syaikh Muhammad Mansur al-Batawi. However, the enactment of Romanised Malay as the official script in 1954 has impacted the separation of Jawi from the intellectualism of Islamic science. Although various efforts have been made to strengthen Jawi, less concern was given to revitalizing Jawi in the scientific area. This paper shares our experience applying Jawi in the current astronomical science focusing on the galactic and universe scales. The methodology of this study is based on content analysis and participant feedback. As a result, we have identified that the essential component of Jawi to be applied is calculation and reasoning aspects. We redeveloped the component, namely Pintar

al-Aflak, to be employed as nexus of preserving Jawi in the digital ecosystem transformation and enhancing its potential use in scientific and technological applications such as interactive infographics, scientific reports, augmented reality, and machine learning.

Keywords: Jawi, Falak, STEM, Astronomy, Islamic Science

3.1 INTRODUCTION

The current field of astronomical science is extensive and divided into smaller sub-disciplines such as terrestrial remote sensing, galactic science, stellar chemistry, exoplanetary, space exploration with various spectral sensors. Astronomy is also used in inter- and trans-discipline, for example, astrophysics, astrobiology, astroarcheology, astrometeorology, and astrotourism. As the science of astronomy rapidly expands, branches, and gets deeper, astronomical science has left behind traditional astronomy making it just a sub-discipline while the Jawi implementation is still stuck with the latter.

Traditional astronomy places a lot of emphasis on change in terms of movement and positional measurement of celestial bodies (now known as astrometry) and there were times when astronomy was entangled with astrology.

Nowadays, the scale of research on the solar system no longer studies positional changes alone but investigates the chemical composition, physics characteristics, habitability, especially in the search for extra-terrestrial intelligence (SETI) and exoplanets. On the scale of neighbourhood stars, on the other hand, not only focuses on the appearance of major star constellations but has extended beyond the characteristics, formation, and evolution of star systems. Consequently, on the galactic and universal scales, James Webb Space Telescope was launched on 25 December 2021 to replace the now-defunct Hubble Space Telescope to observe the near-IR region

of deep space. These space telescopes were launched to observe objects too old and distant for Hubble and push the cosmological frontier further.

Meanwhile, Jawi is a writing that has been the heart of Malay society for hundreds of years. After being threatened with extinction, now Jawi is beginning to rise in calligraphy and heritage texts. This paper traces the use of Jawi in classical astronomy and demonstrates its use in current astronomical science.

3.2 LITERATURE REVIEW

Jawi script has been the main tool of Malay literature since its development in the 14th century. Along history, classic Malay literature had embedded astronomical elements in the text as the background theme. Examples can be seen in Terengganu Inscription Stone (1303 CE), Hikayat Hang Tuah (c. 15th century), Sulalatus Salatin (c. 16th century), the letter from the Treasurer and Admiral of Kedah to Francis Light (1791), and the letter from Engku Daing Ibrahim Temenggung Seri Maharaja of Johor to Napoleon III, the Emperor of France (1857), where the celestial elements could indicate the period of time of the event, the superiority or divinity of certain power, and the everlasting of the intent.

Later, the classic Islamic astronomical books, or *kitab turath* (literally means ‘heritage book’), has been developed in their own genre with Jawi writing and the literature was classified in Islamic science as *ilmu falak*. The books entitled *'Sullam al-Nayyirain'* (describing eclipses by Syaikh Muhammad Mansur al-Batawi) and *'Pati Kiraan'* (astronomical calculations by Syaikh Muhammad Tahir Jalaluddin) are among the well-known local astronomical books. Hence, Jawi was not only for literary purposes but it also had been used in the astronomical table, computation, and instrumentation development.

At the same time, geopolitical factors also caused Islamic astronomy started to fall behind globally when Western astronomy began to progress after the Copernican Revolution in 1543 and later known as modern astronomy. Modern astronomy has evolved at a rapid speed and scientific breakthroughs have been made after the invention of the telescope in the early 17th century which allowed astronomers to study celestial bodies in more detail than before.

The colonial era in Southeast Asia had a great impact when Western elements were absorbed into Malay culture, including writing and sources of knowledge. Meanwhile, in the Malay Archipelago, the colonialists had built an educational dualism when introducing the Western education system for the elite, while Malay schools were provided for Malay children among the middle and lower classes. The ruling class and elites were also sent to the Western World in search of knowledge. Even among the Malays themselves, Jawi romanization is something to be learned if the local does not want to be left behind in the modernity hawked by the West.

On the verge of nationhood, Razak Report (1956) dan Rahman Talib Report (1960) initiated the language and education policy as a starting point in the use of Malay language as the medium of instruction, including science and mathematics subjects. However, Romanized Malay writing (or Rumi script) was introduced and decided as the official script for the Malay language in 1954 by the Second Malay Language and Literary Congress. This action slowly marginalized Jawi making it exclusive to Islamic religious affairs and now it is left as a threatened local knowledge heritage.

There are various efforts to revive Jawi either by societies or various levels of government, especially in the commercial area. In the east coast states of Malaysia, commercial billboards and signs have been using Jawi while certain areas in the west coast of Malaysia implement Jawi on road signs and Islamic purposes areas.

Meanwhile, fictional publications in Jawi writing also have been subculturally popularized after its hiatus especially when the Education Ministry stopped the teaching of Malay in Jawi script in 1966.

Therefore, using Jawi script for the Malay language, especially in STEM is consistent with the Malaysian Education Policy of 2013 and the National Policy on Science, Technology, and Innovation (DSTIN) 2021-2030 in raising the prestige of the Malay language and at the same time strengthening the English Language in enhancing the resilience and advancement of the STEM field.

3.3 METHODOLOGY

Astronomy as the oldest science in the world can be seen in the evolution of the Malay language as well. The terms in astronomy used by Malay speakers can be observed in borrowed words from Sanskrit (e.g., *suria, bumi, angkasa, purnama, cakerawala*), from Arabics (e.g., *zarah, alam, dunia, jisim*) and the latest, from modern English (e.g., *sistem, galaksi, fizik, teleskop*). Simple and common words in astronomy have an official translation published by Dewan Bahasa dan Pustaka (DBP), so the Jawi spelling of the word has a standard spelling form also provided by DBP. However, there are new astronomical terms that have not yet received official translation by DBP, so local astronomers have had to make their own translations (e.g., for gravitational lensing, metallicity). In this study, the guidebook "*Pedoman Umum Ejaan Jawi Bahasa Melayu Dewan*" was used for the transliteration of Romanized spelling to Jawi spelling for those astronomical words though there is a slight challenge to directly transliterate foreign names which are usually used as notations, units, theory, or formula (e.g., Lorentz, Schrödinger, D'Alembert, Hertzsprung–Russell).

In order to apply Jawi in the scientific area, we have studied Jawi classical text, particularly in *ilmu falak* using the content

analysis method and incorporated the relevant components of Jawi into STEM activities. Hence, an integrated module of Jawi STEM activities was designed to focus on the components of computation and reasoning in Jawi. It was introduced to the public in the first virtual event of the National Webinar on Jawi STEM jointly organized with Dewan Bahasa dan Pustaka (DBP) and National STEM Association (NSA) held in August 2021.

