

ANALYSIS ON LOGIC IN *MI'YĀR AL-'ILM FĪ FANN AL-MANTIQ*

(Analisis Mantik dalam *Mi'yār al-'Ilm fī Fann al-Mantiq*)

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ABSTRACT

Mi'yār al-'Ilm fī Fann al-Mantiq of al-Ghazālī is the first book on Islamic logic. But a specific, comprehensive and exclusive study on its essence of the scientific contents and its importance in developing scientific thinking has never been done yet. Therefore, this study investigated qualitatively the background of *Mi'yār* and its contents using content analysis. In this study, the data which were collected using documentation method has been analyzed using the inductive, deductive and comparative methods. The process of analysis on logic in *Mi'yār* also been done using textual analysis method or textual content analysis method. This is because it is textual study. This study found that the theories, methods and thoughts on logic in *Mi'yār* have several similarities and differences with the logic of Aristotle. This study also found that many reforms, improvements, purifications and reconciliations have been made in *Mi'yār* which uplifted the theories on logic in *Mi'yār* as the theories of Islamic logic. In addition, this study found that the examples of logic application in *Mi'yār* are highly relevant to the life of a Muslim. *Mi'yār* should be a basic source of learning on logic and thinking methods of Muslims either in secondary schools or universities. Hence the constant and deep study on the content of *Mi'yār* is very

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significant and has high impact. But the dissemination of the output of this study is the next action that should be realized.

Keywords: al-Ghazālī; *Mi'yār al-'Ilm*; logic; techno-logic; Islamic logic

ABSTRAK

Mi'yār al-'Ilm fī Fann al-Manṭiq karangan al-Ghazālī merupakan kitab mantik Islam yang pertama. Begitu pun, kajian secara spesifik, komprehensif dan eksklusif tentang inti pati kandungan saintifiknya dan kepentingannya dalam mengembangkan pemikiran saintifik belum pernah dilakukan. Justeru kajian ini menyelidiki latar belakang *Mi'yār* dan kandungannya. Kajian kualitatif ini menggunakan metode analisis kandungan. Data yang dikumpul menggunakan metode dokumentasi telah dianalisis menggunakan metode induktif, deduktif dan perbandingan. Proses penganalisan mantik dalam *Mi'yār* pula dilakukan menggunakan metode analisis teks atau metode analisis kandungan teks. Hal ini kerana kajian ini merupakan kajian tekstual. Kajian ini mendapati bahawa teori-teori, kaedah-kaedah dan pemikiran mantik dalam *Mi'yār* ada persamaan dan perbezaan dengan mantik Aristotle. Kajian ini juga menemui banyak pembaharuan, penambahbaikan, pemurnian dan penyesuaian dalam *Mi'yār* sehingga mengangkat teori mantik dalam *Mi'yār* sebagai teori mantik Islam. Selain daripada itu, kajian ini mendapati bahawa contoh-contoh aplikasi mantik dalam *Mi'yār* adalah sangat relevan dengan kehidupan seorang Islam. Tegasnya, *Mi'yār* patut menjadi sumber asasi pembelajaran ilmu mantik dan kaedah berfikir bagi umat Islam sama ada pada peringkat sekolah menengah atau universiti. Justeru kajian yang berterusan dan mendalam terhadap kandungan *Mi'yār* adalah amat signifikan dan berimpak tinggi. Begitupun penyebaran hasil kajian tersebut adalah tindakan seterusnya yang patut direalisasikan.

