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# Sources and Tools of Methodology

GOALS OF THIS CHAPTER

1. To explain what is meant by "sources" and "tools" in the context of a discussion of Islamic methodology.
2. To identify the primary sources of knowledge in the Islamic worldview, and to justify limiting them to written revelation (the Qur'an and the Prophetic Sunnah) and the created world.
3. To identify the primary tools of knowledge in the Islamic worldview and to justify restricting them to reason and sensory perception.
4. To clarify the concept of integration in relation to the aforementioned sources and tools of knowledge within the context of Islamic methodology.
5. To derive a model for epistemological integration.
6. To distinguish between tools of thought and tools of research.
7. To identify the place of the tools used in currently prevailing research methods within Islamic methodology.
8. To distinguish between tools for data collection, analysis, and interpretation.
9. To clarify the place of instinct or inborn human nature in the process of epistemological integration from the Islamic perspective.

## INTRODUCTION

Sources and tools are linked directly with practical method and its associated procedures. In what follows, we will be discussing the sources and tools of methodology (as opposed to method) because, in

its capacity as "the science of methods," methodology governs the process of choosing methods and putting them to use. It is our hope that the act of linking sources and tools within a single context will aid the transition from theoretical conceptualization of the elements of methodology to the practical implementation of methods. No discussion of sources will be clear without mention of the tools that are used to glean knowledge from these sources; hence, the profound interpenetration between sources and tools.

This chapter presents a discussion of the terms "source" and "tool" and concepts of relevance to each. It distinguishes between sources and tools in the areas of thought and research, and identifies the primary and secondary sources from which Muslims draw knowledge, rulings, and data, as well as the principle tools Muslims employ in order to obtain data and information from their sources in order to arrive at what we have termed the "epistemological integration equation."

## *First*: THE CONCEPT OF "SOURCE"

The Arabic term for "source," that is, *maṣdar*, is derived from the trilateral root *ṣ − d − r*. The noun *ṣadr*, derived from the same root, means the beginning of something or its front part,[1] while the verbal noun *ṣudūr*, which bears the sense of coming out, exiting or departing, is used in contrast to the word *wurūd*, which refers to the act of coming or entering. This meaning is illustrated in the verse of the Qur'an that reads, "...They answered, 'We cannot water [our animals] until the herdsmen drive [theirs] home (*ḥattā yuṣdira al-ruʿāh*)'..." (*sūrah al-Qaṣaṣ* 28:23), that is, until they depart with their herds after having brought them to drink. Another illustration is found in *sūrah al-Zalzalah* 99:6, "On that day will all men come forward, (*yawma'idhin yaṣduru al-nāsu...*)...to be shown their [past] deeds." In other words, they will come out of their graves. According to one reading of the phrase, people will come to Earth, then depart Earth to the site of the resurrection, while according to another, they will come to the site of the resurrection for an accounting, then come away to receive either reward or punishment.[2] Another meaning of the word *ṣadr* (plural, *ṣudūr*) is the chest or breast, which contains the heart as the site of understanding.

Thus we read, "...Verily, it is not their eyes that have become blind – but blind have become the hearts that are in their breasts (*fī al-ṣudūr*)!" God Almighty knows "all that the hearts (*al-ṣudūr*) would conceal" (*sūrah al-Hajj* 22:46), while someone who recites the Qur'an might call out to God, saying, "O my Sustainer! Open up my heart (*ishraḥ lī ṣadrī*!" (*sūrah Ṭā Hā* 20:25). Hence, the term *ṣadr* is also used to refer to one's inner sense of things.³

The term *maṣdar* in Arabic can also refer to the verbal noun from which the verb is said to have been derived.⁴ (According to the Basrah linguistic school, the verbal noun or *maṣdar* can function as a verb since it is the verb's source. The Kufan school disagrees, however, saying that the verbal noun is derived from the verb.) Arab grammarians have classified verbal nouns into numerous types.⁵

In the fields of geography and environmental sciences, the word "source" (*maṣdar*) is used to refer to the location or site from which various sorts of materials are taken; we speak, for example, of surface and underground sources of water. In the field of economics we speak of imports (*wāridāt*) and exports (*ṣādirāt*), while merchandise sold on the market comes from a source (*maṣdar*) that produced it and/or exported it (*ṣaddarahā*). When discussing research methods, we speak of sources and references in the form of books, periodicals and other written materials from which the researcher obtains his or her data and information and which generally appear in footnotes or endnotes and the work's bibliography. In sum, we find the term "source" (*maṣdar*) and its derivatives being used in numerous epistemological fields.

The term "source" is used when speaking of jurisprudence and its origins (the sources of Islamic legislation). The sources of Islamic legislation are the Holy Qur'an, the Prophetic Sunnah, and independent reasoning (ijtihad) in its dual branches of analogical reasoning (*qiyās*) and consensus (ijmaʿ). In the science of the principles of jurisprudence, they are viewed as primary sources on which the majority of scholars agree. To these we might add subsidiary sources which are the subject of debate among scholars, such as juristic preference (*istiḥsān*), presumption of continuity (*istiṣḥāb*), blocking of pretenses (*sadd al-dharāʾiʿ*), revealed laws that preceded the law of Islam (*sharʿu man qablanā*), the saying of a single Companion (*qawl al-ṣaḥābī*), established

practice (*al-ʿādah al-muḥkamah*), etc. These sources of legislation are sources for the derivation of legal rulings. As for the methodology for arriving at these rulings from their sources, it is a science founded upon reason, confidence in the reliability of these sources, and the necessity of turning to them and drawing on them. These sources, therefore, are the foundations of the methodology by means of which reason derives the practical rulings that provide Muslims with guidance in their thought and behavior.

When we need something, we think of the source from which we can obtain it. If we are at home and want some water, we might get it from the kitchen faucet, for example, or from a bottle in the refrigerator. However, the tap water in the kitchen comes from a prior source, such as the municipal water reservoir, which in turn comes from a prior source, such as a river, a lake, an Artesian well, or a water desalination plant. In other words, in addition to the original source for the water, there are a variety of subsidiary or secondary sources.

