



---

## Educational thought in the Holy Quran An Analytical Study

**Dr. Rakan Issa Al-Adwan**, Associate Professor: Al-Balqa Applied University, Princess Rahma College

**Dr. Muhammad Abu Griban**, Associate Professor: Al-Balqa Applied University, Princess Rahma College

**Ibrahim Mahmoud Nahar**, Master: Business Administration

---

**Abstract-** The research aims to deal with educational thought in the Holy Qur'an through four parts , the first part addressed the Semantic and legal texts that enhance thought value which indicated that the semantic in education concerns the child, and includes several aspects of person caring in comprehensive education concept in terms of his education.. The second Part handled the salient aspects of Islamic educational thought which indicated that Islamic educational thought focused on, and gave care and concern is the mental aspect of man, and has paid attention to the mind and granted it a high rank in all its speeches and rulings. The third part argued that it is a thought that promotes moral values since Educational thought in Islam enhances moral values, in particular during actions related to properties and human interests .The fourth part indicated that Islamic thought is seeking lofty goal and comprehensive reform.since the advantage of Islamic thought and its splendor appears in the lofty of its goal, which is reflected in securing man from delusion swamps , ignorance and backwardness..

**Key words:** Islamic educational thought, Semantic , Moral Values, Comprehensive reform

### I. INTRODUCTION

Educational thought represents intellectual framework which human being needs in establishing his educational systems and the ABCs of educational teaching learning process, developing its principals , bases, and investigating the relationship between instructor and learner, and the most important educational process fields in order to achieve high civilized level and flourish civilization, in light of this accumulated knowledge during thousands years up to now in particular . The Holy Qur'an has a great impact on building Muslim's personality from his childhood because young are less vacant and have more open heart. So if we teach our children the Holy Qur'an and educate them about its etiquette and morals, we can create a generation capable of advancing Islamic nation again and awakening it from its negligence and building its civilization. This research deals with the educational thought in the Holy Qur'an through four parts as follows":

Islam message was inclusive for progress, renaissance and advancement of nation requirements. One of the most important features of this message was the call for knowledge, science and all virtues that advanced nations were keen to acquire and represent in their lives. The human bringing up message the proper raising was the core of Islamic call and true law. For the importance of education in human societies. The Holy Qur'an takes upon by referring to it, and drew attention to it in its greatest Surat Al-Fatihah. In the first verse, the Almighty God said: (Praise be to God, the Cherisher and the Sustainer of the Worlds) Surat Al-Fatihah, which means praise and thanks to God, the world Creator, and their educator in best preparation and the most effective .

*Al-Mohait Dictionary* mentioned in (page 615) in usury article, you raised in his lap, and grew up, and I raised him and provide him with food like his upbringing, and in the holy book, [Pharaoh] said to Mousses peace be upon him, "Did we not raise you among us as a child, and you remained among us for years of your life?

Ibn Katheer said (page 367), are you the one whom we raised among us and in our house and on our beds, nourished him and blessed us for a period of years, then after you collate that kindness with that deed killing one of our men and denied our blessings .

Here, the semantic in education concerns the child, as can be noticed from dictionary definition, and Pharaoh's protest against Moses that he raised him as a child and provide him with care and feed.

Education records which means in the term today is human being care, educating and adjusting him right whether small or old, and therefore the field in the Holy Qur'an with this terminology was broader and comprehensive. It includes several aspects of person caring in comprehensive education concept in terms of

his education, taking form with virtuous morals, and in terms of recommending him to abandon vice ethics. The Holy Qur'an encourages knowledge and raises the state of his people (say: Are those equal those who know and those who do not know? it is those who are Endued with understanding) Surat Al-Zumar Verse 9, and the Almighty said: (God will raise up to ranks, raises those who believe and those who have attained knowledge): Surat Al-Mujadala verse 11, and thus Islam has demonstrated original educational thought in line with all human interests.