The Jawi STEM webinar provided exposure to the use of Jawi in STEM, with examples of both classical Islamic astronomy and modern astronomy. The focus of the audience was mainly primary school students from across Malaysia. Also present was the participation of secondary school students, university students, educators, and the general public among the students' parents. Additionally, the webinar re-introduced the components of calculation and reasoning in Jawi, in addition to the components of reading and writing that have been taught in schools. However, the methodology in the webinar activity is simple and straightforward as the intention was to generalize the knowledge of integrated Jawi and STEM.

In September 2021, the Southeast Asia-Regional Astronomy Seminar (SARAS) 2021 was held virtually and was attended by astronomy experts and enthusiasts from Malaysia, Indonesia, Singapore, Brunei, UAE, Japan, and Turkey. The official language for the seminar presentation is Malay and English options for international presenters. The platform is the best opportunity to reveal the potential of Jawi in astronomical science at the regional level.

A topic entitled "*Arkeologi galaksi melalui bintang halo* (Galactic archaeology through halo stars)" was presented by Saadon, M.H.M, (2021). The slide presentation was mainly written in Jawi accompanied by English keywords to explain the new and current concepts of stellar studies. It was an attempt to present

information on current astronomical science and its infographics to the regional astronomical audience in Jawi writing.

In contrast to the Jawi STEM webinar which is more about awareness at the primary school and public levels, SARAS 2021 has a specific audience. Thus, the presentation during SARAS 2021 shows the use of Jawi for a higher level, namely specifically in the field of astrophysics. Shown in Figures 1-8 are examples of infographics used in the presentation slide for Jawi STEM 2021 and SARAS 2021. In summary, the infographic description of the evolution of the development of the universe and the study of stellar evolution, the description, and unknown representative variable can be written in Jawi.

After SARAS 2021, the application of Jawi in astronomical science was also presented virtually by Tzauazmi, M.A.H, (2021) in the National STEM Ambassador (NIMA) 2021. During NIMA 2021 which was jointly organized by the Department of Higher Education (JPT, KPT), University of Malaya, and My STEM Ambassador, the focus of the presentation was on the role of Jawi application in astronomical science as the locus of integration between Islam and STEM. In this article, we summarize the results obtained from our engagement with experts and the public in Jawi STEM 2021, SARAS 2021, and NIMA 2021.

3.4 RESULTS AND DISCUSSION

Figure 3.1: *Kitab Sullam al-Nayyirain* by Syaikh Muhammad al-Batawi

Figure 3.2: Current astronomical science perspective on the length of the universe

Figure 3.1 shows the introduction of *Kitab Sullam al-Nayyirain* by Syaikh Muhammad al-Batawi through counting method, while Figure 3.2 presents the current astronomical science perspective on

the length of the universe witten in Jawi script. The information was shared in Jawi STEM 2021.

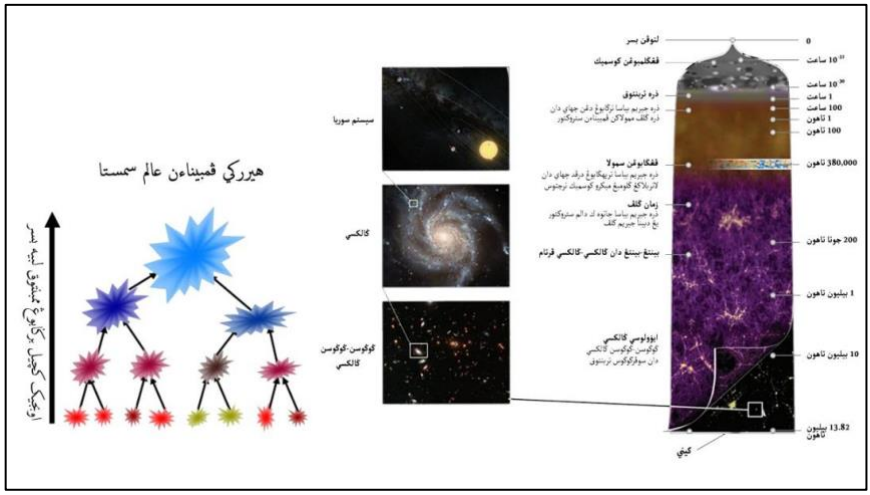

Figure 3.3: Example of full use in Jawi for an astronomical infographic

Figure 3.3 shows the best example of full use in Jawi for an astronomical infographic. The figure explains how the universe evolve from the Big Bang to the current era with labels and descriptions of phenomena that happened at certain epochs.

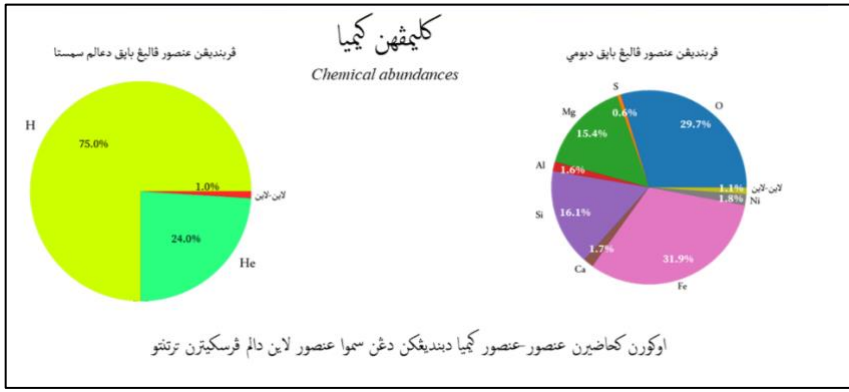

Figure 3.4:

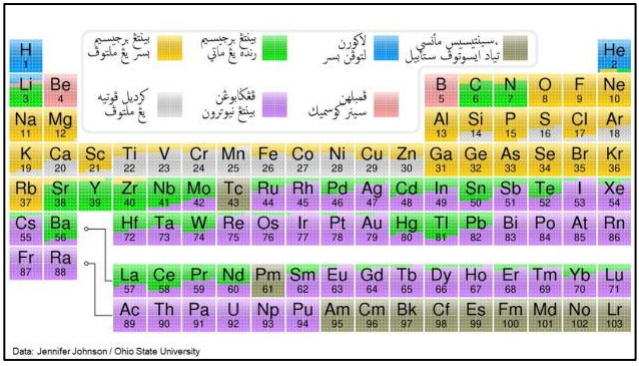

Figure 3.5:

كلوكمن

$$[A/H] = \log(N_A/N_H)_* - \log(N_A/N_H)_\odot = \log \epsilon(A)_* - \log \epsilon(A)_\odot$$

[Fe/H] سباكاني فروكمي اونتوق كلوكمن

قدر نيسبه	تعريفن
[Fe/H] = -1 dex	بينتغ ترسبوت ممثوياءي كليمثهن بسي هاڻ 1/10 بريندڀغ ماتهاري.
[Fe/H] = 0.5 dex	بينتغ ترسبوت ممثوياءي 3.16 كالي لبيه بسي درڊد ماتهاري.
[Fe/H] = 0 dex	كدوا-دوا بينتغ ترسبوت دان ماتهاري ممثوياءي قدر بسي يغ سام بايق.