If someone is faced with a question having to do with a woman's right to dispose of her husband's estate after his death when she has several dependent children by her late husband, the source of the answer to this question might be a book on inheritance laws in Islam, or a scholar who can answer the question for her directly. However, the scholar who has given her an answer to this question, or the author of the book he has consulted, will both have grappled with this juristic question through reliance on previous academic sources, such as books on jurisprudence and the principles adopted by a particular juristic school. Moreover, the writings that have emerged from this school will themselves rely, albeit in part, on a previous and more original source, viz., particular texts from the Holy Quran and the Prophetic Sunnah. Hence, although the person faced with this issue will have obtained an answer directly, either from the author of the book he has consulted or a judge or mufti, these subsidiary sources will have obtained their knowledge from prior sources, including books by earlier scholars who relied for their expertise on the primary source represented by the Islamic revelation.

Similarly, if a given country's minister of education should need an epistemological basis on which to make a decision concerning

whether to centralize or decentralize his educational administration, he may find what he needs in books dealing with the subject of educational administration. Such books might explain the advantages and disadvantages of centralization and decentralization respectively and the situations to which this or that system is best suited. Having read such books, he can use his reason to choose the system that seems most appropriate to his country's particular circumstances in light of the experiences of the various countries described in these books. Hence, these books serve in this case as references and resources for his decision-making.

The minister might resort to convening dialogue sessions and hosting discussions among groups of stakeholders, including high- and mid-level administrators, school directors, teachers, parents, and others. He might assign a researcher or team of researchers to ascertain the views of the target groups through opinion polls, questionnaires, interviews, etc. He might then analyze the data from the research done and draw conclusions that would form a basis for deciding which type of educational system to adopt. In this case, the source for his decision-making is the information he has received from the community that will be directly affected by the decision to be made. Hence, he is applying the principle of consultation (*shūrā*) and popular participation in decision-making. In a situation such as this, the information will have been accessed through scientific research that makes use of the best suited methods and tools for collecting and analyzing data and drawing conclusions based on such data.

What we are talking about here is not a legal ruling concerning what is or is not permissible. Rather, we are dealing with an action that is essentially permissible, and concerning which a decision is to be made in light of an assessment of what will best serve people's interests. In the course of making this decision, our hypothetical minister of education aims to make use of his own and others' previous experience while taking into consideration what those concerned – the majority of them, at least – consider best suited to them.

Of note here is that we only arrive at the source of the knowledge that needs to be acquired by means of appropriate tools and established practices. Moreover, many of the details that are taken into

consideration have to do with the religious nature of the community, its intellectual leanings, its cultural priorities and its worldview. Nevertheless, the person engaged in studying all these details benefits not only from the previous experiences of his own community, but, in addition, from the experiences of other communities. In so doing, he employs the outcomes of his thought and systematic investigation as a means of serving people's interests and meeting their needs.

## *Second*: SOURCES OF METHODOLOGY

There is a significant overlap between the sources from which we obtain knowledge, of whatever sort it happens to be, and on the basis of which we derive legal rulings; and the sources of our research methodology and our way of thinking. This should come as no surprise, since there is a science of legal rulings which we derive from specific sources (the science of jurisprudence, for example), and there is, in addition, a method for deriving this science from the aforementioned sources (the science of the principles of jurisprudence).

In the Qur'an one finds knowledge about God, the angels, the prophets and human history, as well as about the creation of objects, living beings, phenomena, and events. It contains knowledge (science) about the world beyond the realm of human reason and sensory perception as well as about the visible, perceptible world. Hence, if we talk about the sources for these types of knowledge, the Qur'an will certainly be one of them.

The Holy Qur'an is likewise a source from which legal rulings are derived, since from the Qur'an we obtain rulings having to do with what is permissible and prohibited, financial transactions, rules governing social conduct, inheritance, and so on.

### (1) *Revelation as a Source of Knowledge*

The Islamic worldview draws a clear distinction between two sources from which practical guidance can be sought. These two sources, as we have seen, are revelation and the created world. By "revelation" we mean the message which God Almighty revealed to His Prophet Muhammad and which he communicated to others, then clarified to

them in word and deed. This revealed message includes what might be termed "the explicit revelation," that is, the Holy Qur'an, and the "hidden revelation," that is, the Prophetic Sunnah, or the words and actions by means of which the Prophet clarified the meanings of the Qur'an, applied its rulings, and made specific that which in the Qur'an is stated in more general terms.

Nevertheless, the term "revelation" (Arabic, *waḥy*) as used in the Qur'an itself can refer to messages God communicates to chosen individuals in ways that we may or may not understand. It may come, for example, in the form of an inspiration, a thought that occurs to them, or a dream. Thus God declares, "And so, [when he was born,] We inspired [thus] the mother of Moses: (*awḥaynā ilā ummi mūsā*): 'Suckle him [for a time], and then, when thou hast cause to fear for him, cast him into the river, and have no fear and do not grieve – for We shall restore him to thee, and shall make him one of Our message-bearers!'" (*sūrah al-Qaṣaṣ* 28:7). The term *waḥy* can refer to messages that God communicates to other creatures as well. Thus we read, "And [consider how] thy Sustainer has inspired the bee (*awḥā rabbuka ilā al-naḥl*): 'Prepare for thyself dwellings in mountains and in trees, and in what [men] may build [for thee by way of hives]'" (*sūrah al-Naḥl* 16:68).

