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Presenting the Linguistic and Exegetic Characteristics of the Qur'anic Text and the Translations of Its Meanings in a Meaningful Bilingual Platform Using the Concept and Mind Mapping Techniques

استخدام الخرائط المفاهيمية والخرائط الذهنية لعرض الخصائص اللغوية والتفسيرية للنص القرآني مصحوبا بترجمة معانيه في قالب ثنائي اللغة غني بالمعنى

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A Thesis Submitted in Fulfillment of the Requirements for the Degree of Doctor of Philosophy in English Language (Applied Linguistics)

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1 Hadith

'Abdullah bin Mas'ud narrated "The Messenger of Allah (s.a.w) drew a square line (on the ground) for us, and in the middle of the (square) line he drew another line, and he drew another line going out of the (square) line. Around the one that was in the middle, he drew (various) lines. Then he said: 'This is the son of Adam, and this is his life-span encircling him, and this one in the middle is the person, and these lines are his obstacles, if he escapes this one, this one ensnares him, and the line extending outside is his hope.'"

Vol. 4, Book 11, Hadith 2454

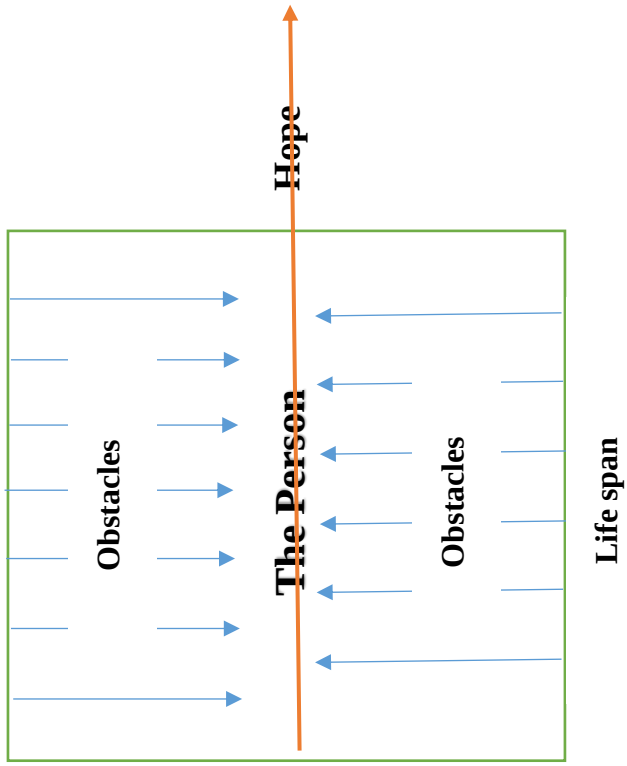

Figure 1 A mind map inspired by the above hadeeth of Prophet Mohammad (S.A.W)

2 Dedication

This work is dedicated to
Prophet Mohammad (Peace and blessings of Allah be upon him.),
his noble companions,
my great parents (May they rest in peace),
and to my family.

3 Acknowledgements

All thanks and praise are due to Allah "… To Him is [due all] praise in the first [life] and the Hereafter. And His is the [final] decision, and to Him you will be returned."[1] Who has chosen me to deliver His holy words and provided me with the resources and power to achieve this goal and make my dream come true.

My sincere thanks and gratitude are extended to Prof. Mahmoud Ali Ahmed Omer for his invaluable support, cooperation, and guidance as to accomplish this work the way it is now.

Especial thanks are due to Prof. Abdul-Majeed Al-Tayib from Umm AL-Qurah University, Makkah, Saudi Arabia for his generous support and encouragement.

[1] Surat AL-Qasas, verse 70 (Q.28:70)

4 Key words

The Holy Qur'an

Qur'anic Maps

Concept Maps

Mind Maps

Topical Classification

Multiple Intelligences

Linguistics

Linguistic Phenomena

5 Abstract

Means of presenting the Qur'anic text enjoy everlasting efforts to develop and meet the greatness and high status the holy Qur'an maintains. Consequently, this study aims at shedding light on the virtual relationship between the general concept of the Qur'anic mapping techniques and some of the resulting theories of linguistics on the one hand, and between the general concept of the Qur'anic mapping techniques and the theory of Multiple intelligences, on the other hand. The concept of the Qur'anic mapping is to facilitate meaning conveyance, embody concepts, and re-present the Qur'anic discourse in an understandable and comprehensible manner. Therefore, thinking of how the Qur'anic reader will absorb the new representation of the Qur'anic discourse, was a main issue in the Qur'anic mapping process. The resulting linguistic phenomena and the reflected relationship between the Qur'anic maps and the theory of Multiple intelligences were discussed in a detailed manner. The researcher utilizes XMind 7 (v3.6.0.R-201511090408) software in the designing of the Qur'anic maps. The Qur'anic maps take a hybrid design of concept maps and mind maps with the original Arabic Qur'anic text and the English translation of its meanings manipulated. The current study introduces itself as a foundation for a newer domain of research based on a decent association between Qur'anic exegesis and its topical classification, concept mapping, the various theories of linguistics, and the theory of Multiple Intelligences. The study also provides an opportunity for other studies to explore more linguistic theories and other observations regarding Gardner’s theory of Multiple Intelligences not mentioned in this study.

المستخلص 6

تتمتع وسائل عرض النص القرآني بمحاولات مستدامة لتطويرها حتى تتناسب مع المكانة العالية التي يتمتع بها القرآن الكريم. لذا هدفت هذه الدراسة إلى إلقاء الضوء على العلاقة الافتراضية بين المفهوم العام لتقنية رسم الخرائط القرآنية وبين بعض نظريات علم اللغويات، من ناحية، وبين المفهوم العام لتقنية رسم الخرائط القرآنية وبين نظرية الذكاءات المتعددة، من ناحية أخرى. ويقوم مفهوم الخرائط الذهنية على تسهيل نقل المعني، وتجسيد المفاهيم، وإعادة عرض النص القرآني بطريقة سهلة الفهم والاستيعاب. لذلك كان التفكير في كيفية استيعاب قارئ القرآن الكريم للطريقة الجديدة لعرض النص القرآني أحد الغايات الهامة جداً في عملية رسم الخرائط القرآنية. تناولت هذه الدراسة بالتفصيل الظواهر اللغوية الناتجة عن استخدام الخرائط الذهنية وكذلك العلاقة بين الخرائط القرآنية ونظرية الذكاءات المتعددة. وقد استخدم الباحث برنامج (XMind 7 v3.6.0.R-201511090408) لتصميم الخرائط القرآنية. وتأخذ الخرائط القرآنية تصميماً هجيناً يجمع بين الخرائط المفاهيمية والخرائط الذهنية متضمنة النصّ القرآنيّ الأصلي باللغة العربية مصحوباً بالترجمة الإنجليزية لمعانيه. وتقدم هذه الدراسة نفسها كحجر زاوية لمجال جديد من البحث العلمي الذي يقوم على ربط أنيق بين تفسير القرآن الكريم والتصنيف الموضوعي له، والخرائط المفاهيمية، ونظريات اللغويات المختلفة، ونظرية الذكاءات المتعددة. وهي بذلك تتيح الفرصة للباحثين والدارسين للقيام بدراسات أخرى لاستكشاف نظريات لغوية أخرى وملاحظات أخرى متعلقة بنظرية هاورد جاردنر- نظرية الذكاءات المتعددة - لم تتناولها أيٌّ من فصول الدراسة الحالية.

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9 Chart of Arabic Letters

Arabic Letter or Mark	Name	Symbol Used in English Text
ا ى (vowel)	alif	aa a
ب	baa	b
ت	taa	t
ث	thaa	th
ج	jeem	j
ح	haa	h
خ	khaa	kh
د	daal	d
ذ	dhal	dh
ر	raa	r
ز	zaay	z
س	seen	s
ش	sheen	sh
ص	ssaad	ss
ض	dhaad	dh
ط	ttaa	tt
ع	‘ayn	‘
غ	ghayn	gh
ف	faa	f
ق	qaaf	q
ك	kaaf	k
ل	laam	l
م	meem	m
ى	noon	n
ه	haa	h
و	waaw	w
ي	yaa	y
ء	hamzah	’
◌َ	fathah	a
◌ِ	kasrah	i
◌ُ	dhammah	u
◌ّ	shaddah	doubled letter
◌ْ	sukoon	absence of vowel

CHAPTER I

INTRODUCTION

1 CHAPTER I: INTRODUCTION

1.1 Overview

This chapter acts as an introductory chapter to the chief points and designing of the study. It includes the background, statement of the study problem, objectives of the study, questions of the study, hypotheses of the study, significance of the study, limits of the study, and methodology. Finally, this chapter provides an outline of the whole chapters and organization of the study.

1.2 Background of the Study

The current study's outcome works as a unique opportunity to show how various linguistic fields are integrated and highlighted with what might be called an advanced tool of investigation – the Qur'anic maps – on the one hand. On the other hand, Howard Gardner's Multiple Intelligences theory was thoroughly investigated based on finding proofs from the Qur'anic maps whether they address the nine types of intelligence.

The Holy Qur'an is at the top of the list of read books, albeit perhaps a small proportion of its readers understands it (al-Banna, 2013). This is because the Qur'anic text is not always easy to understand (Nassourou, 2012) even for those whom their first language is Arabic. In fact, it requires a consideration of several aspects to be available to get the large picture and full understanding of the whole context where numerous remarkable efforts are being done day by day in that regard. In that understanding, the sort of clarity that could be made available with the mind maps and concept maps serves the reader of the Qur'an in many ways. It provides simple and easy-to-follow outlines within the intra-verse, inter-verse, and inter-chapter levels based on the different rhetorical, grammatical, contextual, exegetic, and many other linguistic features available in the Qur'anic text. It also connects the likely unlinked or scattered ideas that may first appear to the normal reader of the Holy Qur'an of no relationship to each other. On the other hand, mind maps, as well as concept maps, provide a win-win strategy of memorization for those who seek to keep by heart the Qur'anic text.

The use of concept and mind mapping in Islam is very old according to the following saying of Prophet Mohammad (Peace be upon him):

'Abdullah bin Mas'ud narrated "The Messenger of Allah (s.a.w) drew a square line (on the ground) for us, and in the middle of the (square) line he drew another line, and he drew another line going out of the (square) line. Around the one that was in the middle, he drew (various) lines. Then he said: 'This is the son of Adam, and this is his life-span encircling him, and this one in the middle is the person, and these lines are his obstacles, if he escapes this one, this one ensnares him, and the line extending outside is his hope.'"

Vol. 4, Book 11, Hadith 2454

The notion of concept maps was again referred to in the 1970s by Stewart, Van Kirk, and Rowell Stewart (1979), then developed by Novak as a tool to help in research work (Brinkmann, 2003). They are then, graphic representations of knowledge hierarchically arranged for reflecting the interrelationships of certain concepts (Novak, 1990, Novak and Cañas, 2008), an individual's long-term memory semantic content (Jacobs-Lawson and Hershey, 2002), or a graphical system that is used to comprehend the conceptual interrelationships (Plotnick, 1997). Stewart (1979) defines concept maps as a two-dimensional means for representing a discipline's conceptual structure.

On the contrary, Mind maps which are a technique firstly designed by Tony Buzan (Brinkmann, 2003) and daily used by millions of people around the world (Buzan, 2005, Eppler, 2006, Davies, 2011), take a different definition from the one concept maps perfectly fit into (Davies, 2011). Mind maps are then defined based on the role they play in delivering ideas and concepts (Budd, 2004), hierarchically representing relations between portions of a given learned material (Eppler, 2006), and being an unconstrained and a free-form structure that stimulates creative thinking and motivates brainstorming (Davies, 2011).

Worthwhile, a simple comparison between concept maps, visual metaphors, conceptual diagrams, and mind maps with embedded text in them will reveal that there is no difference regarding their specific benefits and constraints (Eppler, 2006). In addition to that, the over-riding objective all mapping techniques are cut off to achieve is similar (Davies, 2011), clarity. Drawing on this perspective, a hybrid technique consists of mind mapping and concept mapping frames the road map of this proposed study, aiming to form numerous possible meaningful analyses.

1.2.1 The Qur'anic Maps

1.2.2 Definitions of the Holy Qur'an

The word Qur'an is lexically derived from the action of reading (قراءة) (Abdul-Raof, 2013), and the Arabic root (قرأ). The Holy Qur'an was first revealed from Allah to Prophet Mohammad (Peace and Blessings be upon Him) through the angel Gabriel in a verbal form. The revelation of the Holy Qur'an took place in two ways: the first was in a single night (the Night of Power) as a whole, and the second was in unequally separated parts as a response to the development of events (Islamweb, 2015) during the last 23 years of the Prophet's life. Being revealed in the stages above does not contradict the notion that the Holy Qur'an should be regarded as one integral whole where every unit is firmly related and connected to the other parts (Abdul-Raof, 2013).

Qur'an is also defined and revered as the word of God and Islamic sacred text (Haleem, 2005, Merriam-webster.com, 2015, Stowasser, 1994, Saeed, 2006, Al-Kabi et al., 2013) that is divided into 114 chapters (*surahs*) (Nelson, 2001), dictated to Prophet Mohammad by the Archangel Gabriel as the accepted form of the foundation of the Islamic religion, law, politics, and culture (Dictionary.com, 2015, Haleem, 2005, Saeed, 2006).

The Holy Qur'an, which is Muslims' source of worldly guidance and spirituality (Saeed, 2006), continues to be their outstanding fount of understanding for the other unseen and physical realms (Fredrick, 1996). A unique feature of the Holy Qur'an is that it is aware of itself as a scripture distinguished and configured remarkably in a perspective of oral communication; that is outlined by scholars including Daniel Madigan and William Graham (Zadeh, 2008).

A focusing meditation on the Qur'an scripture and articulation will always figure out extraordinary characteristics and descriptions that support the notion of being a word of God rather than a humankind's. In that sense, the Arabic text of the Qur'an gives the reader as well as the scholar an impression of having uniformity and problem-free building (Reynolds, 2007). Moreover, the English translations of the Qur'an reflect a feeling of transparency regarding the meanings included, where it is very rare that a translator reports ambiguity for a sense of a Qur'anic passage (Reynolds, 2007).

1.2.3 The use of concept and mind maps in the current study (The Qur'anic Maps)

This proposed study utilizes concept maps and mind maps to deliver the various applicable features the Qur'anic text has in its discourse, such as conceptual chaining, and exegetic and linguistic issues. Moreover, mapping is a technique much easier to track than written or verbal descriptions besides promoting deep approaches to learning (Davies, 2011). Novak defines metacognition as a scope of learning that occurs whenever there is a need for general strategies to facilitate learning or understanding (Novak, 1990). Ideally, the concern of this study falls under the realm of metacognition, considering that concept maps stand as highly powerful metacognitive learning strategies applicable to the broad scope of subject matters. Budd considers that concept maps only highlight the relationships of important concepts (Budd, 2004).

The interlinked verses and concepts in the Qur'anic text require a technique such as mind mapping or concept mapping to visualize them (Alam et al., 2013). Moreover, great objectives such as Qur'anic reader's motivation, responsiveness, comprehension, and memorization can be achieved by the complementary use of a diversity of visualization formats (Eppler, 2006). This proposed study adopts the use of the mapping techniques to provide the reader of the Qur'an with a panoramic view of the thematic textures, linguistic characteristics, conceptual development and interrelatedness, translational agreement and conflicts, and exegetic enlightening.

Conceptual maps or mind maps are utilized in this study to make clear the various categories of relationships provoked by the unity of text easily distinguished all over the Holy Qur'an. Moreover, an exciting trend of linking clusters of ideas and/or concepts is apparent leading to a working strategy helpful in conceptualizing multiple ideas within different levels of the Qur'anic text. Interestingly, the grouped concepts go in line with the Qur'anic understanding, four common translations, and exegeses. Horizontal and vertical linear categorizations of extracts of the Qur'anic text reveal a variety of classifications of the topics within verse (*aya*) and chapter (*surah*) levels. Those interrelationships outlined by the charts aroused the following levels of linkages:

1. Intra-verse relationships – meaning(s), concept(s), linguistic, and textual unity and coherence co-relationships.

2. Inter-verse relationships – meaning(s), concept(s), linguistic, and textual unity and coherence co-relationships.
3. Relationships between the different *surahs* of the Holy Qur'an based on a variety of points of view; causes of revelation, exegesis, similarity, functional roles, and issues discussed.

1.2.4 Conceptual Chaining in the inter-verse level within a single *surah* of the Holy Qur'an

Qur'anic Conceptual and intertextual Chaining (relatedness) along with stylistic and linguistic shifts is that type of in-depth account a text analyst can offer in the Qur'anic discourse in the inter- and intra-ayah levels (Abdul-Raof, 2003). The Qur'anic discourse, which is dominated by the textual and conceptual connectivity, apparently looks as causing a sort of inconsistency and disharmony. Nevertheless, a deep exegetical study will bring about a reader's satisfaction and understanding of the invisible logical harmony that strongly and adherently promotes them (Abdul-Raof, 2003).

Semantic relatedness and sequential chaining both hold the perspective of contextual chaining which Abdul-Raof (2003), considers the role of its occurrence in the Qur'anic text as a vital agent that reveals notion connectivity, mutual relevance, and discourse sequentiality (Al-Sowaidi, 2011). This proposed study gains its importance from the need to highlight and make visible the existence and role of conceptual chaining played in the Qur'anic discourse.

1.2.5 Strange Translations (Shackle Meanings)

A distinction between the Qur'an and its current translations of its meanings is required to stress that those translations will not replace the Qur'an (Pitler et al., 2012). Moreover, Arabic and English languages are different (Andresen, 2013), in addition to the unique linguistic characteristics of the Qur'anic texture and the limitations of its translatability, as none of the translators of the Qur'an has claimed the superiority of their translation as an equivalent of the Holy Qur'an (Abdul-Raof, 2013).

It is worthwhile that, the limitations that led to the untranslatability notion is particularly attuned to the previous concept of Qur'anic inimitability or *I'jaz*, that human

faculty stands powerless in producing an equivalent to the Qur'anic text (Abdul-Raof, 2003). The divine challenge is still valid and day-by-day proved by the human's inability to produce or reproduce an equivalent to the Qur'an as well as to a single Qur'anic *Surah*;

> Q.17:88: Say, "If mankind and the jinn gathered in order to produce the like of this Qur'an, they could not produce the like of it, even if they were to each other assistants."

> Q.11:13: Or do they say, "He invented it"? Say, "Then bring ten surahs like it that have been invented and call upon [for assistance] whomever you can besides Allah, if you should be truthful."

The translation work to any translator stands as a tiring, if not unattainable task thanks to the aesthetic and linguistic vivacity of the Holy Qur'an as a unique masterpiece (Al-Sowaidi, 2011).

1.3 Statement of the study problem

Indeed, the Holy Qur'an encompasses a large diversity of critical religious, linguistic, contextual, and theoretical issues such as conceptual chaining, organic unity, and topical classification, that need to be explored and studied carefully by scholars, students, memorizers, … etc. Therefore, the highlighting of such Qur'anic issues requires that a very advanced tool of investigation be utilized in a sophisticated manner to embody the concepts, highlight the critical matters, and make clear the linguistic and theoretical features the Muslim scholars as well general community look for. So, the Qur'anic maps utilized in the current study are so far the very advanced tool of investigation that is capable of bringing about the targeted change in the way the Qur'anic text is presented.

Therefore, there is a considerable need to highlight, make clear, and embody the Qur'anic linguistic, contextual, exegetic, and theoretical features such as conceptual chaining, organic unity, and topical classification …etc. The current study then is a deliberate attempt towards making this target attainable through innovating a new design of concept and mind maps (Qur'anic maps) which responds to the required need of the 21st-century Qur'anic readers. Therefore, the statement of the study could be summarized through the following question:

- **Are the Qur'anic maps created by the researcher for this study capable of responding to the needs of the Qur'anic readers in making clear, highlighting, and embodying the various Qur'anic linguistic, contextual, and exegetic features?**

1.4 Objectives of the Study

1. To detect any contemporary advances in the use of the mapping techniques in the presentation of the Holy Qur'anic text.
2. To highlight any linguistic theories that can be reflected in produced Qur'anic maps.
3. To unveil any inter-relationships between the produced Qur'anic maps and the nine intelligences mentioned in the theory of Multiple Intelligences.

1.5 Questions of the Study

1. Are there any contemporary advances in the use of the mapping techniques in the presentation of the Holy Qur'anic text?
2. Are there any linguistic theories that can be reflected in the produced Qur'anic maps?
3. Are there any inter-relationships between the produced Qur'anic maps and the nine intelligences mentioned in the theory of Multiple Intelligences?

1.6 Hypotheses of the Study

1. Presentation of the Qur'anic text enjoys contemporary advances in the use of the mapping techniques.
2. There are some linguistic theories that can be reflected in the produced Qur'anic maps.
3. There are some inter-relationships between the produced Qur'anic maps and the nine intelligences mentioned in the theory of Multiple Intelligences?

1.7 Significance of the Study

This study gains its significance from significance of the Holy Qur'an and the very need to promote the pre-existing visual aids designed to help the Qur'anic reader to save time and effort, get a full understanding, and memorize the Holy Qur'an in a manner that activates their long-term memory for permanent recall. It is worth mentioning that, the use of concept and mind mapping techniques was limited to visualize the general concepts

of the Holy Qur'an regardless of the need for visualizing the textual constructing units of its texture. That was apparent in the works of (Alsuhaibani, 2012, Sawwar, 2007, Alajlani, 2004).

Moreover, the current study stands as a further development of the re-presentation of the Qur'anic text based on the previous studies that have dealt with this issue concerning its linguistic texture, coherence, exegesis, interpretation of meanings, translation, and conceptual chaining. The alike studies were such as the works of (Abdul-Raof, 2003, Abdul-Raof, 2013, Al-Mosallam, 2013) and others.

1.8 Limits of the Study

This study is limited to the presentation of the Arabic Qur'anic text and the translation of its meanings using a hybrid form consisting of concept maps and mind maps (the Qur'anic maps). It also aims at highlighting the resulting linguistic phenomena (if any) by revising and the general concepts of the related theories of linguistics. Furthermore, the study works on reporting any conceptual convergence between the resulting Qur'anic maps and the nine frames of mind mentioned in the Theory of Multiple Intelligences theorized by Howard Gardner.

1.9 Methodology

1.9.1 Technical level

On the technical level, this study utilized XMind 7 (v3.6.0.R-201511090408) software for mapping the Qur'anic text. Xmind 7 offers various technical features helpful in the designing and formatting of the Qur'anic maps presented in the current study. These features included, and are not limited to, summarization tools, coloration, boundaries, flexible usage of supporting network of lines, flexible usage of topic formats, various map charts, and user-friendly interface.

1.9.2 Textual and conceptual levels

On the textual and conceptual levels, the study depends on the topical classification and exegetic commentaries of Ibn Kathir in the book *Al-Misbah Al-Munir fi Tahdhib Tafsir Ibn Kathir Al-Mubarakpuri (2013)*. On the other hand, the proposed

Qur'anic maps involve a bilingual Qur'anic text; the original Qur'anic Arabic text accompanied by the English translation of its meanings known as Sahih International as one of the translations of the Holy Qur'an adopted by *http://quran.ksu.edu.sa/* of the Deanship of E-Transactions and Communications, King Saud University, KSA.

Strikingly, the above-mentioned features of XMind 7 were very helpful in highlighting and simplifying various hidden characteristics of the Qur'anic text. For instance, a great deal of linguistic theories were made visible solely by the use of the Qur'anic mapping techniques introduced in the current study. The said linguistic theories included - but were not limited to - discourse analysis, semantics, semiotics, computational linguistics, psycholinguistics, pragmatics, computational pragmatics, and metalinguistics. The study left the door open for further studies to investigate the other linguistic theories and their relationship to the Qur'anic maps.

Furthermore, the resulting Qur'anic maps and their produced designing made visible numerous conceptual features of the Qur'anic text which were found in great consensus and uniformity with the nine frames of mind theorized by Howard Gardner in his book *Frames of Mind: The Theory of Multiple Intelligences* and *Multiple Intelligences: New Horizons* (Gardner, 1993a, Gardner, 2006). The nine intelligences are the verbal or linguistic, logical or mathematical, spatial or visual, bodily or kinesthetic, musical, interpersonal, intrapersonal, naturalist, and existential.

1.10 Organization of the Study

This study consists of six chapters. Each one of these chapters was set to go in the track of the objectives of the study and answering the questions of the study.

The first chapter – Chapter one – is entitled as the *Introduction of The Study* and works as an introductory chapter for the study. It then includes the following sections: the background of the study, problem of the study, objectives of the study, questions of the study, hypotheses of the study, significance of the study, methodology, limits of the study, and organization of the study.

Chapter two is entitled *Literature Review* and addresses the review of literature related to the current study and the development in the presentation of the Qur'anic text in an attempt to answer the first of the questions of the study "Are there any contemporary

advances in the use of the mapping techniques in the presentation of the Holy Qur'anic text?".

Chapter three entitled the *Study Methodology* attempts to describe the methods adopted in the study to design the Qur'anic maps in order to present the Qur'anic text in its final picture as a bilingual text in hybrid Qur'anic maps consisting of concept maps and mind maps.

Following this is chapter four entitled *Linguistic Phenomena in The Qur'anic Maps* which highlights the specific resulting linguistic features of the Qur'anic maps and their relationship to the linguistic theories existing so far. Chapter four tries to answer the second of the questions of the study "Are there any linguistic theories that can be reflected in the produced Qur'anic maps?". It, therefore, reviews a broad range of linguistic theories and discusses any points of agreement between them and the produced Qur'anic maps with respect to the observed linguistic features that appear unintendedly in the said maps.

Next, is chapter five entitled *The Qur'anic Maps and The Theory of Multiple Intelligences* is an attempt to answer the last question of this study that says, "Are there any inter-relationships between the produced Qur'anic maps and the nine intelligences mentioned in the theory of Multiple Intelligences?". Chapter five reviews the theory of Multiple Intelligences of Howard Gardner and explores any points of agreement between it and the Qur'anic maps of the current study. It discusses the issue of the nine frames of mind and how they are addressed through the Qur'anic topical classification realm in detail.

Finally, chapter six which is entitled as *Main Findings, Discussions, and Recommendations* provides a detailed presentation of the findings of the current study and discusses them with regard to a bunch of similar research in the field of Qur'anic studies. It mentions a set of recommendations for future studies to consider.

CHAPTER II

LITERATURE REVIEW

2 CHAPTER II: LITERATURE REVIEW

2.1 Overview

This chapter reviews, in a chronological manner, three broad categories of literature; history and development of the Qur'anic text, Qur'anic computation, and Qur'anic digitization. Based on that, it provides a review of the literature related to the use of concept and mind maps and how it contributes to the representation and understanding of the Qur'anic text. It is noteworthy here that each one of the four categories gives the impression of a refining development and complementary aspect to the other.

Moreover, this chapter provides an attempt to review the literature that adopts the use of graphic organizers, Qur'anic computation, Qur'anic language processing. It is then very surprising that the aspects of the said Qur'anic fields of study have not been reviewed in such inter-related and interdisciplinary manner all through their appearance in the science. So, this review of literature will work as the first attempt ever to cover that highly remarkable advancement in the field of Qur'anic computation and Qur'anic digitization studies. The current review was planned to explore the quality, nature, and extent of the specific literature up to this date.

2.2 The Importance of Concept Maps, Mind Maps, and Graphic Organizers

Computational linguistics stands for the interdisciplinary branch of linguistics that deals with rule-based and/or statistical modeling of natural language computation (NLC) or natural language processing (NLP). It is then one of the techniques used in the field of Qur'anic computation (Kammani and Safeena, 2014). While mapping techniques are found to play the significant role in almost all corpus and ontological processes set to point out conceptual linkages and relatedness, dataset building, semantic relations between concepts, and knowledge representation, etc. Their role is central in building ontologies (Su and Gulla, 2006) and handling their highly complicated linguistic and conceptual processes.

Research approaches of Qur'anic computation have underpinned its solid base in both the theory and application of the interdisciplinary realm of literature (Kammani and Safeena, 2014). Recently, Muslims and non-Muslims are paying a great attention to the Islamic knowledge (Yauri et al., 2012, Atwell et al., 2011, Yauri et al., 2013).

Furthermore, Muslims have the habit of reciting the Qur'an from its hard-copy version (*Mushaf*), nevertheless, they have recently adopted the new-tool versions of the Holy Qur'an in a significant growth (Khan and Alginahi, 2013). Apparently, that remarkable increase in Muslims and non-Muslims' use of the digital forms of the Holy Qur'an and its sciences (smart-device applications, internet websites, computer software, etc.) is due to the increased accessibility (Khan and Alginahi, 2013) and the easy retrieval of information of these tools (Yauri et al., 2012).

Graphic organizers are "*visual displays of key content information designed to guide learners and enhance their comprehension*" (Bishop, 2013). Moreover, Delrose (2011) and Tayib (2015) claim that the use of graphic organizers offers "*concrete structural framework of information*" for learners and helps them focus their attention on key conceptions and ideas and interlinks the apparently scattered facts. Tayib (2015) continues arguing that the use of the different types of graphic organizers guarantees the enhancement of the way learners understand, organize, and reflect the idea of meaningful learning. In addition to this, non-learning, surface-learning, and deep-learning outcomes could be measured through the use of concept maps according to Hay (2007).

Recently, numerous studies have been conducted in the field of Qur'anic computation and Qur'anic digitizing. Although the field of Qur'anic computation and digitization concerns the use of modern technologies in natural language programing and processing, a great deal of these studies have involved the use of graphic organizers such as concept maps, mind maps, or network trees in achieving their computational and digital objectives.

2.3 Definition and Typology of Qur'anic Computation and Digitization

The main concern of this review is to report that some of the studies adopted the creation of very intelligent computer, internet, or smart-device applications, software, and databases to serve in a way or another the various Qur'anic issues. These Qur'anic issues ranged over a number of services such as recitation, memorization, *Tajweed*, teaching, interpretation, translation, etc. Therefore, Qur'anic computation here could be defined as an interdisciplinary field of study that combines computational linguistics and statistical and/or rule-based Qur'anic natural language modeling. It is highly remarkable here that this definition involves numerous fields of study and research outputs. For instance, the

foundation of Qur'anic mapping for direct digital uses or as functional aspects in the computational building of ontologies and large databases.

2.4 Ontology and Qur'anic Computation and Digitization

It is of the utmost importance here to mention the motion of making use of ontology as a ready-made technological aspect in managing the digitization of the Holy Qur'an and its sciences. Obviously, it became a crucial component in the field of information technology being the principal element in information association and sharing as well as integrating applications (Abdelhamid et al., 2013). Gruber (1993) classifies ontology as "*a specification of a representational vocabulary for a shared domain of discourse*", "*an explicit specification of a conceptualization", and "a systematic account of Existence*". Additionally, for Yahya et al. (2013), Pourmahmoud and Shamsfard (2008), ontology is a recognized, explicit description of a set of clear-cut concepts related to each other by conceptual relations. Yahya et al. (2013) went on defining ontology as a representative structure that stands as the building block of what is known as Semantic Web. In that understanding, in their cross-lingual information retrieval, Pourmahmoud and Shamsfard (2008) introduce a hybrid approach enabling users of their ontology to retrieve English documents by submitting Persian queries.

Ontology of the Holy Qur'an has been described as a hard work for the fact that each Qur'anic word may have a variety of different definitions for its semantic meaning based on its use in each specific Qur'anic verse (Abdelhamid et al., 2013) or context. In principle, that point of view may be the main reason behind limiting the attempts to broaden the Qur'anic ontology concept. Coffey et al. (2002) argue that finding semantic correspondence between ontologies is one of the key challenges raised by the Semantic Web. Likewise, Abdelhamid et al. (2013) continue arguing that the multi-meaning nature of the Qur'anic words led to the diversity in *Tafseer* views and interpretations. In fact, this diversity in meaning also affected a great deal of Qur'anic studies and sciences including translation of the Holy Qur'an being built basically on word meanings and exegetic views.

Equally, Shoaib et al. (2009) argue that information searching and retrieval issues in the Holy Qur'an require special attention thanks to the unique Qur'anic allegorical nature and style. They went on arguing that keyword search techniques stand as incapable of retrieving Qur'anic verses of semantic relevance. Furthermore, the conceptual effect of the Qur'an elaborates the definition and usage of synonym and polysemy as so many

words which are not synonyms from a dictionary point of view but conceptually, they are. For instance, *Al-Muddathir* and *Al-Muzzammil Ar-Rasoul* appear as conceptual synonyms of Mohammad (Peace be upon him) and that is in addition to many other altered linguistic definitions and usages. Ultimately, Shoaib et al. (2009) proposed their Qur'anic WordNet aiming at developing and ontology-based intelligent search engine of the Noble Qur'an capable of performing an accurate semantic search. They stated that have implemented the Qur'anic WordNet on *Surat Al-Baqarah* and got accurate and reliable results.

2.5 Concept Maps and Qur'anic Ontology

Ontology mapping tools for Noy and Musen (2002) are extensions of what is so-called development tools. They are the tools set to map, align, and merge ontologies and that enable users to easily get to similar and distinctive characteristics of entities between source ontologies. Furthermore, Noy and Musen (2002) went on arguing that ontology mapping tools are varied based on three main aspects: the precise tasks they perform, the inputs they process, and the outputs they produce. Ultimately, the mapping tools used in ontologies to perform these tasks seem to be more than fundamental knowledge processing and information retrieval elements. They appear to have two different personalities: when performing internal ontology tasks (input/output requirements), on the one hand, and when responding to user's inquiries (user interaction), on the other hand.

For knowledge sharing and organizing according to (Coffey et al., 2002), it is necessary to utilize two effective methods; for knowledge and concept elicitation and a useful scheme for re-presentation. They argue that the use of concept maps in knowledge sharing provides a concise and explicit representation of the related knowledge domain. Moreover, the created knowledge models appear in an order of a semi-hierarchical structure with a top concept map and descending detailed maps at the lower levels.

It is still being argued that no single comprehensive universal ontology that could encompass all other ontologies which all users will appraise (Su and Gulla, 2006), possibly due to heterogeneity (Valente et al., 1999). On the contrary, several ontologies were combined in a harmonious manner through the Sketch Engine that is managed and developed by the Lexical Computing research company, as a tool of corpus management and query to be used by linguists, translators, publishers, and lexicographers worldwide. The Sketch Engine provides data and services based on over 400 text corpora

– including Arabic language and Qur'an ontologies – with a capacity of up to twenty billion words from more than ninety languages (*Figure 2*).

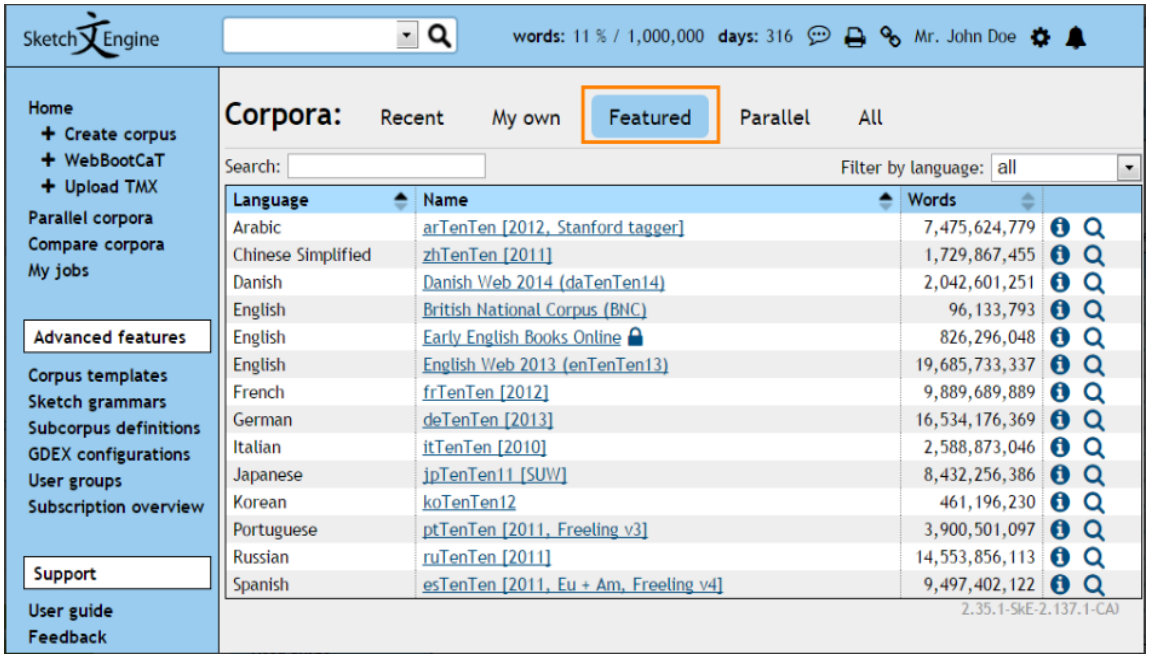

Figure 2 Sketch Engine Corpora

Su and Gulla (2006) state that the mapping processes included in their information retrieval approach to ontology mapping involve analyzing the different ontologies and comparing them in order to point out the interrelationships among concepts and distinguish conflicts if any. They present a method of heuristic mapping and a system of prototype mapping which support "*the process of semi-automatic ontology mapping*" aiming at enhancing "*semantic interoperability in heterogeneous systems*". In other words, their approach depends on semantic enrichment benefitting from ontology instance information to intensify the other existing ontologies and calculating similarities in elements in a pair of ontologies.

The invaluable study conducted by Tayan and Alginahi (2009) investigated the use of the combination of both information and communication technologies with applications and their effect on the propagation and teaching of the Holy Qur'an. Moreover, it examined the efficiency of these digital technologies in serving the Holy Qur'an. It utilized a survey questionnaire in paper-based [**n=38** out of **75**]c and e-mail formats [**n=6** out of **70**] Although the study was planned to be a worldwide comprehensive study that surveys a large number of Muslim ICT users, but the number of participants was very less compared to the targeted ones. The participants' attitudes

concerning the widely used technology among over **25** diverse types including websites, videos, and applications. Suggestions from participants involved enhancement of the technical issues related to these technologies such as authentication of Islamic websites, fast setup, and installation of applications in addition to user-friendly gadgets, devices, and applications. Finally, compatibility troubleshooting was suggested for different devices and their models and makes.