Figure 3.6:

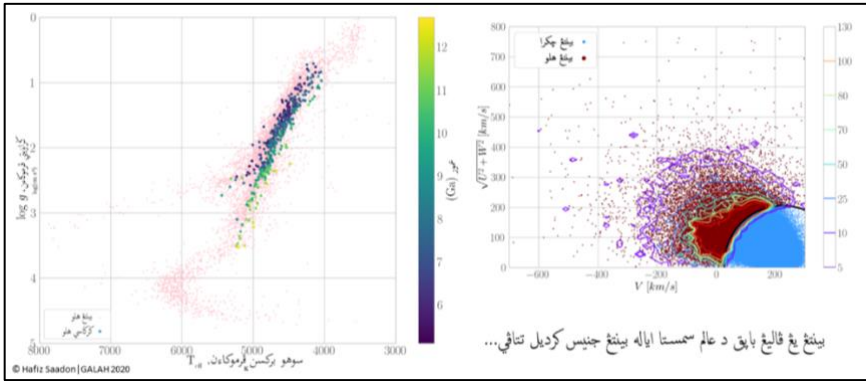

Figure 3.7:

However, in Figures 3.5 to 3.7, there are mixtures of Jawi script and Latin alphabets. For instance, Figure 3.3 displays chemical compositions in the form of pie charts for the universe and the Earth respectively. Similarly, Figure 3.4 contains the periodic table of chemical elements and in this figure, the table used is referring to the origin of those chemical elements in the universe. Chemical elements, mathematical operations, and representations of physical properties are retained in the original form and not converted to Jawi since the symbols (1) represent proper nouns, (2) standardized by recognized international bodies of authority (in this case, International Union of Pure and Applied Chemistry), and (3) the symbols are used universally.

In Figure 3.6, the mathematical expression is written with Latin and Greeks letters, mathematical operators, and symbols as they are also universally recognized symbols, especially among the scientific members. A scientific notation typically comprises physical quantities and the corresponding units, but there are also cases for dimensionless quantity without any units (such as ratios). The units are universally standardized by the International System

of Units . Therefore, if a notation or an expression is abbreviated, the standard symbol or abbreviations of quantities and units are used instead of being transliterated into the Jawi script. However, the full spelling for quantities and units can be also written in Jawi or a mixture of both full notation and abbreviation such as shown on the axis's labels in Figure 3.7. The graph label in Figure 3.7 only displays the physical quantities with omitted units at the axes—a common practice among academics of the field—, so the quantity is written in Jawi (سوهو برکسن ڤرموکاءن) with its abbreviation is in symbol (T_{eff}).

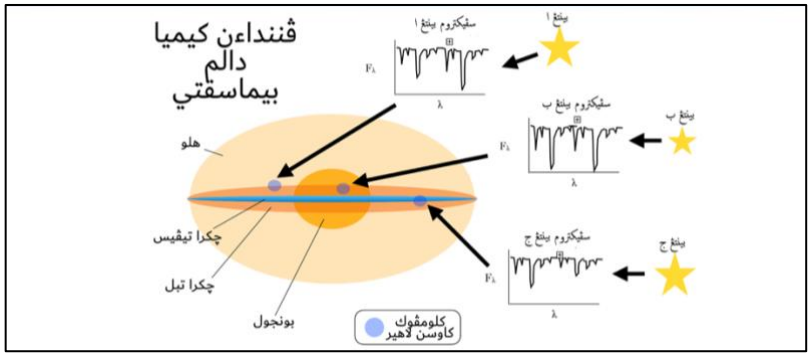

Figure 3.8:

In Figure 3.8, the infographic is mainly written in Jawi including the variables given that the 52abelled stars are only representative of such cases. A similar method was also applied with the scientific abbreviations or symbols as the previous figures.

	Likert Scale	1		2		3		4		5	
		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
Item	Description of need analysis on Jawi STEM:	n	%	n	%	n	%	n	%	n	%

A	To preserve the Islamic knowledge heritage such as the Jawi writings and works by the classical scholars.	0	0	0	0	6	2.9	26	12.5	176	84.6
B	To enhance individual skills in science, technology, engineering, and mathematics.	0	0	3	1.4	13	6.2	49	23.6	143	68.8
C	To increase individual mastery in the integration of Islamic science and STEM	0	0	0	0	10	4.8	27	17.8	171	77.4
Average Percent Agreement		-	0	-	1.4	-	13.9	-	17.9	-	76.9

Table 1: Participant feedback on the need for Jawi

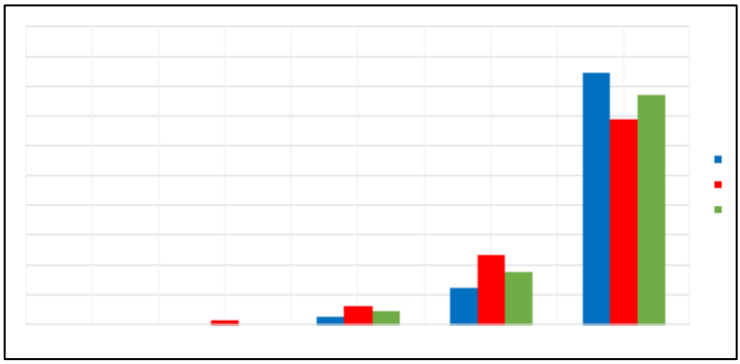

Figure 3.9: Need analysis on Jawi STEM

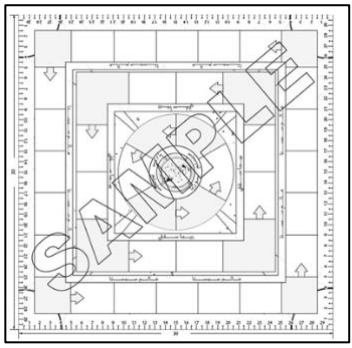

Table 1 and Figure 3.9 show the participant feedback gathered from Jawi STEM 2021. The data shows there are about 94.8% out of the 208 feedbacks received by the organizer agree that the application of Jawi in the current astronomical science through STEM activities is essentially needed, (i) to preserve the Islamic knowledge heritage such as the Jawi writings and works by the classical scholars, (ii) to enhance individual skills in science, technology, engineering and mathematics, and (iii) to increase individual mastery in the integration of Islamic science and STEM.

Observations were also made during the presentation of SARAS 2021 and it is found that the use of Jawi in the current astronomical science was very well received and there were no comments against such use. Comments were received from several local academicians, government officials, religious officials, as well as researchers from Malaysia and Indonesia. All the comments received during the virtual presentation praised the use of Jawi and some hope it can continue. Among the comments obtained were about “the rarity of the Jawi script”, “refresh the Jawi spelling with scientific terms”, and “pleasing to the eyes”.

In addition, National Inspiring My STEM Ambassador (NIMA) which was held in November 2021 is a program involving all 20 public universities across Malaysia initiated by the Department of Higher Education, Ministry of Higher Education.

The undergraduate representative from the University of Malaya presented among the peers in the tertiary education level regarding Jawi heritage preservation in STEM and how the application of Jawi in STEM can be expanded further. The promising prospect of Jawi STEM was also applauded by the organizers and audiences.

However, no matter how ambitiously the potential of the Jawi application, there are various challenges and limitations to implementing it widely in the nearest future. Although the basics of Jawi were introduced at the school level, the practice was not made a habit, especially of the Malay community itself. Although there are some who try to oppose the use of Jawi in general, especially among the non-Malays, findings from the study by Ramli (2021) found that the majority of non-Malays are neutral and accept Jawi as a national identity and heritage even though there are personal perceptions regarding the subject. Some digital platforms also do not provide Jawi facilities and softwares for end-users. All these challenges and limitations suggest that Jawi still cannot stand on its own as a single writing system but, at the moment, Jawi should at least be equally strong in line with Rumi script as part of Malay identity.