The divine revelation has been written down with the greatest of accuracy, precision and faithfulness on the level of its chapters (*suwar*), verses (*āyāt*), words (*kalimāt*) and letters (*ḥuruf*). One chapter thus begins by saying, "A divine writ [is this], with messages that have been made clear in and by themselves, and have been distinctly spelled out as well – [bestowed upon you] out of the grace of One who is Wise, All-Aware" (*sūrah Hūd* 11:1). Elsewhere we read: "And this, too, is a divine writ which We have bestowed from on high – blessed, confirming the truth of whatever there still remains [of earlier revelations] – and [this] in order that thou mayest warn the foremost of all cities and all who dwell around it. And those who believe in the life to come do believe in this [warning]; and it is they who are ever-mindful of their prayers" (*sūrah al-Anʿām* 6:92). God speaks of the Qur'an thus: "*Alif. Lām. Mīm*. This divine writ – let there be no doubt about it – is [meant to be] a guidance for all the God-conscious" (*sūrah al-Baqarah* 2:2); "*Alif. Lām. Rā'*. A divine writ [in this – a revelation] which We have

bestowed upon thee from on high in order that thou might bring forth all mankind, by their Sustainer's leave, out of the depths of darkness into the light: onto the way that leads to the Almighty, the One to whom all praise is due" (*sūrah Ibrāhīm* 14:1); "*Ṭā. Sīn. Mīm.* These are messages of the divine writ, clear in itself and clearly showing the truth" (*sūrah al-Shuʿarā'* 26:1-2); "*Alif. Lām. Rā'.* These are messages of the divine writ, full of wisdom" (*sūrah Yūnus* 10:1); and "*Alif. Lām. Mīm. ād.* A divine writ has been bestowed from on high upon thee – and let there be no doubt about this in thy heart – in order that thou mayest warn [the erring] thereby, and [thus] admonish the believers:" (*sūrah al-Aʿrāf* 7:1-2).

The Holy Qur'an serves as the origin for the overall perceptions that govern the Muslim's perspective on the Creator, the creation, the life of this world, and the life of the world to come. Similarly, such perceptions govern the Muslim's view of human nature, the purpose of human existence, the realm beyond human perceptions, and the world of reason and sense perception. The Qur'an is the source that generates Islamic legal rulings on rites of worship, day-to-day transactions, ethical standards, and the criteria for human thought that order the ways in which human beings understand and respond to things, ideas, and events.

In relation to principles of belief, practical rulings, regulations governing individual behavior, reports concerning nations that lived in the past, and educational methods, the revelation embodied in the Qur'an and the Sunnah is a direct source of knowledge, particularly those verses and accounts which specify actions that are praiseworthy, intentions that are good to act upon, and actions that are mandatory or recommended. Such texts might also have to do with actions that a person should refrain from, including those that are simply undesirable and those that are utterly forbidden.

However, some texts do not serve as a direct source of knowledge or rules for living. Rather, such texts represent a source of general guidance, universal principles, worldview, and higher authority that sketch out patterns of human conduct in all areas of life. Texts such as these serve as a call to strive for progress within the parameters of earthly causes and effects to discover natural laws and put them to use for

the purpose of bearing our God-given responsibilities and achieving progress in a variety of fields. Such fields include historical research (to discern laws and patterns of historical development that serve as lessons for us in the present), sociological research (to reveal social patterns that enable us to understand human nature and social interactions), research in the physical sciences (to discover the laws of physics, chemistry, etc.), educational research, and so on. Texts such as these help us to reflect on the affairs of our lives, the environment in which we live, and our relationships with others. Then, in light of the texts' guidance, we can weigh the various options before us and choose those that are most in keeping with the intents of the Islamic religion, most likely to achieve our aims, and least likely to involve undue hardship.

As for the Prophetic Sunnah, which we have termed "the hidden revelation," it is a companion to the Holy Qur'an. Muslims hold that all of God's messengers and prophets are infallible with respect to the messages they deliver from God, including their practical rulings and instructions on how to lead a life of godliness and integrity that will ensure people blessing both in this life and the life to come. The accounts that make up the Prophetic Sunnah cover a broad range of topics relating to the various areas of human life, and they serve a variety of purposes. Some accounts clarify the meaning of the Qur'an, others detail Qur'anic statements that are general in nature, while still others show how the Prophet applied Qur'anic teachings in ways that provide us with practical guidance or serve as a practical example for us to follow in this or that area of life. For this reason, Muslim scholars developed methods for properly understanding the narratives of which the Prophetic Sunnah consists. Such scholars identified numerous forms of guidance that can be derived from the life of the Prophet, including legislation, instruction, the description of virtues and praiseworthy customs, etc.

## (2) *The Created World as a Source of Knowledge*

The second source of human knowledge in relation to methodology and other epistemological realms is the world, that is, the created universe, of which we can distinguish three different levels:

1. The natural, material world ranging from microscopic entities to vast, far-flung galaxies that can only be seen with the aid of powerful telescopes.

2. The social world, which includes human beings' lives as peoples, tribes, societies, communities and nation-states; family relationships, social relationships, and international relations; and the systems and laws that define people's rights and obligations.

3. The psychological world, that is, the realm of the individual human being on the level of mind and spirit, life and death, health and illness, knowledge and ignorance, thought and emotion, feelings and responses; how one thinks, how one's abilities grow and develop, how one ages and deteriorates, why and how one loves and hates. For although human beings are only tiny entities within the natural world, each of them contains within himself/herself an entire world of great vastness and complexity. As the fourth rightly guided caliph, ʿAlī ibn Abī Ṭālib, once said:

The cure you seek is within you, but you sense it not,
The illness that afflicts you is from you, but you see it not.
You claim that you are but a miniscule entity,
Though the cosmos in all its vastness is contained within you.[6]
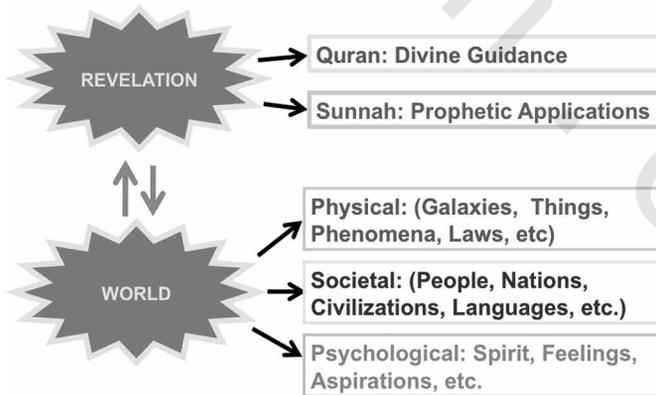


The information we obtain about the entities, events and phenomena in the world falls on a variety of planes. Some information will be a

simple description, be it quantitative or qualitative; other information will be a compound description of an object, phenomenon or relationship, that is, a description accompanied by the articulation of a law or equation. Still other information will take the form of an explanation for the existence of certain things or phenomena, or a prediction that this or that phenomenon will occur with regularity given specified conditions.