Kata kunci: al-Ghazālī; *Mi'yār al-'Ilm*; mantik; teknomantik; mantik Islam

INTRODUCTION

This study was conducted to investigate, analyze and describe the identity of *Mi'yār al-'Ilm fī Fann al-Manṭiq* which was written by al-Imām Zayn al-Dīn Ḥujjat al-Islām Muḥijjat al-Dīn Abū Ḥāmid Muḥammad b. Muḥammad b. Muḥammad b. Aḥmad al-Ghazālī al-Ṭūsī (450-505/1058-1111) (Kaḥḥālah 1960; al-Ṣafadī 1961; Lazarus-Yafeh 1966 & 1975; Ibn Khallikān 1978; Ibn 'Asākir 1979; Corbin 1983). This study also aims to disclose and highlight the importance of *Mi'yār* in the development of logic in the Islamic world of science. This is due to the book has not been studied specifically, comprehensively and exclusively. Hence this study is

an attempt to uplift the status and to gain the benefit from the efforts of the earlier scholars, especially al-Ghazālī in the field of logic.

In the field of logic, al-Ghazālī wrote three forms of works. Firstly, the logic work which is a book of pure logic in the manner of Aristotle, namely *Maqāṣid al-Falāsifah* (The Aims of the Philosophers) (Hourani 1959; Badawi 1961; Fakhrī 1962; Bello 1989; Jihāmī 1993; Bouyges 1999). Secondly, the logic work which is a book of Islamic pure logic, such as *Mi'yār al-'Ilm fī Fann al-Manṭiq* (The Criterion or Standard Measure of Knowledge in Techno-Logic), *Mihakk al-Nazar fī al-Manṭiq* (The Touchstone of Proof in Logic) and *al-Qistās al-Mustaqīm* (The Just Balance) (Jihāmī 1993; Bouyges 1999). Thirdly, the logic work which is also a book in the other fields of Islamic sciences, which is included and synthesized with elements of logic. The examples of this type of logic books are *al-Mustaṣfā min 'Ilm al-Uṣūl* (The Essentials of Islamic Legal Theory) and *al-Iqtisād fī al-'Itiqād* (The Middle of Theology) (Jihāmī 1993; Bouyges 1999; Mohd Fauzi 2000). Among so many logic works of al-Ghazālī, the researcher has chosen *Mi'yār* to be the focus of analytical study for three reasons. This is, firstly, because *Mi'yār* is the first corpus of al-Ghazālī in the field of Islamic pure logic. This is related to the fact that *Mi'yār* focuses on the discussion of the theories and methods of logic in the Islamic perspective and presents the applicative examples of each methods of logic from the fields of Islamic sciences such as jurisprudence and theology. This kind of approach has made the theories and methods of logic having Islamic elements and values, and of pragmatic, dynamic and practical or functional. Secondly, because of the integration in the content of *Mi'yār*. After writing *Mi'yār*, al-Ghazālī wrote another book of Islamic pure logic, namely *Mihakk*, but this book is not to be used as a focus of study for *Mi'yār*'s content is more detailed, more comprehensive and deeper than the content of *Mihakk*. Thirdly; because *Mi'yār* has become a mode or medium for the development of the methodology and thought of logic, which has a chain of logic books, and even can be called 'a genealogy of logic books' or 'a study of genealogy of logic books'. This is proved by the writing of books such as *Mihakk* (488/1095), *al-Iqtisād* (489/1095), *al-Qistās* (497/1103), and *al-Mustaṣfā* (503/1109) after the writing of *Mi'yār*. Hence after this study, it is advisable to do a thorough study on 'the genealogy of al-Ghazālī's books on logic'.

In this study, *Mi'yār al-'Ilm* of al-Ghazālī has been chosen purposely and intentionally as the focus of analytical study. This is because *Mi'yār* is the logic work of al-Ghazālī that incorporated the elements of Islam in its content. Before writing *Mi'yār*, al-Ghazālī has wrote another logic works in the manner of Aristotle entitled *Maqāṣid al-Falāsifah* in order to understand the science of logic. Only then that he wrote successfully a book of Islamic pure logic entitled *Mi'yār al-'Ilm fī Fann al-Manṭiq*. Although *Mi'yār* is the earliest book of Islamic pure logic and is

a model for logical thinking, logical theory, and curriculum of logic that are very relevant to be learned and applied, but its essence has not been analyzed and indeed need to be analyzed specifically, comprehensively and exclusively, and then featured in contemporary yet simple Malay terms.