Hence, to move further from our social experiment, we found that a commendable advantage reflected in our observation over three presentations is how Jawi in STEM applies elements of calculation and reasoning, which are not exposed in-depth in the subjects of language, history, and art that only focus on the forms of writing and reading. Hence, we are currently redeveloping the essential component of calculation and reasoning aspects with the name of *Pintar al-Aflak*. Figure 10 presents the general layout of *Pintar al-Aflak* as our initiative to develop a board game summarizing the application of Jawi in the current astronomical science in galactic and universe scales. *Pintar al-Aflak* is still currently studied by our team and aimed to be a medium of providing scientific reports and embedded with augmented reality and machine learning. It is to be employed as nexus of preserving

Jawi in the digital ecosystem transformation. *Pintar al-Aflak* will be the next milestone which has the prospect to enhance Jawi potential use in scientific and technological applications such as interactive infographics, scientific reports, augmented reality, and machine learning in the future.

3.5 CONCLUSION

Through observations that have been conducted in three series of academic presentations, the use of Jawi in astronomy, as well as STEM fields in general, has received positive and encouraging responses. The use of Jawi in various levels and branches of science also does not hinder the delivery of information and knowledge, in fact, it also preserves Jawi in the environment of contemporary science. Scientific publications in Jawi writing are also among the recommendations for the sustainability of Jawi in the fundamental science environment.

Meanwhile, to enable Jawi to move in line with digital advances in the era of Industrial Revolution 4.0, Jawi has the potential to be used in various digital software and hardware either as an interface writing or perhaps as a programming language. Hence, we are not stopping with the observation but targeting to move further with the development of *Pintar al-Aflak*, which will tackle the calculation and reasoning elements of Jawi. Thus, Jawi should not remain in the old notch, only as of the heritage of the past that is used only for history, literature, linguistics, and arts but has the potential to move forward in line with the rapid advancement of science and technology of the future.

3.6 ACKNOWLEDGEMENT

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CHAPTER 4
The Implementation of Jawi Calligraphy and Batik Vector on Hijab Design

Wan Ahmad Hazim Wan Aminudin, Nor Azlin Hamidon , Ainun Jariah Yaacob

4.0 ABSTRACT

Jawi calligraphy that is becoming extinct needs to be highlighted in various mediums and creative forms so that the Jawi calligraphy will not be forgotten by the people in the future. Hijab can become one of the mediums that can apply with the Jawi calligraphy as it is one of the existing products that have a lot of users in the whole world. The uniqueness of Jawi calligraphy can also merge well with the element of batik to enhance the local culture in hijab design. The current research is an experiment of a process to create a hijab design with the combination of Jawi calligraphy and batik elements. From the observation and survey, there are suggestions for many options and attributions to produce an attractive hijab design with the implementation of Jawi calligraphy art and the batik elements. This study also aims to explore the use of vector technology as a

solution to the question of how to build a design that combines Jawi calligraphy art and batik elements so that it can be implemented as a hijab design. What is the appropriate application used to design a hijab? To answer these questions, researchers applied computer graphics technology and design combination ideas in this study. The fans of hijabs certainly ought to new and unique hijab design ideas to enhance their self-appearance.

Keywords: Jawi, Batik, Heritage, Malay, Hijab

4.1 INTRODUCTION

Jawi Calligraphy has become symbolic typography that represents the Malay language and race which undoubtedly played an important role in the Malay community. The discovery of an inscribed stone in Terengganu dated 702 *Hijrah* is one of the most compelling pieces of evidence that Malay people had utilized Jawi for a long time (Johari Yap, 2020). People nowadays have forgotten about this national heritage typography as time passes. To combat forgotten typography, a platform that use Jawi calligraphy should be created.

Hijab is one of the existing products that are having a lot of users around the world can be a great platform to promote Jawi typography. Moreover, because of the marketability of hijab, some local industries have created some new exclusive designs and unique styles of hijab to ensure the user can get the hijab that others can't wear design (Hafiz, 2020). To create a unique hijab design, the researcher approaches another Malaysian national heritage which is the element of Batik style as people nowadays still can accept the element of batik in the design, especially the modern batik design (Halina & Hatina, 2019). The research is basically to apply the two Malaysian heritage which is Jawi typography and the element of batik toward a hijab design.

This paper will show the researcher's technique of using computer graphics technology and design combination idea between Jawi calligraphy and batik design into a hijab design in brief. The researcher intended that this study would serve as a Jawi calligraphy and batik vector design to expand into other creative and unique products in the future.

4.2 JAWI WRITING AND BATIK HISTORY

Jawi writing said to be used since the 10th century AD which has been proven with the found of the scripted stone in Terengganu with the date of 4 Rejab 702H/1303M (Niswa Noralina Abdullah, 2018). The Malays have received the Jawi script directly from the Arabs before the Jawi script faced an innovation from time to time by being added with six new alphabets that represent sounds of Malay language which are *cha* (چ), *nga* (ڠ), *pa* (ڤ), *ga* (ݢ), *nya* (ڽ) and *va* (ۏ). The script is being added from 29 letters Arabic to 35 letters. Nowadays, Dewan Bahasa dan Pustaka has listed at least 37 Jawi alphabets that are used in Malay language.

Although the Jawi script experienced an addition alphabet, many researchers stated that the form and sound came from the Arabic script in the form of writing while sound of the original alphabet remained the same as what is contained in the Arabic script. However, Rumi writing has surpassed Jawi writing in terms of popularity (Shakila Ahmad et al., 2016). In fact, Jawi is hardly to find nowadays and seemly waiting for the time to be extinct if the script is not preserved from now.

Batik is one of Malaysia's most well-known traditional handicrafts, with history indicating that it was introduced in Kelantan in 1910. Batik is derived from two Javanese words: *amba* and *nitik*. Writing is referred to as 'amba,' while making a point is referred to as 'nitik.' Batik, in specifically, refers to a cloth that has been painted with a vibrant and unique design (Omar Ali, 2019). By combining the wax and dye process with the art of decorating, it has been practised for millennia in various parts of the world,

including Japan, China, India, South America, and Europe. Batiks are made using a variety of methods, including batik *blok*, batik *tulis*, batik *skrin*, and others. Batik, on the other hand, has become more popular in recent years. On the other hand, batik in the new culture is becoming a modern costume and complementary for official functions (Nurul' Ayn, et.al, 2018).

4.3 THE RELATION BETWEEN JAWI CALLIGRAPHY, BATIK VECTOR AND HIJAB

Jawi writing is being forgotten from time to time and if there is nothing corrected from now on, it is not possible that Jawi writing will also suffer the same fate as the forgotten writings such as Rencong, Kawi, and Palava (Zainul Rijal, 2019). As the lack of involvement in Jawi as a writing style, it can be countered by creating an artwork inspired by Jawi calligraphy in various mediums and creative forms (Ridzuan Hussin et al., 2017). The medium chosen by the researcher is the hijab with the combination of batik element to make the hijab later looks more creative and unique. The combination of Jawi calligraphy, batik vector, and the hijab is really suiting the statement from Wan Ji Wan Hussin in 2020 who mentioned that, without the element of coercion and law, economizing the culture itself is something that has potential in Malay society (Wan Ji Wan Hussin, 2020). It means that the Malay culture such as Jawi calligraphy and the element of batik has a big potential to be promoted as an economic product (hijab) that can save the writing from extinction.