### (3) *Integrating Written Revelation and the Created World as Sources of Knowledge*

It is difficult to imagine boundaries separating written revelation and the created universe as sources of knowledge. After all, the Holy Qur'an declares the texts of its own verses, be they read from a page or recited, to be a source of knowledge. However, it declares the signs of God in the visible creation to be a source of knowledge as well. God Almighty is both the One who sent the written revelation down from on high and the One who created the physical universe. To God alone belongs all sovereignty. That is to say, God is the ultimate source of all the means of guidance He provides and in relation to all human affairs. Human beings "read" what is visibly displayed before them of the created universe, including the material, natural world, the social world, and the psychological world. They witness it, ponder it, measure it, calculate it, test it and put it to use.

Human beings are among God's creations, and God has brought them to completion in successive stages. Hence, anyone who ponders this act of God is bound to exclaim, "Hallowed, therefore, is God, the best of artisans!"[7] God Almighty commanded the Prophet, saying, "Read in the name of thy Sustainer, who has created – created man out of a germ-cell!" (*sūrah al-ʿAlaq* 96:1-2). This "reading" of God's signs in the created world, from the depths of people's souls to the vast horizons of the cosmos, leads the individual to the one Creator.

According to Imam Fakhr al-Dīn al-Rāzī, may God have mercy on him, "It has been related that ʿUmar ibn al-Khayyām was once reading the *Almagest*[8] to his instructor, ʿUmar al-Abharī. A certain jurist then asked him, 'What are you reading?' to which ʿUmar replied, 'I am

explaining a verse from the Qur'an which reads, "Do they not look at the sky above them – how We have built it and made it beautiful and free of all faults?" (*sūrah Qāf* 50:6). I am explaining how the sky was built.' And he was correct in what he said, because whoever delves more deeply into the mysteries of God's creations will be more aware of God's majesty and greatness."9

There is, as we have noted, another kind of reading as well. For after saying to the Apostle, "Read in the name of thy Sustainer, who has created – created man out of a germ-cell!, Read – for thy Sustainer is the Most Bountiful One who has taught [man] the use of the pen – taught man what he did not know!" (*sūrah al-ʿAlaq* 96:1-5). When we read what has been written in a book, that is, what has been written with a pen (whether literally or figuratively), it is because God has taught us how to write with the pen, that is, how to record the various types of knowledge we have acquired. Among the types of knowledge we have been given is what is contained in the book hidden from all eternity in the "preserved tablet," then bestowed from on high on God's Messenger: "[it is] a revelation from the Sustainer of all the worlds" (*sūrah al-Ḥāqqah* 69:43). God commanded the Prophet, "And convey [to the world] whatever has been revealed to thee of thy Sustainer's writ..." (*sūrah al-Kahf* 18:27), "...for We have sent thee but as a herald of glad tidings and a warner, [bearing] a discourse which We have gradually unfolded, so that thou might read it out to mankind by stages, seeing that We have bestowed it from on high step by step, as [one] revelation" (*sūrah al-Isrā'* 17:105-106). The Prophet's coming was an answer to the supplication made long before by Abraham and Ishmael, who prayed, saying, "O our Sustainer! Raise up from the midst of our offspring an apostle from among themselves, who shall convey unto them Thy messages, and impart unto them revelation as well as wisdom, and cause them to grow in purity: for, verily, Thou alone art almighty, truly wise!" (*sūrah al-Baqarah* 2:129).

The Qur'an (which means, "reading" or "recitation") thus consists of two complementary, integrated readings, each of which helps to complete the other. It is thus essential that we combine these two readings in order to obtain the wisdom and guidance we need. The two readings complete each other when the written revelation is read in

order better to understand and relate to the created world, and when the created world is "read" in order better to understand and relate to the written revelation.

Let us turn now to some examples of the way in which these dual readings – the reading of the written revelation and the reading of the cosmos – complement and correct one another. God Almighty declares, "And it is He who has spread the earth wide and placed on it firm mountains and running waters, and created thereon two sexes of every [kind of] plant; and it is He who causes the night to cover the day. Verily, in all this there are messages indeed for people who think!" (*sūrah al-Raʿd* 13:3). In his commentary al-Qurṭubī (d. 671 AH) states, "This verse is a response to those who claim that the earth is spherical…." He goes on to quote statements by Ibn al-Rāwundī and others concerning the composition and movement of the Earth, then comments on them with the words, "Both Muslims and the recipients of the earlier revelations [the Jews and Christians] are of the view that the Earth is a flat expanse which remains still rather than moving [in an orbit], and that whatever movement occurs in it generally takes place as a result of earthquakes."[10]

Al-Qurṭubī relied for his understanding of this verse on the knowledge that prevailed in his day concerning the Earth's shape, composition, and movement. He even went so far as to scorn Ibn al-Rāwundī and others for claiming that the Earth was spherical, rotated on its axis and revolved around the Sun. Al-Qurṭubī supported his position by noting that it was consistent with the prevailing understanding among Muslims, Christians and Jews. Today, of course, we know that the Earth is in fact spherical, that it spins on its vertical axis counterclockwise (as seen from the North Pole), that it makes one revolution on its axis every twenty-four hours, and that it makes one revolution around the sun every 365 days (one solar year). Much of this knowledge is now virtually beyond doubt, being supported by empirical evidence, and is shared by Muslims, Christians, Jews, and others all over the world. As for the Qur'anic statement that God "has spread the earth wide," and which al-Qurṭubī cited in refutation of those who claimed that the Earth was spherical, we now have a different way of understanding what it means. The Earth does not appear to be spherical when we

look at the part of it that surrounds us; nor can we feel it spinning. Moreover, the Earth is so large by comparison with those of us who live on it that we cannot see beyond the horizon. However, things need to be the way they are in order for us to live stable lives on Earth.