This study was conducted by one issue. The issue is *Mi'yār* has never been studied, analyzed and described specifically, comprehensively and exclusively. Based on this issue and based on the problem statement of the study, the researcher formulated two research questions. Firstly, the question of *Mi'yār* writing background. Jihāmī (1993) stated that the trilogical work of al-Ghazālī, namely *Tahāfut*, *Maqāṣid* (Preamble to *Tahāfut*) and *Mi'yār* (Logical science of *Tahāfut*) are interlinked triad. This is because the content and the meaning of the terminologies in *Tahāfut* will be understood only by reading it together with *Maqāṣid* and *Mi'yār*. Therefore, to understand *Tahāfut* must be with *Maqāṣid* and *Mi'yār* as asserted by al-Ghazālī (1927, 1958). *Mi'yār* has never been analyzed specifically, comprehensively and exclusively. While as *Maqāṣid* was reviewed by Chertoff (1952) and *Tahāfut*, of course, was always be the focus of study by many scholars. This fact shows the relevancy, urgency and significance of analysis on logic in al-Ghazālī's *Mi'yār*. However, the question arises: how does this *Mi'yār* writing background? This is among the questions that will be searched for the answer in this study. Secondly; the question of the essential scientific content of *Mi'yār*. Dunyā (1961) pointed out that the debate in the science of logic is usually a rigid and uninteresting debate, even dull, just like debate in mathematics. But the debate on logic in *Mi'yār* is a lively, rich and enjoyable debate. Therefore, the questions arise here: what is the essence of *Mi'yār*? What is so special about *Mi'yār*? What is the nature of debate and elaboration of logic in *Mi'yār*? These are among the questions that will be searched for the answer in this study.

The problems and issues described above show that there are still many gaps of knowledge about al-Ghazālī's logic that requires study and elaboration. It is recognized by Suriasumantri (1998) who explained that the assessment of a matter that has been studied, including logic of al-Ghazālī, can still be studied further because there is no perfect product of human thought and a product of human thought in a particular period may not be appropriate at other times. Lazarus-Yafeh (1966) has also explained that while many of research have been done on the thoughts and works of al-Ghazālī, but some aspects of his thoughts and works remain unanswered. In conclusion, among the questions that need clarification in this study were, firstly, how does the *Mi'yār* writing background? Secondly, what is the essence of the scientific content of *Mi'yār*?

Based on the research problems that have been described, this study is generally carried out to investigate, analyze, and describe the identity and the essential content of *Mi'yār* wrote by al-Ghazālī. Based on this general objective of the study, this research is targeting two objectives, first, to review the background of *Mi'yār al-'Ilm*. Second, to analyze the essence of the scientific content of *Mi'yār al-'Ilm*.

LITERATURE REVIEW

In this study, the researcher had reviewed the literatures and have identified two main themes as the domain of study, i.e. al-Ghazālī as a figure of study and '*Mi'yār*' as a subject of study. Through these two themes, the researcher reviewed the relevant literatures and made some notes and a brief summary accordingly.

The studies on the works of al-Ghazālī were made by Badawī (1961). While as the studies on the efficacy of the works associated with al-Ghazālī were done for the first time by Palacios in 1934-1941 and then followed by Watt in 1952 (Badawī 1961). The chronology of the works of al-Ghazālī have been compiled for the first time by Massignon in 1929 (Badawī 1961) and followed by Hourani (1959, 1984). In addition, a book that listed the works of al-Ghazālī had also been prepared by Badawī and published in 1961 (Badawī 1961).