Calligraphy came from Greece which is *Kallos:* beauty and *Graphein:* to write, which means “the art of writing beautifully”. Meanwhile, Jawi calligraphy is beautiful writing that used the alphabet from Jawi writing to write beautifully. (Makmur Haji Harun & Buchari Katutu, 2015). It's also worth noting that calligraphy is accompanied by a beautiful and attractive motive and pattern that enhances to the charm of the art of writing. Meanwhile, vector art is a type of digital art produced with vector graphic design software. A vector graphic is made up of multiple

points (also known as nodes) connected by lines (also known as paths) to create forms. Vector software allows you to create high-quality visuals that never become pixelated, no matter how much you extend a picture. This is since vector files do not employ pixels, but instead use clean lines and geometric shapes, that are infinitely scalable (Aparaschivei Lavinia, 2021).

Despite the fact that various techniques and applications can be used to create a vector design nowadays, the researchers will use Adobe Illustrator to create the design because it is commonly used by designers to create illustrated designs. This application can create a design that can be printed on a hijab product, and we believed it has the potential to be marketed globally as the hijab will be unique and attractive.

4.4 THE EXISTING HIJAB DESIGNS WITH JAWI CALLIGRAPHY AND BATIK DESIGN

The researcher chooses an existing hijab design with Jawi calligraphy and batik design that meets the criteria of applying Jawi calligraphy and batik design. For the study, 10 designs are selected with five hijab designs that are applied with batik designs and five others are hijab designs that applied with Jawi calligraphy. The brand is being chosen randomly from the existing hijab designs. They can be seen in Table 2 and Table 3 below:

Table 2: Existing Hijab Designs Applied with Jawi Calligraphy

Subject	Subject and Analysis
1. Calligraphy	i. Material used is Premium Printed Cotton Paris Voile. ii. The designs are made of a printed hijab. iii. The type of hijab is a *bawal* hijab with 45 inches in length and width. iv. The colours used are striking colours.

Plate 1: Kebaboo Merdeka Jawi

v. The verse written is *"Negaraku tanah tumpahnya darahku rakyat hidup bersatu dan maju rahmat bahagia Tuhan kurniakan raja kita selamat bertakhta."*

2. Calligraphy

Plate 2: Al-Hambra Collection by dUCk

i. Material used is Shawl Eyelash.
ii. The design is made of a printed hijab.
iii. The type of hijab is shawl, turban, and *bawal* hijab.
iv. The hijab uses striking colours.
v. The verse written is *"Salam Eid Mubarak"* which is arranged on the side of the hijab.

3. Calligraphy

i. Material used is Japanese Cotton Voile.
ii. The design is made of a printed hijab.
iii. The type of hijab applied is a *bawal* hijab
iv. The hijab uses black and white colours with the Jalur Gemilang flag on the bottom of the hijab.
v. There is no verse written on the hijab except for a random Jawi letters

Plate 3: Jawi Merdeka by Divascarf	
4. Calligraphy  Plate 4: Tawakal by tudung Fazura	i. Material used is Japanese Cotton Voile. ii. The design is made of a printed hijab. iii. The type of hijab is a *bawal* hijab with 46 inches in length and width. iv. The colours used are monotonous colours. v. The verse written are "*Tawakkal, sabar, redha".*
5. Calligraphy  Plate 5: Mirabelle Merdeka Jawi Private Edition	i. Material used is Premium Printed Cotton Paris Voile. ii. ii. The design is made of a printed hijab. iii. The type of hijab applied is a *bawal* hijab with 45++ inches in length and width. iv. The colours used are striking colours. v. The verse written are "Negaraku Malaysia", "Sayangi Malaysiaku" and another four designs of Kufi calligraphy that the researcher could not read.

Table 3: Existing Hijab Designs Applied with Batik Design

Subject	Analysis and finding
1. Batik Hijab	i. Material used is mixed chiffon and cotton. ii. The hijab is applying the printed batik.

Aura Bateka by Prestige hijab

iii. The type of hijab is a *bawal* hijab.
iv. The colours used are soft tone colours.

2. Batik Hijab

Tudung *Bawal* Batik by 3S Batik Village

i. Material used is Heavy Chiffon.
ii. The design is made of tie and dye technique followed by block technique.
iii. The type of hijab applied is a shawl hijab with 170 (cm) length and 70 (cm) width.
iv. iv. The colours used are monotonous colours.

3. Batik Hijab

Qisha Shawl Batik

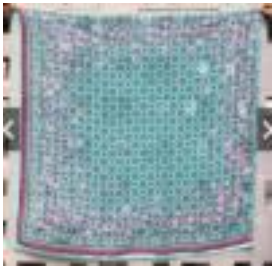
i. Material used is Premium Matte Satin 99% and strass 1%.
ii. The design is made from printed batik.
iii. The type of hijab applied is a long shawl hijab with 190 (cm) length and 60 (cm) width.
iv. The colours used are monotonous with soft tone colours.

4. Batik Hijab

i. Material used is Cotton Voile.
ii. The design is made of batik canting technique.
iii. The type of hijab applied is a *bawal* hijab with 117 (cm) length and width.
iv. The colours used are monotonous colours.

Yasmin Tudung Batik

5. Batik Hijab



Kebaboo Batik Malaysia

i. Material used is Ultrafine Cotton Voile Paris.
ii. The design is made of printed batik.
iii. The type of hijab applied is a *bawal* hijab with 170 (cm) length and 170 (cm) width.
iv. The colours used are soft tone colours.

4.5 THE HIJAB DESIGNS APPLIED WITH JAWI CALLIGRAPHY AND BATIK VECTOR

A vector graphic is comprised of several points (also known as nodes) connected by lines (also known as paths) to create forms. Vector software allows you to create high-quality visuals that never become pixelated, no matter how much you extend a picture. This is because vector files do not use pixels, but rather crisp lines and geometric shapes that can be scaled indefinitely. Two hijab designs

were created for this study using Jawi calligraphy and a batik design vector. As shown in the figure below, the design was created using Adobe Illustrator:

Design Hijab 1:

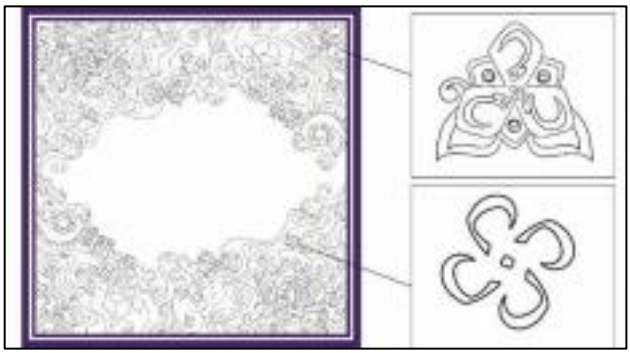


Figure 1: Outline Hijab Design

The researcher uses batik *canting* elements in the hijab design, as well as some Jawi calligraphy. The Jawi calligraphy is being used to create a flower effect that can perfectly combine with the flora element researcher insert through the design. For example, the word "ن "has been arranged repeatedly to make the words look like a petal shape and the result from the action will create a simple flower with four petals. The word "غْ "was also used in the design to create three petals of a flower, which were then joined by three petals with non-Jawi alphabet to create a flower with six petals. There are also some random flora element to enhance the design more. The design also have a separate division from the top right to the bottom left of the hijab to produce a balance effect in the hijab design.