God exhorts science as one of education pillars of education, an absolute – incitement and honors his people. It is sufficient to indicate in this regard that the first word of the Holy Qur'an refers to educational thought. God the Almighty said "Read In the name of Lord and Cherisher Who created. Created man, out of a clot of Congealed blood". Surat Al-Alaq verses 1 and 2; so the word Iqra is a way of life and a path that is one of the most important pathways for nations to progress, develop and advance. So it is not surprising that it is the first word and slogan for this righteous religion. The Islamic thought is keen on ideal and application in order to spread the benefit, and distanced from the idealism and the proposition that does not serve reality. God Almighty who speaks out against the contradictory saying that they are outside the base that the religion came to build, namely, the description of positive reality, truth, then the Almighty said: (O those who believe, did not you say what you do not do? Verses 2 and 3 of Surat Al SSaf As for the Sunnah of the Prophet, the author of the book Riyadh Al-Salih Al-Nawawi made a chapter in his book entitled Chapter of the Merit of Knowledge earning and teaching (page 477) and mentioned a number of hadiths, including the hadith in Sahih Muslim, Abu Hurairah, said that prophet may peace be upon him said, (Whoever takes a path through which he seeks knowledge, God will facilitate for him a path to paradise) The hadith narrated by Muslim in his Sahih, This hadith shows that going for seeking knowledge, is considered one of the most important paths to Paradise and be saved from the fire., In another narration of the hadith from Abu Al-Darda: "All those in heavens and earth, even whales in water, may ask good to forgive the scholar. The scholar precedence over the worshiper as moon's precedence over planets, and that scholars are the heirs of the prophets. They do not inherit Dinar or Dirham; instead they inherit knowledge, so whoever takes it will take ample luck." Narrated by Abu Dawood and Tirmithi. In addition, the Qur'an and the Sunnah in most of their texts regarding education, raising the mind by education, educating the soul with virtuous morals and avoiding vice.

It is worth to mention, and the important warning here, that one of the first to rank the chapters of education in the Qur'an and Sunnah and organized their subjects in a manner that the scholar of Hujjat Al-Islam Abu Hamid Muhammad bin Muhammad Al-Ghazali had not previously mentioned when he wrote his famous book (The Revival of Religion Sciences ). page 27 .

He divided it into four parts, the first is acts of worship, the second is the rescuers, the third is the destroyers, and the fourth is customs. By referring to the Revival of Religion Sciences of (pages 7-12). Acts of worship are to refine souls and attach them to God. As for the rescuers the topic is virtuous and honorable morals, such as certainty, patience, dreams, tolerance and other morals that educate souls on the most straightforward and correct paths, while the destroyers are to educate the soul to abandon bad manners such as backbiting, gossip, deception, envy and false testimony. AS for habits quarter it is in the behavior of man in his presence, travel, and dealings with people, including husband, relatives and neighbors. Therefore this book attracted scholars, due to its good division and unique arrangement, so the scholars summarized it. And the most famous summary of Al-Qasidin approach by Ibn Qudamah Al-Maqdisi w in four large volumes, and from who made it in four large volumes. The scholars' admiration in the educational division of this book, Al-Nawawi wrote Riyadh Al-Salihin in the same order, but he made it in the purely prophetic hadiths without explanation except a little.

Education topic depends on mind, enlightening it with knowledge, and interest in soul and the soul through the acclamation that the author of the message Al-Qushayriah knew (page 25) by giving it away. Therefore, Muslims have adopted a scientific approach based on the adequacy of the human being and the fulfillment of his purposes, meeting his needs and satisfying needs. Noble verses and hadiths have set up limits of that scientific approach.

So the first thing it started was to raise knowledge importance. research and thinking. .It is the mainstay of renaissance and excellence for nations, so the first step in the Qur'an approach was to strengthen the first

means of knowledge and its principles recognized over the years. Research and thinking, no, this is the mainstay of renaissance and excellence in the accounts of nations,

So the first step in the Qur'an approach was to reinforce knowledge means and its principles recognized over the years. The beginning was with the word "read" and what it has scientific and cultural significance, and then in another verse God Almighty swore by the pen The Almighty said: (Noun, by the pen and by which they write) Surah Al-Qalam verses 1 and 2 . Al-Sabuni says in this sense: "God Almighty swore by the pen with which people write sciences and knowledge. The pen is the brother of the tongue and blessing from the Most Merciful to his worshipers, and the oath by the pen is an indication for reading and writing precedence" (Al-Sabuni, Muhammad Ali, The Selection of Interpretations, Part 3, p. 424

This is what is meant is the practice of Muslim scholars who are familiar with the Qur'an and Sunnah. Whoever wrote in tafsir gave education in its three divisions the right to explain the verses in that section. See Tafsir Ibn Katheer, for example.