Besides that, the international website developed specially in conjunction with the commemoration of 'the 900th Anniversary of Imam al-Ghazali's Death (1111-2011)' has listed 84 doctoral studies on al-Ghazālī. But only two studies related to the logic of al-Ghazālī. Those studies are the study of al-Sayyed Ahmad (1981) concerning al-Ghazali's views on logic and the study Chertoff (1952) on the logical part of *al-Ghazali's Maqasid al-Falasifa*, in anonymous Hebrew translation with the Hebrew commentary of Moses of Narbonne, edited and translated with an introduction and notes and translated into English. However, both studies did not examine *Mi'yār* specifically and comprehensively (Anon 2011a).

In the period of 1983 to 2012, there were 291 doctoral studies been done at the Academy of Islamic Studies, University of Malaya, Malaysia. However, only one of four studies related to al-Ghazālī studied in the field of logic (Anon 2011b; 2012; 2013). However, the qualitative study of Mohd Fauzi (2002) entitled *Ketokohan al-Ghazzālī dalam Bidang Mantik: Suatu Analisis terhadap Muqaddimah al-Kitāb dalam Kitab al-Mustaṣfā min 'Ilm al-Uṣūl* (The Prominence of *al-Ghazzali* in the field of logic: An analysis of the preamble of *Kitāb al-Mustaṣfā min 'Ilm al-Uṣūl*) has been analyzed and interpreted the data using the method of documentation. The discussion in this study focused on the contribution of al-Ghazālī in the field of logic in connection with the jurisprudence through his book of *al-Mustaṣfā*. This study

described the reasons that prompted al-Ghazālī to put the discussion of logic as a preamble to the discussion on jurisprudence in *al-Mustaṣfā*. Although *al-Mustaṣfā* is essentially a work of jurisprudence, but it is contributed greatly to the field of logic and recognized highly as conclusive evidence of al-Ghazālī's prominence and excellence in the field of logic. Thus, his work of pure logic, namely *Mi'yār*, also necessary and should be investigated to prove his prominence, capability and knowledgeability in the field of pure logic.

While as at the Faculty of Islamic Studies, Universiti Kebangsaan Malaysia, according to Siti Rugayah et al. (2008), in the period of 1979 to 2006, a total of 90 doctoral studies were conducted. However, there is only one study that examined on al-Ghazālī, namely a study by Kadar (2005) on the influence of the spiritual dimension. This study also did not investigate on *Mi'yār*. Thus, the gap of knowledge about *Mi'yār* still exist and need an assessment and an elaboration.

METHODOLOGY

This qualitative study used content analysis. The data which were collected using the method of documentation have been analyzed using the inductive, deductive, and constant comparative methods. The process of analysis on logic in *Mi'yār* also been done using textual analysis or textual content analysis because this study is a textual study.

RESULT AND DISCUSSION

Lazarus-Yafeh (1975) stated that the absence of *al-Mu'jam al-Mufahras li Alfāz al-Ghazālī* or a concordance to any part of the works of al-Ghazālī is one of the problems or obstacles in the study of al-Ghazālī. Concordance is a list of words in a corpus text of whether books, magazines or others which arranged alphabetically and stated the position of the words, and how to use them in the relevant part of the corpus (Dewan Bahasa dan Pustaka 2009). In this case, the concordance is particularly useful in the study of various aspects such as the aspects of linguistics and style that includes vocabulary, syntax, images and metaphors, analogy, terminology and so on. Another aspect is the aspect of literature and content that covers the structure of the written material composition, the methods of discussion, ways to address a person in a speech, persuading methods, names and so on. However, these issues are expected to be finalized with the publication of two encyclopedias, namely *Mawsū'at Muṣṭalaḥāt 'Ilm al-Mantiq 'ind al-'Arab* compiled by Jabr et al. (1996) and *Mawsū'at Muṣṭalaḥāt al-Imām al-Ghazālī* compiled by al-'Ajam (2000).

In order to identify the background and the essence of *Mi'yār* content, the researcher had analyzed *Mi'yār* as a book in six aspects. Firstly, the *Mi'yār*'s textual source of study. Secondly, the background and the objectives of *Mi'yār* writing. Thirdly, the authenticity of *Mi'yār*. Fourthly, the scope, structure, allocation and affiliation of *Mi'yār*'s content. Fifthly, the writing methodology of *Mi'yār*. Sixthly, the objectivity of discussion in *Mi'yār*.