Khan and Alginahi (2013) attempted to shed the light on the concerns and challenges of Muslims concerning the digitization of the Holy Qur'an. Consequently, a 17-question electronic survey was administered to investigate Muslims' trends and adoption of the modern technologies such as reading and learning the Holy Qur'an from digital and smart devices. It was also planned to get the participants' attitude toward the importance of having an Islamic body to authenticate the digital versions of the Holy Qur'an. Ultimately, the study got (**n=668**) responses from various parts of the world. The results show that almost half of the participants prefer reading and reciting the Holy Qur'an from digital devices including mobile phones, whereas many participants never use any digital device for reading or reciting the Qur'an. Strikingly, the study reported that digital formats of the Holy Qur'an are more used among young-aged digital users and that some of them complain of issues of authenticity and forgery that may be returned to typos or other reasons.

Yauri et al. (2012) proposed utilizing the semantic web technologies (ontology) through a model to fill in the gap and lack of retrieval of the semantic information not based on the keyword-matching approach. The study depended on the Web Ontology Language (WOL) being a core element of the Semantic Web that is responsible for giving a definition of the concept, relationship, and constraints. So, ontology - in brief, is a set of statements that define concepts and their interrelationships. The study improved a ready-made ontology from the University of Leeds that was graphically represented into a set of **300** linked concepts that form **350** relations, allowing Muslim and non-Muslim users to acquire the information they need from the Holy Qur'an.

It is noteworthy here that previous attempts in the current information technology era mostly used to employ concept hierarchy described as manually built by scholars to organize or index the Qur'anic topics and concepts. In another attempt to organize Qur'anic concepts, Mukhtar et al. (2012) developed a semi-automatic method to identify

important topics and concepts from six English translations of the Holy Qur'an and organize them hierarchically by means of the term-head principle.

Applications continued to benefit from ontology-based information to serve the Qur'anic worldwide to understand, memorize, search, and interpret the Holy Qur'an in the most conceivable way made available by recent technologies. In that understanding, Nassourou (2012) developed a Qur'anic learning system based on knowledge extracted from various Qur'anic sources about the dates and places of revelation. Nassourou built his hypothesis on that computer-assisted modeling, visualization, representation, and manipulation of terminological and structural scopes of religious books will enhance the comprehension and retention of their texts. Therefore, Nassourou's system was planned to provide learners with web-based interfaces and visualization techniques for querying, browsing, and examining the authenticity of the acquired information and to study the Holy Qur'an.

Nassourou's system was designed to encompass the syntactic and semantic Qur'anic structures, representation of the models using frames, and a generated XML model of the output frame. The system used machine learning algorithms and other text mining techniques to compute a set of nine important metadata. These metadata involved first, methods, causes, places, and dates of revelation. Second, topics, locations, and sizes of verses and chapters. Third, summarization, and memorization of chapters and verses (*Figure 3*). The system also included another facility for analyzing and comparing verses and chapters of the Holy Qur'an.

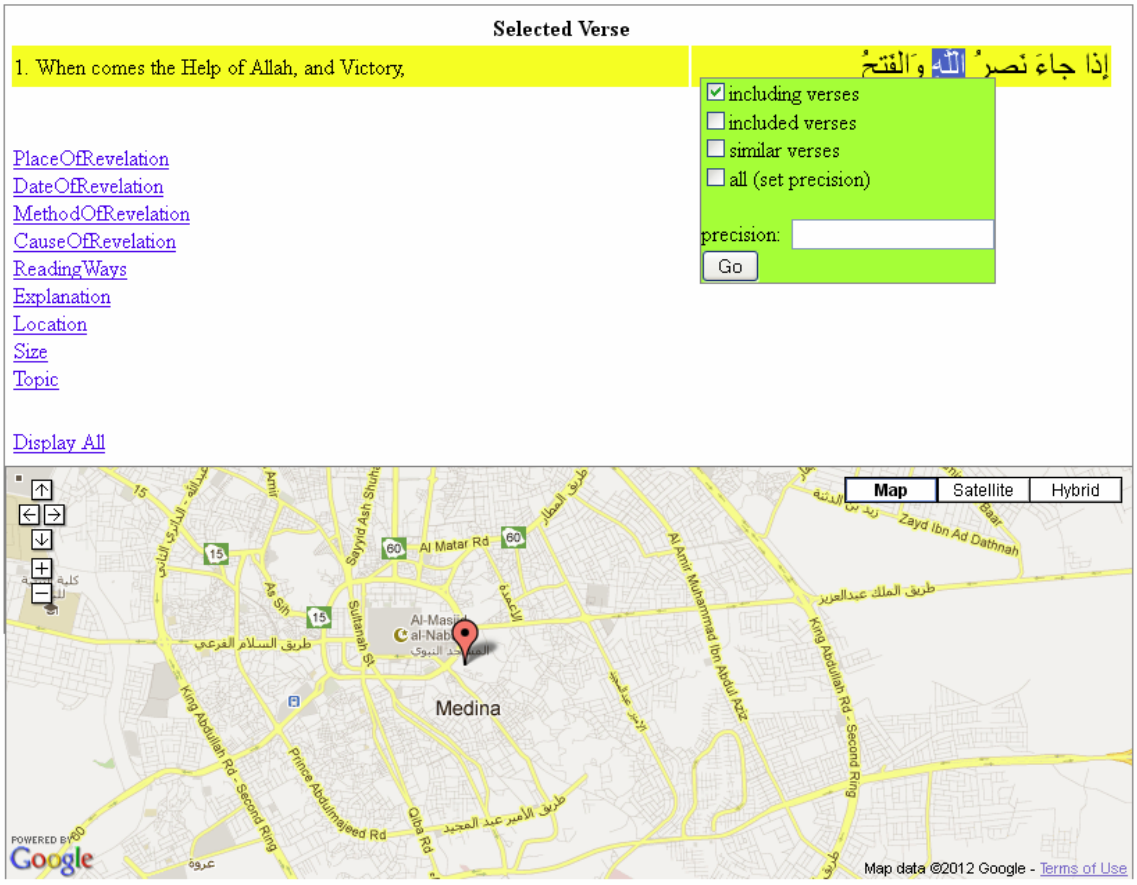

Figure 3 Interface of Nassourou's System (Nassourou, 2012)

Adhoni et al. (2013) aimed at designing and developing "*a complete and comprehensive online cloud Qur'an portal*" to provide all digital users with accessible multilingual reading and resource sections. It offers a diversity of features such as an e-*Mushaf*, authentic translation, *Tajweed* scholar videos, reciter, search engine, and other study materials. Other features include a kid's section, Islamic social networking, transliteration, *Da'wah* section, Qur'an search engine, and Ayah of the day (*Figure 4*).

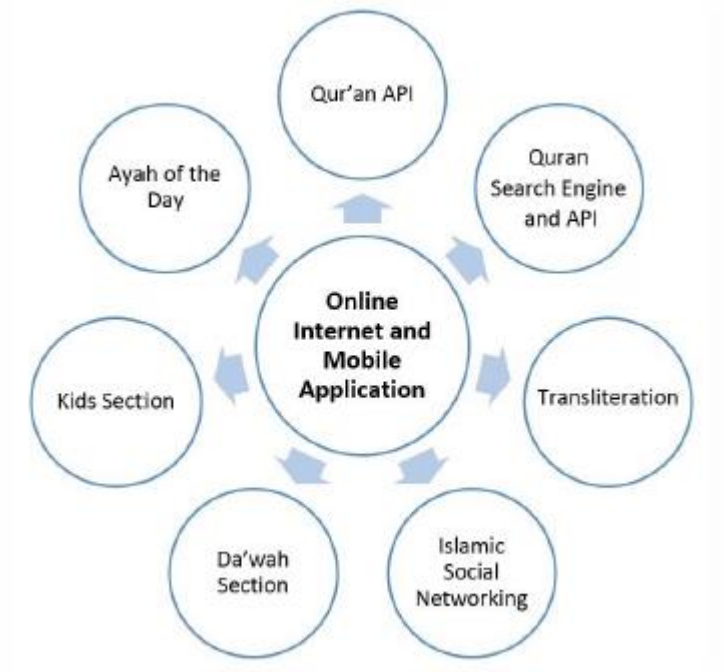

Figure 4 Basic Architecture of the Application (Adhoni et al., 2013)

The main screen of the portal application also includes Arabic and Urdu languages' interface. Moreover, a transliteration of the Qur'an to the Urdu language is available for non-Arabic speakers. The Qur'an Portal site also contains other features such as '*Ayah* of the Day', '*Da'wah* Section', 'Islamic Social Networking', and 'Kids' Section'. Furthermore, the Qur'anic data has been imported from the *Tanzil* Qur'an Project and fed into the Qur'an Portal system as an entity.

Ultimately, the *Qur'an Portal* made it easy for users – especially the Urdu speakers – to benefit from the many features available in the website to recite, memorize, search, and learn to correctly pronounce the Arabic Qur'anic version as non-Arabic users. In that concept, the Qur'an Portal is still falling under the recent domain of Qur'anic digitization motion that tends to offer the same services to a great extent.

The idea of creating this mobile application launched in 2016 (Figure 5) – أسلوب آخر لفهم القرآن (Another Way of Understanding the Holy Qur'an) - emerged from the fact that some people when reading the Holy Qur'an, they do not find it easy to understand. The application explains in a colorful topical classification the goal and the topics in each *Surah.* So, it will become easy for the Qur'anic readers to understand the whole *Surah*, link its ideas, and easily memorize it, because every *Surah* is normally divided in a topical manner. The application is based on *At-Tafsir AL-Muyassar* ready for whom would like to explore the interpretation of what they read along with the meanings of the list of words

included. Additionally, the application has facilities of searching in the Holy Qur'an, changing of font, and working off-line.

Figure 5 An Android Application for Qur'anic Topical Classification

The idea of this mobile application is an extension of the colorful topical classification *Mushafs* such as the work of Alajlani (2004), Sawwar (2007), and the alike with a classification similar to the work of Alsuhaibani (2012) *Mental Maps of Quran*. Moreover, there is a great similarity between the designing of this mobile application and

the proposed study in the way *ayas* are grouped according to classification of topics included in each *surah*.

Some other studies were planned to benefit from the tremendous wealth of the web resources in the field of multimedia related to the Qur'anic sciences, including *Tajweed* provisions, *Tafseer*, and the Qur'anic stories. As an example, Abdelhamid et al. (2013) state that that web resources including multimedia and audio-visuals would probably contribute to the understanding and clarification of the meaning of the Qur'anic verses and application of recitation provisions especially for young Qur'anic readers.

Ching Yee et al. (2011) define ontology learning as an information extraction subtask that targets extracting relevant relations and concepts in a semi-automatic manner from a specific corpus or data set. They planned their study on providing users with a description of how the ontology is extracted from a Qur'anic text based on Yousuf Ali's translation of the Holy Qur'an. They compared two algorithms from Gupta and Alfonseca based on term, synonym, and concept layer. Ching Yee et al. (2011) built their strategy on implementing algorithms for ontology extraction analysis in their support system. Moreover, they aimed at studying the support system for comparison of its main functions as well as integration process. They also aimed at improving the support system through combining its algorithms considering the Qur'anic text as input. Ultimately, results of the study revealed that the techniques used were not applicable in achieving the goal of Qur'anic text extraction due to some shortcomings in the two methods utilized (Gupta and Alfonseca algorithms) to meet the ontology learning needs.

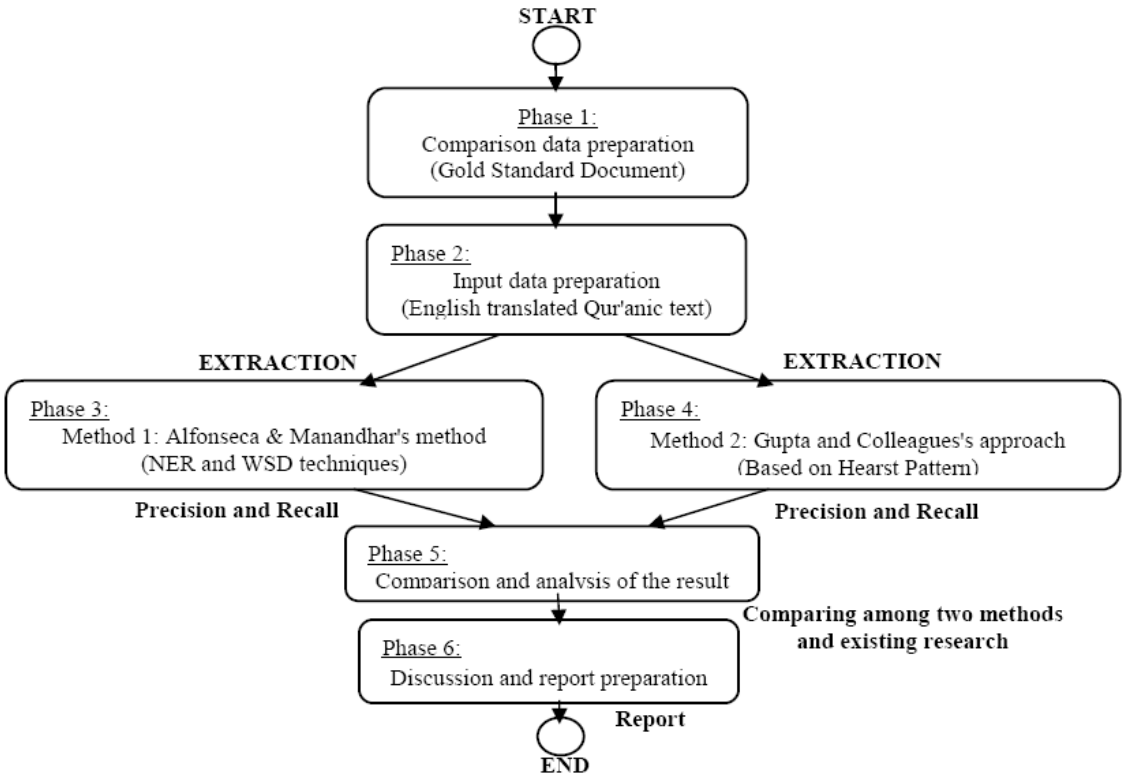

Figure 6 System Flow Chart (Ching Yee et al., 2011)

Saeedi et al. (2014) proposed documents of frequently-asked questions (FAQs) in various Qur'anic websites to create a question taxonomy based on words of question nature such as WH- English question words and the like. Their question taxonomy consisted of a hierarchical structure that involves fine- and coarse-grained semantic classes. Furthermore, questions are categorized based on the semantic entity and answer types. Above it all, the Qur'anic ontology that resembles "*a hierarchical concept map*", has been utilized to evaluate the question answering system in order to exploit the taxonomy in it.

Similarly, Adhoni et al. (2014) presented "*a Cloud-Based Cross LANGUAGE Search engine*" aiming to provide a full-scale model of search through the Qur'anic verses in a multi-language base using Drupal 7 technology. The framework is capable of retrieving Arabic Qur'anic verses in response to non-Arabic search inputs. Interestingly, the framework also includes a cloud-based *Mushaf* for recitation in a multi-language format. They stated that their final portal product made it easy for digital users to access all resource sections that cover numerous Qur'anic themes such as *Mushaf*, translation and transliteration, reciter and bookmarks, cross-language information, study materials, *Tajweed* videos, search, and memorizer.

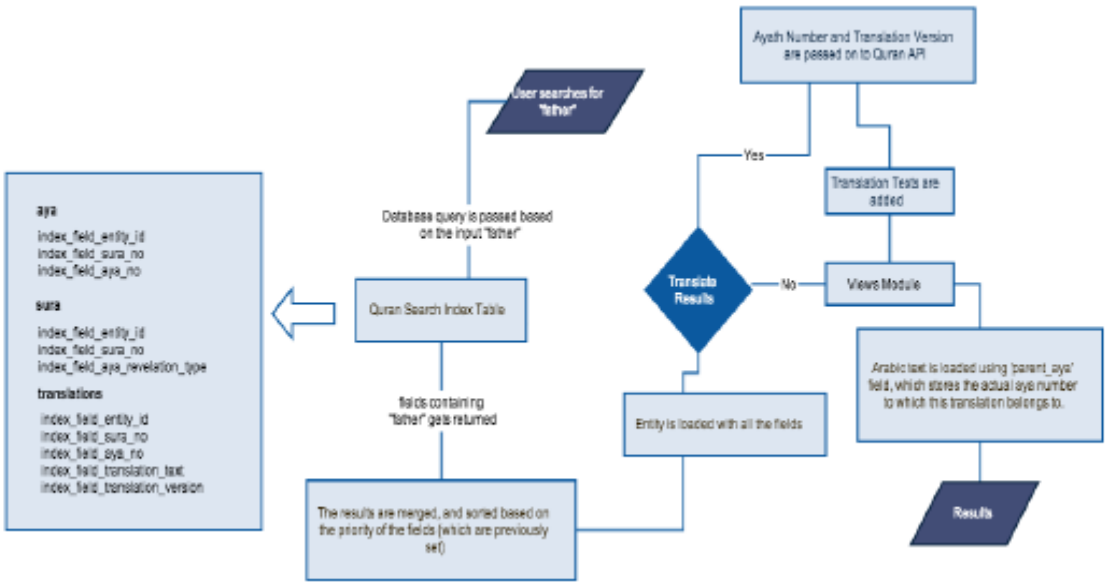

Figure 7 Search Phases of the Qur'anic Text (Adhoni et al., 2014)

Abdelhamid et al. (2013) planned their study on benefitting from ontology tagging in linking up web multimedia resources with matches from the verses of the Holy Qur'an. They built their strategy on the fact that the main themes and concepts of the Holy Qur'an are constituted by the system of the universe, history, homilies, wisdom, proverbs, laws, provisions, rules, etc.

Al-Yahya et al. (2010) highlighted a curious paradox that even though Arabic speakers reached hundreds of millions worldwide, but very little efforts have been done regarding Arabic linguistic resources, specifically lexicons - their research field. In response to that shortage, they proposed a computational model that relies basically on the semantic field theory and uses ontologies to represent Arabic lexicons. Additionally, they got the benefit of the Qur'anic text to be obtained as data to drive the design of their suggested computational model.

In another multimedia Qur'anic field, Basuhail (2013) proposed a workable model for the design and implementation of electronic teaching objects targeting recitation, interpretation, memorization, and intonation of the Holy Qur'an (*Figure 8*). The proposed model was designed to work as an approach to implement the Qur'anic content using visual tools such as computer graphics and animations as tools widely used in today's educational platforms such as e-teaching, e-learning, and computer-assisted learning and teaching. Basuhail stated that integration of the said teaching objects can bring possible enhancement to the teaching of the Holy Qur'an and its related sciences.

Figure 8 Project Interface and Sections (Basuhail, 2013)

Android devices appear as a widespread platform that reaches millions of Muslim users targeted by numerous Islamic and Qur'anic application designers. Consequently, Elobaid et al. (2014) focused their efforts on developing *Noor Al-Qur'an* as an application that works under the broad Android umbrella to proliferate the Qur'anic learning among non-Arabic Muslim users worldwide. Linguistically, *Noor Al-Qur'an* was proposed to support 25 languages in addition to the sign language. Users have the freedom to choose between the many flexible features contained in the software such as the language of interest, and sort of learning including recitation, transliteration, and *Tafseer* (*Figure 9*).

Figure 9 Noor Al-Qur'an Screen Models (Elobaid et al., 2014)

Besides presenting the Qur'anic text in the traditional manner with topical classification legends for each Qur'anic page as in (Sawwar, 2007, Alajlani, 2004), *efham.aya* presents itself as another visual work that highlights the topical classification features of each Qur'anic *surah* and lists no Qur'anic text in its maps. Moreover, *efham.aya* is an open-access and multi-medium source of general-concept mapping of scattered Qur'anic chapters (Figure 10). The Qur'anic maps of *efham.aya* are made accessible online through *Facebook*, *twitter*, *flicker*, and other means such as *Instagram*, *Telegram*, etc.

Furthermore, the work aims at helping Qur'anic readers understand, memorize, and revise their memorization of the Holy Qur'an. Moreover, each Qur'anic map provides a colorful outlined topical classification of a full specific Qur'anic chapter according to the topical classification of Sheikh Ibrahim Ad-Duwayyish (efham.aya, 2015). Additionally, each concept map includes a brief description and commentary on the specific chapter.

Interestingly, this description makes *efham.aya* work similar to Safiah Alsuhaibani's work, (*Mental Maps of the Qur'an* (Alsuhaibani, 2012)) which requires the reader to match the extracted concepts on the map with the related *ayahs* on the *Mushaf*. Apparently, such topical classification maps of the Holy Qur'an could be considered as a Qur'anic reader's handbook helpful in simplifying the browsing of *Mushaf* for *surahs* that may extend to 286 verses as the case of *Surat Al-Baqarah*.

The work of *efham.aya* could be considered as a big shift in the presentation of the Qur'anic text where everything was made to clarify and spot the main concepts of each *surah* of the Holy Qur'an. Interestingly, the ongoing work being based on a unilingual presentation of the Qur'anic concepts, it opens the door widely for future attempts to make it available in other languages in order to help the whole humanity.

Figure 10 Conceptual Map of *Surat An-Noor (efham.aya, 2015)*

Entesar Al-Mosallam (2013) reported that Qur'anic learners (students in Qur'anic schools) find it difficult to memorize the Qur'an because of the poor quality of memorization techniques they use. She argued that Qur'anic memorizers are in need of innovative ways to help them to achieve the goals of understanding Qur'an, connecting Qur'anic concepts, and memorize Qur'an. Furthermore, she reported that the many existing Qur'anic applications that were set to help in Qur'anic memorization, were also limited and did not use useful techniques to help in the field because of their focus on the direct use of technology.

Considering all these reasons, Al-Mosallam proposed a promising application that could benefit from the topical interpretation of the Qur'an and the use of the mind-mapping technique. That combination of features guarantees connecting verses to each other and to their specific and general topics, achieves their orderly and visually displays, and involves all human senses (*Figure 11*). The well-designed interface was planned to attract learners' attention and give them the opportunity to understand and memorize the Qur'anic verses.

Al-Mosallam's work also provided a pilot study to examine the efficacy and applicability of the Qur'anic mind maps in the memorization and understanding of the Holy Qur'an. She selected four subjects of 16 to 18 years old divided into two groups of two learners each. One of the two groups was provided with the mind map of Surat Al-Baqarah and the other was exposed to the traditional repetition method. Ultimately, differences between the learners in the two groups were checked based on time elapsed for memorizing, number of mistakes, and understanding of the meaning of the given verses. Strikingly, the group exposed to the mind map technique did better than the other group and reported that this visual method facilitated their understanding of the verses presented the Qur'anic text in an interactive way (Al-Mosallam, 2013).

Figure 11 Partial Interface of Al-Mosallam's Application (Al-Mosallam, 2013)

2.6 Graphic Organizers Compared to Other Learning Tools

Initially, graphic organizers are briefly translated as graphical representation of a set of concepts included in a text (Zaini et al., 2010, Richardson et al., 2012) and the visual illustrations or portrayals or structured overviews that unveil relationships between concepts of given learning tasks (Moorf and Readence, 1984, Hudson et al., 1993). Additionally, Darch and Carnine (1986) argued that the acquisition of information is not limited to occurring in a linear platform according to the schema theory. Furthermore, the use of graphic organizes provides a set of advantages such as a combination of verbal and visual input, easy summarization of concepts, simpler analysis of information that is not possible in linear outlining settings (Paivio, 1971) as cited in (Doyle, 1999).

Apparently, numerous recent studies in the educational field have reported their successful use of graphic organizers – including concept maps - that gave them a considerable advantage over many other learning tools. For instance, Doyle (1999) reported the advantage of graphic organizers - as visual displays in improving comprehension in disabled learners - over traditional methods of teaching (lecturing, note-taking facility, and texts). Interestingly, reports of posttests showed significant positive effects of the graphic-organizer method of teaching mentioning its advantage over the traditional methods.

Likewise, Zaini et al. (2010) consider graphic organizers as tools of modeling, illustration, and representation of information - as graphics or visual forms – targeting achieving a meaningful learning. They also state that when students receive difficult concepts or written materials are expressed in visual structures, they will be able to develop their own alternative structures of concept understanding. Additionally, Zaini et al. (2010) concluded that graphic organizers had improved their students' performance, motivation, and comprehension, for the fact that GOs make clearer the interrelations between concepts and work on strengthening the learning process.

Udeani and Okafor (2012) identified one hundred and twenty-four biology slow learners and randomly assigned them to two equal groups: concept mapping group (**n=62**) and expository group (**n=62**). The study aimed at investigating the efficiency of the concept mapping and expository in presenting biology concepts – photosynthesis concept - to slow learners. Both groups were tested at the end of a two-week teaching period. What is worth mentioning is that the concept mapping group performed significantly (**p<0.05**) better than the expository group.

2.7 History of Qur'anic text

This part of the current study is a diachronic approach that studies the historical development of the representation of the Qur'anic text through time. Furthermore, it is a paleographic follow-up that reviews models of the ancient writings and scriptures of the Qur'anic *Mushaf*. It also is a comparative approach that focuses on similarities and differences of the different schools that worked on the Qur'anic text and scripture representation and the meant objectives and the specific Muslim communities targeted by *Mushaf* printing.

A widespread report states that at the time of Prophet Mohammad's death, the Qur'anic text was written only upon primary animal and plant materials such as (*leafless palm-branches and stumps of palm-branches, or other material support such as the shoulder-blades of camels, ribs of animals, white or flat stones, pieces of cloth or of skin, or papyrus, or wooden boards, etc.*) (McAuliffe, 2006). Ultimately, it has been related to numerous narratives that the Qur'anic text was collected from the materials mentioned above. Moreover, the only reason behind writing down the Qur'anic text was preservation and protection of it from loss or falsification. It is also worth mentioning here that, most of today's objectives were not among Uthman's list of goals; being the first Islamic

Caliph to order the collection of the Holy Qur'an. Obviously, today's objectives of Qur'anic text representation look diverge and range between comprehension, memorization, recitation, translation, etc.

2.8 Visual Aids of the Qur'anic Text

Efforts that make difference in the way people read, recite, memorize, understand the Holy Qur'an, and absorb the great teachings it contains are usually welcomed by millions of Muslims worldwide. Consequently, numerous effects can be gained when instructional texts are illustrated according to Levie and Lentz (1982) who argue that text illustration can add to readers' enjoyment and interest, arouse their emotional response, and affect their attitudes. Likewise, they - text illustrations - might be efficient in offering spatial information and descriptions that are difficult to be expressed in words.

The current domain is limited to the reflection of the Qur'anic features in a visual way. This category encompasses a variety of works such as printed paper formats of the Holy book. Historically, the competition took place in demonstrating the Qur'anic text in attractive ways benefiting from the most advanced and state-of-the-art writing and printing technologies available at each specific time and place in the world.

Interestingly, the relationship between the representation of the Qur'anic text - which was first an oral text McAuliffe (2006) - and graphic organizers have emerged since the first calls for the collection of the Holy Qur'an during the Prophetic era. That could be clearly observed in the use of wonderful calligraphy and penmanship on the first Qur'anic manuscripts. Building on (*Figure 12*), the parchment folio is extracted from a Qur'an manuscript written in the seventh or early eighth century in *Hijazi* script (McAuliffe, 2006).

Historically, chronological efforts to represent the Qur'anic text for linguistic and comprehension purposes such as clarity, better understanding, beautifying, recitation, exegesis, translation, and finally topical classification have never stopped since the first days of the nascent Islam. This fact is inescapable and clearly proved by the extraordinary development of *Mushaf* throughout the Islamic history. The following selective set of images could better tell the technical and graphical development of the representation of the Qur'anic text.

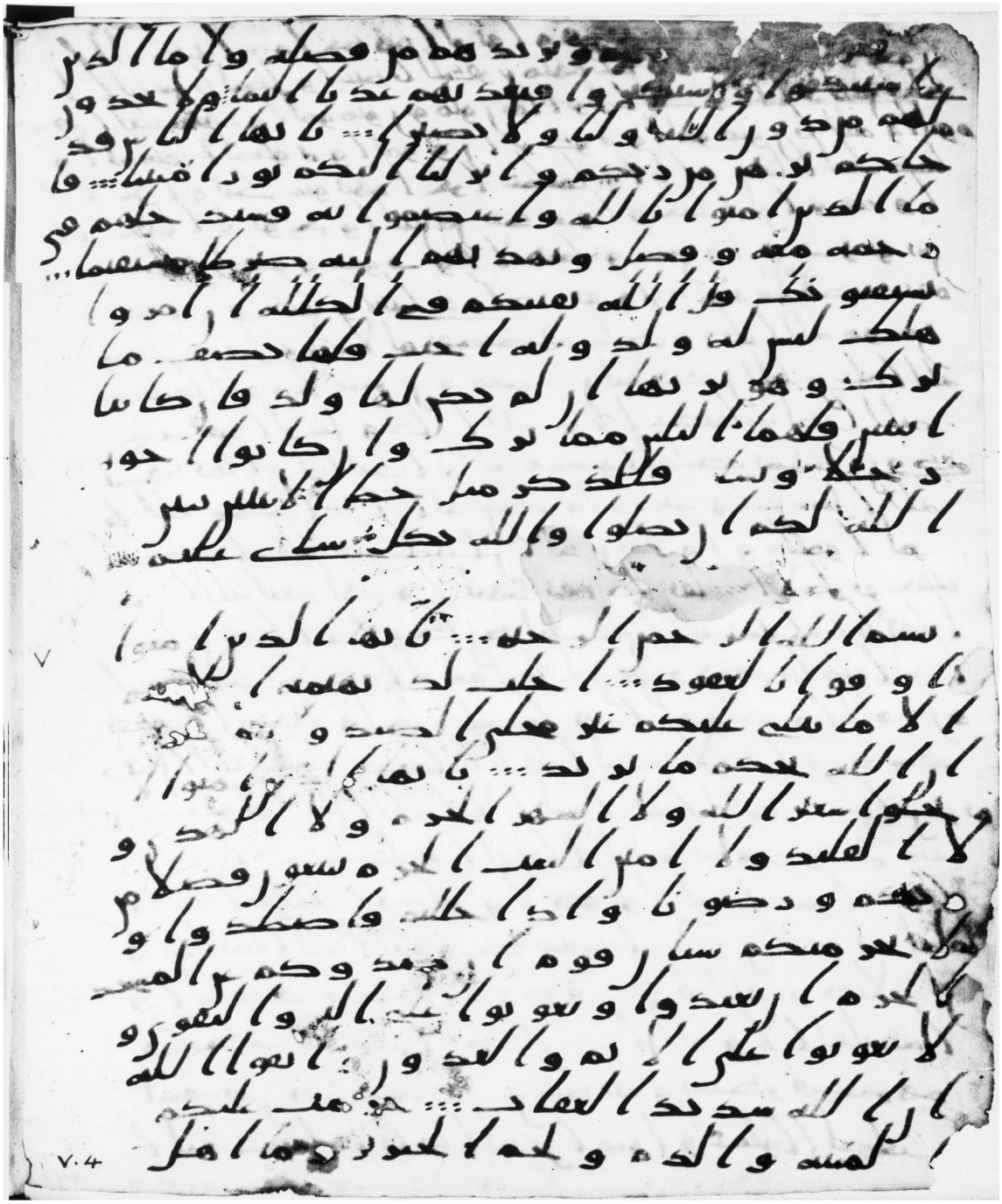

Figure 12 Parchment folio from a 7th- or early 8th- century Qur'an manuscript in Hijazi script (McAuliffe, 2006)

This parchment folio reveals a set of early Qur'anic text presentation features such as the absence of dots on the Arabic letters. Additionally, names of the Qur'anic *surahs* (Surat An-Nissa followed by Surat Al-Ma'da are included in *Figure 12*) are not included at the beginning of each *surah*, whereas *albasmalah* "بسم الله الرحمن الرحيم" is clearly listed before the first *ayahs.* Similarly, no decoration system is adopted here, like any other Qur'anic manuscript found in that era, of which no paleographical evidence to prove its relation unequivocally to an exact period before the ninth *Hijri* century, according to (McAuliffe, 2006).

It is obvious in (*Figure 13*) the *Mushaf* which was scripted in the eighth *Hijri* century on a gazelle's leather that some advanced features have been added to the way the Qur'anic text used to be presented. Apparently, a brief comparison between (*Figure 12*) and (*Figure 13*) will reveal a remarkable change in numerous features in (*Figure 13*) such as upgrading of the material of scripture, use of dots on letters, use of diacritics, enlisting of names of Qur'anic *surahs*, change of fonts, and use of Islamic ornamentations and decoration.

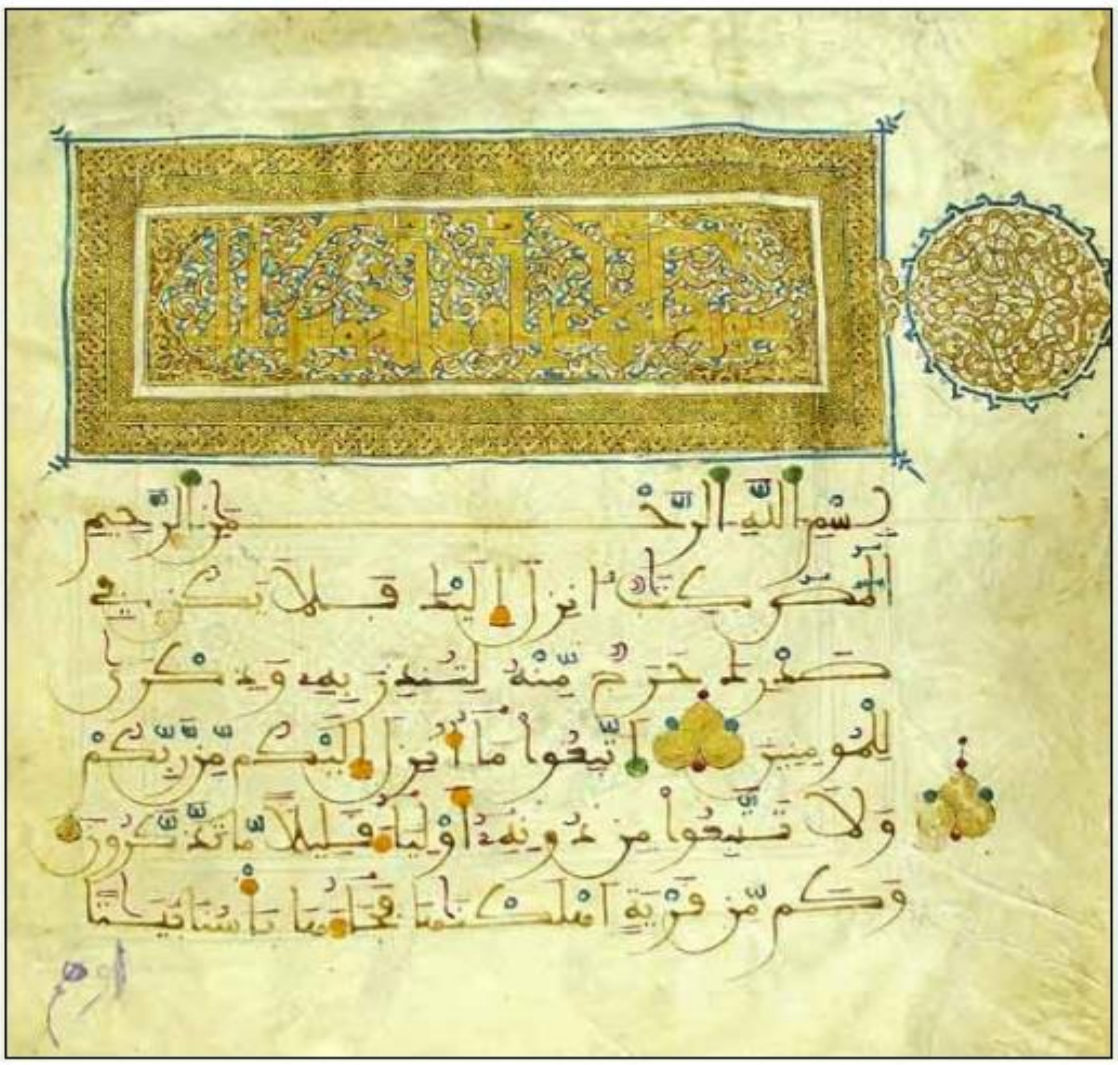

Figure 13 Mushaf scripted in the 8th century on a gazelle's leather

Considering that "*visualization is a human cognitive activity*" and "*act or process of interpreting in visual terms*", Aida Mustapha (2009) argues that a well-visualized Qur'anic text enables readers to clearly, precisely, and efficiently communicate content. Additionally, she believes that the Holy Qur'an is a "*large information system"* that requires suitable visualization of its text.

Likewise, Lubna Almenoar (2010) designed a special technique in a lesson plan setting using a selected English translation of a group of Qur'anic *ayahs* to promote the learning process at the undergraduate level. In her project, "*Procedure with Graphics Using Quranic Verses in English*", she chose a Qur'anic text for critical reading. She considers visual aids as the skeleton of presentations, think-aloud activities, and analytical and evaluative exhibits of a researcher's data. She also believes that many students appear as visual learners for whom a visual method for organizing information or brainstorming is the essential and valued approach. Furthermore, graphic organizers enable students to create ready-made mental images of the given information and produce graphic representations for those pieces of information.

Almenoar (2010) concluded that her set of intended learning outcomes were achieved at the end of her teaching session thanks to the integration of graphics, English translation of Qur'anic verses, and appropriate classroom activities. For assessment, she involved criteria of task completion, the ability of understanding, participation in brainstorming, ability to connect ideas, expression of knowledge, creativity, and the ability to make choices in tasks. Such assessment reflects learners' performance in both the academic and social levels.