As for hadith books, the Sahih Bukhari is the most clear book after the Holy Qur'an, which is. He held a book on science in the first Sahih Bukhari and Imam Muslim likewise the author of the Sahih as well as the contract of Bukhari (authenticated Al-Bukhari in the Book of Knowledge / Volume 1 / Page 33) in the Book of Knowledge, a Book in Sahih in Literature and in Asceticism and Kindnesses, and what is intended is the matter of education, which is the purification of souls by displaying good morals and abandoning all vile creation. Science and its chapter on the chapter and in the good morals and exhortation to it the chapter and in the abandonment of bad morals,

As for the book Al-Muwatta 'by Imam Malik (Al-Muwatta / Part Two / Page 1002), which is the first book in the Prophet's Sunnah and most of it on ethics, made a chapter at the end of his book, named Al-Jami'a, which is specialized in science merit of knowledge , raising souls with virtuous morals and abandoning vices.

The jurists proceeded in classifying their books on this manner, so they were keen to show the scientific approach in their issues., So if your referred to many jurists topics in all jurisprudential schools; such as the Hanafi, Maliki, Shafi'i and Hanbali you will find that they used to open their books with the noble Prophet's hadith (when God wishes good for a person, he causes him to understand the religion)

The hadith was narrated by Bukhari and Muslim reported by Muawiyah, may God be pleased him. Considerable goals and objectives, Al-Mam Al-Nawawi says: "In this hadith is the virtue of knowledge and understanding in religion and urging it, and that it is a reason for the piety of God" (Al-Nawawi, Sharh Sahih Muslim, part 7, p. 128) This indicates their interest in thought in general and the thought leading to jurisprudential knowledge in particular.

Among the applied examples of this intellectual trend among the jurists is Khalil in Maliki jurisprudence and Kitab Al-Risalah by Ibn Abi Zayd, where they compiled a book which they called Al-Jami aimed for ethics and emerging to educate the souls with knowledge and action, most of them called it (his conclusion) in which he concluded his book as a Dardir Abstract Khalil Abstract (Conclusion on Sufism). What is interesting is that the science of Sufism is the truth of pure creation and its adornment and then abandoning every bad creation while multiplying the other righteous deed which is a branch of useful science.

Among the Muslim scholars due to their great interest in this subject, he wrote a separate book called Al-Sharia Al-Etiquette by Ibn Muflih Al-Hanbali, and organized by Safarini in a system and explaining the same topic , that is

Education based on correct knowledge and good manners,So they organized what is in the Qur'an and arranged it and brought it closer to further their interest in this section and their great care

For the worst of beasts in the sight of god are the Deaf and the dumb those who understand not) Surat Al Anfal verse 22

### **The salient aspects of Islamic educational thought**

One of the most important aspects that Islamic educational thought focused on, and gave care and concern is the mental aspect of man, since through it sciences and knowledge are obtained that are the basis for nations prosperity and progress are obtained, and for this reason Islam has paid attention to the mind and granted it a high rank in all its speeches and rulings. Islam made mind preservation one of the most important purposes

Islamic law; rather, one of the five essentials of these objectives, because mind, as Imam Al-Shatibi says: "The strength of every action related to an interest, and its difference leads to great evils." (Al-Shatibi, Al-Mawwafaat, Part 2, p. 3).

The Right Sharia consider the mind and place it where it must be in taking care of human kind and made it a basis for thinking, contemplation and opinions and ideas acceptance, and assignment in Shari'a provisions., So who has no mind is considered deficient in the knowledge hierarchy and whoever has not completed his mind as the young person or fool has been prevented by Sharia from financial acts in order to preserve his rights from being lost. Holy Quran rhetoric's that addressed the mind and demonstrate its high rank .The Almighty God shows man mind greatness. That is why it is necessary to resort to it in life activities, so God Almighty said: (We have shown the verses to people who understand) Surat Al-Jathiyah verse 5. The Qur'an blames those who neglect their minds and do not refer to it in the various matters of life. The Almighty God said: "For the worst of beasts in the sight of god are the Deaf and the dumb those who understand not) Surat Al-Anfal 22, for this is the most important praise and esteem which distinguish Islamic law among other religions and beliefs.

Mind took significance importance in Islamic thought, especially among the applied real scholars who look for people real problems and needs .They seek to solve them in accordance with the provisions of the true Sharia. Like jurists and those who stand up to fatwa and guide people. In many scientific approaches scholars have pursued there is evidence of the importance of judgment stemming from rational consideration, especially if evidence is absent from the legal text. It is inevitable from adopting the evidence presented by mind in order to save people and facilitate their lives. The jurist's rational approaches were to extract legal provisions. Such as analogy, approval, and interest's realization...