Textual Source of *Mi'yār*

The absence of an adequate and reliable scientific edition of *Mi'yār* would make it difficult for this study. But this difficulty was resolved because of the use of various scientific edition of *Mi'yār*. This method was used to ensure the accuracy, validity, and reliability of the text of study and the result of the study itself (Lazarus-Yafeh 1975). This is the specialty of this study.

Therefore, in this study, the researcher used five different editions of *Mi'yār* text. However, he had chosen the text of *Mi'yār* scientific edition by Ahmad Shams al-Dīn as the main and fundamental reference. The selection of this edition as the basis for this study has some special features. Firstly, the layout and typesetting of the text is more systematic. So, it is easier for reading, understanding and researching. Secondly, this text is accompanied with commentaries and explanations of any ambiguity inherent in the words or terms used in the text of *Mi'yār*. Thirdly, this edited text is included with the comparison of the texts and the definitions of words or terms used by al-Ghazālī to those used by the philosophers and the classical and modern logicians. Fourthly, this text has been value-added with some phrases and sentences to enhance or clarify the required intent (al-Ghazālī 1990).

Background and Objectives of *Mi'yār* Writing

Al-Ghazālī had finished writing *Mi'yār* while he was at Baghdād in 488/1095, i.e. after writing *Tahāfut* in 488/1095 but before traveling to Damascus at the end of 488/1095 (Jihāmī 1993; Bouyges 1999; Za'būb 1980; Hourani 1959). The study of al-Mahdalī (1999) found that al-Ghazālī wrote his works for four reasons. Firstly, to answer questions and to respond to the requests of certain individuals. Secondly, to discuss the nature of certain school of thought and to refute it. Thirdly, to correct, teach and advise. Fourthly, to formulate, develop or design certain methodology and its application. However, in the preface of *Mi'yār*, al-Ghazālī explained that there are two very important objectives which were the impetuses, triggers, or drivers in writing *Mi'yār*. The first impetus is to provide an understanding the methodologies of thinking and researching, and explain the rules of constructing syllogisms and analogies. While as the second impetus is to review some matters which have

been written in *Tahāfut*. This is because al-Ghazālī have been debated against the philosophers in terminological language and regulative terminologies which have been integrated into the logic. Thus, the reader will be able to understand the meaning of the terminologies through *Mi'yār* because *Mi'yār* discuss the sources of knowledge, syllogisms and the types of syllogisms (al-Ghazālī 1990).

Authenticity of *Mi'yār*

Watt (1961) stated that starting the study with a *textus receptus* (text of work which is confirmed its validity) is the best way to conduct a study on *corpus Ghazalianum* (corpus of al-Ghazālī) which are relatively large number and not necessarily the amount. According to al-Mahdalī (1999), there are three methods that can be used to identify the authenticity of the works of al-Ghazālī. Firstly, according to indications (*ishārāt*) or references (*iḥālāt*) found in the works of al-Ghazālī upon his other works. Secondly, according to rephrasing examples and signs (*al-Tikrār fī dhikr al-Amthāl wa al-Shawāhid*) or rephrasing clauses or books in the works of al-Ghazālī. Thirdly, content analysis of the book (*al-Taḥlīl al-Bāṭin li maḍmūn al-Kitāb*). However, the authenticity of *Mi'yār* has been recognized by Badawī (1961). Thus, he had placed *Mi'yār* as the 18th place in the list of al-Ghazālī works which categorized as 'works which are confirmed their validity as al-Ghazālī's works that arranged according to the dates of their writing' (*Kutub Maqtū' bi Ṣiḥḥat Nisbatihā ilā al-Ghazālī, Murattabah Ḥasb Tārīkh Ta' līfihā*).