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*Other Examples:*

Try to cite other examples from the Islamic heritage of Qur'anic verses or hadiths our understanding of which has changed due to a reexamination of our surroundings or a rethinking of issues in light of new information and discoveries. For just as the sciences of the ancients served as a tool for understanding religious texts, our present-day sciences perform a similar role.

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Consequently, we can excuse al-Qurṭubī and other commentators who, in their day, did not have access to sufficient scientific data to realize that the Earth is round and that it revolves around the Sun. At the same time, we have no choice but to disagree with their interpretations of Qur'anic verses such as those that speak of God spreading the expanse of the Earth wide (*sūrah al-Nāziʿāt* 79:30), or according to which God "causes the night to flow into the day, and causes the day to flow into the night" (*sūrah al-Zumar* 39:5), or "covers the day with the night in swift pursuit" (*sūrah al-Aʿrāf* 7:54). Our present-day knowledge of natural phenomena is far greater than that which was available to al-Qurṭubī and those whose views he depended on for his understanding of things. From this it can be seen that the import of a Qur'anic verse is not restricted to what its words were understood to mean in a given age or period of history, nor does it stop at the boundaries of the knowledge that was available to this or that exegete during the age in which he lived. Rather, this meaning is capable of expanding to accommodate the new understandings God grants to human beings and which harmonize more fully with contemporary empirical knowledge of natural phenomena and the laws that govern them. Moreover, the fact that Ibn al-Rāwandī, who was known to be a freethinker and a libertine, stated a certain opinion does not necessarily mean it was mistaken for the simple reason that he rebelled against Islamic traditions. Contemporary scholars and scientists in many different countries might be classed as atheists and deniers of the truth about God. They are, nevertheless, highly respected scholars in their respective fields and

specializations. Hence, their immoral lifestyles and their unbelief does not prevent them from arriving at scientific truths, concepts and principles in relation to the natural world, sociological patterns, psychological processes, and so on.[11]

Another example of the need to combine the two readings – the reading of the written revelation and of the natural world – can be seen in relation to a hadith concerning the undesirability of using water that has been exposed at length to the sun for ritual ablutions. This hadith was narrated on the authority of the Mother of the Faithful ʿĀʾishah, may God be pleased with her, in numerous versions of differing degrees of reliability. The content of the hadith is found in a tradition passed down on the authority of ʿUmar ibn al-Khaṭṭāb, may God be pleased with him.[12] The hadith is cited because it treats the question of why this practice would be deemed undesirable. We read that,

> allowing ablution water to be exposed to the sun for a long period of time is undesirable given two conditions. The first condition is that it be exposed to the sun in containers made of metals such as copper, iron or lead, because, if the sun affects these metals, a fetid odor as of greasy meat develops over the surface of the water, which causes leprosy. This does not occur, by contrast, when the water is sunned in containers made of gold or silver. Nor is it undesirable for the water to be exposed to the sun if it is in containers made of pottery or other substances. The second condition for the undesirability of allowing ablution water to be exposed to the sun for long periods is that the exposure take place in extremely hot climates. If it takes place in moderate or cool climates, the practice is not undesirable because the effect of the sun on the water in the containers will be far less pronounced, and the question of whether to use the water for ablutions can be referred to a physician….The undesirability here will be either definitive, in which case one receives a reward from God for refraining from using such water for ablutions, or non-definitive, in which case there is no reward for refraining from using it for ablutions, since it is purely a medical matter.[13]

A third example has to do with the legal ruling on photography and visual representation in general. There are sound hadith recorded by al-Bukhārī and Muslim that prohibit pictorial and three-dimensional representations on the grounds that they are attempts to simulate the act of creation, and due to a proposed similarity between the act of

placing them in people's homes and the placement of idols in people's homes in pre-Islamic days. Hence, until quite recently, Muslim scholars prohibited visual representations. Such prohibitions also included sculptures and other three-dimensional representations, and drawings done by hand. However, the increasingly widespread use of photographs for supporting documents and identification, the use of photocopy machines, and the growing need for photographs for a variety of purposes, had the effect of stripping photographs of their association with reverence and adoration and, therefore, idol worship. These developments also made it far less likely that the person doing the photography would be attempting to simulate the act of creation. Hence, scholars began issuing legal rulings permitting photography out of necessity. This was followed by rulings that permitted photography under virtually all circumstances provided it was not accompanied by other practices forbidden in Islam, such as photographing nudity, or allowing a man to be alone with a potentially marriageable woman for the purpose of taking photographs.

## *Third*: METHODOLOGICAL TOOLS

The way in which we are presenting methodological tools may differ from the way they are generally presented in research literature, which tends to restrict itself to techniques and procedural methods used in data collection, such as laboratory experiments, questionnaires, interviews and the like. Contemporary research literature also presents detailed discussions of ways to ensure that one's research tools provide reliable measurements that are consistent from one researcher to another and from one instance to another. Such literature also provides instructions on how to use these tools and implement research procedures. This type of knowledge is certainly very useful, and if one learns it well and is trained in its use, it may help to correct some of the short-comings that plague research practices in so many of our universities and research institutions.

The aforementioned research literature should be accessed and mastered whenever necessary. In addition, however, we want to

expand the range of methodological tools that will help to connect the research questions from which we begin, the research procedures we implement, and the research outcomes at which we arrive. These tools only perform their role fully when they draw a firm connection between the researcher who has chosen a given tool, the way in which the tool is used, and the research topic that takes shape through the way in which the tool is used. It should be remembered that we resort to the use of tools in order to reveal information that was previously unknown to us and which would not be immediately obvious to us. Hence, the "subjective value" of a given tool lies in its ability to "decipher the symbols of phenomena…by gaining access to the secrets that lie hidden within them." This task will never be accomplished unless the appropriate tool is chosen for the desired purpose. As for the "added value" of a tool, it has to do with the researcher's ability to make maximal use of the tool he or she has chosen.[14]

It will be noted that our presentation of the topic of methodological tools also includes the major concepts, general entry points, "intellec-tual-ideological schools of thought, grand theories and explanatory models which the research employs as methodological tools, not only in order to compile research material and basic data but, in addition, in order to organize, analyze and explain such data, then use the resultant knowledge as an epistemological or ideological tool."[15]