This rational tendency was to extract legal provisions, represented in Companions era of the and their century, which is the best of centuries. This guide us to Omar Ben Al-khattab story when he send Abu Mousa Al Ashari to Yeman as a judge and said to him :” Understanding ,what is thrown into your chest that is not in the Holy Quran or the Prophet,Sunnah peace be upon him, then know the similarities 9 Shalabi ,et al : Arabic Writing methods and topics, p 46). This show the mind rank in Islamic Educational thought. In this regard, Al-Rashdan says: "Islam's interest in the mind was not limited to mentioning and indicating its value in the Qur'an and Sunnah. Rather, it has become a distinctive feature of Islam in all ages, as it is not possible for a religion without reason to be correct" (Al-Rashdan, Abdullah, Islamic Educational Thought, p.24).

### **Islamic educational thought is positive and realistic**

As for the fact that it is a positive thought, it links human with deed and saying benefit, so there is no time waste in Islam, but everyone is called to exert effort and interact with life to invest its goodness, especially since this thought links the human with the major issues that concern him. As a matter of dealing with a Creator, Able, and Effective God for what he wants, and everything he has with an amount.. It takes into account the active positivity.

As for the fact that it is a realistic thought, this is because it is a thought that pushes human to deal with objective facts that are real and real existence. (Abu Yahya, Muhammad, and others, Islamic Culture, p. 126), and not the imaginative conceptions and illusions that do not exist in real life, as is the case with idealistic representations in Greek philosophy, for example...

### **A thought that promotes moral values**

Educational thought in Islam enhances moral values, in particular during actions related to properties and human interests. As an evidence , the debt verse in Surat Al-Baharat establishes an intellectual approach that is compatible with the best way to avoid disputes arising from many issues and financial transactions, when Almighty God says.(( O you who have believed, when you contract a debt for a specified term, write it down. And let a scribe write [it] between you in justice. Let no scribe refuse to write as Allah has taught him. So let him write and let the one who has the obligation dictate. And let him fear Allah, his Lord, and not leave anything out of it. But if the one who has the obligation is of limited understanding or weak or unable to dictate himself, then let his guardian dictate in justice. And bring to witness two witnesses from among your men. And if there are not two men [available], then a man and two women from those whom you accept as witnesses - so that if one of the women errs, then the other can remind her. And let not the witnesses refuse when they are called upon. And do not be [too] weary to write it, whether it is small or large, for its [specified]

term. That is more just in the sight of Allah and stronger as evidence and more likely to prevent doubt between you, except when it is an immediate transaction which you conduct among yourselves. For [then] there is no blame upon you if you do not write it. And take witnesses when you conclude a contract. Let no scribe be harmed or any witness. For if you do so, indeed, it is [grave] disobedience in you. And fear Allah . And Allah teaches you. And Allah is Knowing of all things)) Surat Al Baqrah, verse 282.

The debt verse is the longest verse in the Holy Qur'an, which indicates the importance of the topic addressed by such verse, which is a commitment with moral values that appear in writing and documenting all financial transactions and human rights related to these actions.

We notice that at the beginning of the verse how Almighty God has guided His servants to document and write transactions to preserve their owner's rights .In this regard Ibn Al-Arabi Al-Maliki says in a statement of meaning, so write it. "He wants to be a document to be remembered when it is due. To avoid expected negligence in the period between the transaction and its due time, because forget is entrusted to man, and Satan may be encores to deny" (Ibn Al-Arabi, Abu Bakr Muhammad bin Abdullah, Ahkam Al-Qur'an, Part 1, p. 247).

Debt process as indicated by the noble verse, must be addressed with most accurate details of verification and preservation, for not its absence leads to the to not paying rights and denial the same, which leads to hate, quarrels and tearing nation unity. The writing matter e here is linked to justice, it is not just writing and enough, but it is commitment to truth and justice in this case is a required legal matter, because justice is the basis for obtaining owners rights.

Imam Al-Nassfi says in this regard: "A reliable writer is required for what he writes, and he writes with caution and does not increase or decrease what is required, and this is evidence that the writer is a jurist who knows conditions for the purposed of making his writing in line with the Sharia." (Al-Nasfi, Abdullah bin Ahmed, Tafsir Al-Nasafi, vol. 1, p. 140), and to achieve such justice, there are conditions which the writer must has as follows,:

- 1- Faithfulness and piety
- 2-Science and knowledge
- 3 - Power and prestige and never afraid of the reproaches

God also asks the writer in such cases to respond to every needy person who wants to document his debt in order to preserve it, and this writer may not refuse or hesitate to accept, especially if he is able to make that benefit, because his refusal forms the loss of right of the one who has the right and causing harm to him, Harming a person to his brother is forbidden in Islam, as no harm , no foul .