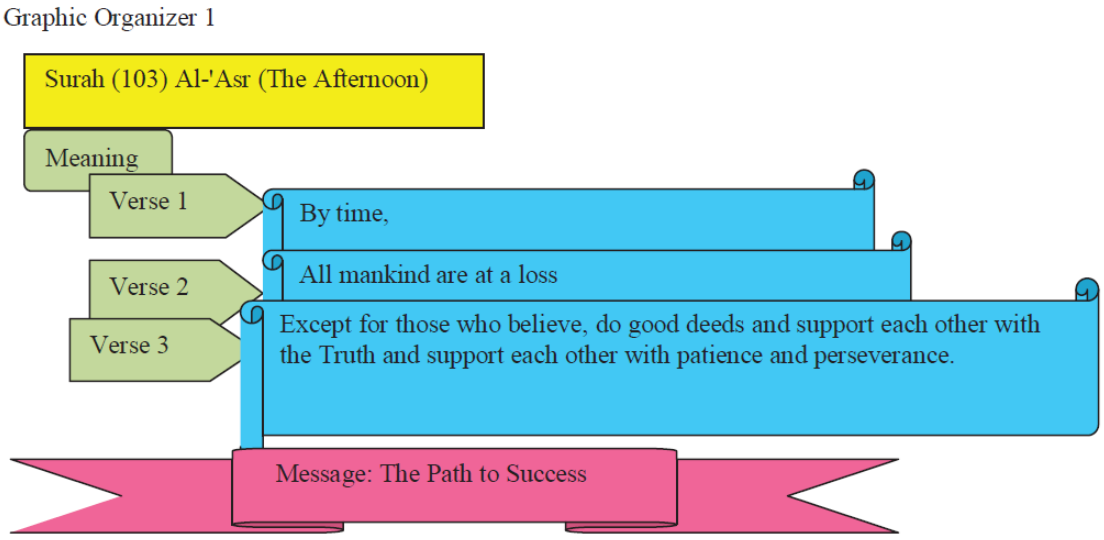

Figure 14 Graphic organizers created by students (Almenoar, 2010)

2.9 Qur'anic Computation

Strikingly Ong (1992) counts the effects of all sorts of text production and reproduction as the main steering power that controls human's thoughts in their various formats as stating that "*Writing, print, and electronic devices of various sorts are all*

devised to deal, directly or indirectly, with the word and with thought itself'. For Ong, technologies have bodies, touchable mechanism, and psychological outputs that could be measured and evaluated. These technologies have deeper effect and remarkably control man's psychological nature, consciousness, and the way he processes knowledge; "*Indeed, in a curious way they enter into man's interior itself, directly affecting the way in which his consciousness and unconsciousness manage knowledge, the management of his thought processes, and even his personal [self-awareness]*" (Ong, 1992).

The Holy Qur'an, as one of the human's vivid cultures and activities, has been affected by the technological change through history. First, it passed from its orality nature to the written script in the Prophetic era. Later, it has not stayed isolated and untouched when the shift from script to print took place in the fifteenth century. Similarly, the presentation of the Qur'anic text accepted the application of numerous beautifying aspects in its oral, scripted, printed, and digital forms. For instance, the appearance of *Tajweed* to care for the presentation of the oral text, ornamentations to beautify the scripted and printed texts, while the digital and e-forms worked on amplifying the use of previous beautifiers (Tajweed and ornamentations) and invented their own presentational elements and even sciences such as concept and mind maps (the main issue of the current study).

So, Qur'an, being the central religious text of Islam, ordained any effort of a computational and linguistic nature on its texture to be known as Qur'anic computation (Kammani and Safeena, 2014). Typically, Qur'anic computation is the movement of simplifying the Qur'anic text and sciences for e-learning, where there is a considerable increment in the use of the tools and software of mapping for educational purposes such as assessment and linking of related concepts (Davies, 2011). Likewise, Abdelhamid et al. (2013) state that the field of Qur'anic sciences now has a huge wealth of multimedia resources in the web platforms that include many categories such as *Tafsir*, recitation techniques, and the Qur'anic stories. That is in addition to a great deal of specialized audiovisual resources for children which have their obvious impact on teaching them the various introductory aspects of the Holy Qur'an such as basics of recitation, Qur'anic stories, and meanings.

Qur'anic computation is a broad term that involves the momentous change in basic assumptions in the processing of the Qur'anic text according to several linguistic sciences such as syntax, discourse analysis, digitization, and semantics. Some of these were serious

attempts to provide the researchers of the Qur'an with statistical data helpful in carrying out numerical sort of research to prove the uniqueness and miraculous nature of the Qur'an as the word of Allah. Others tend to perform rhetorical research aiming at providing the Qur'anic readers as well as the Qur'anic researchers with authentic linguistic information that reflect the outstanding, miraculous, and matchless texture of the Qur'an. Ultimately, Qur'anic text processing is the linguistic business of a lot of scholars especially linguists who took the burden of investigating the Qur'anic texture for the extraction of the many textual features within the field of syntax, semantics, and ontology. The third of these domains dealt with the linguistic features using multidisciplinary tools including visual charts, concept maps, computer and internet systems in full automotive process aimed at an authentic recognition of the abovementioned findings.

2.10 Mind Maps and Concept Maps

The Qur'anic text has its educational and learning processing difficulties as expository textbooks always do when it comes to comprehension and recalling according to (Taylor, 1982). Griffin and Tulbert (1995) accordingly, argue that expository texts are full of complex principles and concepts, difficult vocabularies, peculiar typographical features, and unfamiliar linguistic structures. They also argue that learners should get acquainted with and integrate all the said sets of information in order to make them of sense and value. Consequently, the learner’s need to manage, organize, and re-present that much of density of information and linguistic rules is driven by the necessity to utilize the concept and mind maps to perform the said tasks. Similarly, when learners attempt to construct and reconstruct meanings they need to integrate the new knowledge with their old knowledge they have in their cognitive structure (Novak, 2002).

Novak (2002) reports that two facts are universally agreed upon: that the construction of meanings in humans takes place at their birth and rapidly accelerates as they gain the capacity of using language to code meanings for objects and events around them. The second fact is that some of the meanings they construct are limited or faulty, the thing that could impede or distort the construction of the new meanings. Furthermore, Novak describes the meaning-making process as proceeds according to the perception of new regularity in objects or events, or records of objects or events, that leads to the formation of concepts and construction of new propositions.

Ultimately, Qur'anic maps may work as facilitating tools for both regular and slow learners. Preferably, Qur'anic concept maps here are presented the way they appear to Novak (1990) as (*widely applicable metacognitive strategies*). Furthermore, regarding the slow learners, Udeani and Okafor (2012) argue that they may bring a deficiency of knowledge that is considered necessary for their success in reading. So, Qur'anic maps are set to assist them to acquire that missing information through suitable techniques of knowledge organization, linguistic structuring, comprehension, and recalling.

Mapping of the Qur'anic concepts without quoting the absolute text of verses in the previous literature was dominant up to this current study. Although there is extensive literature written by Muslims and non-Muslims on the Qur'an (Rahman and Moosa, 2009), only a few scattered mapping attempts were there, but they were limited to some verses and for limited purposes, such as memorization, teaching, or handling of exegetic issues. In this regard, the current study is aiming at shedding some light on giving a detailed visualization of the Qur'anic textual constructions, thematic building and diversity, and conceptual interlinks and chaining.

Therefore, tracing the output literature concerning the mapping techniques requires a careful distinction between two broad categories of approaches. These categories include those who have adopted the use of (conceptual or mind) maps for applying the Qur'anic themes or topical classifications previously existing in the Qur'anic studies on the one hand, and those who have adopted the mapping techniques - in a limited way, to visualize the construction of the Qur'anic texture on the other hand.

Alternatively, in 2012, Safiah Alsuhaibani's work "*Mental Maps of Quran*" (Alsuhaibani, 2012) was a quite distinguished work that succeeded in mapping all major and minor concepts of the *Surahs* of the Holy Qur'an. Typically, it gathered every set of verses that share one concept under a subtopic branched from the main topic of the whole *surah*. The main objective of her book is to provide those who want to memorize the Holy Qur'an with a concept-based manual that could change the previous way of memorization to a more organized strategy built on the topical interpretation of the Holy Qur'an (Alsuhaibani, 2012). Her mental maps aimed at creating a new type of Qur'anic memorizers who are able to know the meaning and exegetic concepts of what they keep by heart through simple steps, (See Figure *15*). The process of memorization is a two-way process that requires that the reader understands the topic of the verses they are going to

memorize, then opens the *Mushaf* for the repetition of the selected verses in order to master their memorization.

Alsuhaibani's distinguished work based on summarizing each specific *surah* in one simple and comprehensive mind map. An example for that, we may find *Surat Al-Baqarah*, the longest *surah* in the Holy Qur'an (286 verses) topically summarized in one mind map (Figure 15). She mentioned brief descriptions of the topics that the specific *surah* contains. That way of topical classification combined two key features; topics were mentioned in a very brief way allowing users to explore the very long *surahs* of the Holy Qur'an in one page. In addition to that, numbers of the *ayahs* included in the specific classified topic were mentioned as well, allowing the Qur'anic reader to be connected to the topical classification through a well tied numeric system.

Many noteworthy differences are easily distinguished when Alsuhaibani's work is compared to the way Alajlani's *Colored Topical Classification Mushaf* or Swwar's *Colored Topical Classification Mushaf are prepared.* The reader of Alsuhaibani's maps will face the need to accompany the *Mushaf* while browsing the maps to imaginarily draw colorful topical classification highlights according to the grouping of *ayahs* set by the map (Alsuhaibani, 2012). This process may leave Alsuhaibani's maps of no use if the reader uses a colored topical classification *Mushaf* that presents marginal topical classification legends.

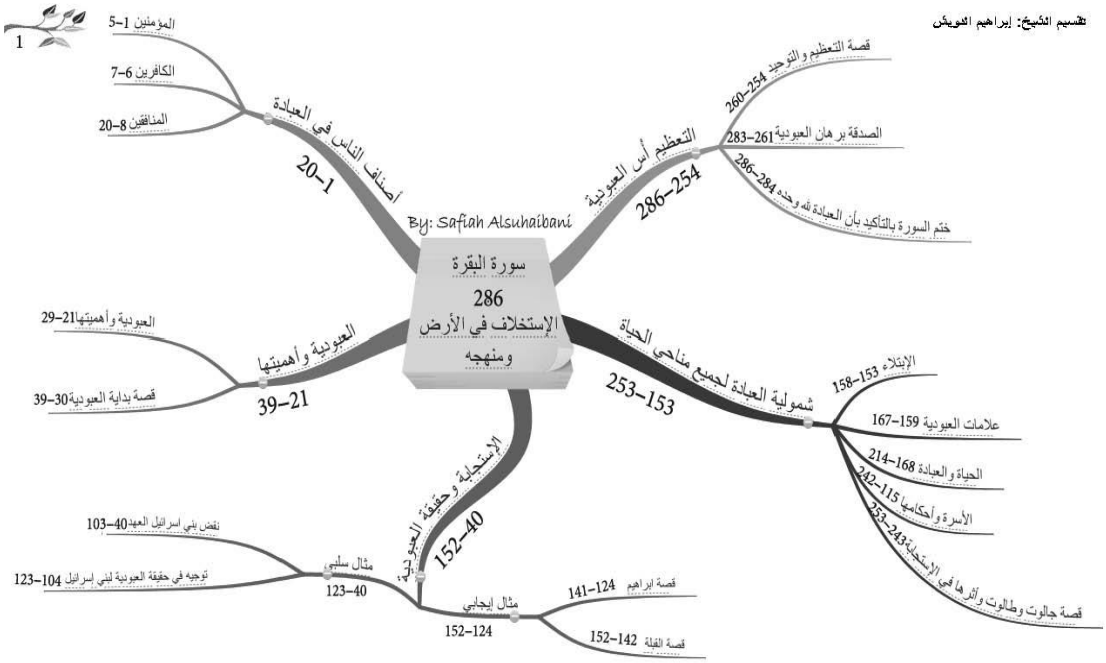

Figure 15: A model of Safiah Alsuhaibani's mental maps: Mental Maps of Quran, (Alsuhaibani, 2012)

Another distinguished work that utilizes visual aids to focus on highlighting the similarities in the Qur'anic texts is exposed on a Facebook webpage named as "تأملات في المتشابهات" "*T'ammulat fil-mutashabihat*". The work was established in 2013 as a Facebook webpage run by a group of members who participate regularly in creating visual aids and concept and mind maps to investigate and shed light on homologs and repetition of certain words, phrases, or even sentences all through the Qur'anic discourse (T'ammulat-fil-mutashabihat, 2013).

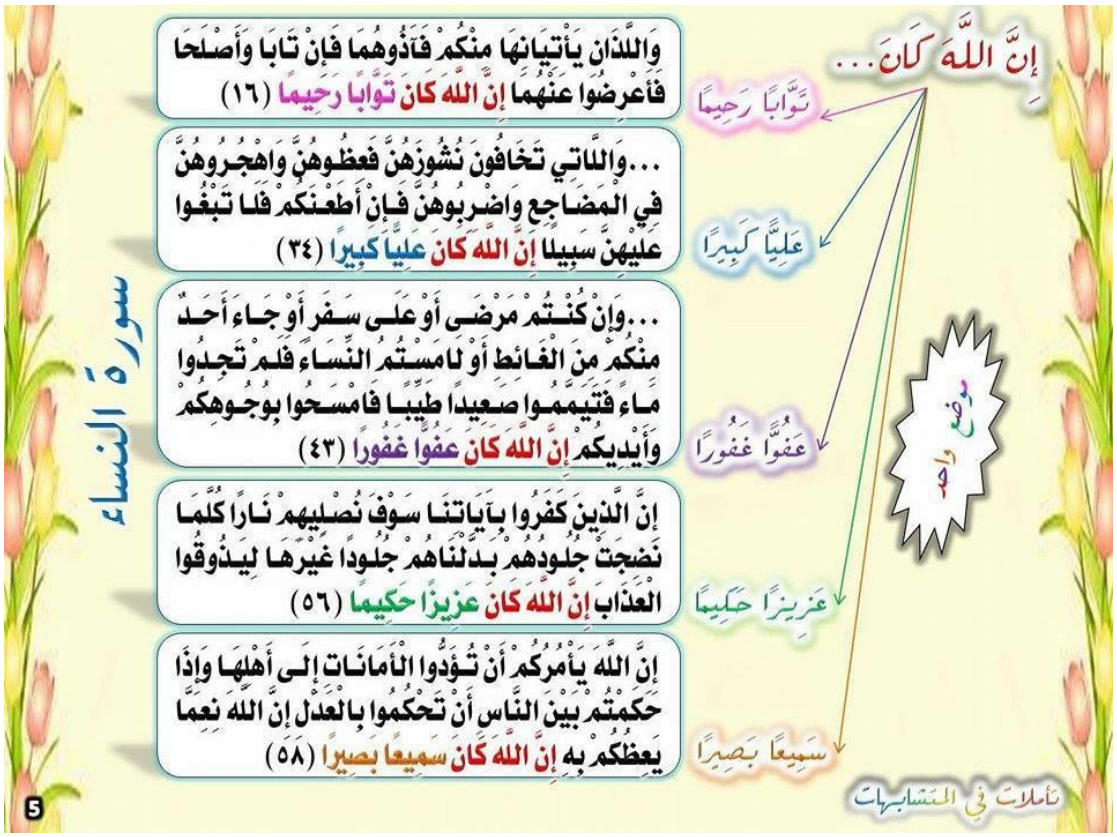

Figure 16 an example of T'ammulat fil-Mutashabihat's work (T'ammulat-fil-mutashabihat, 2016)

2.11 Qur'anic Digitization

The notion of the automatic processing of natural language has emerged in the 2nd half of 20th century (Bolshakov and Gelbukh, 2004). It has been reported by numerous studies that the development of the Qur'anic text from its common scriptural codex form to digital formats has attracted more and more Muslims to rely on the electronic versions (Rippin, 2013, Khan and Alginahi, 2013, Yauri et al., 2012). That turning point opened the door wide for a great deal of Qur'anic-related research, conferencing, software enhancement, technological advancement, and linguistic theorization and application.

2.12 The Quranic Arabic Corpus Online

Dukes and Habash (2010) provided what they called "*an annotated linguistic resource*" which encompasses several unique features aiming at offering an authentic linguistic resource that provides various annotation layers. The corpus uses dependency grammar for morphological segmentation, part-of-speech tagging, and syntactic analysis of the Qur'anic corpus using dependency grammar. They admitted that "*processing Quranic Arabic is a unique challenge from a computational point of view*". Their online Qur'anic Arabic Corpus was made available as an open source at http://corpus.quran.com and as a multi-stage approach to solve the morphological annotation of the Qur'anic Arabic. It demonstrates the morphological analysis of each and every Qur'anic word through visually representing its morphological segments (*Figure 17*). The sort of visual presentation of the separate units of the Qur'anic text provides colorful clarification of each part of speech in the result of the searched text along with the matching syntactic annotation.

The website provides a bilingual search in the Qur'anic words through a drop-down menu as well as a search box. Other valuable facilities contain a Qur'anic dictionary, several English translations of the meanings of the Qur'an, syntactic treebank, an ontology of concepts, and an Android application for mobile phones. The website also provides an open-access forum for registered members to comment, send corrections if any, and discuss accuracy issues, …etc. Dukes and Habash (2010) consider these suggestions and comments as beneficial in increasing annotation accuracy.

The website http://corpus.quran.com/ has become a resource that is widely used by Qur'anic and Arabic researchers as well as the general public who seek online tools to explore and understand the Qur'an (Atwell et al., 2011). Dukes and Habash (2010) argue that the mapping technique in the Qur'anic corpus was required for converting to the required Qur'anic tag set. Furthermore, the knowledge representation in the Qur'anic Ontology of the http://corpus.quran.com/ is used to define the key Qur'anic concepts and embody their interrelationships using predicate logic. Their work went on toward extracting the Qur'anic named-entities and concepts and their ontological links and interrelationships to resolve the pronominal anaphoric references of the said Qur'anic concepts (Atwell et al., 2011).

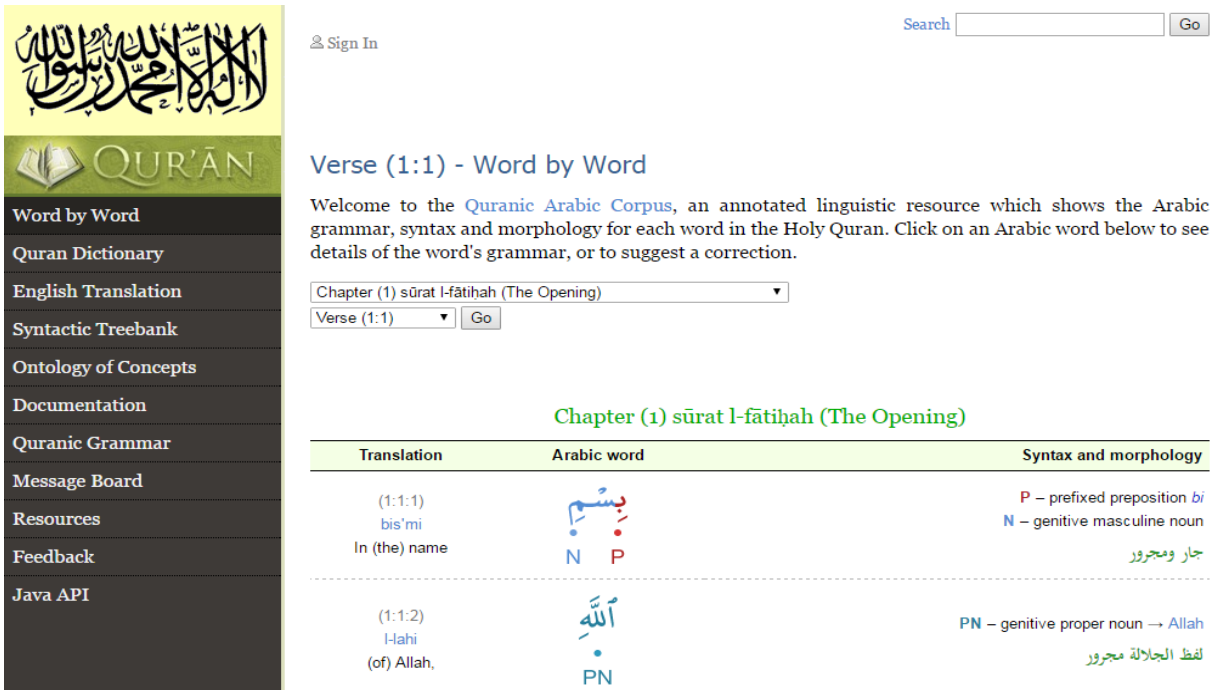

Figure 17 The morphological annotation (word by word) of the Qur'anic words at http://corpus.quran.com

Later, Atwell et al. (2011) presented a review of several Arabic and Qur'anic research on corpus linguistics and artificial intelligence at Leeds University which was the main cause of numerous corpus datasets and software. They focused their work on "*Qur'anic Arabic corpus linguistics*" which was the center of obvious attraction of Qur'anic students, Arabic linguists, and the public. Interestingly, the immense potential impact of Artificial Intelligence modeling of the Holy Qur'an they saw led them to propose "*the Qur'anic Knowledge Map*" as a challenging computational project. It was planned as "*a structured large-scale online resource*" that helps in understanding the Holy Qur'an and planned as a structured database in a machine-readable form of semantic and linguistic information.

A clear example for digitization of the Qur'an is another distinguished work which utilizes visual aids to focus on highlighting the similarities in the Qur'anic texts, is exposed on a Facebook webpage entitled as "*تأملات في المتشابهات*" "*T'ammulat fil-mutashabihat*". The work was established and launched in 2013 as a Facebook webpage run by a group of members who participate regularly in creating visual aids and concept and mind maps to investigate and shed light on homologues and repetition of certain words, phrases, sentences, or even complete verses all through the Qur'anic discourse (T'ammulat-fil-mutashabihat, 2013). Helping Qur'anic readers to memorize, connect

ideas, and care for the many ways the Qur'an uses to tell things are among the objectives of the website.

Hussein Abdul-Raof's remarkable linguistic work (Abdul-Raof, 2013) processed models of the Qur'anic text in detailed linguistic diagrams (*Figure 18*) similar to the Qur'anic concept and mind maps proposed here in this study. Abdul-Raof utilized his diagrams to re-present the Qur'anic text in order to make visible the various linguistic, textural, phonetic, and rhetorical features that are not often visible in the way they are through the said diagrams. Among these linguistic features are a kind of *chandelier structures, multi-tiered structures, long argumentative structures, information listing structures (details, obligations, and conditional clauses (Figure 18)), tail-head or head-tail structures, etc. as* part of the Qur'anic syntactic features.

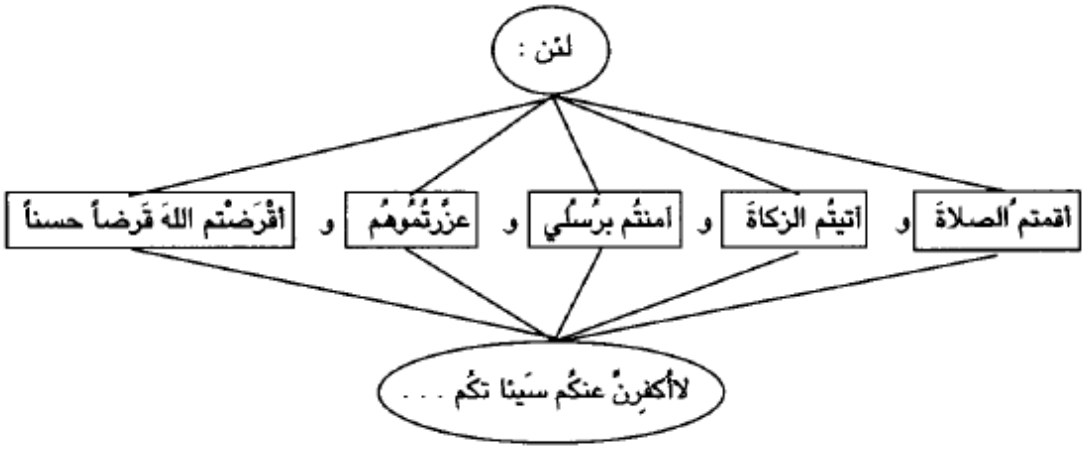

Figure 18 Linguistic Diagrams (Abdul-Raof, 2013, p. 72)

2.13 Topical Classification of the Holy Qur'an

Talal Alajlani in 2004 presented his work; *The Colored Topical Classification Mushaf* (Alajlani, 2004) as the first Qur'anic publication that utilizes visual aids in highlighting *ayahs* of each specific topic with a distinguishing color. Alajlani adopted a colored topical classification of the Holy Qur'an, within the *Surah* level as a footnote legend. The work did not include any interpretations in its margins; however, it was content with the overall topical outlining of each group of verses, (See *Figure 20*).

Alajlani's legend of the colors used in his topical classification was decoded in the end of his *Mushaf*. He mentioned that each color stands for some main or sub-topic as shown in (*Figure 19*). Obviously, a color always represents a set of topical classifications wherever they are found all through the Holy Qur'an depending on a dark and a light color category. For example, the blue

color usually highlights Allah's signs in the universe, souls, and horizons, as well as evidence of Allah's power over the universe, and His favors to mankind. Furthermore, the green color highlights paradise and its Qur'anic descriptions, disbelievers and their descriptions, and *jihad* and rewards of the Muslims who perform it.

أما ألوان التفسير الموضوعي وتقسيماته فقد تمّ حصرها بألوان أساسية وألوان ثانوية وفق ما يلي :

١- اللون الأزرق والأزرق الفاتح ومواضيع هذا اللون هي :
- آيات الله في الكون والأنفس والآفاق . دلائل قدرة الله تعالى في الكون .- فضل الله تعالى وإنعامه على عباده .
- عظيم خلق الله تعالى ...

٢- اللون الأخضر والأخضر الفاتح ومواضيع هذا اللون هي :
- الحديث عن الجنّة وأوصافها . الحديث عن أوصاف النبي ﷺ وشمائله . - الحديث عن المؤمنين المتقين و صفاتهم وثوابهم ونعيمهم ...

٣- اللون الأحمر والأحمر الفاتح ومواضيع هذا اللون هي :
- الحديث عن جهنّم التي أُعدّت للكافرين والمنافقين ووصفها . الحديث عن الحساب والقيامة والحشر . تحذير الناس من القيامة وأهوالها ...

٤- اللون البنّي والبنّي الفاتح ومواضيع هذا اللون هي :
- الحديث عن مقدمات قيام الساعة وعلاماتها وحال الدّنيا وحال الناس عند قيامها . الحديث عن الموت والقبر . إنكار البعث والقيامة ...

٥- اللون الأصفر والأصفر الفاتح ومواضيع هذا اللون هي :
- قصص الأنبياء والرسل وتفاصيل قصصهم ومعجزاتهم . حال الأمم السابقة . الحديث عن الغزوات ومعجزات جرت في عهد النبي ...

٦- اللون البنفسجي والبنفسجي الفاتح ومواضيع هذا اللون هي :
- آيات الأحكام ...

٧- اللون البرتقالي والبرتقالي الفاتح
- وهذا اللون للمواضيع المنوّعة التي لا تندرج تحت العناوين السابقة مثل :
- بيان سنّة الله في العباد . القرآن الكريم ومكانته . جحود الإنسان وصفاته . عرض للحقائق الإيمانيّة والإعتقاديّة رد مزاعم المشركين وافتراءاتهم ...

راجين من الله القبول والإخلاص في هذا العمل ، وأن يتقبّله منّا وأن يجعله حسناتٍ في ميزانِ من شارك في هذا العمل ليوم الدّين يوم لا ينفع مال ولا بنون إلا من أتى الله بقلب سليم .

وآخر دعوانا أن الحمد لله ربّ العالمين

طلال العجلاني

Figure 19 Alajlani's code of colors (Alajlani, 2004)

Figure 20 The colored topical classification with no marginal interpretation, (Alajlani, 2004)

In addition, Sawwar (2007) published a truly remarkable work entitled *The Colored Topical Classification Mushaf*. Swwar's *Mushaf* was an extension of *The Colored Topical Classification Mushaf* in keeping the same features of the colorful topical classification and their legends in addition to a new colored marginal interpretation of the meanings of the words included on the same page. This work not only helps the readers of the Holy Qur'an in understanding the different topics while

exploring the *Mushaf* but also gives them detailed meanings of the difficult and problematic words included in the given Qur'anic text, (See Figure *21*).

Figure 21 The colored topical classification and marginal interpretation, (Sawwar, 2007)

Dar Ghar Hira has presented the following series of works to the Muslim community worldwide:

Al-Mushaf Al-Mufahras

Dar Ghar Hira introduced *Mushafs* with new features that were not available before in the re-presentation of the Qur'anic text. *Al-Mushaf Al-Mufahras* is designed as an easy-to-browse book with a cut in a colored marginal labeling of the names of the Qur'anic *surahs.* That feature, although being very simple, was not experienced before (Figure 22). Regarding the body of the Qur'anic text, Dar Ghar Hira was satisfied with

adding no scriptural additions, such as topical classifications or marginal meanings of the difficult Qur'anic words.

Figure 22 Al-Mushaf Al-Mufahras

Mushaf At-Taqseem Al-Mawduei*,*

Another distinguished work from *Dar Ghar Hira* is *Mushaf At-Taqseem Al-Mawduei* (*Mushaf* of Topical Classification) which was planned as a creative way to facilitate the tasks of understanding and memorizing the Holy Qur'an. It looks similar to the *Colored Topical Classification Mushaf* by Alajlani (2004) **(**Figure 20**)** and **Sawwar (2007) (**Figure 21**), in terms of** keeping the same features of the colorful topical classification and their legends. It does not include a marginal interpretation of the words resembling Al-Ajlani's *Mushaf.*

***Mushaf At-Taqseem Al-Mawduei Lil-Hafez Al-Mutqin* (*Mushaf* of Topical Classification for professional memorizers)**

This version of *Mushaf* has been being developed for ten years before it has appeared in the way illustrated in (Figure 23). It, in an unprecedented way, targets the Qur'anic memorizers' community with a set of advanced and professional features such as instances of explanatory tips, meanings of difficult words, explanations of the problematic spelling of certain words, causes of revelation, and a topical *Tafseer* of the *ayahs* included in the specific page.

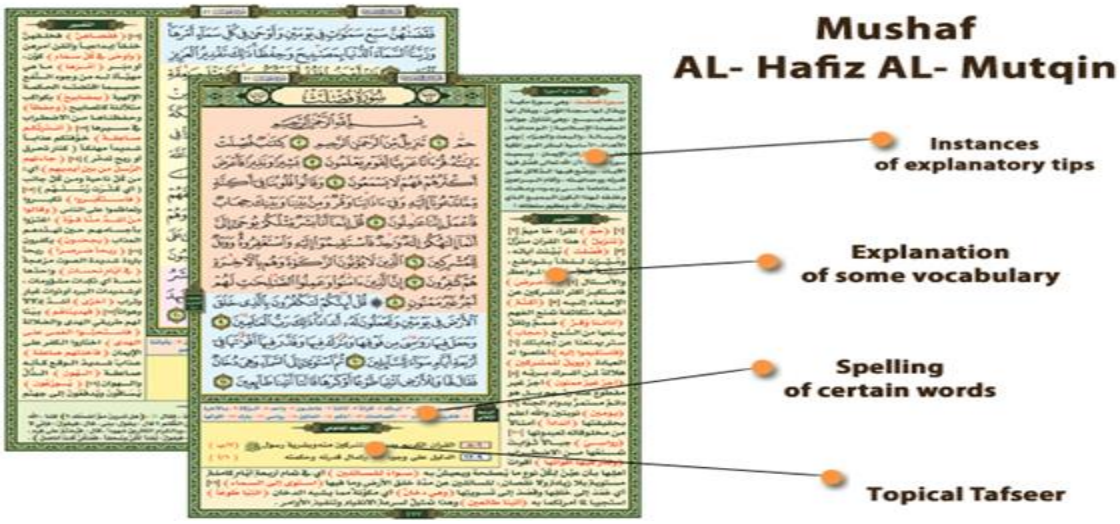

Figure 23 Mushaf At-Taqseem Al-Mawduei Lil-Hafez Al-Mutqin

It is worth mentioning here that modern technologies that took the initiative of serving the Holy Qur'an and its sciences focus on a broad range of services. Those services were set to present the Qur'anic text and its sciences in a more advanced digitized manner since the traditional printed *Mushaf* was the unique source of all services for the Qur'anic reader (Khan and Alginahi, 2013). More specifically, they aimed at helping the Qur'anic readers, browsers, students, researchers, or memorizers get the easiest access to their specific goals. As a result of the technological advancement, bundles of remarkable Islamic websites have rapidly burst out and spread over the internet (Khan and Alginahi, 2013).

The Electronic Mushaf of King Saud University at http://quran.ksu.edu.sa/ is a recent work that could be considered as a remarkable paradigm shift in the way the text of the Holy Qur'an is demonstrated. Interestingly, the website offers invaluable services for the readers, memorizers, researchers, translators, or even simple browsers of the Holy Qur'an. In that understanding, the website presents the text of the Holy Qur'an in Arabic along with translations of its meanings to other sixteen languages. In addition to that, services also include a colored marginal interpretation of the meanings of the Qur'anic text to more than twenty languages. Moreover, the website offers a bilingual audio translation, seven *Tafsir* books, and recitations by a group of famous reciters.

Ayat is an electronic version of the Electronic Mushaf of King Saud University created to stand as a new easy-to-use *Mushaf* offering its services in an unpreceded, highly colorful, and developed manner. It was set to work on a diversity of systems such as Windows Phone, Android, iOS, Windows, Linux, and Macintosh. Ultimately, the

appealing and unique features of *Ayat* attract the attention of millions of Muslim users who consider it as a top authentic Qur'anic text and interpretational method.

CHAPTER III

METHODOLOGY

3 CHAPTER III: METHODOLOGY

3.1 Preview

This chapter describes, in detail, the study methodology, the tools used in creating and designing the Qur'anic maps, and the resources of the Arabic Qur'anic text and the translation of its meanings. It also sheds the light on how the methods of the study contributed to answering the study questions and achieving its objectives.

3.2 Introduction

The descriptive research approach will be the key tool of investigation in the current study where the created Qur'anic maps are under its focus in order to execute the study objectives listed in chapter one, as follows:

3.2.1 Objective 1

- **To detect any contemporary advances in the use of the mapping techniques in the presentation of the Holy Qur'anic text.**

The literature review in chapter two of this study investigates the history of presentation of the Qur'anic text through the Islamic history so far until it reaches the current breakthrough – the Qur'anic maps. It gives full description of the chronological development the Qur'anic text has undergone.

3.2.2 Objective 2

- **To highlight any linguistic theories that can be reflected in produced Qur'anic maps.**

The produced Qur'anic maps will undergo critical linguistic analysis to explore any related linguistic phenomena or linguistic theories emerging thanks to their designing and creation. It is expected that numerous linguistic phenomena and linguistic theories will take place due to the bilingualism, technical moves, textual extractions, and exegetic applications. The overall output of the Qur'anic text is expected to appear as a new field of research that should be vigorously studied and investigated. The results of this

investigation will be explored in chapter four along with selective examples of the created Qur'anic maps.

3.2.3 Objective 3

- **To unveil any inter-relationships between the produced Qur'anic maps and the nine intelligences mentioned in the theory of Multiple Intelligences.**

The produced Qur'anic maps have crystalloid view that responds to several learner's needs. Interestingly, the theory of Nine Intelligences is built on that human beings are different and enjoy different frames of mind and capacities they use in absorbing and communicating language. The theory of Multiple Intelligences theorized by Howard Gardner (Gardner, 1993a, Gardner, 2006) is going be the base for checking the current Qur'anic maps for similarities and points of agreement. Chapter five will present the results of the said analysis.

3.3 Methodology

Research in social sciences is defined by Mouton and Marais (1988) as "*a collaborative human activity*" that studies social reality objectively aiming at reaching a valid understanding of it. Consequently, central to social sciences research is the idea of the five dimensions of research (the sociological, ontological, ideological, epistemological, and methodological dimensions) that individually define scientific research from a particular point of view.

What is related to this part of the current study is the methodological dimension which deals with research in the social sciences as "*objective by virtue of its being critical, balanced, unbiased, systemic, and controllable*" (Mouton and Marais, 1988). They argue that the methodological dimension then concerns the researcher's attempts in making a number of decisions regarding the question: "*Which theory or model is likely to be most appropriate for investigating a given subject?*"

The current study is a qualitative type of social research that does not attempt to quantify its results via statistical analysis or summary according to Marczyk and DeMatteo (2005) definition. It also goes in line with their definition of the type of research that involves observations without formal measurement. Therefore, it is obvious that the

use of the current Qur'anic maps – solely and uniquely designed for this study – are studied in an unprecedented observational way to detect the answers for the questions of the current study.

3.3.1 The Technical Work

The current study involves visualization charts (concept and mind maps) designed through XMind 7 (v3.6.0.R-201511090408) to clarify the different levels and aspects of understanding within the bilingual Qur'anic text (Original Arabic Qur'anic text along with the English translation of its meanings extracted from *Sahih International* translation). XMind 7 has numerous technical features flexible enough to bring about the required outlook of the Qur'anic maps that encompasses logical responses to the questions of the study.

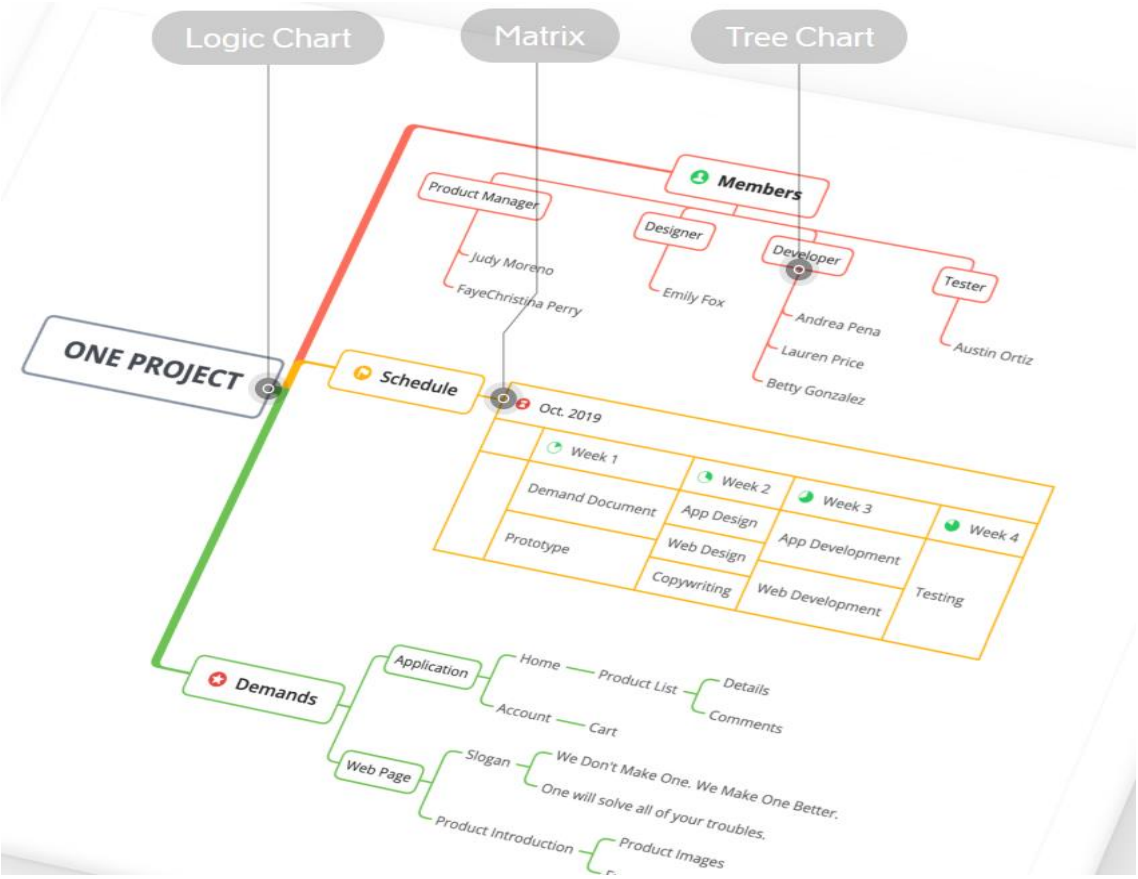

Figure 24 Examples of XMind 7 maps

The maps created through XMind 7 were exported to high-resolution images as JPEG or JPG files. All of the produced pictures were planned to follow the same designing output – background, fonts, coloration, and so on.