Scope, Structure, Allocation and Affiliation of *Mi'yār's* Content

According to al-Mahdalī (1999), from the aspect of its writing, *Mi'yār* is categorized as 'book'. However, some parts of *Mi'yār* were named as 'book'. *Mi'yār* comprises of *muqaddimat al-muṣannif* (preface of author) and four *kitāb* (book). These four *kitāb* are firstly, *kitāb muqaddimāt al-qiyās* (book of syllogism premises). Secondly, *kitāb al-qiyās* (book of syllogism). Thirdly, *kitāb al-hadd* (book of definition). Fourthly, *kitāb aqsām al-wujūd wa aḥkāmih* (book of the classifications and the laws of the existence). Each of these four *kitāb* is then divided into several *fann* (techno) or *naẓar* (perspective). This *fann* or *naẓar* in turn subdivided into whether *qism* (category), *ṣiḥf* (type), *mithār* (catalyst), *faṣl* (clause), *qawl* (discourse) or *naw'* (more specific type).

Kitāb muqaddimat al-Qiyās (Book of premises of syllogism) is divided into three *fann* (techno). Firstly, *dilālāt al-Alfāz* (indications of words) which is divided into seven *qism* (category). Secondly, *mufradāt al-Ma'ānī al-Mawjūdah* (existent meanings of the words) which is divided into six *qism* (category). Thirdly, *tarkīb*

al-Ma'ānī al-Mufradah (the construction of the single meanings) which is divided into six *qism* (category).

Kitāb al-Qiyās (Book of syllogism) is divided into four *nazar* (perspective). Firstly, *ṣūrat al-Qiyās* (form of syllogism) which is divided into seven *ṣinf* (type). Secondly, *māddat al-Qiyās* (component of syllogism) which is divided into two *qism* (category). Next, first *qism* (category) is subdivided into four *ṣinf* (type). While as second *qism* (category) is subdivided into two *naw'* (more specific type). First *naw'* (specific type) is subdivided into two *ṣinf* (type) and second *naw'* (more specific type) is subdivided into three *qism* (category). Thirdly, *maghlaṭāt fī al-Qiyās* (fallacies in the syllogism) which is divided into two *faṣl* (clause). Further, first *faṣl* (clause) subdivided into seven *mithār* (catalyst). While as second *faṣl* (clause) is subdivided into three *qism* (category). Fourthly, *lawāḥiq al-Qiyās* (appendages of syllogism) which is divided into eight *faṣl* (clause).

Kitāb al-Hadd (Book of definition) is divided into two *fann* (techno). Firstly, *qawānīn al-Hudūd* (laws of definition) which in turn are divided into seven *faṣl* (clause). Secondly, *al-Hudūd al-Mufaṣṣalah* (detail definitions) which is divided into three *qism* (category).

Kitāb aqsām al-Wujūd wa aḥkāmih (Book of the classifications and the laws of the existence) divided into two *fann* (techno). Firstly, *aqsām al-Wujūd* (the classifications of the existence) which in turn are divided into ten *qawl* (discourse). Secondly, *inqisām al-Wujūd bi a'rāḍih al-Dhātīyah* (the classifications of the existence based on its physical substance) which is divided into six *qawl* (discourse) (al-Ghazālī 1990).

Writing Methodology of *Mi'yār*

The writing structure or the presentation style of al-Ghazālī composed of four sections, namely the title (*mawḍū'*), the preface (*muqaddimah*), the presentation (*'ard*), and the conclusion (*khātimah*) (al-Mahdalī 1999). The title section usually contains the name of the book which is mentioned in the introduction of the book, and the objectives of writing the book (al-Mahdalī 1999). In the title section of *Mi'yār*, al-Ghazālī (1990) mentioned clearly the name of the book. Actually al-Ghazālī had indicated in *Tahāfut* that he would compose a logic book entitled *Mi'yār al-'Ilm* (al-Mahdalī 1999). Al-Ghazālī (1966) said:

While as the purely logical matter is a discussion on the thinking tool in the conceivable things. Hence there is no disagreement that needs an attention in the discussion. Therefore, we will present in the book of *Mi'yār al-'Ilm* a set

of things that are needed in understanding the content of this book (*Tahāfut*) *Inshā' Allah*.