That noble verse includes the Islamic educational thought system with a fence of noble meaning that serves as a basis for the reform process at all levels and all the expectations that nations seek to achieve.

### **Thought seeking lofty goal and comprehensive reform**

The advantage of Islamic thought and its splendor appears in the lofty of its goal, which is reflected in securing man from delusion swamps , ignorance and backwardness. The Qur'an came to lead and preach to human being path of goodness and guidance and liberate him from all negative thoughts and false beliefs, calling for respect for reason and saving him from intellectual and belief impurities which contaminated him through time cycles, so the Qur'an decided that the deity is one, so one should go to him and surrender to him. The Almighty God said : (And your God is one God, there is no god but He is the Most Gracious, the Most Merciful) Surat Al-Baqarah 163. The monotheism was the highest and most important issue in Islam educational thought.

Because it is the basis of Islam and its first article, and fathers and educators were keen on gaining meanings of this verse and its desired fruits, and they asked educators of their children and teachers to provide them first and foremost with the knowledge of monotheism and the knowledge of Almighty God with the evidence to achieve complete faith in the soul of learner and raising the right instinct and prophets approach. (Nasser, Muhammad, Arab and Islamic educational thought, p. 352)

After Islam educational thought freed minds from their imprisonment and reals them from their chains that were attached far from truth approach, it launched its call to think, reflect and consider God revelations and

his wonderful creation, then the Almighty God said: (God is He. Who raised the heavens without any pillars that ye can see is firmly established on the Thorne he has subjected the sun and the moon. Each one runs for a term appointed. He doth regulate all affairs explaining the Signs in detail. That ye may believe with certainty in the meeting you're your Lord) Surat Al Read 2 and said: (soon will we show them our signs in the regions and in until it becomes manifest to them that this is the truth.) Surat Fusilat ,53

## II. FINDINGS AND RECOMMENDATIONS

The research reached several results and recommendations, which are summarized as follows

**First - Results:** The research concluded a set of results that were as follows:

1- The extent of Islamic thought contribution to advancement of education fields of, upbringing, and correct behavior refinement, based on the established sources in Islam that are subject to respect, reverence and respect for all Muslim educators

2-Muslim scholars did not separate their educational ideas from other sciences they introduced, but rather they were all an integrated unit. The jurist used to search for studies in education and behavior discipline during his research of jurisprudential issues based on that all is a useful science that for Almighty God sake and creation reform.

3-The goal of Islamic thought is the righteousness of man in both worlds, because one of the purposes of Islamic law is to build the world and to win the hereafter, and for this reason, all sciences and knowledge have been employed to achieve these lofty goals, including the educational sciences that Sharia was keen to find and considered it a function of the prophets, messengers, reformers and other faces of people and the elite among them

**Second - Recommendations:**

1-Attention to be paid in inculcating and developing Islamic values in all educational stages by linking them to Islamic faith

2-Urging teachers to refer to the Holy Qur'an as it enhances their personality and educational performance

3-To focus on the existential aspect of education for teacher and the learner by linking the different curricula with the Qur'an