For example, Dr. Sayf al-Din Abd al-Fattah has organized his presentation of methodological tools based on four approaches. The first approach is centered around the aims and intentions of Islamic law as set forth by Imam Abū Isḥāq al-Shāṭibī (d. 791 AH/1388 CE), which provides us with elements on the basis of which to describe, analyze, interpret and evaluate political phenomena, both local and international. The second approach, which we might term the "ship" approach, centers around the hadith in which the Messenger of God illustrated the nature of public responsibility and social cohesion by describing a group of people who find themselves on a ship at sea and observing that if any member of the group were to do damage to the ship, everyone would perish.[16] The third approach is a conceptual one which employs concepts in their capacity as systems for the analysis of interrelated social phenomena. As for the fourth approach, it is based

on Thomas Kuhn's notion of an epistemological model as a tool for analyzing the scientific community's prevailing intellectual paradigms, which serve as research-related traditions and ways of thinking.[17]

### The Tools of Reason and Sensory Perception

Just as the written revelation and the cosmos are the only two methodological sources – all other sources being traceable back to these two – so also are reason and sensory perception the only two methodological tools, since they serve as the basis for all other tools.

A tool is a means of fulfilling an intention or attaining a goal. If a well is a source of water, then buckets and pumps are tools for obtaining the water. Similarly, the eye is a tool for seeing, the ear is a tool for hearing, and the heart is a tool for reflecting, comprehending and understanding. God declares, "And most certainly have We destined for hell many of the invisible beings and men who have hearts with which they fail to grasp the truth, and eyes with which they fail to see, and ears with which they fail to hear. They are like cattle – nay, they are even less conscious of the right way: it is they, they who are the [truly] heedless" (*sūrah al-Aʿrāf* 7:179). A staff is also a kind of tool: "He [Moses] answered: 'It is my staff; I lean on it; and with it I beat down leaves for my sheep; and [many] other uses have I for it'" (*sūrah Ṭaha* 20:18). So also is awareness, or the mind: "And so We propound these parables unto man: but none can grasp their innermost meaning save those who [of us] are aware" (*sūrah al-ʿAnkabūt* 29:43).

The Arabic word *ʿaql*, translated as "mind" or "reason," is a verbal noun related to the process of intellection and reflection. God Almighty says, "Do you bid other people to be pious, the while you forget your own selves – and yet you recite the divine writ? Will you not, then, use your reason (*afa lā taʿqilūn*)?" (*sūrah al-Baqarah* 2:44); "We said: 'Apply this [principle] to some of those [cases of unresolved murder]: in this way God saves lives from death and shows you His will, so that you might [learn to] use your reason (*laʿallakum taʿqilūn*)" (*sūrah al-Baqarah* 2:73); and "Verily, in the creation of the heavens and of the earth, and the succession of night and day: and in the ships what speed through the sea with what is useful to man: and in the waters

which God sends down from the sky, giving life thereby to the earth after it had been lifeless, and causing all manner of living creatures to multiply thereon: and in the change of the winds, and the clouds that run their appointed courses between sky and earth: [in all this] there are messages indeed for people who use their reason" (*li qawmin yaᶜqilūn*)" (*sūrah al-Baqarah* 2:164). The function of the mind, or reason, is to reflect, to contemplate, and to learn. Thus God Almighty declares, "And so We propound these parables unto man: but none can grasp their innermost meaning save those who [of us] are aware" (*sūrah al-ᶜAnkabūt* 29:43).

The term *ᶜaql* is used in the Qur'an in the same sense of the term *rushd*, that is, discernment and awareness of what is right. God Almighty says, "And, indeed, long before [the time of Moses] We vouchsafed unto Abraham his consciousness of what is right (his *rushd*); and We were aware of [what moved] him" (*sūrah al-Anbiyā'* 21:51). God states, "And test the orphans [in your charge] until they reach a marriageable age; then, if you find them to be mature of mind (if you find them to have *rushd*), hand over to them their possessions…" (*sūrah al-Nisā'* 4:6). The opposite of *rushd* is *ḍalāl*, that is, a failure to follow the right path even though one remembers the end toward which one ought to be aiming, and *ghayy*, which is a failure to follow the right path while forgetting the end one is should be striving for.

As for sensory perception, it is the use of the five known senses: the sense of sight, the sense of smell, the sense of hearing, the sense of touch, and the sense of taste. (Is there is a sixth sense?) Sensation is the ability to record the physiological effect of an object or event perceived on the sensory tool or organ. As for the meaning or significance of a physical sensation, this is conveyed when mental perception takes place, that is, when the mind interprets the sensation and attributes to the entity perceived the qualities and the defining characteristics appropriate to it. Perception via the eye is vision together with the ability to distinguish the size, color, and shape of the entity seen. Perception via the ear is hearing and the ability to distinguish sounds, including their quality and tone, whether they are loud or soft, a beautiful tune or a cacophonous roar, a human voice or the sound of a bird. Sounds also have names. Referring to the sense of hearing, God

Almighty asks, "…how many a generation have We destroyed before their time – [and] canst thou perceive any one of them [now], or hear any whisper of them?" (*sūrah Maryam* 19:98).

The unaided human senses can benefit from instruments or devices which broaden these senses' normal range of operation. The naked eye, for example, can only see within certain limits. It can see neither very tiny objects, nor objects that are extremely far away. However, instruments such as microscopes and telescopes can enable the eye to see both. Advanced microscopes enable the eye to see very minute details, while advanced telescopes enable it to see bodies that are extremely distant with far greater clarity. Such instruments enable the eye to do much more than merely note things' presence or distinguish them from other things by their proper names and functions. In addition, they enable the eye to distinguish numerous identifying characteristics such as dimensions (length, width, depth), colors of varying degrees of intensity, both primary and secondary, regular and scattered, as well as regular shapes, both two-dimensional (triangles, circles, etc.) and three-dimensional (spheres, cylinders) and irregular shapes.