3.3.2 The Textual Work

The Qur'anic maps introduced through this study are a means of embodying and personifying the many Qur'anic features. For instance, topical classification, conceptual chaining, exegetic commentaries, linguistic features, mnemonics, …etc. are highlighted with simple semiotic moves and arrangements.

In detail, "*Al-Misbah Al-Munir fi Tahdhib Tafsir Ibn Kathir*" (Mubarakpuri, 2012) was used in this study as a unique and only source of exegesis, topical classification, and conceptual classification. It contains an organized topical classification accompanied with the verses associated with the specific topic. Moreover, a cultivated exegetic commentary extracted from *Tafsir Ibn Kathir* (Ibn-Kathir, d. 1373) is presented in a manner that matches the conceptual mapping technique proposed in this study. Ayahs were grouped conceptually and topically, the thing that contributed enormously in the applicability and designability of the Qur'anic maps.

The extracts of original Qur'anic text and its English translations were copied from the electronic Mushaf of King Saud University at *http://quran.ksu.edu.sa* and names of Qur'anic *surahs* were collected from *http://quran.com/*. Additionally, *Sahih International* translation was solely adopted to accompany the original Qur'anic text all through the Qur'anic maps in the current study.

CHAPTER IV

QUR'ANIC MAPPING AND THE THEORIES OF LINGUISTICS

4 CHAPTER IV: Qur'anic Mapping and the Theories of Linguistics

4.1 Preview

This chapter sheds some light on the virtual relationship between the general concept of the Qur'anic mapping techniques and some of the theories of linguistics. While studying concept maps as units of meaning, an interdisciplinary survey of linguistic theories assures what Cruse (2000) argues as "*meaning may be studied as a part of various academic disciplines*". First, the concept of the Qur'anic mapping is to facilitate meaning conveyance, embody concepts, and re-present the Qur'anic discourse in an understandable and comprehensible manner. Second, thinking of how the Qur'anic reader will absorb the new representation of the Qur'anic discourse, was a main issue in the Qur'anic mapping process. Strikingly, the first task of linguists in semantics, for example, is to explain how people transfer meanings using the common language pieces, while the second task is to investigate how they comprehend that meaning (Saeed, 2016).

The mapping technique in this study presents a practical model of conceptual chaining and coherence. It makes things clearer as it develops ideas in a technical and logical way of connectivity according to the exegetic classifications of the minimal and maximal textual units of the Qur'anic texture. Linguistically, there are many apparent phenomena that became obvious only when the mapping technique has been applied to the Qur'anic discourse. Those linguistic phenomena are easily embodied in different highlighted linear levels capable of reflecting the topical classification intended by the given piece of Qur'anic texture – according to a specific exegetic thought. Interestingly, the highlighted sectors of a specific mind or concept map always reflect a strong exegetic point of view agreed upon in Ibn Kathir (2003).

If that diversity of exegetic commentaries, interpretations, and concepts had been adopted, the mind and concept maps in this study could have appeared in various designing formats. That designing diversity is thanks to the great technical and designing flexibility afforded by the mapping software. On the other hand, the agreement between the Qur'anic Arabic text, the English translation of its meanings, and the exegetic commentary controlling the whole idea of the Qur'anic concept map is responsible for the general output of that comprehensive linguistic outcome. It has its own power that allowed various unintentionally repeatable linguistic patterns that are related to various Qur'anic topical classifications.

4.2 Qur'anic Mapping and Discourse Analysis

Ultimately, it is the work of a text analyst to consider two main issues; offering a comprehensive account of the intertextual and conceptual relatedness on the one hand, and of the linguistic and stylistic changes in the Qur'anic discourse on the other hand (Abdul-Raof, 2003). Those two issues are well reflected through the careful application of concept maps and meticulous adaptation of the Qur'anic text to them. Moreover, the partial linear network of connections within a single concept map always outlines an exegetic agreement or a strong exegetic opinion of a Qur'anic scholar or a group of scholars. Literally, each concept map depends on a single interpretational commentary of a Qur'anic exegete, which is considered responsible for the general interrelationships encompassed by that specific map.

No doubt, the Qur'anic text being the matchless word of Allah (Haleem, 2010, Abdul Malek, 2000) and unique challenging discourse, requires an equivalent comprehension of the many facts set in an unprecedented manner. According to Widdowson (2007) "A *general understanding of ideas is not sufficient: there needs to be closer scrutiny. But equally, close scrutiny can be myopic and meaningless unless it is related to the larger view*". For Woods (2014) who characterizes discourse as "*language plus context*",

> *Discourse is, at the very least, language plus context – by which I mean the context that we bring with us when we use language; the context that includes our experience, assumptions and expectations; the context we change (and which is itself changed) in our relationships with others, as we both construct and negotiate our way through the social practices of the world we live in. (Woods, 2014)*

Woods continues to argue that it is also the concern of discourse analysts to explore the way how meaning is being constructed throughout a given text and to accompany intertextuality with them across a set of various but related texts. Wood's argument describes what is so called conceptual and intertextual chaining or *Munasabah* in the Holy Qur'an. Similarly, Abdul-Raof (2003) states that a Qur'anic text "*enjoys two major linguistic features: (i) texture, which represents its grammatical and lexical cohesion, and (ii) consonance, which represents meaning relations that express conceptual and intertextual chaining*". Therefore, discovery and analysis of conceptual and intertextual chaining "intertextuality" are the responsibility and focus of analysts,

exegetes, or concept map designers. They, accordingly, have to consider the fact that texts have histories or - causes of revelation, and that creation of discourses took place at diverse times, which makes them act as reference for each other (Woods, 2014).

As is appropriate for the Qur'anic mapping techniques, Widdowson's call for a closer scrutiny that accompanies the general understanding of general ideas and large view of any textual construction in addition to relating texts to their contexts, may be exactly pointing to the unmet need for similar techniques to adopt this notion. Furthermore, gains out of text-context dependency if presented through the Qur'anic concept maps will provide the Qur'anic reader with a comprehensible hybrid work that encompasses meaning, context, analysis of textual construction, and purpose of the given Qur'anic message.

Similar to the act of the Qur'anic exegesis (*Tafsir*) as presented in the colored topical classification *Moshafs*, more useful analytic and exegetic features are offered along with the Qur'anic mapping structures. Those are, the connection between a given highlighted set of verses and their marginal exegetic explanations seem as of a great help to the Qur'anic reader, whereas embodying the same set of verses highlighted in a way or another, in a piece of concept Qur'anic map, will provide the reader with more meaningful, comprehensible, and easy-to-absorb linguistic and exegetic dose.

Paltridge (2012) relates discourse analysis to two broad views; "*textuality-oriented views of discourse analysis*" that focus mostly on the text features of a language on the one hand, and "*socially-oriented views of discourse analysis*" that consider the role of the text in the cultural and social setting where it appears, on the other. That consideration of textuality and social and cultural aspects affecting the text to be studied again points out the key features of the Qur'anic maps for they are basically bilingual units of meaning that encompass intertextuality, exegesis, and social and cultural facts as key tools of understanding. Qur'anic maps in that concept meet Wood's understanding of the fact that context is so important and its effect on discourse interpretation is crucial (Woods, 2014). To a large extent, thinking of discourse analysis as in need of "*relating text to context*" whereby "*we infer not only what the notice refers to, but also what its purpose is*" (Widdowson, 2007), strengthens the Qur'anic maps' notion as comprehensive tools of discourse analysis that encompass text, context, social and cultural aspects, and intertextuality.

(*Figure 25*) below comes up with several invaluable linguistic features of which listing of ten extracted commandments is remarkably apparent. Literally, these Qur'anic concepts are called the "*ten commandments*" according to (Al-Mubarakpuri, 2003e). They are detailed in the upcoming concept map that holds the idea of **relating text to its wide context**. It is worth mentioning here that these verses (6:151-153) characterize the will and testament of the Messenger of Allah (Peace and blessings of Allah be upon him) as per the following *hadith*: 'Ibn Abbas said, "In *Surah Al-An'aam*, there are clear *Ayat*, and they are the Mother of the Book (the Qur'an)." He then recited,

﴿قُلْ تَعَالَوْا أَتْلُ مَا حَرَّمَ رَبُّكُمْ عَلَيْكُمْ ۖ أَلَّا تُشْرِكُوا بِهِ شَيْئًا﴾

Say, "Come, I will recite what your Lord has prohibited to you. [He commands] that you not associate anything with Him, ...﴾'[2]

Ibn Masu'ud's saying: "Whoever wishes to read the will and testament of the Messenger of Allah (Peace and blessings of Allah be upon him) on which he placed his seal, let him read these *ayat*,

﴿قُلْ تَعَالَوْا أَتْلُ مَا حَرَّمَ رَبُّكُمْ عَلَيْكُمْ ۖ أَلَّا تُشْرِكُوا بِهِ شَيْئًا﴾

﴿*Say, "Come, I will recite what your Lord has prohibited to you. [He commands] that you not associate anything with Him, ...*﴾

until,

﴿لَعَلَّكُمْ تَتَّقُونَ﴾

﴿*… that you may become righteous.*﴾ (6:153)[3]

The concept map of (6:151-153) verses below basically reflects the ten core Islamic commandments in a detailed and restricted clear way that is easy to count, easy to stop by and meditate, easy to link to the main context - the will and testament of Prophet Mohammad (peace and blessings of Allah be upon him), and ready to undergo other conceptual, analytical, and linguistic processes. For a concept map, according to Novak (1990) is "*a hierarchically arranged, graphic representation of the relationships among concepts*" that are already pinned in the long-term memory of an individual (Bower et al., 1969).

[2] Al-Hakim 2 :317

[3] Tuhfat Al-Ahwadhi 8 :446

The summarizing nodes and their concluding content work as intelligent tools of topic classifying specifically in the following concept map (*Figure 25*). That obviously comes in accordance with the *Hadith* of Prophet Mohammad (peace and blessings of Allah be upon him) cited in (Al-Mubarakpuri, 2003e): "*Who among you will give me his pledge to do **three things**?*" He then recited the *Aya, ﴿Say, "Come, I will recite what your Lord has prohibited to you. [He commands] that you not associate anything with Him, ...﴾* to the end.[4]

On the topical classification concept, the map below provides a logical relatedness in three main categories. The first, contains a group of five commandments for using reason, the second, includes the next four commandments for remembering, while the third, contains the last commandment for becoming righteous. Interestingly, the first five commandments according to Al-Mubarakpuri (2003e) are as follows: "*Shirk is forbidden*", "*Kindness to Parents*", "*Killing Children is Forbidden*", Prohibition of Approaching Immoralities, and "*Prohibition of Unjustified Killing*" are smoothly concluded with the first of the three summarizing nodes: "*This has He instructed you **that you may use reason***.". Whereas, the second summarizing node "*This has He instructed you **that you may remember***." was set to conclude the second four commandments: "*Prohibition of Consuming the Orphan's Property*", "*The Command to Give Full Measure and Full Weight with Justice*", "*The Order for Just Testimony*", and "*Fulfilling the Covenant of Allah is an Obligation*". Finally, the **third** summarizing node "*This has He instructed you **that you may become righteous***." solely concludes the last of the ten commandments "*The Command to Follow Allah's Straight Path and to Avoid All Other Paths*".

This comprehensive presentation of linguistic structures, ideas, and concepts is capable of meeting Hausser's system requirements for providing a model of natural-language communication "*The grammar system has to provide an explicit bidirectional surface meaning mapping. Syntactic well-formedness should be characterized by the rules which map meanings into linear surfaces, and vice versa.*" (Hausser, 2012). Moreover, it solves the two fundamental problems of Roger and Abelson (1977); "*How do people map natural-language strings into a representation of their meaning? How do*

[4] Al-Hakim 2 :318

people encode thoughts in natural language?". Ultimately, meaning, logic, and presentation aspects in (*Figure 25*) collaborate to provide a unique linear linguistic representation of a self-interpreted and stand-alone Qur'anic text.

Social characteristics of discourse are reflected at the beginning of the concept map below (*Figure 25*) in ﴿*Say, "Come, I will recite what your Lord has prohibited to you…*). Apparently, what comes forth is expected to be a detailed list of orders or commandments as it actually is.

Interestingly, the Qur'anic way of introducing the topic to be handled through the next part of the Qur'anic text is a well-known Qur'anic style that exists in many *surahs.* Following are some examples of that explicit style where context is easily distinguished from the onset:

> "***They ask you about wine and gambling***. ***Say***, *"In them is great sin and [yet, some] benefit for people. But their sin is greater than their benefit."* ***And they ask you what they should spend. Say***, *"The excess [beyond needs]." Thus Allah makes clear to you the verses [of revelation] that you might give thought.*" (Q. 2:219)

> "***They ask you, [O Muhammad]***, *what has been made lawful for them.* ***Say***, *"Lawful for you are [all] good foods …*" (Q. 5:4)

The Qur'anic discourse – according to the previous examples, is a response to actual cultural and social contexts according to Martin (1982) "*The Qur'an does not "mean" something outside of sociocultural contexts*" where the imperative form of the verb say is repeated in the Qur'anic text more than 300 times (Haleem, 2010). Moreover, Prophet Mohammad (Peace and blessings of Allah be upon him) is reminded throughout the Qur'an that his role is not but a mere "messenger" who conveys the message of Allah. "*You, [O Muhammad], are not but a warner*." (Q. 35:23) and "*Muhammad is not but a messenger. [Other] messengers have passed on before him. So if he was to die or be killed, would you turn back on your heels [to unbelief]? And he who turns back on his heels will never harm Allah at all; but Allah will reward the grateful.*" (Q. 3:144). Remarkably, Prophet Mohammad (Peace be upon him) enjoyed only two roles; delivering the Holy Qur'an and explaining it (Haleem, 2010).

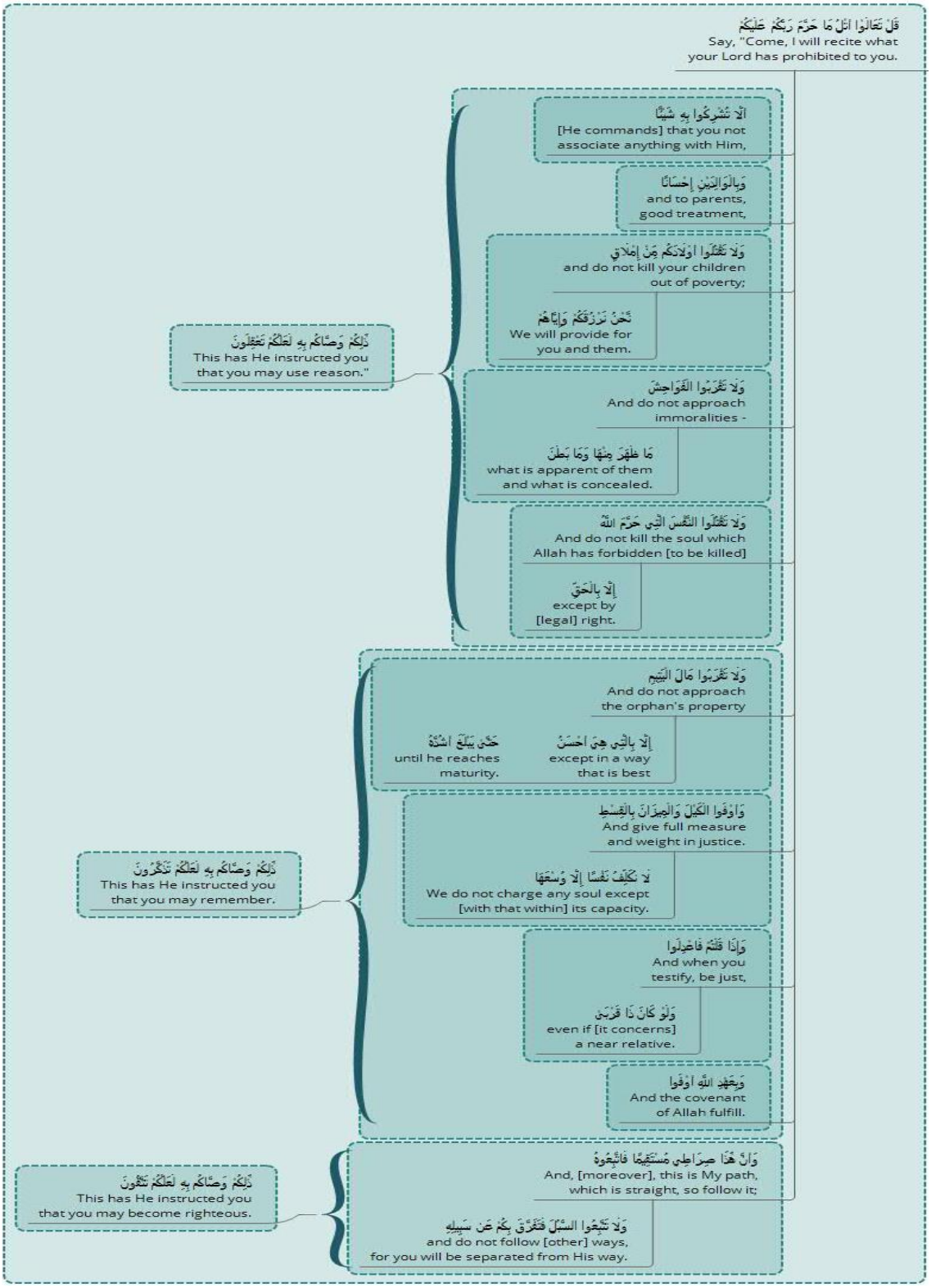

Figure 25 Conceptual Map of Surat AL-An'aam (Q. 6:151-153), Allibaih (2016)

The diversity of the linear shifts and generated nodes usually appear as new creative linguistic discourse-analysis tools to demonstrate the different levels of the Qur'anic concepts and thoughts. Although the topics of the Holy Qur'an look classified in

an obvious transitional manner, but a boundary facility in Xmind software works as a powerful classifying tool capable of assuring specific topical classifications logically.

4.3 Qur'anic Mapping and Semantics

Essentially, the study of meaning in language is referred to as semantics (Bagha, 2011, Griffiths, 2006). Griffiths (2006) sets clear differentiating criteria between semantics and pragmatics as "*Semantics is concerned with the resources* (vocabulary and a system for calculating phrase-, clause- and sentence-meanings) *provided by a language, and pragmatics is concerned with how those resources are put to use in communication*". Furthermore, Sturrock (1986) argues that, the work of semantics as the extraction of meaning out of words is similar to that of semiotics as the extraction of meaning out of signs.

Interestingly, Novak and Cañas (2008) argue that concept maps being considered as graphical tools used for knowledge organization and representation, are sometimes called units of meaning or semantic units. Therefore, the use of mapping techniques in re-presenting and embodying the Qur'anic concepts and meanings is not an arbitrary, accidental, or uncommon empirical use. Rather, the idea that mapping techniques are powerful tools of teaching, learning, as well as research is deeply underpinned by a considerable deal of theory and termed as solely congenial and fitting for evaluation of learning styles (Hay, 2007). The Qur'anic maps fully comply with the main objectives of a learner who focuses on understanding and memorizing the meanings as well as concepts; a target that is easily achieved through the various features they enjoy.

The unintentionally analyses taking place through the Qur'anic maps' crossing, horizontal, and vertical network of lines, nodes, summaries, and boundaries bring together the semantic resources of meaning. Moreover, the bilingual feature that decorates any given piece of map within this study facilitates the semantic work as an extraction of meaning from textual units or toolkit for meaning.

A quick glance at the above chart and the likes will always provoke a description of the specific nature of the horizontal or vertical linear grouping of words or phrases, which they share in a very remarkable way. In fact, the organized items play various central roles within the verse or surah levels no matter what language platform they occur in (Arabic or English). Those roles vary between main or secondary explanatory, descriptive, functional, or grammatical roles. Hence, an examining reader may find

themselves counting harmonious sets of lexically and functionally balanced contrasts, similarities, ideas, explanations, etc. An example for that is the chart mentioned below of *Surat Ad-Dhuha*, (*Figure 26*) where:

Two God's oaths by two contrasting creatures are smoothly joint in one context:

By the morning brightness and by the night when it covers with darkness,

Three good tidings following the oaths:

Your Lord has not taken leave of you [O Muhammad], nor has He detested [you].

And the Hereafter is better for you than the first [life].

And your Lord is going to give you, and you will be satisfied.

Three favors following the good tidings:

Did He not find you an orphan and give [you] refuge?

And He found you lost and guided [you],

And He found you poor and made [you] self-sufficient.

Three pieces of advice:

So as for the orphan, do not oppress [him].

And as for the petitioner, do not repel [him].

But as for the favor of your Lord, report [it].

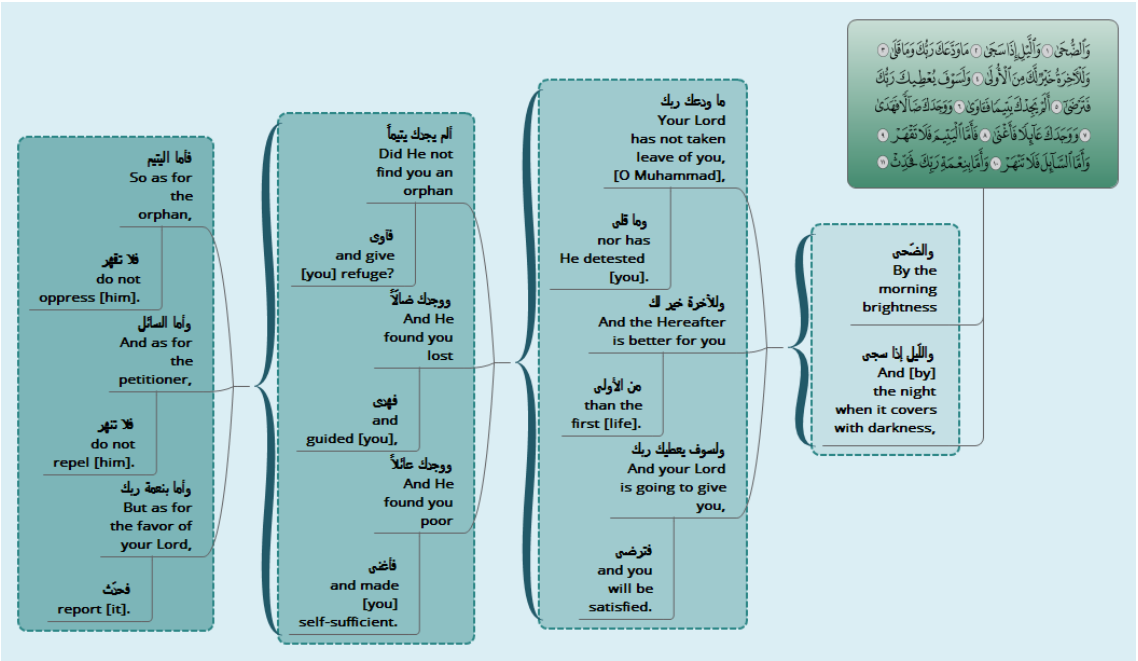

Figure 26 Conceptual Map of Surat Ad-Dhuha (Q. 93:1-11), Allibaih (2016)

The issue of Qur'anic coherence has been the field of rich debates and study for many Muslim and non-Muslim scholars (Setyarahajoe and Shakarami, 2012). Although the theme, topic, or gist of a given Qur'anic text can outline its semantic structure, according to text linguistics (Abdul-Raof, 2003), the exegetic thoughts are responsible for detecting and highlighting the coherence, relatedness, consonance, and texture of the Qur'anic text.

4.4 Qur'anic Mapping and Semiotics

Semiotics the branch of linguistics that began to turn out to be a principal method to cultural studies in the 2nd part of 1960s (Chandler, 1994). It is the science of sign systems that includes linguistics and the general principles that lie beneath systems of sign (Andersen, 1990, Saeed, 2016). Furthermore, it has been similarly argued by John Sturrock that semiotics extracts meanings out of signs the same way semantics does with meanings out of words (Sturrock, 1986).

Thus, symbolic modes are a repeated tendency in many cultures and can co-occur with other ways of textual production or interpretation (Eco, 1984). Based on that assumption, mapping of the Qur'anic text is still within the boundaries of the said argument if considered as a collection of sign systems capable of conveying meanings possible to be extracted through semiotic tools the same way semantics does when it comes to extracting textual meanings. Moreover, Qur'anic concept and mind maps contain a complicated system of both bilingual textual format and a network of indicative signs and moves, the thing that puts those maps under the direct semiotic and semantic focusses.

The concept map below (Figure 27) outlines three main commands revealed from God; the first is specifically sent to the beleiving men through Allah's Messenger "*Tell the believing men …",*while the second is sepecifically sent to the beleiving women through Allah's Messenger: "*And tell the believing women* …", whereas the third addresses all believers (men and women): "*And turn to Allah in repentance, all of you, O believers*, …".

The first of the three commands involves two equal sub-commands ordering men to cast down their beholdings and preserve their private parts as folows:

Tell the believing men to reduce [some] of their vision
and guard their private parts.

The second command mentions six equal sub-commands related to women on how to behave regarding their adornment as follows:

to reduce [some] of their vision
and guard their private parts
and not expose their adornment except that which [necessarily] appears thereof
and to wrap [a portion of] their headcovers over their chests
and not expose their adornment except to (their husbands and specific twelve of their kinship relatives)
and let them not stamp their feet to make known what they conceal of their adornment.

The degree of exposure of a woman's adornment is determined here by the degree of relationship each relative individual has. The chart below remarkably defines this relationship and makes the text clearer with a simple classification of the relationship and the degree of closeness. The thing that is not made clear by the translation of *Sahih International,* which puts all relatives in the same class of a woman's husband based on the right of being exposed to her adornment. The role of translation here is expected to highlight the functional difference between these categories of a woman's relatives based on the nature of their degree of relationship to her.

Additionally, the chart tells in brief that a woman's husband has the full right in being exposed to their wife's adornment with no limitations, the thing that is not possible to be guessed unless an appropriate explanation of text is there. Moreover, more eleven relationship categories share exactly equal limited exposure to the same women's adornment. Those categories which appear in a clear vertical linear setting, are: their fathers, their husbands' fathers, their sons, their husbands' sons, their brothers, their brothers' sons, their sisters' sons, their women, that which their right hands possess, those male attendants having no physical desire, and children who are not yet aware of the private aspects of women.

It is obvious that every and each move of the network of lines, nodes, boundaries, and sumarization tools and highlights plays some sort of crucial meaningful linguistic role withing the given Qur'anic text. Moreover, the value added features of the semiotic use of symbles here, unveil hidden meanings and make silent language elements speak in an apparent manner. Furthermoer, lists of things are made clearer and countable,

categories of ideas appeared in an interfering way, and summarizations of ideas were logically interrelated to their introductory thoughts.

It is more important here to mention that a wel-designed subtopic classification mechanism has unintentially taken place in each piece of Qur'anic map thanks to the application of the available semiotic tools. Therefore, the Qur'anic reader when scanning a Qur'anic map, they firstly remark an easy-to-follow system of coherence that depends on logic and function, i.e. orders that suite men are set together for men and those suite women are set together for women.

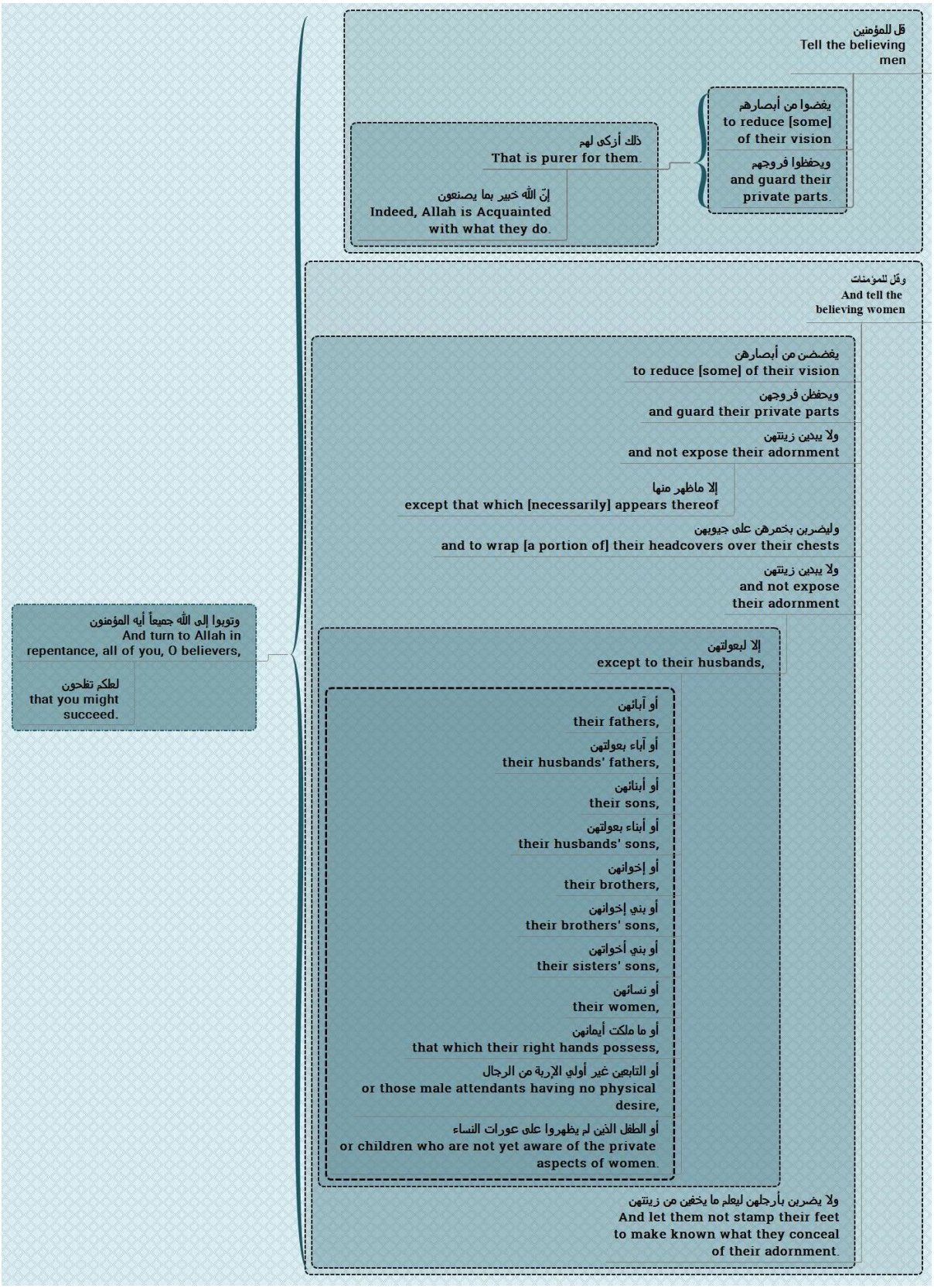

Figure 27 Conceptual Map of Ayat AL-hijab, Surat An-Noor (Q24:30-31), Allibaih (2016)

4.5 Qur'anic Mapping and Computational Linguistics

Natural language processing (NLP) that covers any technical attempt to use computer in manipulating natural language (Bird et al., 2009). Natural language processing, or computational linguistics is an area of both application and research that investigates the ways computers can be used to carry out useful things through understanding and manipulating speech or texts of natural language nature (Chowdhury, 2003). Although efforts of creating meaning and knowledge predated the appearance of computer itself, they have succeeded only in providing numerous propositions for formalizing meaning (Barnbrook et al., 2005). Moreover, computer, that is considered as a general-purpose machine capable of handling all tasks in information processing of which systems are of may practical advantages (Hausser, 1999), did not live up to the expectations of understanding meaning. instead, computer scientists came to readdress the meaning representation issue inventing the artificial intelligence subdomain (Barnbrook et al., 2005). Furthermore, the main task of computational linguistics as intimately linked with linguistics and applied linguistics, is to construct computer programs for processing natural language components (Bolshakov and Gelbukh, 2004). Therefore, computational linguistics may be translated accordingly as the intelligent machinery processing of the human natural language (Safeena and Kammani, 2013).

Accordingly, the Holy Qur'an and its related sciences were under the focus of information technology researchers aiming at pushing forward the efforts being done to enhance its interpretation, memorization, and translation of its meanings (Basuhail, 2013). Additionally, those efforts have remarkably contributed a lot to the Qur'anic technological sciences; although the output was considerably huge, but the said attempts lacked quality and were not at the efficacy required for the Holy Qur'an (Al-Mosallam, 2013).

The Holy Qur'an is the source of huge collections of analyses, interpretations (Safeena and Kammani, 2013), statistics, sciences, and thoughts where technology, research, education, and artificial intelligence found a soft landing for their applications. Therefore, applications competed to acquire certain distinguished features aiming at facilitating the hard Qur'anic processes (Al-Mosallam, 2013). Furthermore, for Rashwan et al. (2016) computational applications took over some of the Qur'anic tasks such as editing, revision of electronic versions, and verification which have been handled manually by committees.

Besides the designing and outlining of mere concepts and thoughts through the linear network of a given concept or mind map, a new essential role for the map designer has remarkably emerged taking a vital rank in the hierarchical structure of the exegetic process. That role is responsible for the unity, coherence, and clarification of the explanatory and translational thoughts through smooth and complicated movements and shifts of simple signs and facilities in the map structure.

The map designing process seems to involve semiotics – the study of signs – and semiology – the meaning-making study - when it comes to configure the many shifts, signs, and moves and their explanatory role in the given map. Ultimately, that gives the map a three-dimensional explanation, considering that those designing features such as moves, signs, highlights, and meaningful coloration, serve as semiotic tools helpful in facilitating the task of the readers, memorizers, and exegetes of the Holy Qur'an. Consequently, the output maps are expected to empower the Qur'anic readers to navigate, connect, and criticize knowledge in a well-designed and logical way.

When conceptual and mind maps in this study are described as very advanced tools of linguistic and exegetic investigation, their very technical nature usually comes up with unexpected source of invaluable linguistic readings within a given Qur'anic text. In that arena, they encompass conceptual chaining within *aya* or *surah* levels, clear and easy-to-absorb exegetic and topical classifications, meditation and visualization of new topical relationships, and apparent and organized patterns of mnemonics.

Various patterns of conceptual chaining were detected unintentionally within *aya* or *surah* levels. One remarkable pattern is the listing pattern that works as a means of listing and classifying some related topical concepts per their linguistic interrelatedness. A vivid example of those patterns is clearly reflected through the following concept map where each word or group of words at the top of a given boundary represents a key start of a standalone concept but related conceptually to the other conceptual and textual boundaries within the specific *aya* or *surah,* (Figure 28).

The first boundary starting with the node "*Alif, Lam, Meem"*; works as the main topic of the whole map, whereas the emerging node "*This is the book"*; a whole new concept describing the Holy book of Qur'an. Next descending boundary starting with "*a guidance for those conscious of Allah –"*; describes, in four other nodes (details), the sort of people who may be guided by the Holy Qur'an. Finally, the last boundary starting with

"*and who <u>believe</u>"*; details the quality of faith that the people who are conscious of Allah usually have.

The sort of conceptual relatedness or chaining drawn by the linguistically and conceptually interconnected boundaries reflects the strong textual unity of the given Qur'anic text. This sort of unity is obviously distinguished when all the previously mentioned nodes are summarized by the two concluding nodes: "*<u>Those</u> are upon [right] guidance from <u>their</u> Lord*," and "*and it is <u>those</u> who are the successful."* In a visual, linguistic, and exegetic harmony.

Modeling of lexical or conceptual cohesion in similar Qur'anic texts that share relatedness from a particular exegetic and logical point of view is subject to encompassing other essential factors. Those factors must include the relationships between the entities participating in the given piece of texture (Loukachevitch, 2009).