4-To carry out more broad studies on educational thought in the Holy Quran

## REFERENCES:

- [1] Al Qamoos Al Muheet, Al Fayrouz Abadi 2005
- [2] Interpretation of the Holy Qur'an, Abu Al-Fida Ismail bin Amr
- [3] Riyadh Al-Salihin, Yahya bin Sharaf Al-Nawawi, Cairo
- [4] Sahih Muslim, Muslim bin Al-Hajjaj
- [5] Sunan Abi Dawood, Dar Al Hadith Edition, Cairo
- [6] Sunan al-Tirmidhi, Dar al-Hadith edition, Cairo
- [7] Al-Jami Al-Sahih, Muhammad ibn Ismail Al-Bukhari, Cairo, The Ottoman Press, 1351 AH
- [8] Al-Muwatta, Imam Malik bin Anas
- [9] Reviving Religion Sciences, Abu Jaoud Al-Ghazali, Cairo, 1993
- [10] Explanation of Sahih Muslim, Imam al-Nawawi,(1972) Dar al-Kutub al-Ilmiyya, Beirut
- [11] Summary of the Curriculum of Al Qasidin by Ibn Qudama Al-Maqdisi, (1978) Cairo, Dar Al-Turath Al-Arabi
- [12] Al-Risala Al-Qushairy, Imam Al-Qushayri
- [13] The Tafsir Elite, Muhammad Ali Al-Sabouni, The Noble Qur'an House, Beirut
- [14] Sunan an-Nasa'i, the Al-Imam al-Nasa'i
- [15] Sunan Ibn Majah, Ibn Majah al-Qazwini
- [16] Mukhtasar Khalil, the scholar Khalil al-Maliki (2004)
- [17] Khalil's summary, Allama Dardir
- [18] The approvals, Abu Ishaq Al-Shatibi,(1996) Dar Al-Fikr, Beirut
- [19] sharia etiquette by Ibn Muflih al-Hanbali (2015)
- [20] Arabic Writing, Methods and Topics, Mahmoud Al-Shalabi, and others, (2009) Edition 1, Al-Balqa Applied University
- [21] Islamic educational thought, Abdullah Al-Rashdan, 1st Edition, (2004) Wael Publishing House, 2004 AD

- [22] Islamic Culture, Muhammad Abu Yahya and others, (2003) Dar Al-Masirah
- [23] B. ALhayani, and H. Ilhan, "Efficient cooperative image transmission in one-Way multi-hop sensor network," *International Journal of Electrical Engineering Education*, vol.57, no.2, pp.321-339. 2020
- [24] B. Alhayani and Milind Rane, "face recognition system by image processing" *International journal of electronics and communication engineering & technology (IJCIET)*, vol.5, no.5, pp. 80-90. 2014.
- [25] B. ALhayani and H. Ilhan, "Image transmission over decode and forward based cooperative wireless multimedia sensor networks for Rayleigh fading channels in medical internet of things (MIoT) for remote health-care and health communication monitoring," *Journal of Medical Imaging And Health Informatics*, vol. 10, pp. 160-168.2020.
- [26] B. Al Hayani and H. Ilhan, "Image transmission over decode and forward based cooperative wireless multimedia sensor networks for rayleigh fading channels in medical internet of things (MIoT) for remote health-care and health communication monitoring," *Journal of Medical Imaging and Health Informatics*, vol.10, no.1, pp. 160-168, 2020.
- [27] BSA. Al Hayani and H. Ilhan, "Visual Sensor Intelligent Module Based Image Transmission in Industrial Manufacturing for Monitoring and Manipulation problems," *Journal of Intelligent Manufacturing*, vol.4, pp.1-14.2020.
- [28] BSA. Al Hayani and H. Ilhan, "Visual Sensor Intelligent Module Based Image Transmission in Industrial Manufacturing for Monitoring and Manipulation problems," *Journal of Intelligent Manufacturing*, vol.4, pp.1-14.2020.
- [29] B. Alhayani, A.A. Abdallah, "Manufacturing intelligent Corvus corone module for a secured two way image transmission under WSN", *Engineering Computations*, Vol. 37 No. 9, pp. 1-17. 2020.
- [30] The Arab and Islamic educational thought, Muhammad Nasir, 1st Edition, 1977, Publications Agency, Kuwait.
- [31] Mahajan, H.B., Badarla, A. & Junnarkar, A.A. (2020). CL-IoT: cross-layer Internet of Things protocol for intelligent manufacturing of smart farming. *J Ambient Intell Human Comput.* <https://doi.org/10.1007/s12652-020-02502-0>.
- [32] Mahajan, H.B., & Badarla, A. (2018). Application of Internet of Things for Smart Precision Farming: Solutions and Challenges. *International Journal of Advanced Science and Technology*, Vol. Dec. 2018, PP. 37-45.
- [33] Mahajan, H.B., & Badarla, A. (2019). Experimental Analysis of Recent Clustering Algorithms for Wireless Sensor Network: Application of IoT based Smart Precision Farming. *Jour of Adv Research in Dynamical & Control Systems*, Vol. 11, No. 9. 10.5373/JARDCS/V1119/20193162.
- [34] Mahajan, H.B., & Badarla, A. (2020). Detecting HTTP Vulnerabilities in IoT-based Precision Farming Connected with Cloud Environment using Artificial Intelligence. *International Journal of Advanced Science and Technology*, Vol. 29, No. 3, pp. 214 - 226