Modern vision tools have become capable of distinguishing objects and identifying their many qualities and defining characteristics by means of something called a "magic eye." This "magic eye" picks up signals which stand for particular things and which call up a record of their numerous defining features because they have been programmed into the eye itself. You may have seen lines printed on the various types of merchandise displayed in supermarkets and other retail outlets. When the cashier wants to know the price of a given item, all he or she has to do is pass the item over the magic eye, which reads the item's name, determines its price, and adds it to the prices of the other things you have bought. The cashier then gives you a receipt that lists the prices of everything you bought and the total amount you owe for them. And all this takes place within a matter of a few moments.

Similarly, there are computers which can recognize the person using them based on the person's thumbprint or eye when it is presented to a magic eye mounted in the computer's screen. Once this recognition has taken place, the computer allows the individual to access and

use the computer's programs. You also may have seen how an employee in this or that institution is able to open the doors to certain offices by inserting a special card into a magic eye, which recognizes the card's owner by picking up the data saved on the card, then allows him or her entry. These cards are now used as keys to houses and hotel rooms.

When cameras were first invented they could "see" a person's features, then record an image of him or her. Cameras then evolved from the use of light-sensitive film which, when developed in the proper manner, yielded images in black and white, to film that could pick up colored images. Then came digital cameras which require no film but, rather, can and store images instantaneously, and motion picture recorders whose digitally stored images can be easily transferred to microscopic chips, floppy disks or compact discs, each of which is capable of storing vast numbers of images and sounds.

All of these are examples of vision tools that far surpass the capabilities of the unaided human eye, thereby expanding our range of vision and the ways in which it can be put to use in thought, research and numerous practical spheres of life.

A similar story could be told about instruments that assist the human ear in picking up sounds in far greater detail and in far broader ranges than it could do otherwise; and the same goes for the other human senses. However, perception or sensation (Arabic, *iḥsās*, *ḥass*) is not limited to the material or physical realm alone. These terms can also be applied to knowledge,[18] or to awareness of something on the level of the heart, the mind, or the psyche. It is in this sense that the word *aḥassa* is used in the Qur'anic verse that reads, "And when Jesus became aware of (*aḥassa*) their refusal to acknowledge the truth, he asked…." (*sūrah Āl ʿImrān* 3:52).[19]

### How do Reason and Sensory Perception Operate in Relation to Revelation?

When we read a verse of the Qur'ān, we attempt to understand the meanings of its words on the levels of both ordinary and technical usage, and what they mean in relation to the various other terms used in the Qur'an. We then attempt to understand the meaning of the

verse within its immediate context and overall context. The principle of structural unity in the Qur'an, which requires that the Qur'an be allowed to interpret itself, is a basic methodological determinant in dealing with the Holy Quran as a source of knowledge. When reading the Qur'an we may also need to familiarize ourselves with the way the Prophet explained specific verses, in which case we will be making use of available commentaries and hadith collections.

Some verses of the Qur'an consist of explicit legal rulings having to do with matters that touch on essential parts of Islamic practice, such as financial transactions or social relations. Verses such as these may not be the subject of a great deal of research and review due to the clarity of their meaning. Nevertheless, reflecting on passages such as these may enable us to arrive at new wisdom in light of current events and newly gained expertise in the natural, social, and psychological sciences. Much of what is being written today on the miraculousness of the Qur'an as it pertains to scientific knowledge grows out of this type of reflection.

However, there are other Qur'anic verses which lend themselves to deeper and more prolonged reflection, and in connection with which God may open up new understandings to the thoughtful reader, revealing meanings that may never have occurred to either his forebears or his contemporaries. After all, the Qur'an is generous, ever-giving, and its wonders never cease. When reading verses such as these, we have less reason to be content with the explanations offered by early Muslim exegetes or hadith scholars, and more reason to interpret these passages in light of recent human experience of relevance to the text concerned. If the passage in question has to do with human experience in this earthly life, whether on the level of natural phenomena, social life, or psychological matters, we are called upon to give careful thought to the Qur'anic text and its various meanings in an attempt to acquire information about natural phenomena, social realities or inner experience of relevance to the text by the use of the appropriate tools and on the appropriate levels.

The verse we are reading might have to do with matters that lie beyond the realm of human sense perception. For example, it might contain statements about events that are to occur on the Day of

Resurrection and the accounting that follows it, be it easy or difficult, and whether it leads to lasting bliss in Paradise or miserable chastisement in Hell. In this case, the topic of contemplation in relation to the meanings of the verse lies beyond earthly human experience. Nevertheless, the divine revelation given to us in the Qur'an is a message to human beings, not to the angels. Consequently, the meanings of the words we find in the Qur'an are inevitably linked to human experience and can only be understood in light of it. Hence, God declares:

> And so they say, "[O Muḥammad,] we shall not believe thee till thou cause a spring to gush forth for us from the earth, or thou have a garden of date-palms and vines and cause rivers to gush forth in their midst in a sudden rush, or thou cause the skies to fall down upon us in smithereens, as thou hast threatened, or [till] thou bring God and the angels face to face before us, or thou have a house [made] of gold, or thou ascend to heaven – but nay, we would not [even] believe in thy ascension unless thou bring down to us [from heaven] a writing which we [ourselves] could read!" Say thou, [O Prophet:] "Limitless in His glory is my Sustainer! Am I, then, aught but a mortal man, an apostle?" Yet whenever [God's] guidance came to them [through a prophet:] nothing has ever kept people from believing [in him] save this their objection: "Would God have sent a [mere] mortal man as His apostle?" Say: "If angels were walking about on earth as their natural abode, We would indeed have sent down unto them an angel out of heaven as Our apostle." (*Sūrah al-Isrā'* 17:90-95)