Figure 2: Hijab Design

As for the colour, the researcher uses a purple colour with a different tone combined with the white colour to make some contrast effect. The hijab design also has a dark purple with a white line as a frame for the hijab to make the hijab neater when the user is wearing this hijab. The design is also being merged with a small purple line and a white outline colour with some circle design to cover the white space left by the main structure.

Figure 3: Hijab Design Mockup

The hijab design then being applied on the mockup with the suitable colour of *baju kurung* to create a better view of the hijab.

Design Hijab 2:

Figure 4: Triangle Shape of Jawi Calligraphy

In Design 2, the researcher uses "ن, ڤ, ف, ک "calligraphy alphabet to create an artwork in a triangle shape (Figure 4). The alphabet used may face a rotate and resize alphabet to create a suitable design that can create a petal design. Researchers also insert some shape in the calligraphy to fill the gap and create some balance in the triangle design.

@

Figure 5: The Flower created by The Calligraphy

From the triangle shape, the researcher has to fold it repeatedly to create one big flower that is full of calligraphy. The researcher also put a circle in the design of an eight-corner star in the middle of the design. The design also looks like flower petals with a small flower in the middle.

@

Figure 6: Design Hijab 2

As the hijab design mostly looked simple and unique, the researcher used the flower design before to make a perfect big square. The colour used for the box created is white to make

the design look more attractive and afloat in the hijab design. The dark turquoise is also used as a frame for the neatness of the hijab, which is then surrounded by a white line. As the plan has a lot of white space, the researcher makes a square shape that the corners are opposite to the hijab design.

@

Figure 7: Design Hijab Mockup 2

The hijab design then being applied on the mockup with the suitable colour of *baju kurung* to create a better view of the hijab.

4.6 CONCLUSION AND FUTURE RESEARCH

The hijab design created for the research is seen to have their importance which needs to be developed and further applied. In this paper, the design chosen is not only for contemporary use in the hijab only but also have the potential to be innovative decorative items in other daily use products. The use of Jawi calligraphy and batik design vector combined into a hijab has created a unique and creative design that is worth exploring. The idea of generating the hijab design using Adobe Illustrator as the application is a lot easier to develop rather than producing the hijab manually using handmade. The design produced by using this software can be further developed and improved to generate more design.

As for the future project, another style of hijabs, the elements of batik used, and the types of Jawi calligraphy applied will be tested visually to gain more feedback from consumers in order to get a better hijab design. The researchers will also gain more feedback on the most preferred hijab design applied with Jawi calligraphy and batik vector element to create a bigger market in the future.

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CHAPTER 5

The Impact Of Distance Education In Achieving The Outcomes Of Learning The Arabic Language During The Covid-19 Pandemic Era Through Parallel Education In Dakahlia Governorate

Diaya Udeen Deab Mahmuod Alzitawi, Hamed Tawfik Yousef, Ahmed Mukhtar M Othman, Fareed Awae

5.0 ABSTRACT

This study aims to examine the impact of distance education in achieving the outcomes of learning Arabic language during the Covid 19 pandemic era through parallel education in Dakahlia Governorate. The aim of this article is to demonstrate the extent that the outcomes of learning the Arabic language have been achieved. This article relied on the use of the descriptive and analytical method through a questionnaire that contained twenty-five words distributed on five axes: reading, writing, communication, language elements, and measurement & evaluation. This study concluded that distance

education has a positive impact on some Arabic language skills, but this form of education does not achieve the desired goal in writing skill and evaluation & measurement process. This study come out with a result that the biggest challenge was in the evaluation axis, where the opinions of a large number of participants agreed that the evaluation results did not honestly reflect the true level of the extent to which learning outcomes were achieved, while the responses on the other axes indicated positive indicators, especially in the axis of communication and the axis of elements The language.

Keywords: Distance education, parallel education, Dakahlia governorate

5.1 INTRODUCTION

In the first half of year 2020, the world was shocked by a vicious cycle of changes that impacted every aspect of life. For the first time in history, countries across the globe went into lockdowns and closed their borders. Virtually the whole world came to a standstill, and it threatens the lives and livelihood of everyone on this planet. As a result, global economies went into recession to the extent that it became the worst economic crisis since the Great Depression. Industries across all sectors collapses and it causes a domino effect on all businesses as it is inter-related. Airplanes were grounded, hotels announced closures, well-established international companies filed for bankruptcy, oil prices collapsed until it became negative in June and July, and people stopped going to work due to stay at home orders. These are the colossal magnitude Covid-19 pandemic brought upon us. And oil prices collapsed below zero for the first time in history, as the price of a barrel of oil in the United States reached - 37.63 dollars, all because of the Covid 19 pandemic. (BBC Arabic website - available on 4/21/2020).

Education was not spared either, as a resultant, it caused the largest disruption to educational systems ever recorded in the history of mankind. Schools, colleges, and universities were forced to close

affecting nearly all the world's student population. This has caused more than 1.6 billion children and youth to drop out of school in 161 countries, i.e. nearly 80% of the students enrolled in school globally (Mehani 2020).

A drastic and expedient paradigm shift was needed to deal with these changes through innovation and implementation of alternative education systems. This led to the introduction of digital learning and countries had to quickly adapt to these new developments. This has led to a change in traditional methods of education, and prompted a radical shift towards distance education platforms, and the provision of electronic education tools has become a major priority for all countries to ensure the continuation of the education process (Al-Amian, 2020).

Unfortunately, not all countries have an available technological infrastructure in the field of education in place and they were forced to close schools and end the school year several months earlier. Those that had introduced educational technology into their system prior to the pandemic, were the ones able to deal with these developments by applying online teaching, virtual halls, and other smart learning platforms. These developments led to the increase in the production of software and smart applications to support the transformation that education systems were forced to make in the teaching of all subjects, especially the Arabic language. These software and applications were found to be adequate and able to conform to this challenging change, where the method of teaching and learning language skills has changed from the traditional face to face teaching to a more sophisticated level of what is called integrated, smart, or distance education, all of which are names of educational methods that adopt smart technology. These programs have proven a good ability to confront this emergency variable, in teaching all subjects, especially the Arabic language, where the method of dealing with language skills has changed from the traditional method to an advanced level, with the use of the elements

of these techniques from sound and kinetic effects with interactive educational situations.

In view of recommendations for countries to implement social distancing and other safety requirements by World Health Organisation (WHO) to curb the spread of Covid-19, governments were forced to increase financial allocations to provide smart technology in education to prevent the collapse of their educational systems. However, due to the lack of preparedness of some formal education institutions in meeting the requirements of distance education, parallel education has been an instrumental and effective alternative. Parallel education is a type of non-formal education conducted by non-governmental educational centres. Most of these centres have accreditation from Education Ministries and employs teaching staffs that are competent and are well equipped with technical skills needed for distance education. The curricula used are the same as those that are taught in public and private schools and the management of these centres are proactive in upgrading the knowledge of their teaching staff with the latest teaching methods that includes technological capabilities. This type of education attracted large number of students as it compensates what they missed or did not obtain from their schools or institutions. Therefore, this article examines the efficiency of this form of education in achieving the standard outcomes of learning the subject of Arabic language. It thus addresses the shortcomings of formal education, and thus contributes to the development of society (Zaydan 2002: 128-129), while providing the opportunity to provide various training and extracurricular activities within the framework of cultural enrichment. (Al-Attar and Taima 1993). Thus, parallel education supports formal education, corrects it, treats it or complements it, and in some cases it may replace it (Mubarik, Haifa Bint Fahd 2019).