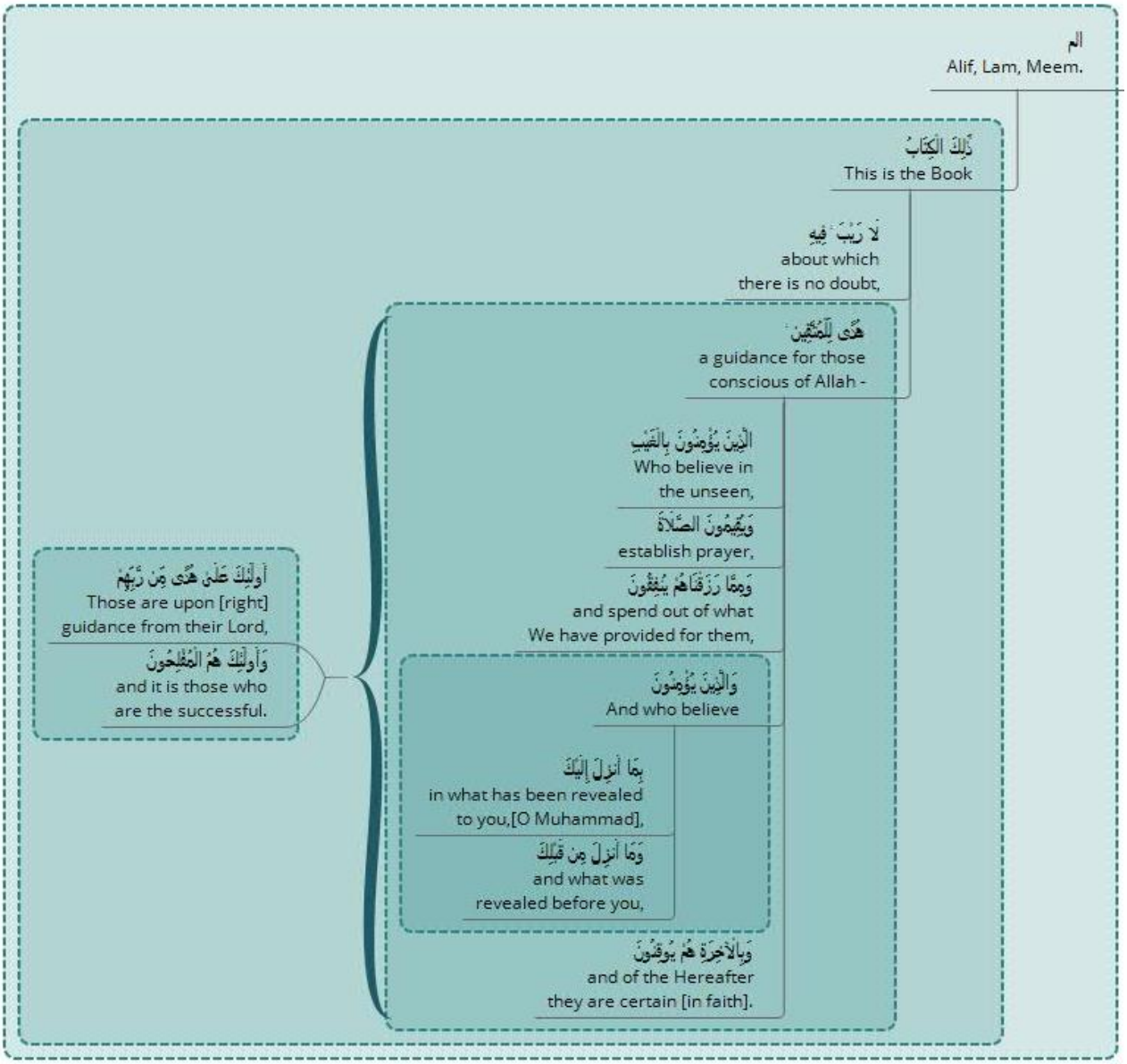

Figure 28 Conceptual Map of Surat AL-Baqarah (Q. 2:1-5), Allibaih (2016)

4.6 The Holy Qur'an and Psycholinguistics

Psycholinguistics is the study of the neurobiological and psychological features that enable individuals to acquire, use, and understand language (Steinberg and Sciarini, 2013). It is also the interdisciplinary field of study that links between psychology and linguistics by studying the mental processes and knowledge types that the understanding and producing of language involves (De Groot, 2011). Moreover, it is the area of overlap between psychology (which studies human behavior) and linguistics (which studies language) to explore the ways language is learned and used (Smith, 2012).

The study of meaning from psycholinguistic viewpoints began to attract significant interest (Von Heusinger et al., 2012). In fact, the Qur'anic discourse provides

a strong relationship between three main concepts; thoughts, culture, and language which interlock to fascinate the Qur'anic reader in an unprecedented way. That three-dimensional inter-relationship is considered by (Steinberg and Sciarini, 2013) as central to psycholinguistics.

Likewise, Welch (1979), as cited in (Martin, 1982), divides Qur'anic studies into three areas; the study of the Qur'anic text, the Qur'anic roles in Muslims' life and thought, and the history of the Qur'anic interpretation (*Tafsir*). Based on that, the Qur'anic maps depend mainly on a built-in textual, exegetic, and cultural system reflected visually through a rigorous method of psycholinguistic analysis. A deep psycholinguistic representation and functioning of the Qur'anic language in mind is explored through the use of two-dimension graphical concept and mind mapping techniques.

From a psycholinguistic point of view, readers (the Qur'anic readers as an example), like any other type of readers, depend on context to anticipate and retrieve the upcoming word prior to processing the input of perception (Traxler and Gernsbacher, 2011). Traxler and Gernsbacher went on stating that, readers, according to substantial evidences from research, are sensitive to the information provided by the contextual aspects. In fact, the Qur'anic readers follow the same mechanism during their various reading purposes. For instance, when memorizing, context of the given piece of the Qur'an imposes a careful selection of meaning and priming based on the exegetic and logical pre-knowledge of the reader.

Based on the said argument, the Qur'anic mapping technique build a new visual strategy for eye movement and sensitivity towards anticipating unambiguity within a given piece of Qur'anic text. For instance, some Qur'anic texts may be dominated by parallelism and repetition which direct the Qur'anic reader's way of thinking and anticipating of next film of words, phrases, or even sentences. In other words, sentences and utterances might be regarded as cohesively sharing the same parallel grammatical features. Yet, such unique grammatical and syntactic features through the arrangement as well as the structure of the items of a given text are well known to exist in the Qur'anic styles according to the following Qur'anic conceptual map of *Surat Al-Ahzab* (Q. 33:35) (*Figure 29*).

The reason for revelation of this *ayah* promotes the sense of the Qur'anic reader who has been given all the required clues to reach the superlative anticipation. In fact, Al-Mubarakpuri (2003d) cited the following *Hadith* as recorded by Imam Ahmad that

> *Umm Salamah, may Allah be pleased with her, the wife of the Prophet (Peace and Blessings of Allah be upon Him) said, "I said to the Prophet (Peace and Blessings of Allah be upon Him), 'Why is it that we are not mentioned in the Qur'an as men are?' Then one day without my realizing it, he was calling from the Minbar and I was combing my hair, so I tied my hair back then I went out to my chamber in my house, and I started listening out, and he was saying from the Minbar:*
>
> "يا أيها الناس إن الله تعالى يقول: ﴿إِنَّ الْمُسْلِمِينَ وَالْمُسْلِمَاتِ وَالْمُؤْمِنِينَ وَالْمُؤْمِنَاتِ﴾"
>
> *"O people! Verily Allah says: ﴿Indeed, the Muslim men and Muslim women, the believing men and believing women, …﴾*
>
> *to the end of the ayah."*[5]*. This Hadith was also recorded by An-Nasi and Ibn Jarir*[6]*(Al-Mubarakpuri, 2003d).*

The role of context, syntax, and grammar here is inevitable. All of these features take part in forming an easy to follow Qur'anic pattern based on a story of revelation and a response to the social and cultural inquiries of the believing men and women around the Prophet (Peace and Blessings of Allah be upon Him). Furthermore, Umm Salamah's inquiry was about equality in mentioning and addressing women the same way men are mentioned in the Qur'an. It is expected here that the Qur'anic response would be some kind of appeasement to women regarding gender. Therefore, a list of ten couples of exactly equal syntactic, semantic, and grammatical aspects offers a highly coherent series of descriptive adjectives for both men and women Muslims. Likewise, context influences on the process of word recognition here indicates various linguistic features for all of the ten pairs of letter strings presented here in the Qur'anic map (*Figure 29*). These strings are interestingly orthographically, semantically, and phonologically related, for example (***المسلمين - المسلمات***), (***المؤمنين - المؤمنات***), (***القانتين - القانتات***), (***المؤمنين - المؤمنات***), and (***الصادقين - الصادقات***). Strikingly, an evidence regarding the principles of the word recognition system

[5] Ahmad 6 :305.

[6] An-Nasai in Al-Kubra 6 :431, At-Tabari 20 :270.

can easily be obtained from the said types of relationships between the above-mentioned list of primes and targets according to (Traxler and Gernsbacher, 2011).

Figure 29 Conceptual Map of Surat Al-Ahzab (Q. 33:35), Allibaih (2016)

4.7 Qur'anic Mapping and Pragmatics

Pragmatics, the field of linguistics, was first initiated by Morris, Carnap, and Peirce in the 1930s. They classified pragmatics as the branch of linguistics that addresses "*the relation of signs to their users*", semantics addresses "*the relation of signs to what they denote*", and syntax addresses "*the formal relations of signs to one another*" (Horn and Ward, 2008).

The way pragmatics is defined as the study of linguistic phenomena considering their usage processes and properties, or in more simple words as the study of language use, does not differentiate between it and the other branches of linguistics such as conversation analysis, discourse analysis, or psycholinguistics (Verschueren, 1999). Additionally, when defining pragmatics as meaning in context or meaning in use, the definition makes it quite general and involving the 1980s type of semantics (Thomas,

2014). It is also defined by Liddy (2001) as the component of natural language processing that is used for understanding both purpose and context of a given utterance. It deals with studying meaning as transferred in both spoken or written forms, and the way it is interpreted by the reader or listener (Yule, 1996). Strikingly, none of these definitions has excluded the interpretation of both levels of meaning - abstract meaning and contextual meaning - as a common task, the thing that makes pragmatics serve many issues in the Qur'anic mapping idea that depends mainly on the idea of interpretation of the meanings of the Holy Qur'an.

The area of distinction between semantics and pragmatics is still very narrow considering that both linguistic approaches deal with meaning in general (Griffiths, 2006). Specifically, semantics is concerned with meanings of linguistic minimal resources such as vocabulary, phrase, clause, and sentence, whereas pragmatics is concerned with the way those resources function in communication (Griffiths, 2006). Griffiths concludes that "*semantics and pragmatics are essential components that work together in a full description of meaning*". Perhaps, Yule (1996) made the distinction between semantics and pragmatics clearer through the following comparison of definitions:

"***Semantics*** *is the study of the relationships between linguistic forms and* ***entities in the world***."
"***Pragmatics*** *is the study of the relationships between linguistic forms and* ***the users of those forms***"

Yule concludes that humans – linguistic form producers - are only allowed into the analysis by pragmatics, although those human specific concepts and values are hard to analyze. For instance, talking about interlocutors' intended meanings, goals, purposes, actions, and assumptions that they usually make during speech – or any other language form is only allowed within the pragmatic platform and perception.

The American Speech-Language-Hearing Association (ASHA) (2017) argue that, pragmatics comprises a set of major communication skills one of which is the use of language for various purposes e.g., requesting, informing, promising, etc. It also encompasses changing language per the needs or situations of an audience or listener such as providing unfamiliar listeners with background information or addressing audiences differently according to their social or age categories (Cruz, 2015). Finally, pragmatics is found to follow rules of storytelling and conversations such as introducing topics, taking turns, staying in topic, and rephrasing.

Pragmatic uses in the Qur'anic discourse may stand in need of the sort of clarification of visual coherent the mapping techniques provide, for many previous studies highlighted the need to contribute to the re-presentation of the Qur'anic text (Al-Mosallam, 2013). For instance, storytelling and the examples of social language are subject to pragmatic rules applicable to any other form of discourse.

Furthermore, storytelling is found to follow pragmatic rules such as introducing the conversation topics, taking turns in conversation, and what is more remarkable in the Holy Qur'an is that it stays on topic all through the story it tells. What is so called conceptual chaining or *Munasabah* in the Holy Qur'an proves the rephrasing or repetition of the same concepts differently in other parts of the Qur'anic text.

4.7.1 Computational Pragmatics

Computational pragmatics, according to Fromkin and Rodman (2003), is the interaction between reality and language systems that many of which have contextual and world-knowledge base. It is the study of the ways through which contextual information can effectively be utilized to communicate language production and understanding processes (Bunt, 2000). Bunt and Black (2000) state that computational pragmatics is a new subfield of computational linguistics that is concerned with inference, just like pragmatics in general. They also argue that it investigates the relations between aspects of context and linguistic phenomena, and studies linguistic phenomena with an eye on their textual explanation. Furthermore, it pays more attention to preforming these tasks with regard to effective computability and the representation and analysis of the resulting information of these relationships.

In view of this, Jurafsky (2004) introduces a wider definition for computational pragmatics as the branch of linguistics that studies the relationship between utterances and context. He goes further to explain this relationship between utterances and context in more details as "*indexicality*" that means the relationship between utterances and discourse, action, place, environmental context, and time of their being uttered. Interestingly, the way indexicality is interpreted here is similar to the way the Qur'anic discourse is analyzed; all surrounding aspects such as environmental, time related factors, stories of revelation, contextual factors, people, places, etc. are found to be involved. For Bunt and Black (2000), computational pragmatics is concerned with the utterance-context

relationships which are the concern of applied linguistics and sociolinguistics but from an explicitly viewpoint.

Taking into account the pre-mentioned definitions of (Bunt, 2000, Fromkin and Rodman, 2003, Bunt and Black, 2000, Jurafsky, 2004) of the computational pragmatics, the Qur'anic mapping technique provides an all-in-all linguistic processes that deal with the Qur'anic discourse in the following way:

1. The Qur'anic maps have been built on contextual, interpretation, and exegetic basis. They take into account the topical classification of the Qur'anic text according to the well-known exegetic reference Ibn Kathir (2003). Most importantly, they consider the effective use of this contextual information in communicating the Qur'anic conceptions and their understanding processes.

2. The Qur'anic maps were manually designed to clearly reflect the unseen relationships between aspects of context and the Qur'anic linguistic phenomena. They indirectly study these linguistic phenomena while considering textual interpretation.

3. The relationships between the Qur'anic aspects of context and its linguistic phenomena are paid considerable attention in the processing of the Qur'anic maps. Furthermore, the prefect designing of these maps and the representation and analysis of the resulting information are of a high importance in the final map product. That importance reaches the extent that the normal Qur'anic reader will find it easy to distinguish and work out various conceptual and linguistic challenges which were previously of a shackling nature. For example, memorization of the Holy Qur'an which was a chronological problem for the Qur'anic learners according to Al-Mosallam (2013).

4.8 The Holy Qur'an and Metalinguistics:

Ellis (2005) states that linguistic, cognitive, and functional theories of language argue that language has its own basic units of representation as constructions. These constructions take the structure of form-function mappings that are given artistic forms and conventions to create effects in the speech community and fixed firmly as knowledge of language in the learner’s mind. Moreover, these constructions have a symbolic nature which means that they name the defining characteristics or attributes of lexical, syntactic,

and morphological form as well as the pragmatic, semantic, and discourse functions accompanying it (Ellis, 2005).

It is of the utmost priority here to mention that if the text to be learned, read, comprehended, memorized is presented or represented in a mapping form, a two-way process will occur. The first part of it is the learner's ability to explain language, its linguistic features as structures and phonemes. That sort of language learning and perception is called by Ellis (2005) the explicit language learning that takes place during the learner's conscious efforts to work out meaning and construct communication.

The second part of the process is that these organizational structures will match the tacit form-function mapping within the learner's mind based on Ellis (2005) argument that "*Related exemplars thus work together in implicit memory, their likenesses harmonizing into an attractor state, and it is by these means that linguistic prototypes and categories emerge*". They will then work together as related examples in implicit memory, their likelihoods matching into an attractor state allowing the linguistic categories and prototypes to arise. Ultimately, implicit language learning happens during fluent comprehension and production (Ellis, 2005). In other words, tacit knowledge is then operationalized through the utilization of these linguistic features in written as well as oral forms of language (Alipour, 2014).

The term metalinguistic knowledge or metalinguistic awareness translates to the learner's conscious ability to cogitate about language and its nature using an overview that language surpasses the fact of being mere symbols and language to the possibility of going beyond meaning. In addition to the learner being aware of that words are quite separated from their referents, which means that the meaning is always kept in the language user's mind. The third capacity that the learner should attain is their awareness that language is a rule-based system (Ter Kuile et al., 2011) with a flexible structure that can easily be manipulated which means that users are able to write or say things in many different ways (Roehr, 2008). Ultimately, Ter Kuile et al. (2011) point out that the last stage of a learner's language development is his/her acquisition of metalinguistic awareness.

Based on all previous argument regarding metalinguistics, metalinguistic awareness, and metalinguistic knowledge, presenting the Qur'anic text in a mapping format falls within the scope of providing the learners with the opportunity to utilize all

their available linguistic capacities and previous experiences in exploring the linguistic realm of the Holy Qur'an. Strikingly, the Qur'anic maps approved their ability to maintain the following concepts in full:

1. That language is a rule-based system that has flexible structures capable of being manipulated in numerous various formats. For instance, the horizontal and vertical presentation of the Qur'anic text in the Qur'anic maps is an unprecedented structural format that allows the Qur'anic reader to explore it in a different objective view. Although the Qur'anic text in the Qur'anic maps has not been reworded or rephrased, but a representation mechanism has been applied to that text according to the structural characteristics of the maps (*Figure 30*). In fact, the rewriting process has excluded the uses of pause techniques although in many occasions those pauses might be found applicable to the current output texture of the Qur'anic text unintentionally.
2. That the Qur'anic words and their referents preserve the fact that they are separate and that meaning is kept in the Qur'anic reader's mind, based on his/her exegetic and interpretive backgrounds and experiences even if they [Qur'anic words] obviously mean something different. Remarkably, the Qur'anic mapping concept is based on agreed upon exegetic and interpretational methodology that the normal Qur'anic reader finds themselves in need of deep meditation and thinking in order to get in line with them and their proper explanations. Interestingly, using language above the surface structures, in an intangible way, and cogitating about it, whilst making use of it in our observations and understanding, is what Roehr (2008) calls metalinguistic ability.
3. And that language can go beyond being mere symbols of language and beyond the meaning of these aspects. In fact, in the Qur'anic maps, language structures can work as mnemonic guidelines for Qur'anic memorizers, discourse analysis objects, and boundaries of topical classification (*Figure 30*). Apparently, the repetition of the Arabic word (إِذَا) which means (when), for 12 times along with its vertical lining organization in the Qur'anic map offer an easy way to memorize them and represent a logical boundary for the conditional topical classification.

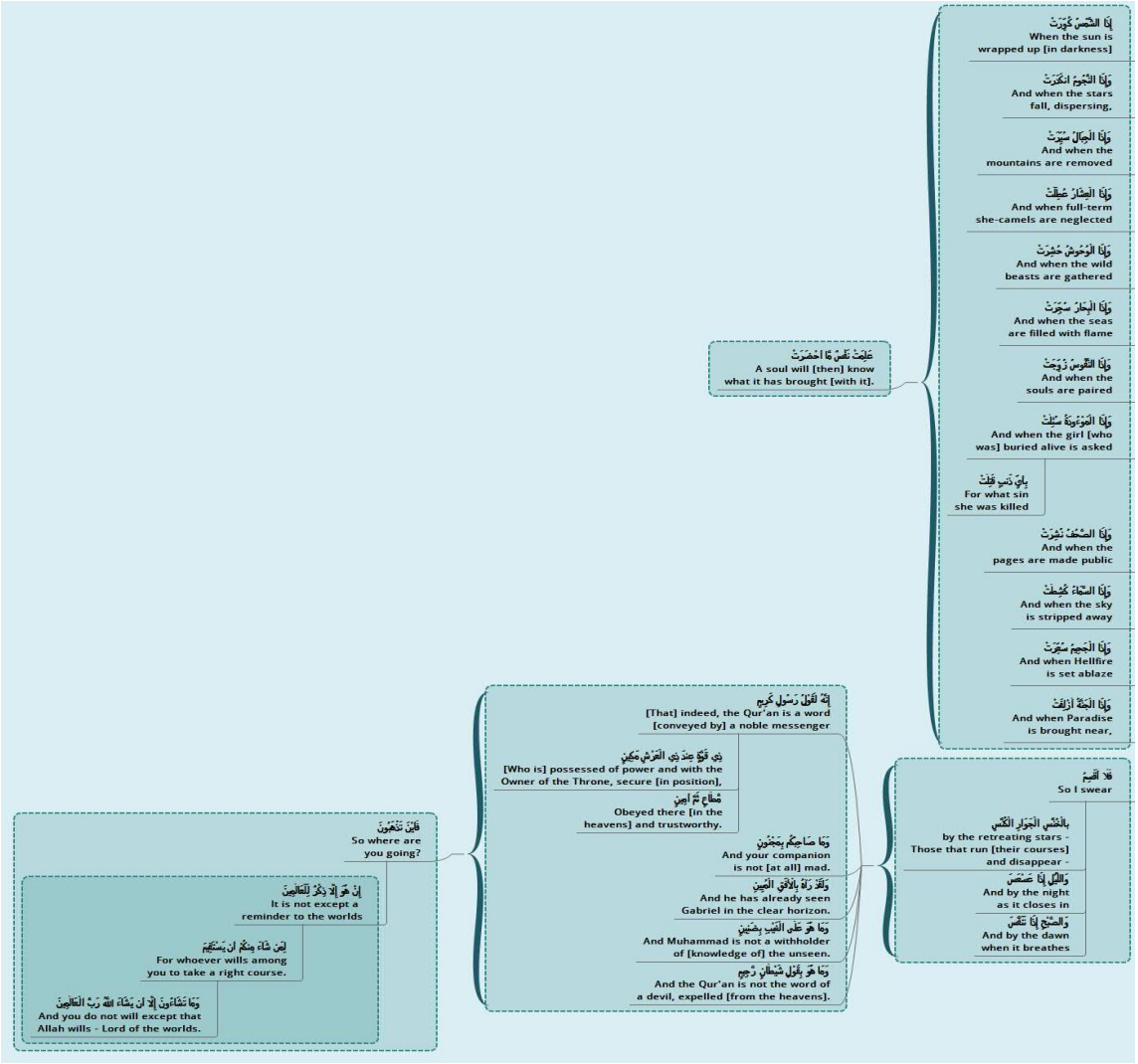

Figure 30 Conceptual Map of Surat At-Takwir (Q. 81), Allibaih (2016)

Learner's linguistic knowledge is defined as his/her implicit or tacit knowledge about language (Alipour, 2014), while metalinguistic knowledge is defined in many ways based on numerous studies that have reached an agreement, to some extent, upon an acceptable definition for it. For instance, Bialystok (1988) states that a learner's metalinguistic knowledge is his/her explicit knowledge about language. In the light of that, knowledge, according to Ellis (2008) is divided into two types: implicit and explicit. Ultimately, the two types of knowledge (explicit and implicit) according to the **noninterface, strong interface,** and **weak interface positions**, share an interchangeable relationship, that is explicit knowledge can be transformed into implicit knowledge and vice versa by dint of practice, but with varying degrees based on interface position (Ellis, 2009).

Designing of the Qur'anic concept maps involves numerous linguistic operations controlled by the map designer. In fact, the process of topical classification requires an

outstanding bilingual [L1 and L2] metalinguistic knowledge and awareness. That is in addition to considerable conceptual understanding of the summarizing pieces of language which the Qur'anic specific discourse preserves as an ensign that characterizes it from other sorts of discourse. Furthermore, the Qur'anic limits of translatability that include word order, literal translation problems, style, problems of semantic and syntactic ambiguity, different exegetical analyses, and the semantic functions of the conjunctives, etc. (Abdul-Raof, 2013). Strikingly, the map designing work is a pure production of a cognitive process that – according to Bialystok (1988), "*involves the operation of control*". In her sense, Bialystok describes control as a process of presenting special attention and ability when monitoring and regulating the processing of information or the solving of the metalinguistic problems.

The best thing for the Qur'anic readers is that metalinguistic research agrees – to some extent – upon an asymmetric relationship between linguistic comprehension and linguistic production because comprehension seems to be easier than production (Alipour, 2014). Interestingly, most of the metalinguistic processes required for reading, reciting, interpreting, and memorizing the Holy Qur'an from the Qur'anic maps are of a comprehensive nature. On the contrary, the rest of the metalinguistic processes of the Qur'anic text such as the designing of the concept and mind maps and the correspondence of the Arabic text with its equivalent meaning from the English translation are of a productive nature. Remarkably, the task of the map designer here is some kind of metalinguistic awareness in Bialystok's sense as the faculty to "*attend to and reflect upon the properties of language*" (Bialystok, 1988). equally, metalinguistic awareness is the knowingness of "*the underlying linguistic nature of language use*". In other words, it is the knowingness of the linguistic features that enables language learners to check linguistic structure and form of meaning of utterances and the ability to produce utterances (Malakoff and Hakuta, 1991).

Metalinguistic knowledge is something that can be measured and assessed. That is to say, there are some ways to assess the metalinguistic awareness or knowledge based on the various language awareness aspects. For example, it is frequently assessed through syntactical awareness tasks which require the learner to point out the linguistic features and the linguistic nature of the given piece of language (Bialystok, 1988). Furthermore, Chomsky (1975) argues that a learner's grammatical awareness interacts with his/her person matures that consist of various sorts of cognitive structures to provide language

use. Chomsky believes that language use and structure influence each another and that there are significant relationships between them.

Based on this conception, the Qur'anic map readers will always find themselves in front of a Qur'anic text that is bejeweled with linguistic challenges and presented in a visual format. Their task then is to consider each and every linguistic phenomenon from a syntactical point of view, reflect on it, and name the nature of its message. Moreover, their grammatical faculty continues to be tested throughout the given Qur'anic text based on its highly grammatical nature that often calls for the learner's whole grammatical and linguistic capacity. So, careful attention should always be paid to the Qur'anic mapping and its structural texture that consists of new vertical and horizontal networks of inevitable semiotic connotations.

Metalinguistics, being defined as the branch of linguistics that studies language and its relationship to other cultural behaviors (Rocher, 1972), is found to share the same concepts of the Qur'anic exegetic movement, putting in mind that exegesis itself is considered as an interpretational reading of the social and cultural behaviors at the time, place, and context done by linguists, exegetes, translators, and stylists. It is then a reflection of daily-life incidents according to which the portions of revelation were sent down during a period of 23 years. Ultimately, it is worth reporting here that the utterance or revelation-context relationship seems to involve a range of the linguistic subfields such as applied linguistics, and sociolinguistics, semantics, and pragmatics.

Rocher (1972) calls for an agreement on a given subject's terminology, based on the fact that anthropologists and sociologists have the reputation of using terms in an interchangeable way or of not agreeing on terms. For Rocher, the need to what Jakobson (1980) calls "*metalinguistic function of language*" appears as crucial when a sender and/or a receiver of a piece of language are faced by their need to verify that the code they are using is the same even if that piece of language is complicated enough to involve polysemy and ambiguity (Rocher, 1972). That special function is the key of the Qur'anic interpretation process when the interpreter's message is correctly conveyed to a receiver. The work of the Qur'anic mapping is to re-present to Qur'anic message in a clearly comprehensible visual platform. That sort of clarity brings about the main concept of metalinguistics.

Metalinguistic awareness brings about the selective qualities of the Qur'anic map designer in the sense that it translates to “the ability to attend to, and reflect upon, the properties of a language” (Davidson and Raschke, 2009). similarly, Yelland et al. (1993) argue that metalinguistic awareness is referred to as the qualities that reflect the learner’s aptitude to focus on progressively more complex structural aspects of language. For instance, the complex semantic, syntactic, or pragmatic structures that seem confusing for other learners.

It was early pointed out by Abdullah Yousuf Ali that, there could be no complete or faultless rendition of the meanings of the Holy Qur'an, but only an interpretation of the understood meaning can be obtainable at best (Ali, 2004). Likewise, none of the translators of the Holy Qur'an, Muslims or non-Muslims, has claimed that their translation is considered standard or equivalent of the Holy Qur'an thanks to “the unique linguistic nature of the Qur'anic discourse” (Abdul-Raof, 2013) and that “the unique genre of the Qur'an challenges mankind” (Al-Azab and Al-Misned, 2012). Patently, Muslim scholars proclaim that translations of the Holy Qur'an are biased toward translators’ personal views, the reason they should not be absolutely reliable (Khalaf and Yusoff, 1931) and mere efforts to approximate the Qur'anic meaning (Al-Azab and Al-Misned, 2012).

4.9 Conceptual and spiritual chaining in the Holy Qur'an

Abdul-Raof (2003) argues that chaining which is considered as a linguistic mechanism, deals with text construction, textuality, and semantic relation network. And that whatever was the length of a given text, chaining cares for the practical examination of its constructing elements or units providing a comprehensive textual analysis covering all language units from morpheme through paragraph levels. Strikingly, Setyarahajoe and Shakarami (2012) state that analysis of the Qur'anic organic unity, textual relations, or *Munasabah*, is always regarded as the *Tafsir*-Linguistics intersection.

It is of the utmost importance here that an in-depth investigation of the textual units of the Holy Qur'an proves the existence of some type of conceptual chaining, *Munasabah*, or organic unity in all language morphology levels of the Qur'anic discourse. This is obviously realized when considering that textual progression and processing are also the core concern of chaining. Nevertheless, a great deal of Muslim literature believe that the Holy Qur'anic scripture does have unity. Albeit, in some cases consecutive verses may appear as irrelative to the same conceptual unity, but a strong spiritual unity can

easily be outlined within that verse sequence (Setyarahajoe and Shakarami, 2012). equally, for Abdul-Raof (2003), the conclusion of the Qur'anic message – as a textual environment, is always so predictably distinguished involving topics such as divinity, monotheism, lordship, and legal rulings of the Islam. Ultimately, Qur'anic chaining which appears as of an intertextual and conceptual nature, promotes the text accessibility to the reader being marked as highly informative and free of redundant repetition.

4.10 How linguistic features appear in the Qur'anic maps

The Qur'anic maps introduced here in this study reflect a large set of linguistic features which are apparent to the Qur'anic learners at their first glance. Initially, learners will be faced with logical ends of meaningful textual segments capable of turning their attention to logical turns in an unprecedented way. These turns are built on conceptual bases logical enough to continue taking readers in a special experience of visual clarification of stand-alone interpretive cutouts that work in a collaborative manner with other similar units in a larger conceptual view. Relatively, for Ausubel (2012), it is not necessary for learners to acquire and retain knowledge in formal contexts in academic settings where learners and educators interact in a stereotypical way habitually for this purpose. Instead, he states that when the learning process is meaningful, the ideational outcome of it will be a semantic memory, that tends to be long-term, with the emergence of new meanings.

Consequently, the study of text relations enjoys two key approaches in the field of linguistic studies; Relevance Theory and Coherence Theory. These two approaches are pragmatic in nature and consider the non-linguistic factors responsible for governing our understanding of the meaning rather than explaining text based on its mere linguistic form (El-Awa, 2006). El-Awa went on explaining that the approach to the study of coherence relations will care mainly for the formal relations that connect the parts of a text in addition to the important elements to its textuality. The coherence approach searches for cohesive ties and the way they are employed in a text that approximately determine its meaning. In this direction, the current concept maps work on reflecting both text units and the cohesive ties and go on to make clearer the relevance relations. In fact, the Qur'anic maps bring theory into practice regarding the considerations of cohesive ties and relevance ties and re-present them in a multi-dimensional manner saturated with a set of clarification tools (colors, boundaries, lines, …etc.). Most importantly, the maps strictly

follow an interpretive topical classification that guarantees the understanding of the text within the agreed-upon topical concepts.

CHAPTER IV

QUR'ANIC MAPPING AND THE THEORY OF MULTIPLE INTELLIGENCES

5 CHAPTER V: Qur'anic Mapping and the Theory of Multiple Intelligences

> It is common to hear that human beings are only using a small fraction of their potential. Their lives are confined within a limited range of thoughts, emotions, sensations and other modalities of conscious existence, and yet in most cases they remain completely unaware of these limitations (Sagan, 2007).

5.1 Preview

This chapter presents an in-depth coverage of the multiple human intelligences theorized by Howard Gardner in (Gardner, 1993a, Gardner, 1993b, Gardner, 1995, Gardner and Miller, 1999, Gardner, 2003) and their relationship and conceptual congruence with the Qur'anic mapping method worked out in this proposed study. Apparently, the concept mapping techniques are helpful in providing a distinguished method of learning, teaching, memorizing, and creativity (Buzan, 2005), the thing that requires putting them under rigorous scrutiny when being used for the conceptualization of the Holy Qur'anic text. Consequently, the nine intelligences theorized by Gardner and mentioned here are considered as a crystalloid paradigm of learning which can be debated under the umbrella of *epistemology*, that "*refers to the study of the origin, nature, limits, and methods of knowledge*" (Schunk, 2012).

In a wider sense, Gardner favors as much resources as possible to help learners comprehend and promote their own types of intelligence rather than devoting less resources to the purpose of testing, ranking, and labeling those learners (Moran et al., 2006). In this respect, for Gardner, assessing learners' deficiencies is a way to predict their difficulties and suggest other ways to achieve educational goals (Gardner, 1993b). So, this study works here as an extension for what has been done so far regarding addressing the capacities of the human mind through making diverse the ways of the representation of the Holy Qur'anic text. Hence, the Qur'anic concept and mind maps proposed here are a collection of interpretation, translation, linguistics, concepts, as well as an educational method.

5.1.1 The Qur'anic Concept and Mind maps and the Theory of Multiple Intelligences

There is now a massive amount of evidence from all realms of science that unless individuals take a very active role in what it is that they are studying, unless they learn to ask questions, to do things hands-on, to essentially recreate things in their own mind and then transform them as is needed, the ideas just disappear (Edutopia, 2010).

Gardner's words can conveniently be pigeonholed as an expert's technical introduction to the understanding, use, and implication of the mainstream of the characteristics of concept and mind mapping techniques. They are rather applicable thanks to the active role individuals take in the designing of the Qur'anic concept or mind maps as a way of recreation of another representational manner of the Qur'anic text they handle. Interestingly, the new representation of the Qur'anic text through the use of the Qur'anic maps is shown in a crystalloid visual format that is capable of addressing and challenging Gardner's nine intelligences with ever-lasting and matchless source of information. Fortunately, it is psychologically evident that each learner's intelligence is distinct from his/her other intelligences (Denig, 2004) which counts for properly addressing them in a rigorous scrutiny. Additionally, what makes this source of information (the Qur'anic maps) appealing and attractive is its richness in intelligent hints.

In that sense, in order for learners to learn today in the rapidly, ever-changing, and vibrant technological and digital world, they have vigorously and unintentionally shaken all previously set educational theories, strategies, and structures. Their current knowledge involves content and skills as its most strongly inter-linked apparatuses (Bates, 2015, Fraillon et al., 2014). Concisely, content here stands for the collection of inter-related components such as details of procedures and processes, principles, evidence, and ideas. These facts configure a new character of learners cut off to challenge all the previous platforms of knowledge conveyance tools. Consequently, skills for such learners are understood as their chief aptitude to acquire any sort of knowledge in the digital age. Likewise, in today's digital world, digital competence is a principal requirement for learners to be functional (Fraillon et al., 2014) wherever and whenever that digital concept is applicable.

Rick Wormeli calls for the necessity of a coherent and meaningful presentation of study materials to learners stressing David Hyerle's assumption that "*society as a whole is predominantly visual in its orientation*" (Hyerle, 2000a). Therefore, Wormeli prefers the visual presentation of concepts, facts, and skills whenever it was possible (Wormeli, 2005). Accordingly, being dependent on visual learning is not an acquired characteristic of learners rather than being their absolute visual nature as learners according to their predominant visual orientation.

Furthermore, enhancement of content presentation is a crucial requirement to keep that content in a constant alignment with learners' skill development. Consequently, mind maps and concept maps stress that learning as a meaningful process translates for an effortless process that involves constructing the learner's pre-existing knowledge and new knowledge (Ellis et al., 2004) and that "*Meanings are the building blocks out of which complex structures and operations are constructed*" (Staude, 2015). Besides, the way that the Qur'anic text is analyzed in the Qur'anic maps obviously matches the core concept of the constructivism theory as being a cognitive theory that examines the nature of learning processes (Hazzan et al., 2014).

The constructivism approach, according to Hazzan et al. (2014) allows learners to gradually construct the new knowledge they acquire based on the feedback they receive from the learning environment and on their mental structures. Moreover, learning the Qur'anic concepts and memorizing the Holy Qur'an itself as a challenge, do not fall out of the scope of what so called neuroplasticity: "*every time you learn a new fact or skill you change your brain. It's something that we call neuroplasticity*" (Boyd, 2015). Correspondingly, the concept mapping technique matches the interest of any group of learners [or intelligences] due to its high flexibility and adaptability (Kinchin, 2000).

5.1.2 The story and definition of the Multiple Intelligences

In 1979, an international non-profit institution in Netherlands dedicated to the favor of disadvantaged youth and children requested the Harvard Graduate School of Education to carry out an assessment of the state of scientific knowledge regarding human potential and its realization. The assessment resulted in a multi-layered approach to issues of human potentials. The first was *Frames of Mind* for Howard Gardner that studies human's intellectual potentials. It draws on both psychological research and biological

sciences as well as different cultural findings concerning development and use of knowledge (Gardner, 1993a).

In opposition to what has been theorized regarding that human has only one type of intelligence that could be measured through the previous tools of assessment or tests, Gardner defines intelligence in his own way as a multifaceted mirror of concepts. He convincingly argues that "*an intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings*" (Gardner, 1993a). Remarkably, he sought to widen the scope of human capacity beyond the limits of the Intelligence Quiz (Armstrong, 2009) and paved the way for his suggestion that intelligence is the capacity to solve problems of linguistic, logical, mathematical, spatial, kinesthetic, musical, interpersonal, intrapersonal, or naturalist natures.

Gardner on his way to form his new psychological concepts of intelligence, called for changing the way scientists had been theorizing human's potential, intelligence, and intelligence assessment. He gave the details of his how-to manual of understanding and asked to "*try to forget that you have ever heard of the concept of intelligence as a single property of the human mind*". Additionally, he argues that the way intelligence used to be assessed is not less important than what he considers intelligence to be. He made it clear directing others to forget also "*that instrument called the intelligence test, which purports to measure intelligence once and for all*" (Gardner, 1993a)

Howard Gardner thinks that the theory of Multiple Intelligences seems to resemble a death knell to formal education, because of the difficulties used to face educators when they were dealing with intelligence as a single entity. Now, with a variety of entities – nine intelligences – the teaching process is expected to be more than difficult where a reformation in all aspects of formal education is a must. Likewise, a well understanding of how individuals learn is a main issue in educational literature which came to reach a general consensus about that "*people learn differently*" and that "*people conceive of learning in different ways is phenomenologically demonstrable*" (Hay, 2007).

Remarkably, the idea of multiple intelligences aroused a universal discussion in its way to reform education, learning styles, tools, facilities, and the way learners are taught, assessed, or evaluated. Hence, one may find examples of total consensus regarding the applicability of Howard Gardner's thoughts. Away from that argument, recent

literature adopted a new realm of research that shifts from rejecting the multiplicity idea of intelligence to discussing core issues regarding the MI theory. For example, Wróbel (2012) inquires "*whether intelligence consists of various more or less independent intellectual faculties*" and considers the importance of human intelligence multiplicity and diversity.

5.2 The Nine Intelligences

There appears a sort of agreement between the many features of the new developed design and implication of the concept and mind maps in the re-presentation of the Qur'anic text and Gardner's following statement:

> While the recognition of different ways of representing and acquiring knowledge complicates matters in certain ways, it is also a hopeful sign. Not only are chances of acquiring understanding enhanced if multiple entry points are recognized and utilized, but in addition, the way in which we conceptualize understanding is broadened. Genuine understanding is most likely to emerge and be apparent to others, if people possess a number of ways of representing knowledge of a concept or skill and can move readily back and forth among these forms of knowing (Gardner, 1991).