Besides that, al-Ghazālī (1990) also mentioned the title of this book in the preface of *Mi'yār* itself when he describes the triggers that drove *Mi'yār* writing. In addition, he (al-Ghazālī 1990) also mentioned about *Tahāfut*. This proved the validity of referencing this book to al-Ghazālī.

Whereas the preface section is usually covers *ḥamdalah* (praise to Allah), *ṣalawat* (a prayer for the Prophet), *salām* (salutation or blessing and greetings for peace) upon the Prophet, his companions and his family and the objectives of writing the book (al-Mahdalī 1999). In the preface of *Mi'yār*, al-Ghazālī began his writing with *basmalah* (in the name of Allah). Besides that, the preface of *Mi'yār* contains (1) *ṣalawat* and *salām* upon the Prophet Muhammad PBUH, and (2) *du'ā* (a prayer) as al-Ghazālī (1990) wrote:

Peace and blessings to pray for our leader, Muhammad PBUH, and his family. We prayed: O Allah! Our Lord! Show us that the truth is truth, and bless us so that we can follow it; and show also that the vanity is vanity and help us so that we can avoid it. Amen! Let our prayer be approved.

This section also contains the impetuses for the writing of *Mi'yār*, namely two very important objectives as al-Ghazālī (1990) said:

The impetuses for the writing of the book entitled *Mi'yār al-'Ilm* are two important objectives. The first impetus is to provide an understanding of the methodologies of thinking and researching, and explain the rules of constructing syllogisms and analogies... and the second impetus is to study the matters which we have been written in *Tahāfut al-Falāsifah* because we have debated against the philosophers in their terminological language and we have a dialogue with them by the regulative terminologies that they integrated them in logic. Hence in this book you will be able to understand the meaning of those terminologies.

In the preface section also stated the content of *Mi'yār* as al-Ghazālī (1961, 1990) mentioned:

The content of this book (of *Mi'yār*) is defining the basics of *qawl shāriḥ* (definition) of a desired *taṣawwur* (concept) whether in the form of definition or description, and defining the basics of *ḥujjah* (argument) which discovered *taṣdīq* (assent) whether in the form of *qiyās* (syllogism) or non-syllogism, with regard to the conditions of its validity and the impetus of its fallacy.

At the end of the preface of *Mi'yār*, al-Ghazālī (1990) explained the division or categorization of *Mi'yār* content:

If you want to know the content of the chapters, then you must know that we have divided the discussion of *madārik al-'ulūm* (logic) into four books, i.e. the book of premises of syllogism (*Kitāb muqaddimāt al-Qiyās*), the book of syllogism (*Kitāb al-Qiyās*), the book of definition (*Kitāb al-Hadd*), and the book of the classifications and the laws of the existence (*Kitāb aqsām al-Wujūd wa aḥkāmih*).

Next, the presentation section usually includes ideas presented in the book either in the system or the arrangement of chapters and clauses or clauses only (al-Mahdalī 1999). The section of presentation in *Mi'yār* also describes in detail the four *kitāb* as described at the end of the preface earlier. The first book (*kitāb*) is a book of premises of syllogism (*Kitāb muqaddimāt al-Qiyās*). This book is subdivided into several *fann* (techno). Next, each *fann* is again subdivided into several *qismah* (category) (al-Mahdalī 1999).