This study sought to identify the extent to which parallel distance education is able to achieve the outcomes of learning the Arabic language, through distance education through licensed

parallel education centers in Dakahlia Governorate, in the first semester of the year 2020-2021. Achieving some learning outcomes in Arabic language through distance education through parallel education centers in the first semester of the year 2020-2021

5.2 THE RESEARCH PROBLEM

After two semesters have passed in the implementation of distance education and with the lack of preparedness of some formal educational institutions in the face of the COVID-19 pandemic, parallel education has played an influential and effective role in achieving what educational institutions have not been able to achieve. With the multiplicity of learning outcomes for the Arabic language skills and the persistence of these outcomes, despite the urgent need to adapt it to distance education, a research gap has emerged, and that is represented in the ability of parallel education to achieve these outcomes in innovative ways. The question of this article could be formulated in the following: "To what extent has distance education succeeded in achieving outcomes in the learning of Arabic language skills (listening, speaking, reading, and writing) through the parallel education system during the COVID-19 pandemic era?"

The main question is divided into the following two sub-questions: (i) First: What are the Arabic language skills for which distance education has been successful in achieving its targeted outcomes and what could not be achieved? (ii) Second: What are the reasons for it?

5.3 RESEARCH OBJECTIVES

i. Measuring the success of distance education in achieving learning outcomes in the Arabic language subject for middle school students through parallel education centres.

ii. Identifying the Arabic language skills that were positively affected by this type of education as well as those that were negatively affected.
iii. Disclosure of the reasons for achieving or not achieving the intended learning outcomes.
iv. Attempt to innovate methods that can develop the experience to address the deficiencies in achieving the learning outcomes, if any.

5.4 COMMENTARY ON PREVIOUS STUDIES

In the context of seeking to expand the circle of study in the literature of parallel education and distance education, a number of literature related to the subject of this study was reviewed and addressed the issue of distance education, including: After reviewing previous studies, the researcher discovered similarity of the current study with some previous studies that dealt with distance education and its impact on achieving the goals of the educational process. The only difference is that this study was conducted in an extraordinary circumstance due to Covid-19 pandemic. It gave distance education an unprecedented priority and it is no longer negligible in the field of education, but rather has become the most appropriate and perhaps the only alternative for the continuation of the educational process.

This study discovered previous studies that dealt with distance education during the COVID-19 pandemic crisis focuses only on mathematics, as in the study of Rima Jaber, Suhail Salha and Hisham Dweikat, which dealt with students' attitudes towards learning mathematics remotely during the crisis. The researcher did not find any study done on Arabic language skills during the COVID-19 pandemic. It is known that Arabic language is very specific and distinct that differs from mathematics. Furthermore, this study is distinguished by the fact that it dealt with distance education during the COVID-19 crisis through the parallel

education system and not through formal education. This is the distinction from previous studies.

As for the studies done on parallel education, they were outdated as it was conducted between the year 2000 to 2004, and it only dealt with parallel education as an initiative directed at groups that had missed the education train. These studies were mainly about literacy classes and this type of education is not what the researcher dealt with in this study. Moreover, previous studies did not have any form of technology or educational technology which are available to the current parallel education. Thus, it added a new dimension that is radically different from the old view of parallel education.

Arabic language skills: “The Arabic language has four main skills: listening, speaking, reading and writing, two skills for language reception (listening and reading) and two skills for language production (speaking and writing). The skill of speaking is the first means of producing language and communicating with others, as well as the skill of writing, which is the second means of transmitting and codifying ideas” (Mustafa, 2014).

COVID-19 is the disease caused by the novel coronavirus called SARS-CoV-2. This novel virus was first detected by WHO on December 31, 2019, after a cluster of viral pneumonia cases were reported in Wuhan, People's Republic of China. On the eleventh of February 2020. The Director-General of the World Health Organization indicated that Covid-19 is the official name for the disease, and that (ko) means (corona), and (in) means (virus), and (d) means (disease) in the English language. As for the number 19, it refers to the year (WHO website).

5.5 RESEARCH TERMINOLOGY

Distance education: Hassan Shehata defines it as “a modern technology in which data, sound, and images converge on a single medium in the global communication network. In addition, it is a

two-way interactive media that allow the student to interact with the latest educational resources such as computer communication networks, videoconferences, real-time long-distance communications, and some of them are not synchronous."

Parallel education: defined by UNESCO as a structured and systematic educational activity often linked to work provided outside the formal educational system (UNESCO Arabic website). Hassan Shehata defines it as "an education that parallels its curricula and goals with education provided in the public education curricula and is not bound by its admission rules or education systems or methods used in these schools and the duration could be longer or shorter than the prescribed period." (Shehata, Hassan and Najjar, Zainab Dictionary of Terms Educational and Psychology, The Egyptian Lebanese House 2003, page 120). "It is a type of education that is equivalent to formal education without being a part of it. It provides a first opportunity for those who did not receive any formal education, a second opportunity for those who received part of the education but did not complete it and a third opportunity for those who want to gain more education" (Zidan, 2002: 127).

Al-Ajami (219: 2002) defines it as a type of non-formal education that focuses on the needs of the learner and helps him identify them and is consistent with formal education but not a part of it and it is flexible as it does not have to comply with formal education laws and regulations. It may be a supplementary education for those who want to complete their education, a compensatory education for many children, youths, and adults with the aim of completing their education or additional education for the purpose of upgrading skills and acquire additional information. (Al-Ajami, 2002).

5.6 RESEARCH COMMUNITY:

The research community consists of private education centres licensed and accredited by the Ministry of Education and teaches the Ministry's or private education's curricula in the Dakahlia Governorate, located in the Arab Republic of Egypt. The study sample was represented by Arabic language teachers who teach in licensed education centres in Dakahlia Governorate. A targeted sample was chosen from thirty teachers who possess teaching competencies and the skill of using educational technology.

5.6 THE LIMITS OF THE STUDY

The objective limit: The study dealt with the ability of parallel distance education to achieve learning outcomes in the Arabic language subject.

Time limit: This study took place in the first semester of the 2020/2021 academic year.

Spatial boundary: Licensed parallel distance education centres in Dakahlia Governorate.

The human limit: Arabic language teachers for the preparatory stage working in parallel education centres in the Dakahlia Governorate.

5.7 STUDY CURRICULUM AND PROCEDURES

This study adopted the descriptive analytical approach based on monitoring and analyzing the study problem by designing the study tool, which was a controlled questionnaire by specialists. An intentional sample was selected from thirty teachers who possess teaching competencies and the skill of using educational technology. This study followed the descriptive and analytical approach based on monitoring and analysing the study problem.