Taken together, Gardner's nine intelligences and the Qur'anic concept mapping - discussed here in this study – they require a considerable and a careful extraction of the points of agreement. It is likely that concept maps and mind maps work as effective and inevitable teaching and learning tools for the generation of MI theory according to McKenzie (2005) that for an effective use of technology in classrooms, we should apply our technological knowledge to Gardner's theory of Multiple Intelligences. David Hay (2007) reported the use of concept mapping techniques to expose styles of student learning and measure surface, deep, and non-learning outcomes. He states that concept mapping has significant utility for tracking changes during students' learning. Hence, it could be understood here that the use of the Qur'anic mapping techniques is planned to reach the highest expectations such as acquiring unprecedented meaningful understanding and achieving invaluable comprehensive goals in a learning process. Those gains are mostly thanks to capacity of the Qur'anic maps in addressing all the nine intelligences mentioned in Gardner's theory as explained later in this study.

The findings of Daley and Torre (2010) who reviewed the literature concerning the use of concept mapping and its effect on medical education, summarize that there are four main ways in which concept maps function and affect medical education. Those ways include enhancing meaningful learning, presenting themselves as an additional

resource of learning, enabling instructors to offer feedback to learners, and facilitating learning and performance assessment. With a proper implication of concept maps a Qur'anic educational process while gaining the prementioned effects on it, outcomes will probably live up to Muslims' expectations of getting a far better understanding of the Qur'an. As simplicity in understanding the various meanings and topical classifications of the Holy Qur'an is a lofty goal to all Muslims and they will welcome concept maps thanks to their pre-mentioned features as a sophisticated tool in communicating such type of knowledge.

Remarkably, the nine intelligences discussed in Gardner's theory – being described previously as a crystalloid paradigm of learning - are almost addressed one by one in any concept or mind map of a Qur'anic text as an advanced equivalent tool of text re-presentation. Ultimately, that close consideration takes place thanks to the multiple concepts and interrelationships made clearer by the unique vertical and horizontal linear networks within any piece of a Qur'anic map. Hence, it is not accidental that a logical learner, for example, could find it very easy to discover the set of logical interrelationships unintentionally occurring in numerous Qur'anic maps in the current study. So, by representing the Qur'anic text in the way proposed in this study, every specific intelligence can serve both as a specific Qur'anic content and method for communicating that specific Qur'anic content. This goes in line with what Gardner has theorized in (Kassell, 1998) that "*an intelligence can serve both as the content of instruction and the means or medium for communicating that content*". Kassell (1998) explains Gardner's statement as when a student has difficulties in comprehending a specific principle in math – the content (a Qur'anic text in our case) -, then the instructor alternatively provides him/her with another pathway or route to comprehending the said content. The other route has been linguistic in most cases in the past (Kassell, 1998).

In dealing with the relationship between the theory of Multiple Intelligences and the Qur'anic Maps, one should consider Fleetham's summarization of the cornerstones of the MI theory. That is, each individual is intelligent in his or her own way, intelligence has at least eight ways, individual's own intelligences combine and work together, and everyone has all types of intelligence (Fleetham, 2006). This is excellently concluded by the argument of Wise (2005) that "*students are motivated when they believe they are able to succeed at a given task and when they understand and value the outcome of the task*". Moreover, if these special qualities of students are addressed, goals are achieved, and

considerable outcomes are gained, then satisfaction about the tools used – the Qur'anic maps - will call for spreading, prevalence, and celebration. This celebration may be joyous to the extent that motivation is reached as it is defined by Cook and Artino (2016) as "*the process whereby goal-directed activities are initiated and sustained*".

Amazingly, in the current Qur'anic maps, it was not meant to address each and every type of intelligence individually. Instead, learners classify themselves according to the many features and aspects they can distinguish, get attracted with, and extract from any piece of a Qur'anic map. Hence, the multi features unintentionally included in the maps have their strength and methods of appeal that attract their proper match from a focusing learner's intelligences. Therefore, for example, only receives a split-second glimpse, an observer could easily distinguish linguistic learners attracted by the miraculous textual, lexical, and stylistic features that mark the Qur'anic text. Although differentiating between the learners' multiple intelligences was a hard job according to Howard Gardner's statement in (Sternberg and Kaufman, 2011), but an appeal of linguistic features, coloration, and logic in the presentation of topical classification were decisive in the process of disengagement and determining the type of intelligence being dealt with.

It is found that the Holy Qur'an tends to mention numerous stories in different locations through different styles throughout the holy book while keeping giving the same meaning. That style of storytelling is well-known to Muslim scholars as the conceptual chaining or intertextual relatedness which translates to intertextuality which in its turn means "*the property that texts have of referring, implicitly or explicitly, to other texts"* and that *"involves the dependence of one text as a semiotic entity upon another"* (Abdul-Raof, 2003). The direct purpose behind the conceptual chaining may be for attaining a better understanding of a given Qur'anic text with "*the conceptual and intertextual relatedness …*" and "*the conceptual and intertextual allusions …*" in the macro and micro levels (Abdul-Raof, 2003). It is also expected that the Qur'an indirectly means to address the human's multiple intelligences through various inter-related texts and styles.

5.2.1 The Verbal/Linguistic Learner

This type of learners as described by Thomas Armstrong, have the capacity to use oral and written language aspects, and manipulate linguistic features such as syntax,

phonology, semantics, and pragmatics in an effective way. Additionally, the linguistic learner is also capable of having an extended knowledge of using rhetoric (the use of language to convince), mnemonics (the use of language to remember any set of information), explanation (the use of language to inform others), and metalanguage (the use of language to study the structure of language) Armstrong (2009). The linguistic learner has the ability to use language, communicate in spoken and written forms effectively (Jiang, 2013), construct, and understand language (Nkobi and Weaver, 2011). Similarly, for Grow (1995), well-developed linguistic learners demonstrate attention to words and their overtones, relations among words, and the stylistic beauty and substance.

It is noticeable that the linguistic and the logical-mathematical intelligences are "*the two most prized in school and the ones central to success on standard intelligence tests*" (Gardner, 1993a). on the other hand, this valuable recognition is probably because language acquisition is an essential topic among cognitive sciences that requires a special kind of intelligence – linguistic intelligence - to deal with (Wróbel, 2012) and because individuals have various "*cognitive strengths and contrasting cognitive styles*" (Christison, 1998) among which the linguistic strength plays a central comprehensive role.

The Qur'anic concept maps and mind maps are advanced tools used in this study to manipulate the highly sophisticated linguistic features of the Holy Qur'anic texture as well as to convey its various messages, which are sent by Allah to convince man. Moreover, Qur'an is the word of Allah (Haleem, 2005) and it is well known that Qur'an is the greatest Prophetic miracle of Prophet Mohammad (Peace and blessings be upon him) parallel to those of the other prophets (Moses, Jesus, David, and Solomon, etc. (Peace and blessings be upon them all)). Once this pragmatic perspective was considered, that the Qur'anic discourse is characterized by its "*prototypical linguistic, rhetorical, textual, and phonetic features*" (Abdul-Raof, 2013), and that it comprises great study fields of semantic literary patterns, phonological, and syntactical domains (Mohammadpour and Nikoopour, 2017), highly skillful linguistic learners find themselves called to enormous challenging and intelligent linguistic features. Those features are enormous enough to address not only the linguistic intelligence, but also all the remaining types of human intelligence discovered so far.

The Qur'anic maps in this project contain a set of technical and textual characteristics that support the linguistic and non-linguistic features. Regarding the linguistic features, the Qur'anic maps highlight a wide range of linguistic phenomena that are capable of attracting the linguistic learners' attention thanks to the many technical tools available in the software such as the colorful text boundaries, summarization tools, and level-based networks of horizontal and vertical lines, etc. Those non-linguistic capacities may encompass visual outlook, interrelationship connections through the conceptual vertical and horizontal network of lines, and an effective presentation of topical classification and conceptual coherence.

More interestingly, any piece of the Qur'anic text could aptly be a field of interest and operation for at least one or more types of intelligence. This interconnected textual field of work is one of the remarkable features of the Holy Qur'an that meets the proposal of Nicholson-Nelson (1998) that "*people who are smart in an intelligence learn best through methods associated with that intelligence*". For example, linguistically intelligent people will be very delighted to work with highly sophisticated texts and readings where they can explore and enrich their linguistic skills. In that sense, Grabe and Kaplan (1996) list seven components interacting in text construction which linguistic learners will seem quite comfortable when being exposed to: "*syntactic structure, semantic senses and mappings, cohesion signaling, genre and organizational structuring to support coherence interpretations, lexical forms and relations, stylistic and register dimensions of text-structure, and non-linguistic knowledge bases, including 'world knowledge*"".

Hence, the following text is *Surat Al-Kawthar* – the shortest *surah* in the Holy Qur'an - consists of three verses only with a total of 10 words and contains some vivid challenges for linguistic and logical learners in the following respects:

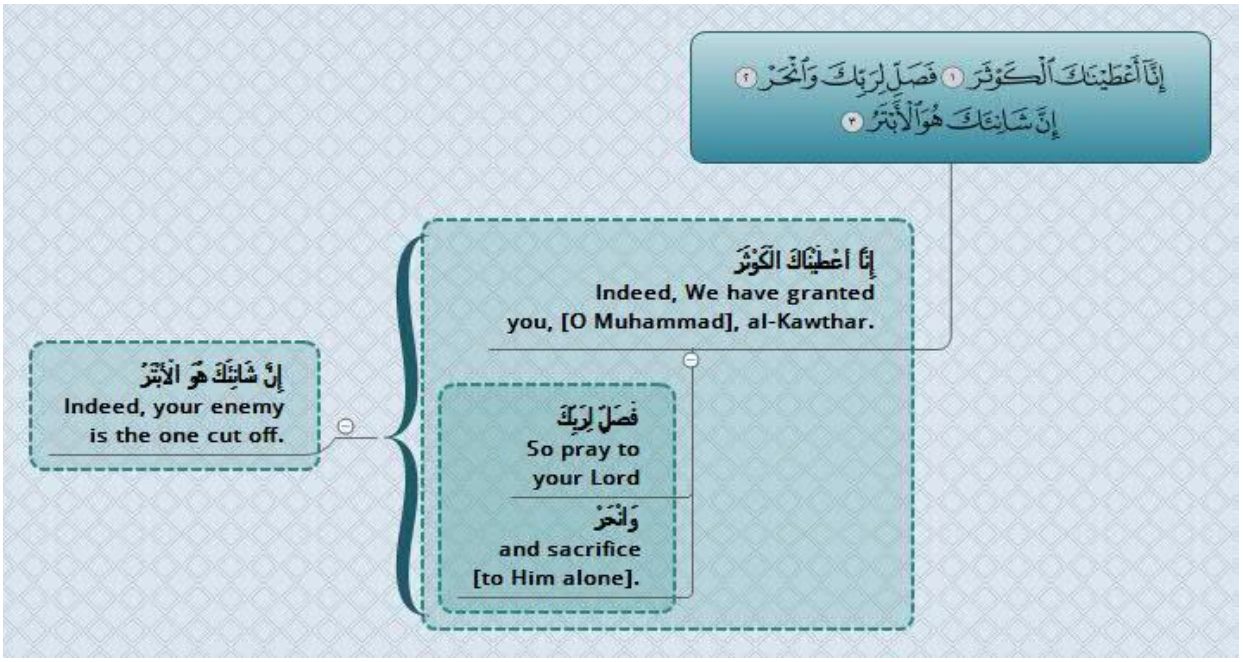

Figure 31 Surat Al-Kawthar (Q108)

The great *surah* revealed the connection between three main topics: a reward to Prophet Mohammad (Peace and blessings be upon him) "*Indeed, We have granted you, [O Mohammad], al-Kawthar*". *Al-Kawthar* is defined according to what has been reported by Anas who said, "*When the Prophet (Peace and blessings be upon him) was taken to the heaven, he said, ((''I came to a river whose banks had domes of hollowed pearl. I said: ''O Jibril! What is this?'' He replied: ''This is Al-Kawthar.''))*", a command to thank that said reward "*So pray to your Lord and sacrifice [to Him alone]*", and a condolence message upon the death of one of his sons "*Indeed, your enemy is the one cut off.*" .

Other challenges include that each verse of the three verses of the *surah* ends with the Arabic letter (ر) which ranks tenth in the Arabic alphabet. Likewise, the number of the *surahs* ending in the letter (ر) in the Qur'an is ten. Additionally, the Arabic letter (ا) was repeated 10 times as the most repeated letter in the *surah*. So, number 10 is a substantial element in the linguistic, topical, and conceptual framework of the *surah* when remembering that the day of sacrifice is the tenth in the month of *Dhul-Hijjah* in every Hijri year. These interesting facts should be obtained by the Qur'anic readers to have a full understanding of its great meanings miraculous linguistic and conceptual designing.

In the Qur'anic map, those meanings were brought in a way that brings readers' attention and thinking of the designing and classification of topics and linguistic elements.

5.2.2 The Logical/Mathematical Learner

Logical or mathematical learners are individuals with a distinguished and strong ability to do things with data such as collecting, organizing, analyzing, interpreting, concluding, predicting (Giles et al., 2003), handling long chains of reasoning, and discerning numerical or logical patterns (Armstrong, 2009). It is highly distinguished that those learners elegantly find their way in any data-jeweled contexts and pick out unseen relationships and patterns where others hardly can.

Bringing about the purpose of the Qur'anic mapping proposed in this study is not that hard when calling the sorts of activities to be implemented in order to strengthen this type of intelligence (logical/mathematical intelligence). Giles et al. (2003) recommended "*critical-thinking activities, linear outlining, ...,* [and] *logic puzzles*" which are issues deeply rooted in the Qur'anic text and observable through numerous Qur'anic maps. Challenging numerical and logical phenomena lie behind topics such as the different shares of *inheritance* in *Surat An-Nisa* (Q4:11,12, and 176) as an example (Figure 33).

Yet, shares of inheritance are one of the very critical issues in Islam that require an accurate knowledge about the many cases mentioned in only three verses in *Surat An-Nisa*. Learning shares knowledge is encouraged according the *hadith* of Ibn Uyaynah who said; "*Knowledge of Al-Fara'id (Inheritance) was called half of knowledge, because it effects all people.*" [7]. The Qur'anic map in (Figure 33) makes things very clear according to any of the cases in verse (Q4:11) such as "*But if there are [only] daughters, two or more, for them is two thirds of one's estate.*" and "*And if there is only one, for her is half.*".

Regarding the Qur'anic maps, the contents that appear in both logical and mathematical platforms give obvious clues and hints to the logical/mathematical learners for understanding and memorizing in their specific way. They, therefore, find themselves surrounded by helpful organized patterns of repetition, logical textual connections, and

[7] AL-MUBARAKPURI, S.-R. 2003b. *Tafsir Ibn Kathir (Abridged) Volume 2,* Riyadh, Darussalam. Page: 388

logical summarization and concluding semiological tools. Interestingly, these technical logical and mathematical features will not be limited to the logical/mathematical learners. They rather are helpful in enhancing the other types of intelligence of the non-logical/non-mathematical learners thanks to the attractive presentation of the Qur'anic textual features and interesting visual guidance and organization they communicate. This help is remarkably proved, because learners are expected to acquire a critical method to sources that "*requires a full understanding of written texts*" (Bailey, 2014).

These helpful technical issues pave the way for the learners of this type of intelligence to generate their particular mnemonic principles and strategies developing new mapping basics for extra impetus regarding memorizing the Holy Qur'an. There will emerge a set of linguistic remarks such as printed word frequency models which translate for the "*counts of the frequency of occurrence of a given word in selected visual media*" as well as meaningfulness models that mean "*a metric of the number of meanings generated to a given target*" (Balota et al., 2006). Surely, the printed word frequency models can be helpful in giving the logical and mathematical learners a vivid logical and mathematical guidance through their memorizing work, while the meaningfulness model will be helpful for them in building their easy-to-follow exegetic explanation for the given Qur'anic texture.

The example of (*Figure 32*) below witnesses the repetition of the word (الذين), meaning they who - for six times as a consequence occurrence. The word appears as a description of the "… *believers who have succeeded*". Therefore, it is found easy to count six descriptions for the believers who will succeed in the hereafter organized, easy to count, easy to follow, and accompanied by their English translation of their meanings.

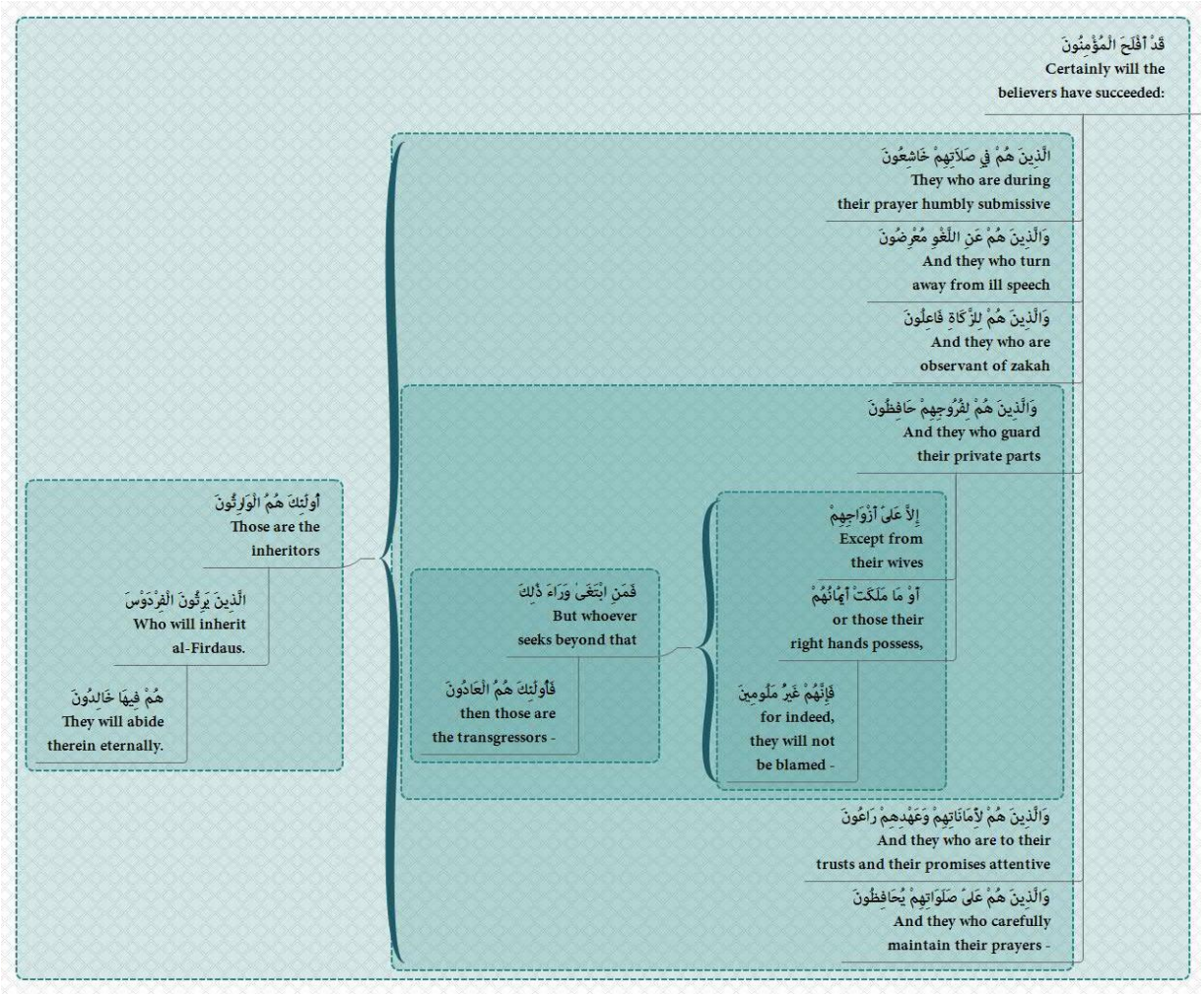

Figure 32 Surat Al-Mu'minun (Q23: 1-11)

5.2.3 The Spatial/Visual Leaner

> Generally speaking, our brain has the ability to absorb 36,000 images every minute and 80% to 90% of the information our brain receives is through our eyes (Hyerle, 2000b).

This indicates that our visual mode is the dominant one among all other modes. Additionally, all of us are naturally visual learners and that individuals still process more information through their visual modalities (Hyerle, 2000b). So, a host of reasons lies behind the dominance and preference of visual learning tools over other tools. Strikingly, many approaches tend to make thoughts, concepts, results …etc. visible with drawings, diagrams, and maps because of their ability to show relationships between the different regions of the map and highlight the important thoughts (Michalko, 2011). Michalko (2011) goes on enumerating the advantages of using maps as a design on paper which resembles the way our minds cluster concepts in our brains which "*more readily accepts the information contained in a map*". He concludes that "*once your ideas are clustered, you can move from the viewpoint of the creator to the viewpoint of the critic who is seeing the ideas for the first time*".

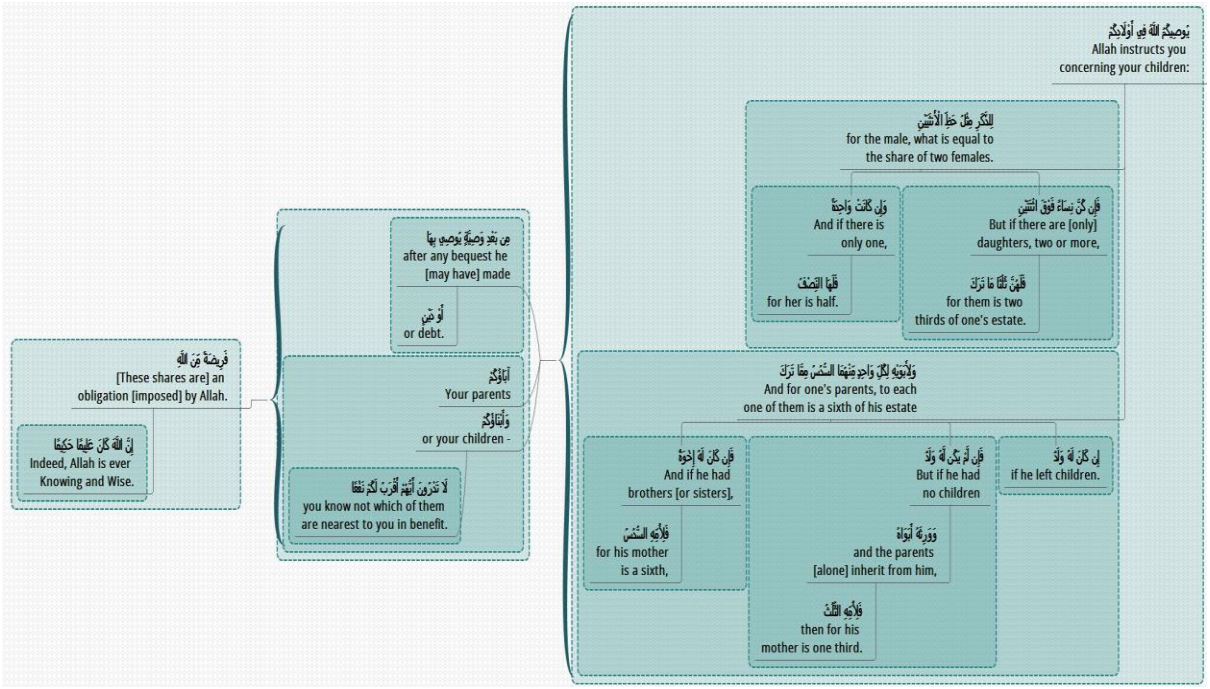

Figure 33 Inheritance Shares. Surat An-Nisa (Q4:11)

Interestingly, learners with visual or spatial aptitudes depend on their visual thinking strength and have the habit of learning from visual presentations (Giles et al., 2003) or from images (Vincent and Ross, 2001a). They use their visual sense, and their best learning environment is reading and watching where they can restructure or visualize the given learning material (Kanar, 2013). Moreover, visual learners have the habit of developing attitudes that can help in promoting the use of technology to apply knowledge in different new ways and to enhance the quality of life McKenzie (2005). Furthermore, visual or spatial individuals have good perception of the visual/spatial realm most accurately and are sensitive to colors, lines, shapes, forms, spaces, and the interrelationships created with these elements (Armstrong, 2009). They, therefore, tend to learn most readily from concept maps as highly sophisticated hybrid visualizations that combine visual structures created with colorful and linear elements along with the concepts and thoughts they present. But when these presentations contain visual conceptualizations and are themselves constructed in high visual formats, visual learners' gains and outcomes will be immensely considerable.

The following Qur'anic map of *Surat Al-Ghashiyah* (Q88:1-16): (Figure 34) may provide a closer understanding of this hypothesis. *Surat Al-Ghashiyah* figures out the Day of Judgement and the incidents that will take place during it. It names two communities: the people of the Fire and the people of the Paradise as humbled faces and joyful faces respectively. Hence, visual learners will find themselves exploring a portray of two parallel incidents that happen simultaneously on one day with a clear short-story style. Strikingly, the two separate descriptions obligate the map designer to accept the logical separation because of its stark contrast and obvious parallelism. Besides, the selective tools that highlight those portrays take the burden of reflecting the visual dimensions that attract the visual learners' attention and acceptance. The reason behind this admiration is that they like working out their ideas and expressing their feelings through art such as drawing, painting, and sculpting. Also, they are good at visualizing, imagining, reading chart, map, and diagram formats, and solving puzzles and mazes (Giles et al., 2003, Denig, 2004).

What makes it challengeable for the visual learners when working with the Qur'anic maps is that "*the Qur'anic discourse is characterized by prototypical linguistic, rhetorical, textual, and phonetic features. These are Qur'anic-specific features.*" (Abdul-

Raof, 2013). The Qur'anic-specific features are demonstrated through the Qur'anic maps as non-escapable colorful presentations which visual learners find themselves obliged to stop by and gain full understanding of. Stimulatingly, all that is known as features in the Qur'anic maps will probably mean more than software features. Surely, they mean shifts of understanding, highlights of meanings, reflections of concepts, techniques of categorization, layers of explanation, and sophisticated visual comprehensive tools of conceptualization. Among these features are summarization tactics, conceptual boundaries, coloration, and numerous mapping designs from which map designers select their suitable formats and outputs (Figure 33) and (*Figure 34*).

Visual learners are then confronted with even more challenging tasks such as mastering the linguistic abstracts being reflected through their beloved presentation methods; visualization methods. Their sensitivity to shape and coloration (Gardner, 1993a) is their reliable guide to understanding and comprehending the Qur'anic content in harmony and flexibility. Actually, these coloration methods are utilized to simplify and reflect the Qur'anic linguistic content in a most absorbable doses for learners' visual perception. So, values such as the topical classification of the Qur'anic texture in all levels (*Ayah* level or *Surah* level), rhetoric features, and mnemonics can take their specific shapes and constructions in any given Qur'anic map according to each specific exegetic opinion (*Figure 34*).

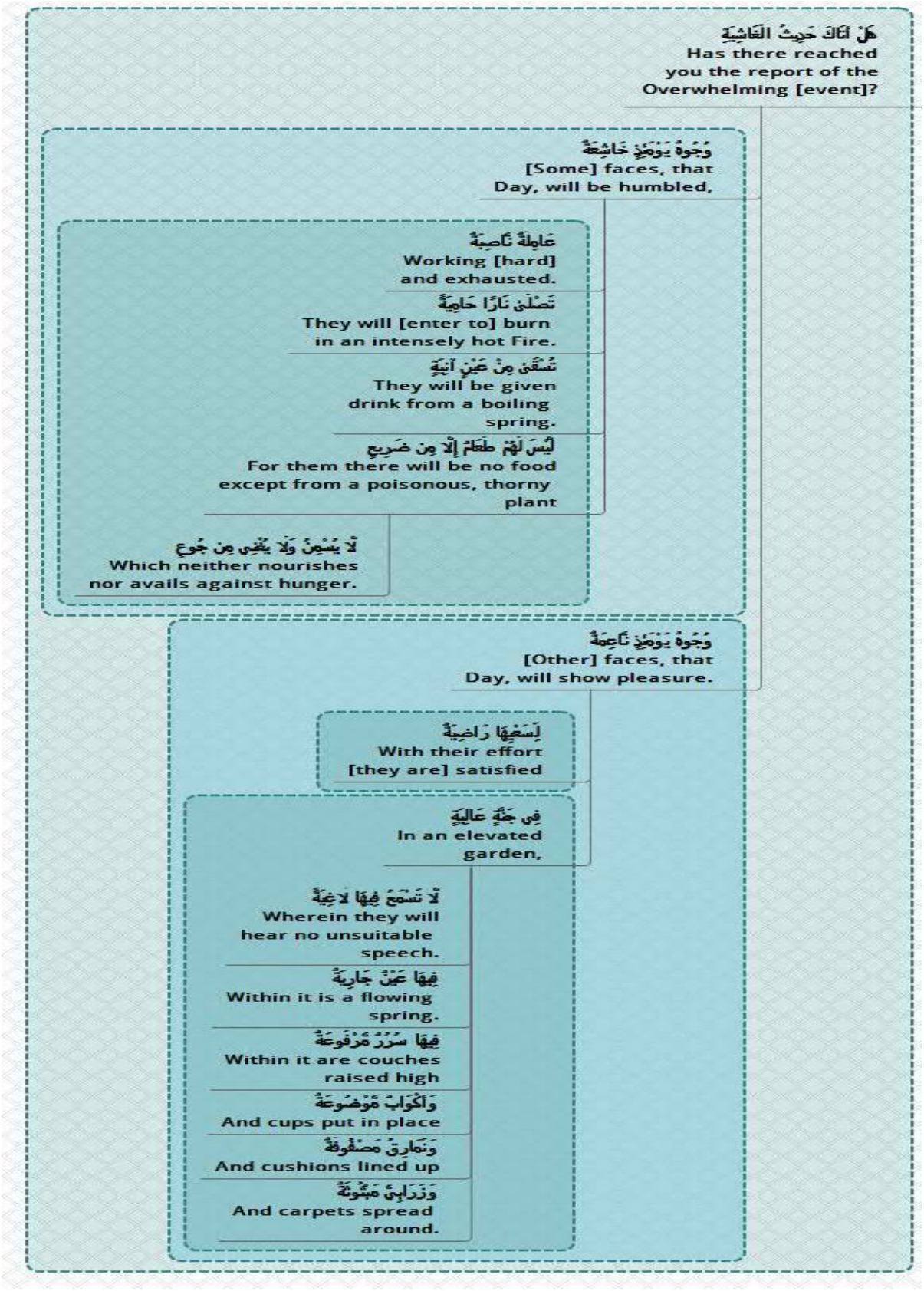

Figure 34 Surat Al-Ghashiyah (Q88:1-16)

Spatial/visual readers of the Holy Qur'an are called in numerous parts of the Qur'an for proofs and signs of God existence such as the example in (Figure 45): "*Then*

do they not look at the camels – how they are created? And at the sky – how it is raised? And at the mountains – how they are erected? And at the earth – how it is spread out?" *Surat Al-Ghashiyah* (Q88:17-20). These questions are posed to the visual learners to use their visual aptitudes in reaching the fact that Almighty Allah is the unique creator of the whole universe and these creatures are signs of His greatness. These questions are big and require the meditation of visual learners and the thinking of existential learners. Such integration may be found in various places and examples in the Holy Qur'an such as in the example presented in (*Figure 35*):

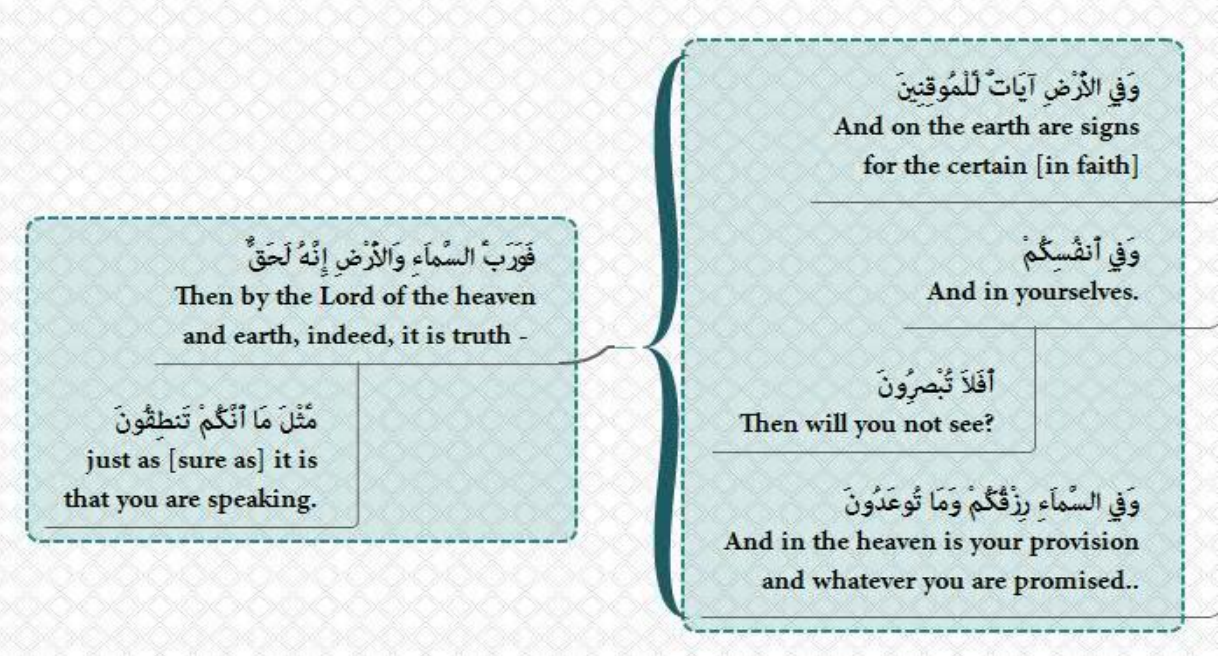

Figure 35 Surat Adh-Dhariyat (Q51:20-23)

The recent progress in the re-presentation of the Holy Qur'anic text is an indirect response to the visual learners' distinctive call for the development of their preferred means of learning and understanding. They have shaken all the existing theories of teaching and learning until things reached this sort of eye-catching design and visualization so far. This aptitude is built on the insight of Hyerle (2000a) that "*society as a whole is predominantly visual in its orientation*". It could be concluded that visual intelligence is the key to the other intelligences where successful efforts to building a more comprehensive content should pass through.

5.2.4 The Bodily/Kinesthetic Learner

Learners of this type of intelligence have the potential for using their body (Denig, 2004, Kezar, 2001) to achieve their various types of work and their community involves

athletes, dancers, actors, workers, etc. Additionally, Denig (2004) argues that it is evident for experimental psychology that the bodily/kinesthetic intelligence is distinct from the other intelligences. As according to (Ribatsky, 1998) this distinction is in using all of one's body to achieve remarkable goals such as performing, creating objects, and developing solutions. The bodily/kinesthetic learners learn more effectively when they combine study with some physical activities (Kanar, 2013). Similarly, for Vincent and Ross (2001b), kinesthetic learners can process and remember whatever they learn about when they touch and feel it, because they learn best by doing and express their emotions through their physical aptitude.

It is also expected that not each and every designing feature involved in the Qur'anic maps will be welcomed by the kinesthetic learners as merely bodily or kinesthetic learners. That may be because their understanding is linked to touching or feeling things and because they lack the internal visualization of organization and neatness (Vincent and Ross, 2001b). Gardner (1993a), nevertheless, states that some relationship exists between the different intelligences, as for example, a musical learner who is attracted to and not successful in the musical domain requires other intelligences such as the personal intelligence and the bodily/kinesthetic intelligence. So, they will look between the lines for the content that deals with their special characteristics; the bodily-kinesthetic Qur'anic stories and materials while being attracted by the special features of the Qur'anic maps according the proportional characteristics of the other intelligences they enjoy. Fortunately, the Holy Qur'an is immensely rich in the bodily/kinesthetic type of literature and tells them as miraculous, historical, or descriptive stories, etc. in various parts of its context.

In truth, the bodily/kinesthetic learner's relationship to the Qur'anic maps communicates another type of cinematic point of view. In this sense, numerous Qur'anic stories carry the learning qualities of kinesthetic learners such as prophets, fellows, or regular people. They have been addressed through the best way they understand with clear kinesthetic messages and proofs. Once bodily/kinesthetic people learn through their whole-body experiences (Vincent and Ross, 2001b) and hands-on activities (Kanar, 2013), it is also expected that they accept logical explanations that best address their minds through hands-on or physical activities and practices. Consequently, the calls of Vincent and Ross (2001a) invite instructors to provide language materials that involve action, which will contribute to helping bodily/kinesthetic learners in their journey from

features to meaning, understanding, and comprehension. Likewise, Armstrong (2003) cites Shakespeare's works as found to be filled with bodily-kinesthetic expressions and images. Interestingly, the following mind-mapping examples translate further explanations of how their distinguished kinesthetic aptitude converts their deep negative beliefs into positive convictions such as faith and satisfaction, where some address the bodily/kinesthetic minds through a set of vey advanced educational techniques. One could recognize brainstorming activities, problem-based learning, peer-to-peer strategies, and other forms of teaching and learning strategies in the kinesthetic instructions provided by the Holy Qur'an. The following figure (Figure 36) a prototypical educational example:

(Figure 36) below tells us about a bodily-kinesthetic learner who receives a lesson from the Almighty Allah by means of an extra-ordinary and unexpected visual educational method who re-enacts the crime in an attempt to let the son of Adam [Qabil] assimilate the burial procedure. Ibn Kathir reported that;

> As-Suddi said that the companions said, "*when his brother died, Qabil left him on the bare ground and did not know how to bury him. Allah sent two crows, which fought with each other until one of them killed the other. So, it dug a hole and threw sand over the dead corpse (which it placed in the hole). When Qabil saw that, he said, "O woe to me! Have I failed to be like this crow and hide the body of my brother?*" Al-Mubarakpuri (2003c)

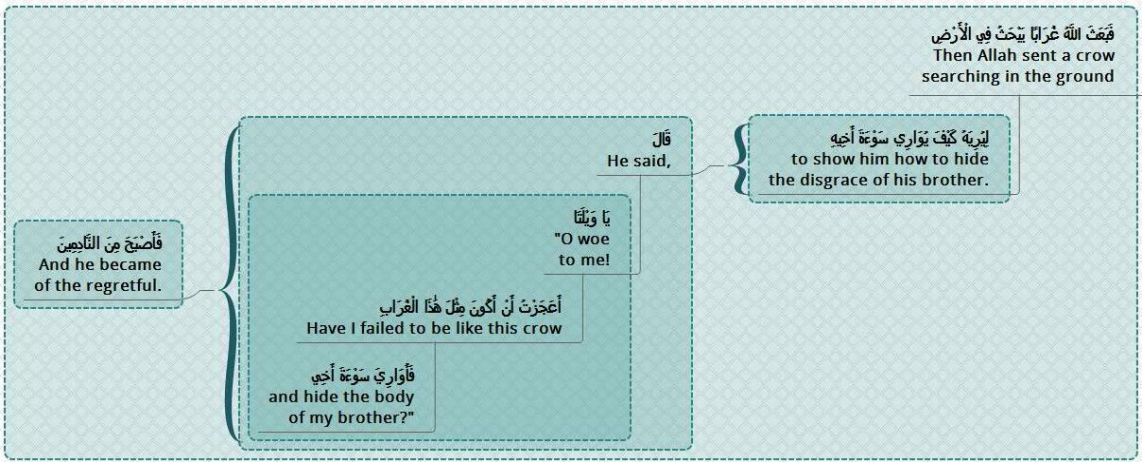

Figure 36 Surat Al-Ma'idah (Q5:31)

There were no verbal instructions, but a technical manual through a hands-on activity with a clear step-by-step message. Because this was the first killing incident ever on earth, and because the lesson was so comprehensible, the lesson continued to be understood by all sons of Adam from then on.