The conclusion section is a statement of writing objectives that have been achieved and of the next action (al-Mahdalī 1999). So, in this conclusion section of *Mi'yār*, al-Ghazālī (1990) wrote:

Since the happiness in this world and hereafter will not be achieved except with the knowledge and practice, then it is similar to the real knowledge about something that has no reality. As a result, knowledge requires *mīzān* (scale or balance). This is the same as the case of the beneficial deed in the hereafter. The beneficial deed apparently similar to the non-charitable deed. Thus, it also requires *mīzān* (scale) to find out the truth. Therefore, we will write a book about *mīzān al-'Amal* (the scale of deed) as in *Mi'yār al-'Ilm* (the standard measure of knowledge). We will separate that book (of *Mīzān al-'Amal*) so that people who do not want the book of *Mi'yār al-'Ilm* will just focus only on that book (of *mīzān al-'Amal*). Only Allah will give guidance to those who studied these two books to examine them with the mind's eyes, not with the eyes of imitation. This is because Allah is the only powerful and precise assistant. Amen! Let our prayer be approved.

Strictly speaking, the writing of *Mi'yār* was by design as described in *Mi'yār* itself and in the other books of al-Ghazālī. *Mi'yār* writing reflected not only the scholarship of al-Ghazālī in the field of pure logic but also in the science of authorship or scientific writing.

Objectivity of Discussion in *Mi'yār*

Al-Ghazālī (1990) described that the methodology of debate, discussion and elaboration that applied in *Mi'yār* is based on the following three steps. Firstly, submit a description of the method or theory of logic. For example, “*Li al-tanāquḍ shurūṭ thamāniyah... al-Sābi'*: *an lā yakūn fī zamānayn mukhtalifayn*” (The contradictory has eight conditions... Seventhly, the contradictory may not occur simultaneously in two different times) (al-Ghazālī 1990).

Secondly, give examples of applications in *'aqlīyyāt* (logical minds) that is understood by the expressions of *ka qawlik* (such as your saying) (al-Ghazālī 1990), *min al-'aqlīyyāt qawl* (the logical minds such as you said) (al-Ghazālī 1990), *mithāluhu fī al-'aqlīyyāt an yaqul* (an example in logical minds as he will say) (al-Ghazālī 1990) and etc. For example, *ka qawlik: al-Sabī lahu asnān; al-Sabī lā asnān lahu* (such as your saying: A baby who has the teeth; A baby who hasn't the teeth) (al-Ghazālī 1990).

Thirdly, give examples of applications in *fiqhīyyāt* (logical Islamic law) which were signified by the expression *naqūl fī al-Fiqh* (we will say in logical Islamic law) (al-Ghazālī 1990), *fī al-Fiqh naqūl* (in logical Islamic law we will say) (al-Ghazālī 1990), *qawl fī al-Fiqh* (saying in logical Islamic law) (al-Ghazālī 1990), *fī al-Fiqh qawl* (in logical Islamic law saying) (al-Ghazālī 1990) and so on. For example, *wa naqūl fī al-Fiqh: al-Khamr kānat ḥarāman (na'nī bihi fī al-A'sār al-Sābiqah). Kānat al-Khamr ḥalālan na'nī bihi qabla nuzūl al-Taḥrīm* and we will say in logical Islamic law: ‘A liquor is forbidden’ (we meant that in the past times), ‘A liquor is permissible’ (we meant that before the revealing of prohibition order) (al-Ghazālī 1990). In conclusion, the arrangement of this third step is what distinguishes pure logic of *Mi'yār* debate with other works of pure logic. In addition, this third step also placed *Mi'yār* in the category of pure logic works of Islam.

CONCLUSION

Mi'yār is original work of al-Ghazālī in the field of Islamic pure logic. Its methodology of writing is in line with the methodology of modern scientific writing. Its content is compiled systematically. The essence of *Mi'yār* content can give an understanding upon the thinking and research methodology, and explains the rules of constructing syllogisms and analogies. The existence of various scientific editions of *Mi'yār* signifies the importance of the theory and application of pure logic in the development of scientific thought. Specifically, this study was able to make an impact and new knowledge to the study of logic in Malay which can definitely be applied in all fields of knowledge.

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