5.7.1 STUDY TOOLS

A questionnaire was designed containing reviewed phrases by specialists, which measure the extent to which the prescribed learning outcomes were achieved. This measure is aimed at teachers who have taught the curricula approved by the Ministry of Education at a distance in parallel education centres. And they themselves are the ones who assessed and measured the learning outcomes In the Arabic language subject for middle school students in special education centres.

The questionnaire consists of 25 statements, which were presented to several specialists in distance education curricula and designing education programs, evaluation, and measurement. At the end of the questionnaire, a question was asked about the reasons that teachers see as the cause of the shortcomings of the evaluation system (if any), and a question about the reasons for the non-achievement of some learning outcomes (if any), and then a statement of teachers' opinion on the most important suggestions for developing the distance education experience.

5.7.2 STUDY HYPOTHESES

Some learning outcomes in the Arabic language subject are achieved through distance education and through parallel education centres in the first semester of the year 2020-2021. Low rates of achievement of some learning outcomes in the Arabic language subject through distance education through parallel education centres in the first semester of the year 2020-2021.

5.8 RESULTS

The results of the study after analyzing the participants' responses indicate that reading skills and language skills were achieved by 81% distributed between good, very good and excellent, according

to the respondents' attitudes, followed by the verification of communication skills by 71% distributed between good, very good and excellent. Writing, the verification rate was low, as it reached 36% distributed between good, very good and excellent, as well as the case in the assessment axis, where the verification rate was 30% distributed between good, very good and excellent (with the exception of the two terms that indicate the availability of technical capabilities and the students' ability to deal with them, which amounted to The verification rate in both of them is 88%), and the attached table No. (1) presents these percentages in detail.

In order to explain these results, and by looking at Table (1-1), which shows the percentages of verification in the reading skill, it is clear that 46% of the responses tend to achieve the outcomes of learning the reading skill at the level of good, with a rate of 66%: 80%, and 29% of the responses It indicated that reading skills were achieved at the level of very good, with a rate ranging between 81%: 90%, and 6% of the responses were at the level of excellent, with a rate ranging between 91%: 100%, for a total of 81% positive responses.

In the writing axis, an average of 51% of the responses tended to achieve the outputs of learning the writing skill at the level of verification (acceptable 51%: 65%), while 36% of the responses indicated that the outputs at the levels were achieved excellent by 2%, and very good by 6% , good at 28%, which is low compared to reading skill.

In the communication axis, an average of 70% of the responses tended to achieve the outcomes of learning communication skills between the levels of excellent, very good and good, while 27% of the responses were at an acceptable level, and only 3% of the responses were at a level below expectations, and these percentages indicate that The outcomes of learning the communication skill are achieved at high rates.

In the language elements axis, 81% of the responses were distributed at the higher levels between excellent, very good and good, while 17% of the participants were at the acceptable level, and only 1% of the responses were at the level below expectations.This indicates the achievement of the learning outcomes of language elements at a high rate equal to the rate of achievement of the outcomes of reading skills.

In the evaluation axis, there was convergence in the levels as shown in Figure 1-5 and detailed in Table 1-5, where 54% of the responses were distributed between the levels excellent, very good and good, while 29% of the responses were at the acceptable level, and 15% of the responses were at the acceptable level. Sub-level responses, and the researcher attributed this convergence in ratios and levels to phrases No. 21 and 22, which indicate the availability of technology, and the students' skill in using these techniques, as the two phrases got high response rates, as opposed to low responses to phrases No. 23, 24, 25 Which revolves around the validity of the evaluation, so these statements have been separated into two groups to extract more accurate results as shown in Figures 1-6 / 1-7.

Looking at Figure 1-6, which shows the rates of responses to phrases 21 and 22, which measure the extent to which we provide the necessary technology, and the students' ability to use that technology, it turns out that 88% of the responses were at the higher levels distributed between excellent, very good and good, which is the highest percentage of responses In each study, this indicates the availability of technical capabilities and the availability of skill to deal with this technique.

As for the phrases No. 23, 24, 25, which indicate the validity of the assessment and its translation to the real level of students, they got the lowest response rates, as 30% of the responses were at the higher levels, while 46% of the responses were at the acceptable level, and 25% of the responses were at the lower level. Expectations, which reflects the shortcomings of the assessment

process and the extent to which it is true to the real level of students, as shown in Figure 1-7.

After reviewing and analysing the results of the questionnaire, the researcher found the following outcomes of learning: (i) In the reading axis, 46% of the participants achieved the grades of (Good 66% to 80%). (ii) In the writing axis, 51% of the participants achieved the grades of (Acceptable 51% to 65%). (iii) In the communication axis, 50% of the participants achieved the grades of (Good 66% to 80%). (iv) In the language elements axis, 43% of the participants achieved the grades of (Good 66% to 80%). (v) In the evaluation & measurement axis, 29% of the participants achieved the grades of (Acceptable 51% to 65%).

However, the researcher noticed that the statements that measure the availability of technical capabilities and the ability to employ them caused the evaluation axis rate to rise, where the 38% of the participants scored the grade of very good (81% - 90%) for availability of capabilities, which is the highest rate in all the questionnaire statements. Although, the statements indicating the validity of the results of the remote evaluation were low as 46% of the participants scored grades of acceptable (51% - 65%) only.

As for the deficiencies in the evaluation and measurement system, the participants pointed out the following reasons: (i) Poor monitoring in many cases which negatively affects the degree of validity and reliability of the evaluation and measurement. (ii) The student being left alone without direct observation from the teacher affects the reliability of the results obtained as it is unknown who answered the questions in addition to receiving help from parents. (iii) Lack of diversity in the types of questions asked as most of the questions are objective questions (multiple choice). The students might choose randomly when they cannot answer the question. (iv) The central tests sometimes do not address the learning outcomes that have been addressed by the teaching process. (v) There are no

tests that measure writing, listening, and speaking skills which are basic skills in any language.

Regarding the question about the reasons for the non-achievement of some outcomes of learning Arabic language skills, most of the answers focused on the following: (i) The student lost the factor of face-to-face communication with his teachers. (ii) The curricula being taught now are in fact not intended for such a method of education, rather were designed just before the start of distance learning. (iii) Many language skills cannot be achieved without direct support and direct observation from the teacher. (iv) The educational process needs face-to-face communication between teacher and student, especially in the pre-university stage. (v) Density of content and too many educational platforms. (vi) The difficulty of training students in writing skills as usage of pen for writing is non-existent in distance education. This greatly affected the learning process. (vii) Neglecting the textbook and focusing on the platforms. (viii) Students' absence from the distance classes.

As for the suggestions to improve the distance education experience, the teachers'recommendations are as follows: (i) Increasing the degree of monitoring the student while taking the tests. (ii) Continuous effective communication with parents and raise awareness of their role in the distance education process, as they are an active and essential part of it. (iii) Give attention to teaching writing, listening, and speaking skills as reading skill alone is inadequate. (iv) Conducting the evaluation in education centres in a safe environment that complies with the safety and health requirements. (v) Innovating digital applications to teach the skill of writing from a distance. (vi) Limit the number of platforms used to avoid confusing the student and focusing on the scientific material more than the technology. (vii) Diversifying the types of questions to include essay questions. (viii) Finding a solution so that writing can be done using a pen even with remote teaching. (ix) Restoring the use of textbook by employing it in classes as well as on educational platforms. (x) Ensuring the actual attendance of students

by making it compulsory for them to switch on the camera on their computers during lessons.

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