Gardner extends the bodily-kinesthetic intelligence to include the body language as a language other than words (Gardner, 1993a). The language that encompasses semiotics, physical actions, and gestures or body moves. For example "*And his wife approached with a cry [of alarm] and struck her face and said, "[I am] a barren old woman*" meaning she struck herself by hand on her forehead (Al-Mubarakpuri, 2003f).

It is worth mentioning here that the work of the concept map is to simplify the reading of the story for the kinesthetic learners - through its add-ons and technical features - in a comprehensible manner. Moreover, the topical classification method used in its two levels; the macro and the micro ones and marked by a distinctive coloring system keeps the learner strictly limited to a guided conceptual chaining process. So, summarization, text boundaries, coloration, lining, and bilingual texting are responsible for embodying the exegetic opinions on which the concept map is based. Additional role the Qur'anic maps play is re-presenting the Qur'anic text and contributing through their many features [coloration, network of lines, summarization tools, linguistic phenomena, etc.] to facilitating, organizing, and simplifying each secondary intelligence's work in getting its full message from the Holy Qur'an. Those specific characteristics are then made possible for the kinesthetic learners to grasp the intended message(s) by help of the other intelligences they [kinesthetic learners] have beside their strongest bodily/kinesthetic aptitude. The Qur'anic maps may also contribute to the enhancement of the other intelligences through the kinesthetic learners' search for their matching traits in the manipulated piece of the Qur'anic texture. That is according to Wróbel (2012) who argues that if programs are built based on the theory of Multiple Intelligences, they will have the possibility to involve learners having combinations of intelligences.

5.2.5 The Musical Learner

> The recitation proceeds, the intensity grows. A man hides his face in his hands, another weeps quietly. Some listeners tense themselves as if in pain, while, in the pauses between phrases, other shout appreciative responses to the reciter. Time passes unnoticed (Nelson, 2001).

In this regard, Nelson's commentary on the Egyptian traditions on Qur'anic recitation conveyed the incident as admired by incomparable popularity, prestige, and authority all over the Islamic world. Her statement is most fitting to that of Hoerr et al. (2010) that "*Musical Intelligence involves an understanding of pitch, rhythm, and the*

timbre or texture of a sound" and "*The truth is, we are all (even those with hearing impairments) musical beings with definite musical abilities and intellect*". Additionally, Nelson (2001) argues that the Qur'an is characterized by its oral nature in transmission and social existence as its rhythm and assonance confirm that it has been meant to be heard. Likewise, she states that the oral nature of the Qur'an transcends euphony where its significance is carried more by the sound than by its semantic information.

Gardner states that the musical intelligence appears as encompassing several sub-intelligences labeled by the many dimensions of music, which include melody, rhythm, harmony, and timbre (Gardner, 2006). Rather, for Armstrong (2009), musical learners are distinguished by their aptitude to perceive, criticize, express, compose, and perform musical forms. Additionally, Armstrong (2009) argues that they tend to express their intelligence as sensitive to "*rhythm, pitch, or melody, and timbre or tone color of a musical piece*". Likewise, the development of the musical ability may be thanks to that rhythmic organization is accompanied by other music aspects existing apart from the pure auditory realization along with synergistic interaction of a collection of other intelligences may be significant as well (Murphy, 1999). Similarly, Kreitner (1981) supports the idea that musical learners are likely to be kinesthetic because they feel both the music and rhythms.

Interestingly, the Holy Qur'an has its own distinguished musical system that is controlled by the *Tajweed* rules and recitation as the only way to read the Holy Qur'an according to an order revealed from the Almighty Allah; "*... and recite the Qur'an with measured recitation*" (Q73:4). This genius mixture between a high-level language and a metrically accurate musical system that considers presenting the Qur'anic discourse as a means of communication between the Almighty Allah and His servants. This linguistic-musical feast falls under the argument of Gardner (2006) as "*arisen from a common expressive medium*" and as been taught through separate courses over a long time (years) and been used now for different purposes.

Qur'an is linked to its style of recitation and it is enjoyable for all Muslims thanks to an order by Prophet Mohammad (Peace and blessings be upon him);

It was narrated that Al-Bara' bin Azib said: “The Messenger of Allah (ﷺ) said: 'Make your voices beautiful when you recite Quran.” [8]

'Aishah (May Allah be pleased with her) reported: The Messenger of Allah (ﷺ) said, “The one who is proficient in the recitation of the Qur'an will be with the honorable and obedient scribes (angels) and he who recites the Qur'an and finds it difficult to recite, doing his best to recite it in the best way possible, will have a double reward.” [9]

The Qur'anic musical system on both levels (*Tajweed* and *Tarteel*) where *Tajweed* cares for the correct articulation of letters and phonological aspects of the Qur'anic text whereas the other (*Tarteel*) cares for the musical techniques of the Qur'anic text according to the orders mentioned above. So, the process of recitation enjoys two main features; following the techniques of recitation and enjoying lots of musical compositions that encompass semi-poetic musical pieces with selective linguistic elements of eye-catching structures. Interestingly, Gardner argues that individuals with musical aptitude are sensitive to the phonological features of a language besides their sensitivity to pitch relations (Gardner, 2006). So, the Qur'anic maps convey the rich Qur'anic texture with all its technical features along with the accompanying features to present a highly comprehensible text.

Qur'anic maps care for the stops marked in *Mushafs* along with other pauses created according to the exegetic commentaries aiming at providing a comprehensive Qur'anic discourse. Additionally, *Tajweed* instructions are everywhere in the *Mushaf* helping in introducing its hard and easy phonological and musical shifts for the Qur'anic readers. Therefore, the Qur'anic maps are found to be musically prepared for the reciters and readers and supported by a fully revised exegetic opinion. The musical learners are then expected to enjoy their new Qur'anic musical compositions decorated with high technical accessories such as the network of lines, colors, summarization tools, and purposeful boundaries and pauses or stops.

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[8] Sunan An-Nasa’I 1016 Book 11, In-book reference: Book 11, Hadith 141 English translation: Vol. 2, Book 11, Hadith 1017

[9] [Al-Bukhari and Muslim]. Sunnah.com reference: Book 9, Hadith 4, Arabic/English book reference: Book 9, Hadith 994

The holy Qur'an is fabulously rich in interesting stories about musical events rather than being rich in pure musical compositions with lovely structures enjoyable for the Qur'anic readers. The Qur'anic map in (*Figure 37*) below gives the example of Prophet Dawud (David), peace be upon him, and what Almighty Allah gave him of great bounty as prophethood, knowledge, kingship, the holy book, large numbers of troops, …etc. On top of all that bounty almighty Allah blessed him with a beautiful voice(Al-Mubarakpuri, 2003e). Birds going out in the morning and coming back in the evening as well as mountains were ordered by Almighty Allah to repeat with him when he glorifies Allah (Al-Mubarakpuri, 2003e, Nelson, 2001). Additionally, it was recorded in the Sahih that the Messenger of Allah, peace be upon him, heard the voice of Abu Musa Al-Ash'ari, may Allah be pleased with him, reciting at night, and he stopped and listened to his recitation, then he said: "*This man has been given one of the sweet melodious voices of the Prophet Dawud.*" [10]

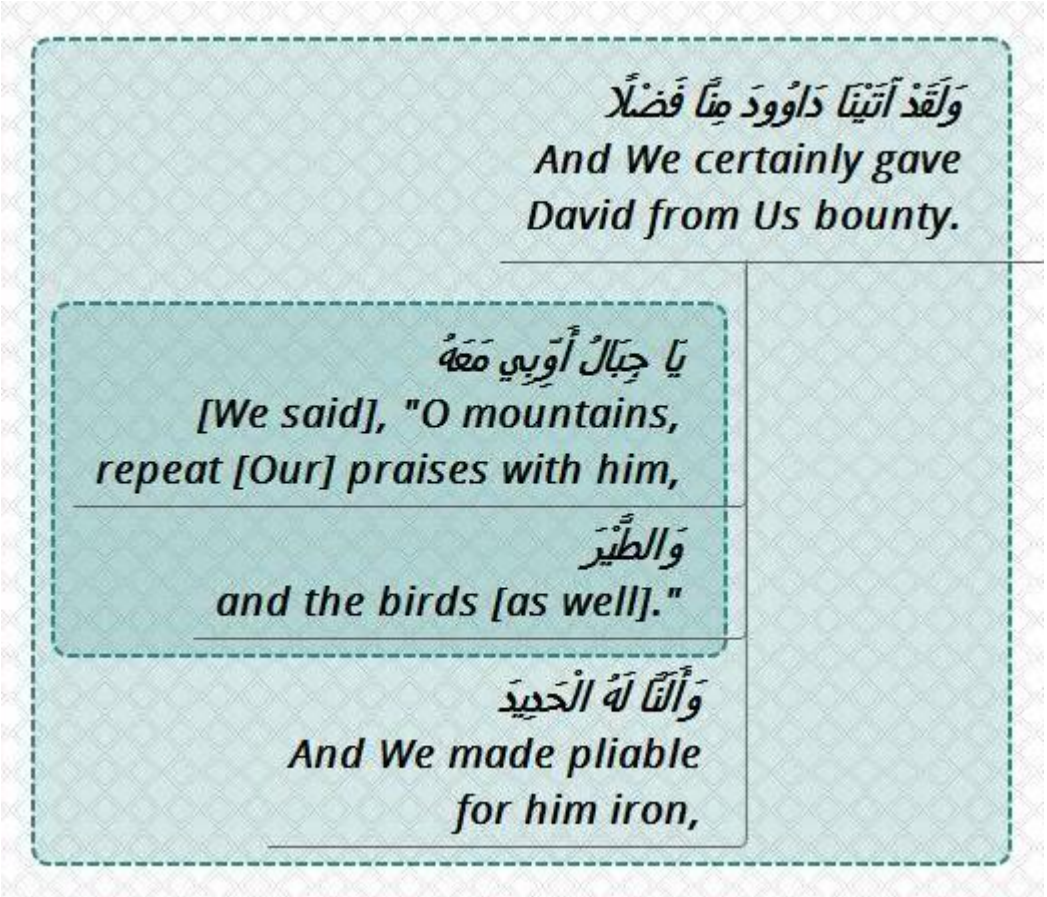

Figure 37 Surat Saba (Q34:10)

[10] Muslim 1: 546

The Qur'anic map above presents Prophet Dawud, peace be upon him, as a musical individual – with a fabulous voice that is admired and repeated by birds and mountains - and as a bodily/kinesthetic individual – who has the gift of dealing with iron without fire or hammers (pliable iron) with direct directions from Almighty Allah. Ultimately, his example supports the arguments of Kreitner (1981), Murphy (1999), and Wróbel (2012) in that musical intelligence may be accompanied by a collection of other intelligences.

According to Gardner (2006), "*Music can serve as a way of capturing feelings, knowledge about feelings, or knowledge about the forms of feeling, communicating them from the performer or the creator to the attentive listener*". This psychological role enjoys the possibility of orchestrating a set of intelligences a Qur'anic reader and listener may have besides being a musical learner when being exposed to their beloved musical textures. The personal intelligences are actually meant with this harmonical integration when it comes to an accurate musical and linguistic piece of the Qur'anic text saturated with all musical and linguistic techniques and presented with a beautiful voice. These feelings are well described by Nelson (2001) as mentioned above "*A man hides his face in his hands, another weeps quietly. Some listeners tense themselves as if in pain, while, in the pauses between phrases, other shout appreciative responses to the reciter*".

Yet, the work of the Qur'anic maps includes both readers and listeners. The Qur'anic maps motivate readers to convey their full image, design, and details of the given text aiming at reflecting full understanding. So, reciters should consider the topical classification and exegetic commentaries mentioned in the maps through its network of lines, boundaries, summarization tools, and coloration. Ultimately, the musical characteristics provided by the work of the Qur'anic maps will make the required difference in understanding and conveyance of concepts. In view of that, Gardner (1993a) argues that having thorough understanding of a topic is the key to thinking of it in several ways. Rather, one's understanding is likely to be tenuous if being restricted to one mode of presentation and conceptualization. Therefore, even within the limits of the musical intelligence, reciters should accompany the many features of the Qur'anic maps because they are deliverable through sound and expected to make the required change in the way of listening to the Holy Quran.

The Qur'anic map in (Figure 38) below introduces an example of the Qur'anic lovely musical compositions with ready-made musical structures which conveys splendid views

from nature mixed with poetry-like endings of verses. Hoerr et al. (2010) describe some features of musical learners as having ways other than performing such as "*identifying patterns in sounds, recognizing subtle inflection in language, reviewing music other have produced, or simply selecting music for enjoyment"* through which they can exhibit their intelligence. Additionally, Hoerr et al. (2010) argue that all of us connect with music in some way and when the opportunity comes, benefits such as learning about culture, history, thoughts, emotions, and about each other through music.

Consequently, the Qur'anic map below in its three parts (the first: oath, the second: story, and the third: a conclusion) provides a very simple sentence style where each sentence ends in one euphonic sound (ها) although the *surah*. This integration of a flowery language and sounds that touch the very soul of listeners carries clear messages to musical learners and provides them with the opportunity to explore ancient societies' culture and history.

The Qur'anic map here preserves the musical content of the Qur'anic extract accompanied by the English translation of its meanings and the other technical features such as the boundaries, color highlighting, summarization tools, …etc. So, readers are exposed to an acoustic musical composition – as a universal language according to (Hoerr et al., 2010) – supported by what makes them get full understanding of the given Qur'anic extract.

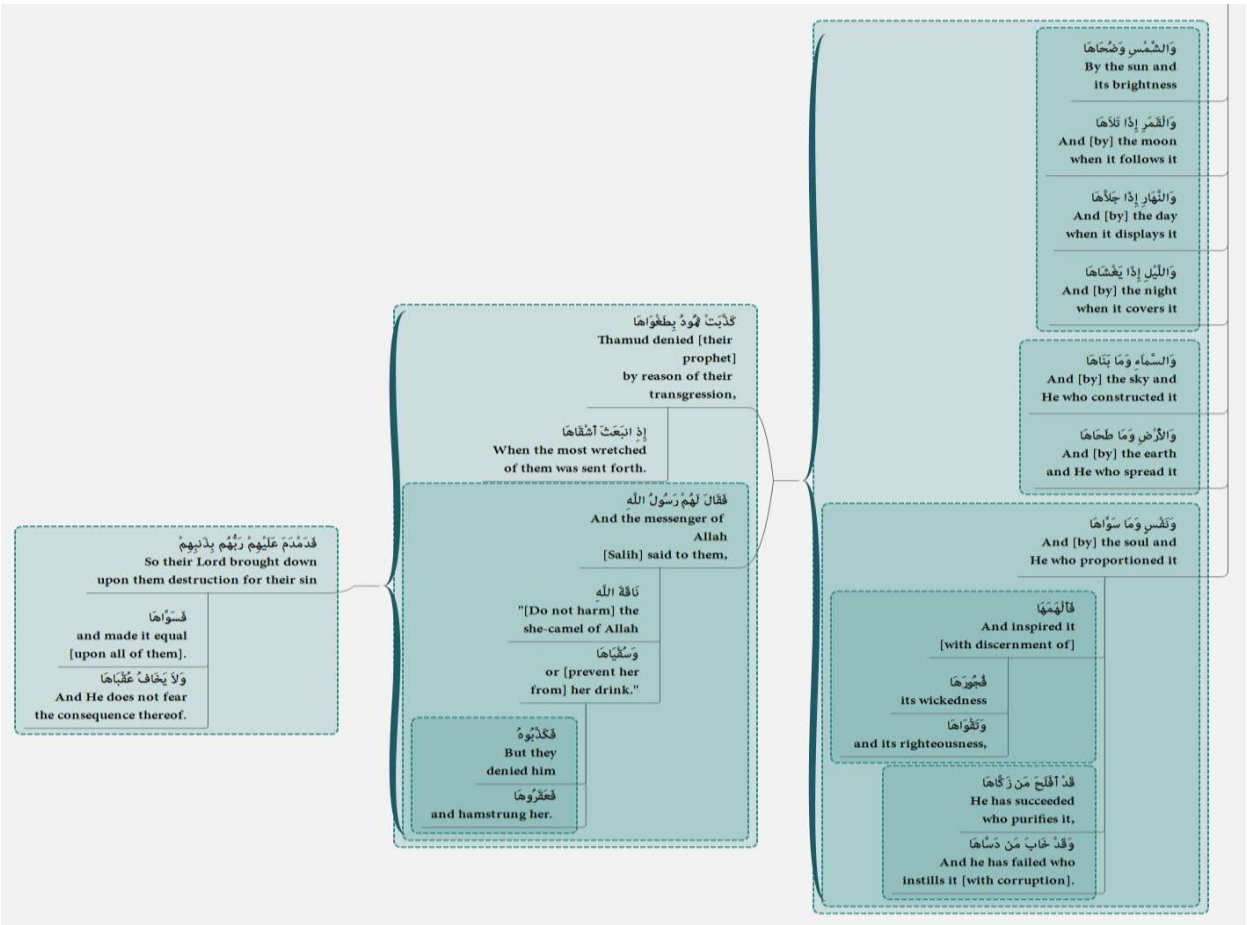

Figure 38 *Surat As-Shams* (Q 91:1-15)

5.2.6 The Interpersonal Learner

For Armstrong (2009) and based on Gardner's theory (Gardner, 1993a), interpersonal learners have the quality of making distinctions and perceiving other individual's feelings, motivations, intentions, and moods. They are able to read facial expressions, voice tones, and body language; in addition to having the required aptitude to respond to these psychological cues in an effective pragmatic manner such as influencing a group of people to follow some action. Therefore, Gardner makes a slight comparison between the intrapersonal and the interpersonal intelligences based on the individual's own psychological inward or outward readings.

Gardner (1993a) argues that interpersonal intelligence, as the second type of personal intelligences (interpersonal and intrapersonal), turns outward to other persons. He states that intrapersonal and interpersonal intelligences are formed according to the cultural symbol systems of a given society. Therefore, interpreting experiences depend on that especial society's distinctive system of meaning. Accordingly, these systems of

meaning and distinctive features are readily identified across miscellaneous cultures. Remarkably, characteristics of each of the personal intelligences are integrated and could be observed as "*intimately intermingled in any culture*" (Gardner, 1993a).

The Holy Qur'an provides numerous cultural hints to identify the systems of meaning across a number of the old societies and presents real-life stories rich in interpersonal distinctive features. And as a common system of meaning for Prophet Mohammad, peace be upon him, to follow when dealing with the society around him. It is worth mentioning here that the first four ayas of Surat Al-Baqarah (Q2:1-5) mentioned the believers and the ayas (Q2: 6-7) mentioned the disbelievers. (*Figure 39*) and (*Figure 40*) below provide an example of how the Holy Qur'an describes people with internal and external characteristics that nobody could reach because they are sometimes critical intrapersonal issues.

So, in (*Figure 39*) the Holy Qur'an provides five characteristics and attributes of the believers concerned with their creed and deep faith and their type of award as guidance and success provided to them by the Almighty Allah. Therefore, the believers are described here as guided by the Holy book, believe in the *Ghayb* (the unseen), perform *Salah* (prayer), and spend out of what Almighty Allah has provided them.

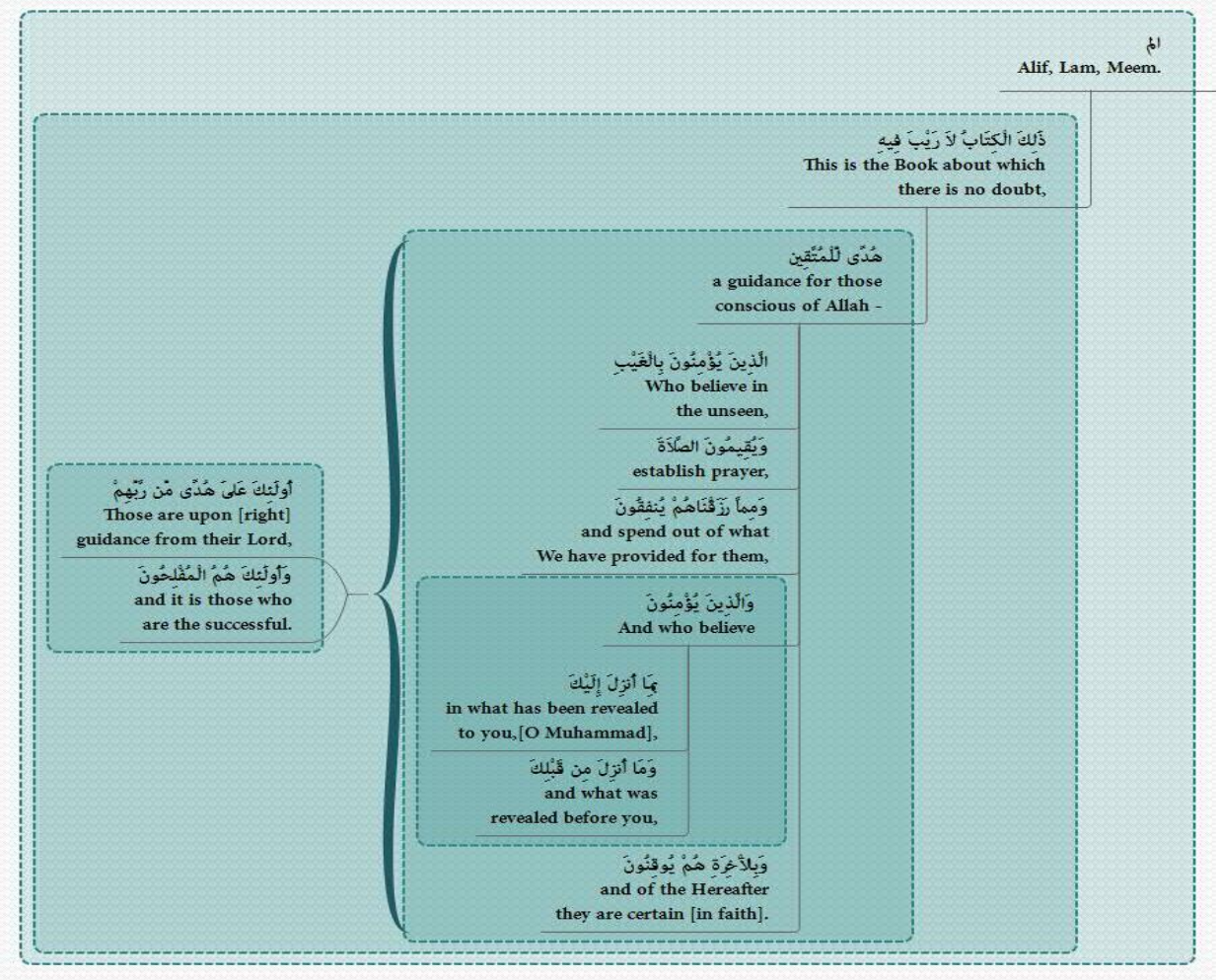

Figure 39 Surat Al-Baqarah (Q2:1-5)

The following ayas (Q2: 8-16) in (*Figure 40*) talk about hypocrites where Almighty Allah provides a detailed description of them (the hypocrites) since their reality is hard to discover because they "*show belief and hide disbelief*" (Al-Mubarakpuri, 2003a). Likewise, a hypocrite was defined by Ibn Jurayj that "*His actual deeds are different from what he publicizes, what he conceals is different from what he utters, his entrance and presence are not the same as his exit and asence.*".[11]

The work of the Qur'anic maps then is to categorize these details in an absorbable manner where all descriptions of the hypocrites are clear for every Qur'anic reader. Strikingly, the interpersonal learners as well as the intrapersonal learners would find it as eye-catching detailed psychological descriptions supported by the many technical features of clarity and topical classification the Qur'anic maps enjoy. What helps

[11] At-Tabari 1: 270

presenting these characteristics of the hypocrites in submissive categorization is the fact that most of them appear as conditional clauses in different levels of formal structures that require especial kind of linguistic care and exegetic commentary.

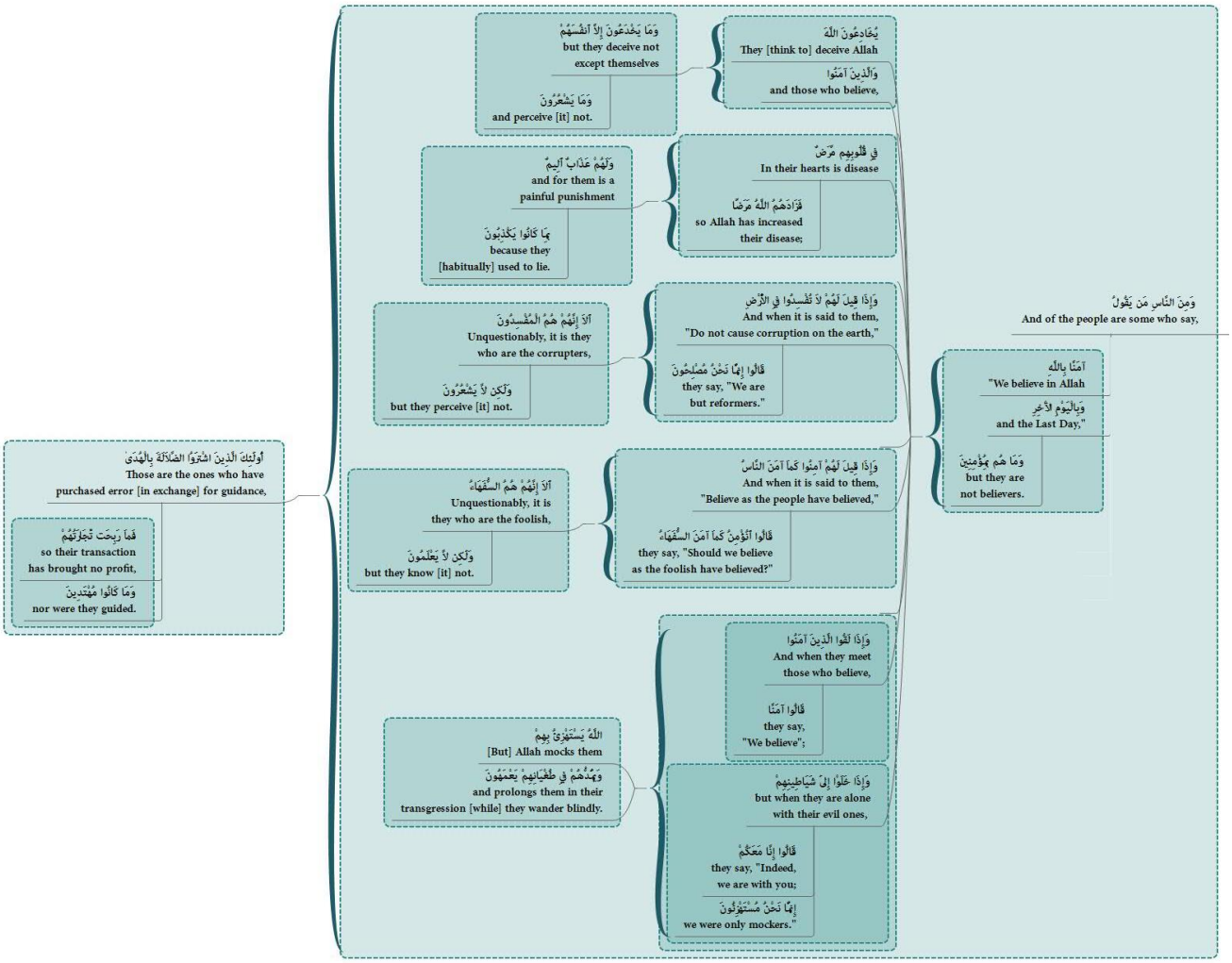

Figure 40 Surat Al-Baqarah (Q2:8-16)

Other features such as topical classification and topical relatedness also take place in the given piece of Qur'anic texture. The same topic of hypocrisy is found to be mentioned in other chapters of the Holy Qur'an such as in *Surat At-Tawbah* (Q9), *Surat Al-Munafiqun* (Q63), *Surat An-Nur*, and other *surahs* (Al-Mubarakpuri, 2003b). This reality assures the fact that the Holy Qur'an perfectly adopts the art of storytelling in different ways hopefully to saturate the needs of the different types of intelligence the Qur'anic readers have.

5.2.7 The Intrapersonal Learner

> The core capacity at work here is access to one's own feeling life—one's range of affects or emotions: the capacity instantly to effect discriminations among these feelings and, eventually, to label them, to enmesh them in symbolic codes, to draw upon them as a means of understanding and guiding one's behavior. (Gardner, 1993a)

Intrapersonal learners have the ability to understand and distinct their own strengths and limitations, and others' feelings (Denig, 2004, Giles et al., 2003, Hoerr et al., 2010). They enjoy self-knowledge and act according to that knowledge reaching "*awareness of inner moods, intentions, motivations, temperaments, and desires*" (Armstrong, 2009). They learn best when working alone, doing self-paced projects, having space and choices (Giles et al., 2003) and when they value and understand the outcome of the given task (Brophy, 2013). Therefore, as the Qur'anic maps are a self-study bilingual reference based on the interpretation of the Holy Qur'an, intrapersonal learners are expected to put forth less efforts in the comprehension, memorization, and absorption of the extracted Qur'anic concepts included in these maps and gain huge outcomes.

Hoerr et al. (2010) describe intrapersonal learners as capable of identifying and labeling feelings, an aptitude that is required to distinguish numerous examples in the Holy Qur'an such as the following examples:

The situation here bears a reaction of two types of learners; the interapersonal learner as in "*But Joseph kept it within himself and did not reveal it to them.*" That is when Yusuf's brothers accused him to theft saying that "*If he* [Yusuf's brother] *steals – a brother of his* [They mean Yusuf himself] *has stolen before.*", and the interpersonal learner as in "*He said, [within himself] 'You are worse in position, and Allah is most knowing of what you describe.* "'. Although, both situations remain as internal issues and self-limited feelings and talks, but Allah has unveiled them possibly because of their highly improtant role in the incidents of Yususf's story that was described as "*We relate to you, [O Muhammad], **the best of stories** in what We have revealed to you of this Qur'an although you were, before it, among the unaware.*" *Surat* Yusuf (Q12:3).

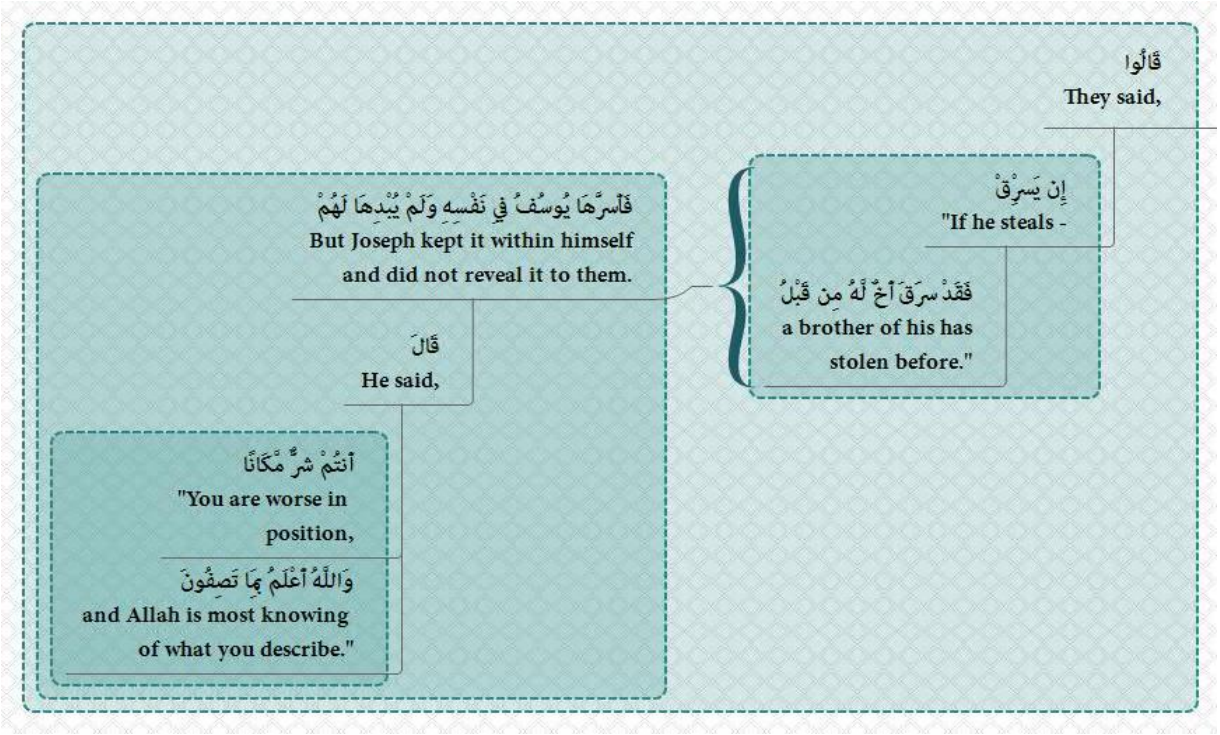

Figure 41 Surat Yusuf (Q12:77)

Worthwhile, numerous extracts from the Holy Qur'an bear the same sort of such descriptive characteristics of the nine types of intelligences. Forexample, the following extract from *Surat Al-Anbya* (Q21:87) represented in (Figure 42) which picturizes a very deep investigation of internal feelings in an environment surrounded by loneliness (alone inside the sea), fear (swollowed by a whale deep in the sea and afraid of being a wrongdoer), and darkness (within three layers of darkness: night, deep in the sea, deeper in the stomach of the whale). "*And [mention] the man of the fish, when he went off in anger and thought that We would not decree [anything] upon him.* ***And he called out***

within the darknesses, *"There is no deity except You; exalted are You. Indeed, I have been of the wrongdoers.*" *Surat Al-Anbya* (Q21:87).

The concept map dedicated to this story is meant to re-present these feelings in an absorbable manner so interapersonal leaners or readers of the Holy Qur'an can realize the situation and be guided accordingly. It is worthmentioning here that the same story is

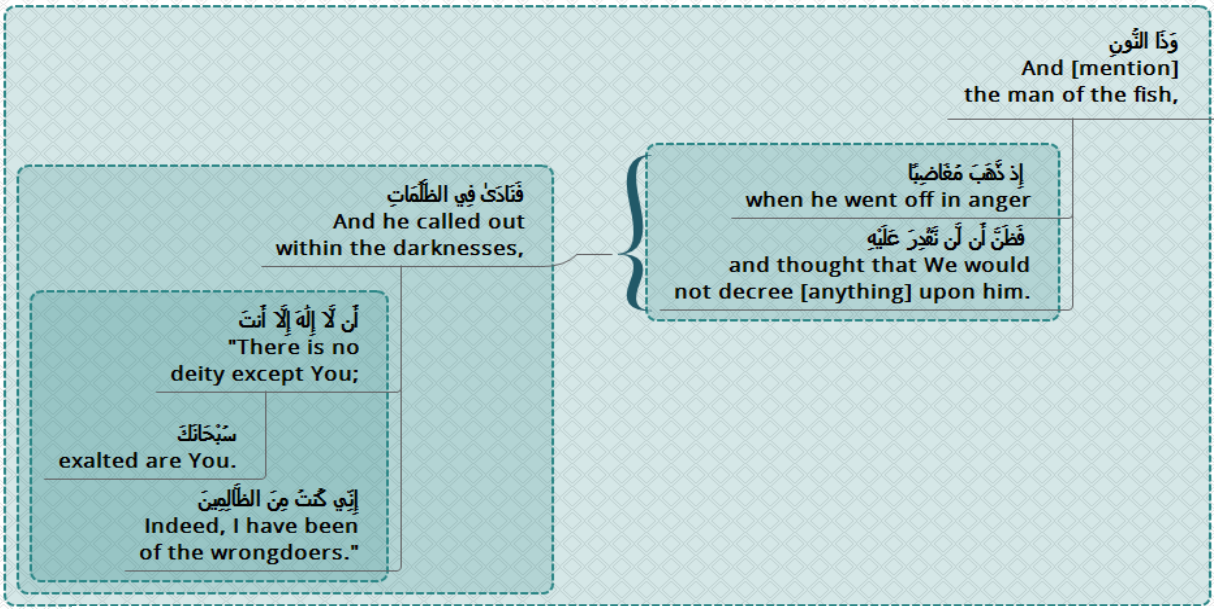

Figure 42 Surat Al-Anbya (Q21:87)

narrated in another style and with more details in another chapter of the Holy Qur'an which reflects the art of storytelling in the Holy Qur'an and its capacity of addressing different types of learners according to their way of thinking and faculty of understanding and comprehension.

The Holy Qur'an moved beyond the limits of this life's incidents to extracted scences from the incidents of the hereafter. The Holy Qur'an describes a scene of disbelievers who were stopped at the fire with feelings of remorse and compunction (Figure 43). They wish they were returned to life on earth and given another chance to do better than their last time. Apparently, these feelings are reflected in a psychological way best to be understood by secific interapersonal Qur'anic readers. And as it is the habit of the Holy Qur'an, stories of the hereafter are told in different ways possibly aiming at addressing the other types of intelligencies and learners' capacities.

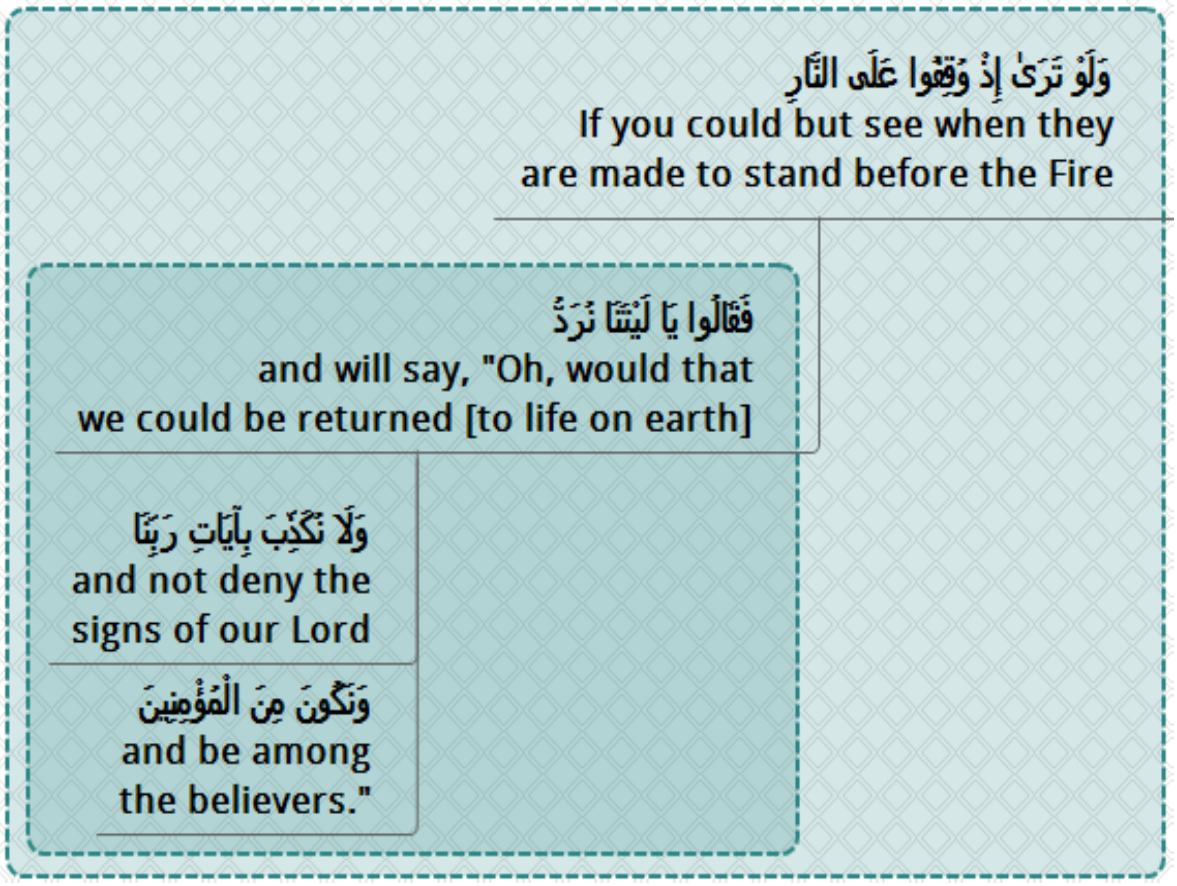

Figure 43 Surat Al-An'am (Q6:27)

5.2.8 The Naturalist Learner

> *"Indeed, in the creation of the heavens and the earth and the alternation of the night and the day are signs for those of understanding. Who remember Allah while standing or sitting or [lying] on their sides and give thought to the creation of the heavens and the earth, [saying], "Our Lord, You did not create this aimlessly; exalted are You [above such a thing]; then protect us from the punishment of the Fire."* (Q2: 190-191)

Gardner (1993a) defines the natural intelligence as "*the ability to make consequential distinctions among organisms and entities in the natural world*". So, naturalistic learners have the habit of focusing on the recognition and classification of environmental phenomena (Kezar, 2001) and their most valuable learning sources are the natural settings (Armstrong, 2009). They work better when exposed to nature, learning about natural events and plants, exploring living things (Denig, 2004), dealing with sensing patterns, and establishing connections with elements in nature (Wilson, 1998).

It is great for the Qur'anic maps that people with the naturalistic intelligence are uniquely able to "*recognize, categorize, and draw upon certain features of the surrounding environment"* (Michońska-Stadnik, 2012) armed with their unique naturalistic capacities. All through the Holy Qur'an, naturalistic learners are particularly invited and addressed in numerous occasions to practice profound reflection (giving thought) in order to discover the greatness of Allah through communing with nature and answering all the questions related to creation, creativity, and the Creator. Reflection, which translates for *"Tafakkur"* in Arabic, is a highly valued sort of worshiping practice and leads to deep faith.

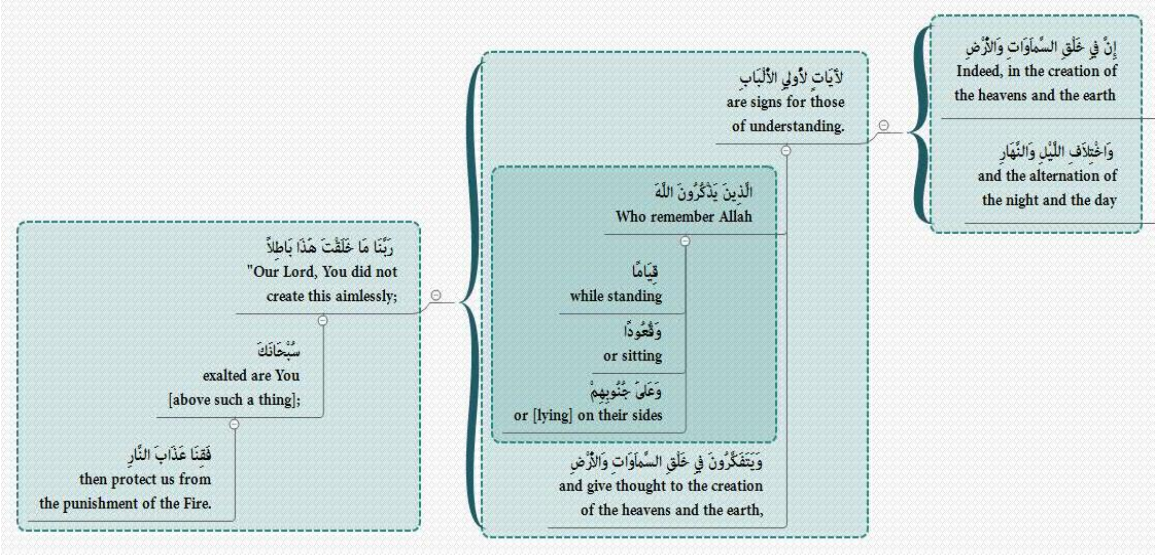

Figure 44 Surat Aal Imran (Q3: 190-191)

The Qur'anic map in (*Figure 44*) above embodies the two verses from the last part of *Surat Aal Imran*. It shows the proofs of *Tawhid* for the men of understanding and provides, in detail, the characteristics of their feedback when reached the end of their journey of thinking of the beloved realm (nature). Their deep thinking turned out into deep faith and concluded with that the Almighty Allah has not created those creatures aimlessly or without purpose. Indeed, there are signs that lead them to the creator of the universe "the Almighty Allah". Nature and thinking in nature have put those people of understanding at the top of the nine intelligences because they are now the learners of big answers about the creation of the heavens and earth and about the alternation of the night and the day.

Consequently, naturalists' best way of learning appears when they work in nature, are exposed to living things, and learn about natural events and plants (Giles et al., 2003, Denig, 2004, Christison, 1998). Therefore, this atmosphere when provided to the

naturalist learners, they learn best, think deeply, and come up with outstanding results and understanding. Because of that it is still obvious that the holy Qur'an sends calls for the naturalistic intelligent people to think in nature and its wide realm, which is always nearby, to get understanding of the hard questions they have no answer to. So, the Qur'anic map in (Figure 45) below highlights the natural areas where naturalistic learners could find answers for their questions: "*at the camels – how they are created?*", "*And at the sky – how it is raised?*", "*And at the mountains – how they are erected?*", "*And at the earth – how it is spread out?*".

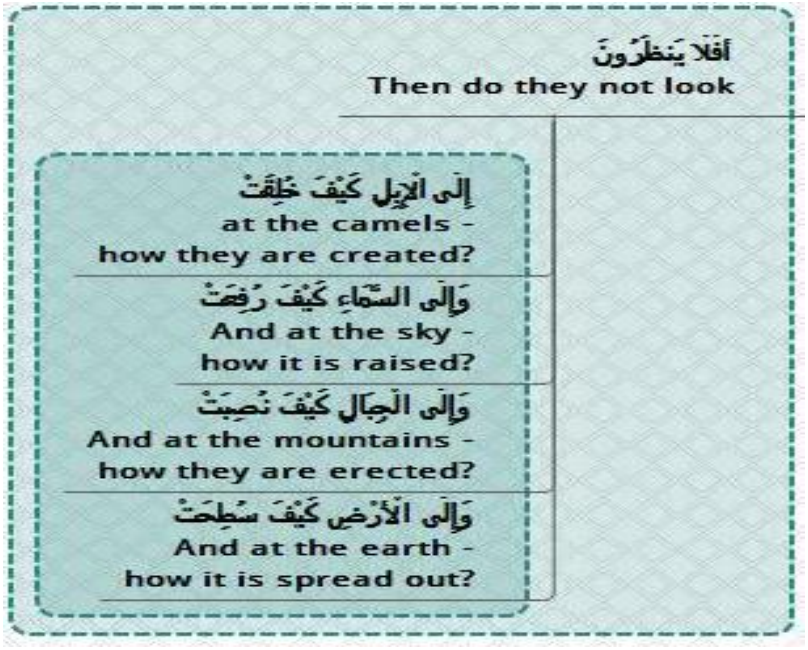

Figure 45 Surat Al-Ghashiyah (Q88:17-20)

5.2.9 The Existential Learner

> Since eternity man has always wanted to understand and probe into secrets of Nature; how and when creation began and his purpose in this world. This inquisitive man sought the help of civilizations, nature, old manuscripts, sometimes even the prophesies of saints and above all religions. (Saadat, 2009)

The existential learners who enjoy "*the intelligence of big questions*" (Gardner, 1993a) seem to brood on the nature and meaning of life (Akbari and Hosseini, 2008), utilize technology to secure better choices benefiting from the available data, and to make efficient solutions to problems in order to enhance the quality of life (McKenzie, 2005). This type of learners enjoys the capacity of contemplating beyond-sensory-data questions or phenomena such as the infinite and infinitesimal (TEMİZ, 2004) and engages large

questions of a special nature about the meaning and purpose of existence (Armstrong, 2009). For Gardner and Miller (1999), existential learners are the learners who concern with ultimate issues of life such as aims of human endeavor, the problem of evil, and the meaning of life.

Existential and visual intelligences provide learners with the opportunity to embody solutions, ideas, and products they can use to enhance the quality of their lives (McKenzie, 2005). So, both intelligences require that learners have special sort of anticipation and accompany particular analytical and logical capacities in order to get their big distinctive picture of life. They are guided by big questions and a collection of distinguishing answers that put them at the top of the hierarchy of intelligences. Additionally, the Holy Qur'an invites these sorts of intelligence to explore the reality of life and the core content of creation through numerous interrogatory styles. Interestingly, it is not found strange that the Qur'anic textual and rhetorical structures are capable of addressing all sorts of learners with their diversity of intelligence and capacities. Therefore, the work of the Qur'anic mind and conceptual maps when the Qur'anic text addresses the existential learners is to facilitate the linguistic path and make clear the textual elements for a better understanding and utmost outcomes.

Nicholson-Nelson (1998) states that the ninth intelligence (existential intelligence) caused Howard Gardner to search the possibility of an intelligence that has to do with the individual's ability to ponder existence and its nature and find answers to the questions of life such as who we are, why we die, and how we got there. Interestingly, the following Qur'anic map (*Figure 46*) draws existential learners' attention toward the answer of their biggest and most critical questions in their beloved logical hierarchy of evidences and stages of creation or embryonic development.

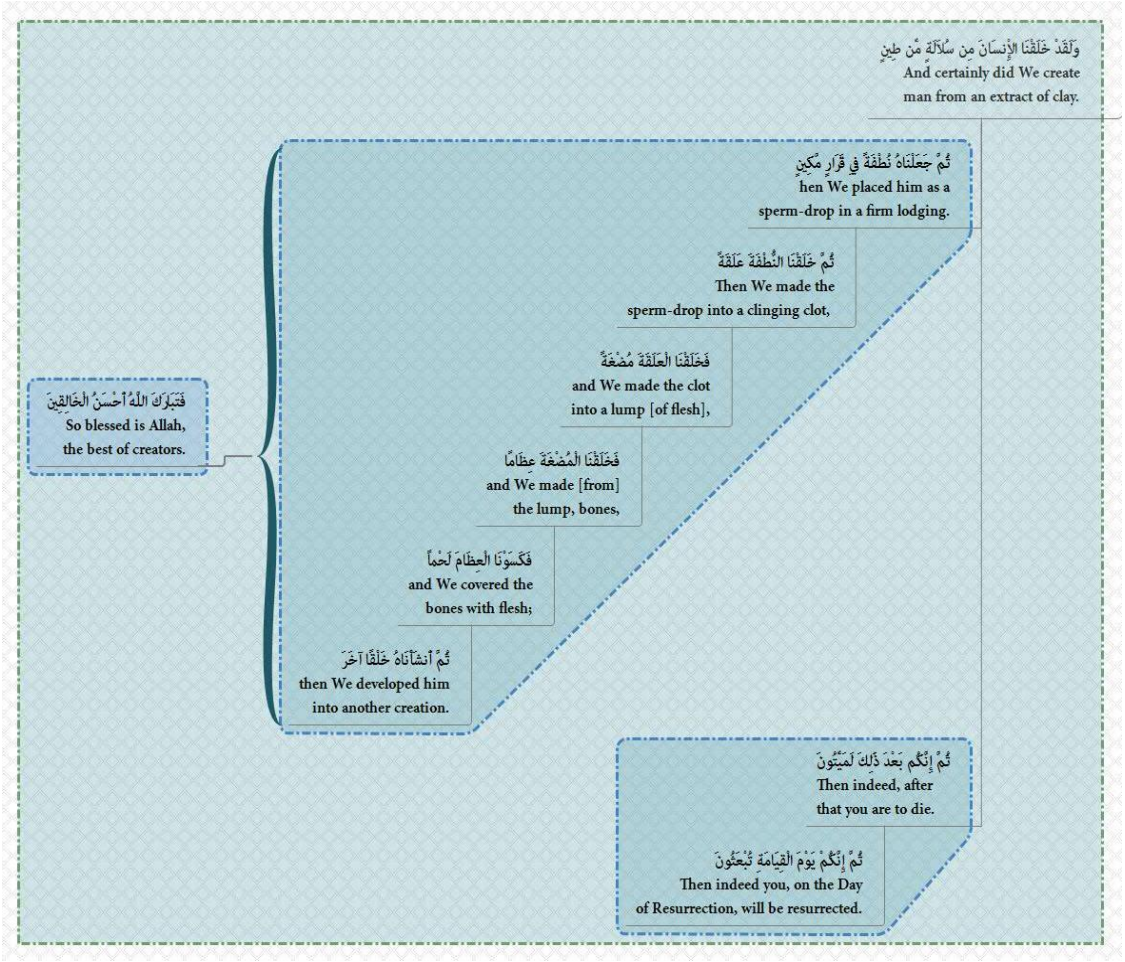

Figure 46 Surat Al-Mu'minun (Q23:12-16)

The whole life span of an individual is immensely described in a way that does not contradict science and state-of-the-art technologies; rather, they proved the facts included in the verses in the Qur'anic map (*Figure 46*). Likewise, Saadat (2009) argues that "*Man's quest to know about his origin has led him to search his roots and the best source for him has been religious scriptures*" and the greatest miracle was found in the Holy Qur'an where a description of step-by-step developmental stages of intra-uterine life exists. Man's embryonic development has been discussed in a detailed manner in more than one chapter in the Holy Qur'an (Mahdi et al., 2012, Saadat, 2009).

The role of the Qur'anic maps is to simplify the Qur'anic answers for the questions raised by existential learners. The example above and the like embody very critical concepts about the creation of man for which scientists spared no time nor effort in searching for the way man is created in the uterine of his mother. Saadat (2009) and Mahdi et al. (2012) summarized the very long debate and results regarding this issue and listed the thoughts of Aristotle, the Greeks and the Europeans, Fabricus, Malphigi, Leeuwenhoek, Hartsoeker's, Spallanzani, Von Baer, Darwin and Haeckel, …etc. Finally,

the full reality of the developmental stages of the embryo was unveiled by the Holy Qur'an and the sayings of Prophet Mohammad, peace be upon him.

Big questions that distinguish existential learners from other learners appear in various sites in the Holy Qur'an with fascinating stories from the past. Next in (*Figure 47*) is the example Uzayr – a man from the Children of Israel – who passed by the city of Jerusalem after it has been ruined by Nebuchadnezzar who destroyed it and killed its people (Al-Mubarakpuri, 2003b). Many proofs were left for Uzayr to understand that his queries were answered in full such as leaving the city ruined then it turns into a rebuilt inhabited one, a dead body with scattered bones everywhere, and against all that his food was not affected by the long period of death.

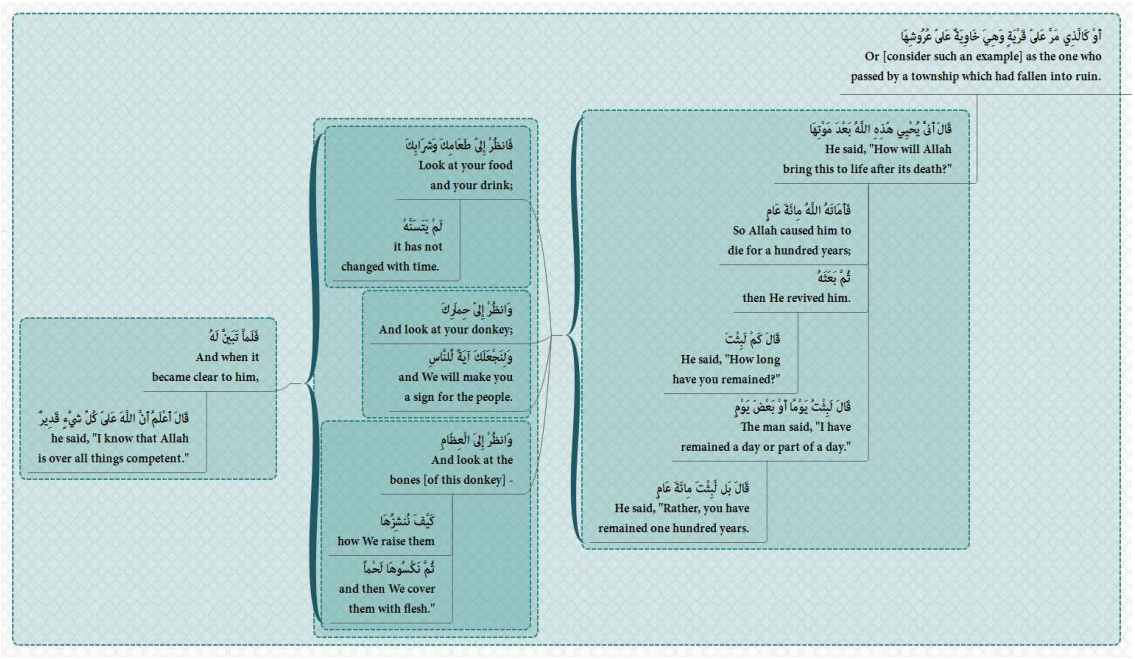

Figure 47 Surat Al-Baqarah (Q2:259)

Another example in which the type of intelligence – an existential-intelligence case - is considered in the Holy Qur'an is typically found in (*Figure 48*). Therein, the way that Prophet Ibrahim (Abraham), peace be upon him, finds a convincing answer to his question "*Lord! Show me how You give life to the dead. ...*" was considered through the experiment that best suits his inquiry and type of intelligence (existential intelligence). Abraham's inquiry was a big question that requires an equivalent answer with hands-on activity, clear instructions "… *So take four of the birds, then wring them to you (and divide them); thereafter set a portion of them on every mountain; thereafter call them;* …", and instant results "… *they will come up to you with hasty diligence ...*". Ultimately,

a very interesting benefit has been reached "*... (and) know that Allah is Ever-Mighty, Ever-Wise.*" (Q2:260).

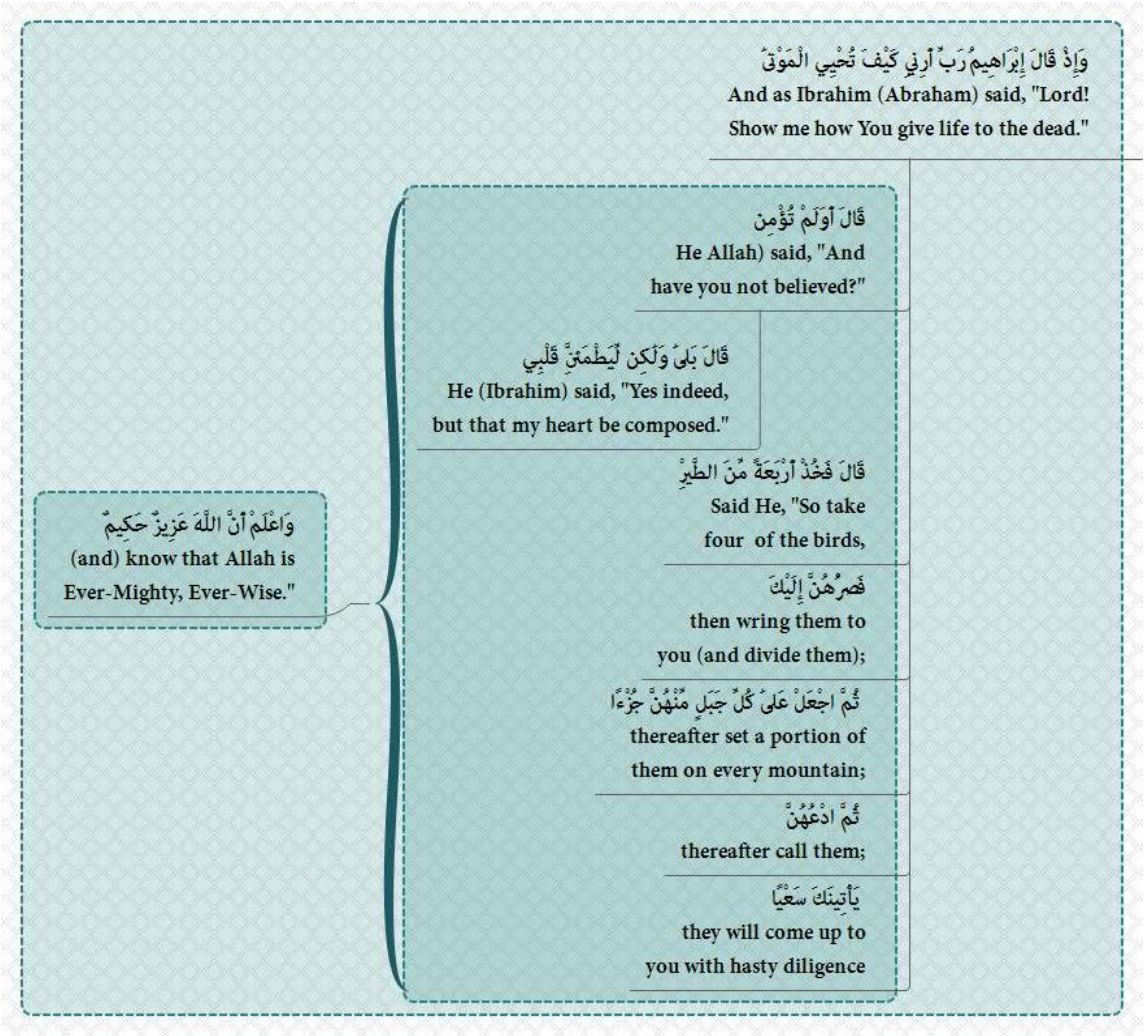

Figure 48 Surat Al-Baqarah (Q2:260)

Yet, the difference between the stories of Uzayr and Prophet Ibrahim, peace be upon him, is that in the first story of Uzayr has been part of the experiment "… *So Allah caused him to die for a hundred years; then He revived him. ...*". Ibrahim, peace be upon him, however, was the one who follows the instructions, watches the incidents, and observes the results. Interestingly, both experiments take the model of what is so-called problem-based learning where the way of thinking – the existential intelligence – was considered and dealt with in an appropriate manner.

Apparently, individuals with existential intelligence require integrating a number of intelligences when solving any of their inquiries (big questions) as appeared in the stories of Uzayr (*Figure 47*) and Prophet Ibrahim, peace be upon him, in (*Figure 48*). For instance, one may note the need for the logical and visual intelligences in the first example

and the visual, kinesthetic, natural, and logical intelligences in the second. This reality supports the sense of Kreitner (1981), Murphy (1999), and Wróbel (2012) in that existential intelligence may also be accompanied by a collection of other intelligences.

CHAPTER VI

CONCLUSIONS AND DISCUSSIONS

6 CHAPTER VI: Conclusions and Discussions

6.1 Overview

This chapter discusses the results reached through applying the descriptive research approach. It then presents these results according to the order of chapters. Lastly, the researcher recommends some points in light of this study for further research.

6.2 Summary of the Study

The current study has worked on achieving the following set of objectives:

1. To detect any contemporary advances in the use of the mapping techniques in the presentation of the Holy Qur'anic text.
2. To highlight any linguistic theories that can be reflected in produced Qur'anic maps.
3. To unveil any inter-relationships between the produced Qur'anic maps and the nine intelligences mentioned in the theory of Multiple Intelligences.

6.3 Findings

The study has worked on answering the following questions through chapters two, four, and five:

1. Are there any contemporary advances in the use of the mapping techniques in the presentation of the Holy Qur'anic text?
2. Are there any linguistic theories that can be reflected in the produced Qur'anic maps?
3. Are there any inter-relationships between the produced Qur'anic maps and the nine intelligences mentioned in the theory of Multiple Intelligences?

6.3.1 Question 1

1. Are there any contemporary advances in the use of the mapping techniques in the presentation of the Holy Qur'anic text?

Answering the first question required an investigation in the journey of the presentation of the Qur'anic text throughout a long Islamic history of more than 1440 Hijri years. This study revealed that the Qur'anic text has undergone different phases of efforts of presentation and display starting from the use of various means to write on such as

leather of gazelle, bones, stones, cloth, stones, papyrus, or wood (McAuliffe, 2006). Later, the presentation of the Qur'anic text has witnessed a paradigm shift during the era of the Caliph Uthman ibn Affan who started the collection of the Qur'an in one book (the *Mushaf*). The holy book then dressed the Islamic ornamentations and decorations which it has been preserving since the eighth Hijri century up to this moment.

The textual work on the Qur'anic text has developed remarkably for the sake of "*clarity, precision, and efficiency*" (Mustapha, 2009). Therefore, a great deal of work has been done on the enhancement of Qur'anic text visualization which translates for combining the characteristics of imaging and graphics, human-information and human-computer interactions, scientific visualization, and information technology (Robertson et al., 1993). Consequently, efforts have been striving to provide the Qur'anic reader with the most visualized and comprehensible textual output of the Qur'anic text.

Ultimately, the conceptual work on the Qur'anic presentation has been provided as a standalone characteristic of the Holy book. Thus, the topical classification of the Holy Qur'an remains as a milestone for the contemporary consequences that lead to the emergence of the mapping of the Qur'anic text whether in ontologies or mere concept maps of the Qur'an as in the case of this study. The Qur'anic concept maps of the current study could be considered as a compendium of a long history of enhancements both in the textual and conceptual levels of presentation of the Qur'anic text. They enjoy several characteristics ranging between bilingualism (the Arabic Qur'anic text accompanied by the translation of its meanings), colorful boundaries and linear networks based on authenticated topical classification and exegetic opinions, and eye-comfort and easy-to-follow presentations.

6.3.2 Question 2

2. Are there any linguistic theories that can be reflected in the produced Qur'anic maps?

Through their use in manipulating the Qur'anic text, the Qur'anic maps are found to involve numerous linguistic theories such as semantics, semiotics, discourse analysis, natural language processing or computational linguistics, pragmatics and computational pragmatics, psychological linguistics, and metalinguistics. Remarkably, the Qur'anic

maps appear as having more room for other linguistic theories which have not been examined through this study. So, the door is open for other studies to survey other linguistic phenomena that could be read between the lines of the Qur'anic maps.

6.3.2.1 Discourse analysis

The current study highlights how the Qur'anic maps have the capacity to reflect in its designing and careful Qur'anic text manipulation numerous – if not all – linguistic theories. In that sense, Qur'anic maps in this study highlight discourse analysis which only considers closer scrutiny of ideas, relates to the larger view rather than considering the general understanding (Widdowson, 2007), and that adopts the definition of discourse theorized by Horton et al. (1993) as language plus context. Additionally, what Widdowson (2007) and Horton et al. (1993) believe is in an agreement with Abdul-Raof (2003) in that the Qur'anic texture cohesion and Qur'anic conceptual and intertextual chaining make Qur'an as a featured discourse texture.

6.3.2.2 Semantics and semiotics

Extraction of meaning from the Qur'anic text is the main reason behind the formation of the current Qur'anic maps. Therefore, semantics, as being the study of meaning in language according to Griffiths (2006) and Bagha (2011) and as being the extraction of meaning out of words according to Sturrock (1986), is singled out from the many linguistic theories as particularly an important element in the work of the Qur'anic maps. Meaning is the work of Qur'anic exegesis and interpretation which has been thoroughly considered in the formation of the Qur'anic maps in this study with decent integration between the original Arabic Qur'anic text and the English translation of its meanings. Likely, the power of semiotics, which translates for the extraction of meaning out of signs (Sturrock, 1986), unites with the Qur'anic text to work as units of meaning in the sense of Novak and Cañas (2008) and guides the Qur'anic reader through the network of lines, nodes structures, colorful designation, summarization tools, boundaries, … etc.

6.3.2.3 Computational linguistics

The work of computers in what is so-called natural language processing is typically reflected in the production of the Qur'anic maps presented in the current study. Furthermore, attempting to use computers in the treatment of natural language as defined

by Bird, Klein, and Loper (2009) brings the formation of the Qur'anic maps, in their current style, in the field as a new domain of research. Similarly, Chowdhury (2003) fills the gap between the purpose behind the use of computers to build the Qur'anic maps and the definition of NLP and computational linguistics as an area of both application and research that focuses on the use of computers in carrying out helpful things to manipulate natural texts or speech.

6.3.2.4 Psycholinguistics

The Qur'anic maps prove their capability of encompassing numerous linguistic features that bring it closer to the theory of psycholinguistics which combines psychology and linguistics (Smith, 2012). In that sense, psycholinguistics studies the mental processes and types of knowledge required for the understanding and producing of language (De Groot, 2011; Steinberg & Sciarini, 2013). Therefore, readers of the Qur'an now find themselves in debt of gratitude to the Qur'anic maps for serving their multiple intelligences by simplifying the Qur'anic texture in absorbable bilingual pieces of language surrounded by numerous helpful technical tools and linguistic features.

6.3.2.5 Pragmatics

Pragmatics, when defined as "*the study of relationships between linguistic forms and the users of those forms*" (Yule, 1996) is found to be well functioning in the final output of a given Qur'anic map where the relationships between the linguistic forms – the Qur'anic text – and the producer of the linguistic forms – Allah – is clearly demonstrated and conveyed to the Qur'anic readers. The Qur'anic text within the Qur'anic maps is supported by the English translation of its meaning in a flexible bilingual manner where its textual elements are promoted with a colorful topical classification system to facilitate concepts and understanding to the readers' mind. Most importantly, the fact that the Holy Qur'an is the message of God to human beings carries the definition of pragmatics in a clear view as *relationships between linguistic forms* [the Qur'anic message] *and the users of those forms* [human beings] (Yule, 1996).

6.3.2.5.1 Computational pragmatics

The field of computational pragmatics according to Bunt (2000) appears as a typical match to the description of the Qur'anic maps and their final output as a means of effectively utilizing the contextual information of the holy Qur'an to communicate language production and understanding processes – as Qur'anic maps. Moreover, it is a main function of the Qur'anic maps to investigate the relationships between aspects of a given Qur'anic context and its linguistic phenomena on the one hand, and the linguistic phenomena and their textual explanation on the other. For Bunt and Black (2000), these tasks are the concern of computational pragmatics which performs them with regard to effective computability and the representation and analysis of the resulting information of these relationships.

6.3.2.6 Metalinguistics

In addition to their correspondency with discourse analysis, semantics, semiotics, psycholinguistics, pragmatics, computational pragmatics, and computational linguistics, the Qur'anic maps are found to have metalinguistic characteristics. Likewise, linguistic, cognitive, and functional language theories claim that language has its own basic units of representation (constructions) structured as form-function mappings with artistic forms that affect speech and fix firmly as language in the learner's mind (Ellis, 2005). For Ellis (2005) those constructions characterize lexical, syntactic, and morphological forms on the one hand, and the accompanying pragmatic, semantic, and discourse functions on the other. Building on Ellis' statement and what Roehr (2008) believes that language can be produced in various ways, the Qur'anic maps prove their capacity of manipulating the Qur'anic text (language) in a developed mapping format. In this mapping format it enjoys its own linguistic characteristics besides clarity (presented in a bilingual detailed manner), long-term memory (promoting mnemonics), colorful categorization of concepts (topical classification), …etc.

6.3.3 Question 3

3. Are there any inter-relationships between the produced Qur'anic maps and the nine intelligences mentioned in the theory of Multiple Intelligences?

The human intelligences are personally invited through the current concept mapping technique to satisfy their interests in the understanding and comprehension of the Qur'anic teachings and messages. Sometimes, stories are handled in different ways aiming at allowing the different types of learners with their different types of intelligences to absorb the lesson and reflect it the way they prefer. Consequently, the current style of concept maps does the same and rounds up the degree of clarity by shifting from a mere text presentation to a well-designed colorful text re-presentation accompanied by numerous helping features in an image-based setting.

The Qur'anic maps introduced here in this study reflect a large set of linguistic features which are apparent to the Qur'anic learners at their first glance. Initially, learners will be faced with logical ends of meaningful textual segments capable of turning their attention to logical turns in an unprecedented way. These turns are built on conceptual bases logical enough to continue taking readers in a special experience of visual clarification of stand-alone interpretive cutouts that work in a collaborative manner with other similar units in a larger conceptual view. Relatively, for Ausubel (2012), it is not necessary for learners to acquire and retain knowledge in formal contexts in academic settings where learners and educators interact in a stereotypical way habitually for this purpose. Instead, he states that when the learning process is meaningful, the ideational outcome of it will be a semantic memory, that tends to be long-term, with the emergence of new meanings.

Consequently, the study of text relations enjoys two key approaches in the field of linguistic studies; Relevance Theory and Coherence Theory. These two approaches are pragmatic in nature and consider the non-linguistic factors responsible for governing our understanding of the meaning rather than explaining text based on its mere linguistic form (El-Awa, 2006). El-Awa went on explaining that the approach to the study of coherence relations will care mainly for the formal relations that connect the parts of a text in addition to the important elements to its textuality. The coherence approach searches for cohesive ties and the way they are employed in a text that approximately determine its

meaning. In this direction, the current concept maps work on reflecting both text units and the cohesive ties and go on to make clearer the relevance relations. In fact, the Qur'anic maps bring theory into practice regarding the considerations of cohesive ties and relevance ties and re-present them in a multi-dimensional manner saturated with a set of clarification tools (colors, boundaries, lines, …etc.). Most importantly, the maps strictly follow an interpretive topical classification that guarantees the understanding of the text within the agreed-upon topical concepts.

Great mastering of the knowledge introduced to a leaner through what is so-called overlearning [concept maps as an example] or gaining more practice with the material means a slow rate of memory decay (Farr, 1986). Relatively, Farr went on focusing on the relationship between memory - as largely reconstructive, and the teaching of concepts, rules, and principles to complement the teaching of facts or knowledge. On the other hand, Daley and Torre (2010) celebrate concept maps as a teaching and learning strategy that enables medical students to solve a variety of complex clinical problems, integrate critical thinking skills, and most importantly retain information.

The Qur'anic maps depend mainly on the interpretation of the Holy Qur'an which is always a collection of scholars' explanations of the deepest Qur'anic meanings and concepts. Those interpretation attempts may extract their basics from the incidents, concerns, reasons of revelation, or Prophet Mohammad's (peace be upon him) explanations or interpretations. So, the Qur'anic maps work as a scaling-up tool that encompasses interpretation, topical classification, and representation of the text of the Holy Qur'an. They are in agreement with the definition of McDonald et al. (2006) for scaling-up as "*introducing proven interventions into new settings with the goal of producing similarly positive effects in larger more diverse populations*". They are there for an attempt to unify the expected outcomes of the efforts being done to simplify the understanding, memorization, and conceptualization of its numerous fields of study.

What was dominant in the field of Qur'anic conceptualization is general and does not go beyond the simplification of concepts through topical classification and Qur'anic concept maps. The part of Qur'anic maps before this study only cared for highlighting the mere general concepts of the Qur'anic *surahs*. But for the present Qur'anic maps, learners are exposed to a hybrid mapping system that integrates the Qur'anic interpretation, textual analysis with all its linguistic features, topical classification, and a subsumption of

concepts. All these features are accompanied by a colorful network of lines and summarization tools that provides a facility of logical interrelatedness helping learners to move fluently through the given Qur'anic piece of texture.

6.4 Recommendations

The Qur'anic maps in the proposed study are introduced for the first time in research and requires being under vigorous scrutiny and thorough investigation exegetically, linguistically, and educationally. So, this study recommends the following in the field of the Qur'anic maps as a new realm of research:

1. Extended research be carried out to track the contemporary enhancement of the presentation of the Qur'anic text through history based on the development of the Arabic calligraphy and Islamic ornamentations.
2. Extended research be held to discover more linguistic phenomena related to the use of the Qur'anic maps on light of the theories of linguistics.
3. Extended research be carried out to study, in a more investigative way, the virtual relationships between the Qur'anic maps and the theory of Multiple Intelligences.

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I here acknowledge that I have no responsibility for the accuracy or persistence of the URLs referred to here, and I do not guarantee the accuracy or appropriateness of any of the contents on such websites.

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