Even when communicating to us about realities that lie beyond the realm of human sense perception, the Qur'an speaks in terms of concrete earthly human experience: "[And can] the parable of the paradise which the God-conscious are promised – [a paradise] wherein there are rivers of water which time does not corrupt, and rivers of milk the taste whereof never alters, and rivers of wine delightful to those who drink it, and rivers of honey of all impurity cleansed, and the enjoyment of all the fruits [of their good deeds] and of forgiveness from their Sustainer: – can this [parable of paradise] be likened unto [the parable of the recompense of] such as are to abide in the fire and be given waters of burning despair to drink, so that it will tear their bowels asunder?" (*sūrah Muḥammad* 47:15). Rivers, water, milk, wine, honey and fruits

are all things that human beings know from their concrete experience of them. At the same time, these entities are not the realities they will encounter in Paradise, however similar to them they might seem to be:

> But unto those who have attained to faith and do good works give glad tiding that theirs shall be gardens through which running waters flow. Whenever they are granted fruits therefrom as their appointed sustenance, they will say, "It is this that in days of yore was granted to us as our sustenance!" – for they shall be given something that will recall that [past]. And there shall they have spouses pure, and there shall they abide. (*Sūrah al-Baqarah* 2:25)

For what we encounter in Paradise are realities that no eye has seen, nor ear heard, nor human heart conceived.

In sum, it is difficult, if not impossible, to make a neat separation between the function of the physical senses and that of the mind, or reason, in understanding the possible meanings to be found in the texts of the divine revelation. Rather, the working principle is that of integration and complementarity.

## *How do the Mind and the Senses Function in the World?*

"Read in the name of thy Sustainer, who has created – created man out of a germ-cell!" (*sūrah al-ʿAlaq* 96:1-2). The kind of "reading" being referred to in these verses takes place by putting our senses to use through observation, qualitative description, assessment, quantitative calculation, and the discovery of relationships, laws and patterns by noticing the regularity of phenomena and events. This is followed by a process of predicting events and phenomena and the willingness to adjust our behavior in keeping with such predictions. We then put our minds to work formulating theories to explain the phenomena that we have observed within the parameters of a comprehensive, God-centered worldview. In light of such a worldview, we see these efforts as a way of investing the powers God Almighty has granted us as *khulafāʾ* (vicegerents) on earth.

In order to develop a method of relating to the Holy Qurʾan as a source of knowledge, we need to draw a distinction between two ways of conceptualizing the relationship between the Qurʾan and the

realities people face. According to the first conceptualization, the Qur'an was revealed to the Prophet within the context of a particular reality and set of circumstances in which people were faced with specific issues and problems. Seen from this perspective, the verses of the Qur'an were a response to the issues of that day and provided answers to its questions. As for the second conceptualization, it relates the Qur'an to the realities we face today, and which – quite naturally – present us with our own issues, problems and questions. However, we tend not to read the Qur'an in order to receive the guidance we need in order to solve our problems. Rather, we are content most of the time to read the Qur'an for the sake of a reward we hope to receive, to find textual support for the juristic rulings we have learned, or in order to experience the solace and tranquility it brings us. All of these motives for reading the Qur'an are good, of course. However, unless we try to establish a connection between the Qur'an and the issues, problems and questions that face us in our present-day lives, we will never discover its methodological and epistemological value.

In order to develop a method for relating to the Qur'an as a source of knowledge, we need to approach it with specific problems that require solutions, crises we hope to overcome, and questions that need answers. And of these we certainly have plenty in our day! However, we have grown accustomed to taking our problems to experts when we are unable to solve them for ourselves. In most cases, the experts spend a significant amount of time and effort studying the problem and familiarizing themselves with its background, history, extent, causes, surrounding circumstances and the like before suggesting a way to resolve it. The difficulty we face in cases such as these is primarily methodological in nature, since it has to do with our inability to take the first step involved in any research effort, viz., to define the problem and to formulate it in a manner that leads the way to all of the subsequent steps that must be taken in our search for answers and solutions.

In order to define a problem, we need to understand the context in which the problem is occurring. This context may have to do with material objects and natural phenomena, with social and international relations, or with psychological issues relating to the individual and his or her changing states and conditions. This reality – this context – is a

source of knowledge concerning the details of the problem calling for a solution. When did the problem begin? How did it become visible? What is the extent of it? What are the circumstances that surround it in terms of place, time, and people? These are some of the questions that need to be asked. As we ask the necessary questions, we will find that we need to review records of relevance to the problem, to analyze the data found in records, pictures and documents, to meet with concerned individuals in order to poll their views and attitudes, and to analyze our findings for consistency or inconsistency. The process may also require the use of instruments that broaden the range of our unaided human senses, such as blood type tests, gene analyses, and so on.

The world around us on its various levels – physical, social, and psychological – is something that we have no choice but to study and understand. This process of studying and understanding the facts is what has come to be termed "the jurisprudence of reality." In order to engage properly in this type of jurisprudence, reality needs to be studied with the aid of the appropriate methods and tools. For only then will we be able to effect the needed interaction between our reality and the Qur'an so that we can correct what needs correcting, resolve our problems, and cope successfully with our crises.

In sum, the proper reading of the written revelation takes place through the use of both our reason and our senses in order to link the written revelation to the world, while the proper reading of the world takes place through the use of both our reason and our senses in order to link the world to the written revelation.

## *Fourth*: TOOLS OF THOUGHT, RESEARCH AND CONDUCT

Methodological tools can be classified as either tools of thought, tools of research, or tools of conduct. It is difficult to draw distinct lines between these three domains, which are interrelated and overlapping. Moreover, although the term "tool" may not be equally appropriate in all three realms, a discussion of this sort provides an occasion to affirm the importance of distinguishing between the methodology of thought, the methodology of research, and the methodology of conduct or

practice. For although thought can take place without research, no research can take place without thought. As for conduct or practice, many patterns of behavior are pursued as a matter of mere habit, and are thus not accompanied by a great deal of thought. Other patterns of behavior, however, most certainly require thought of varying degrees of difficulty and depth.

The term "tools of thought" or "thinking tools" is sometimes applied to the mental operations one engages in while dealing with a particular issue in order to arrive at a desired outcome. Such operations include quantitative description or measurement, summarization, expansion or extrapolation, addition, classification, reordering, hypothesizing, and so on. Some teaching and training programs use exercises that develop specific thinking skills. These exercises, which involve operations such as cause identification, prioritization, presentation of evidence, and so on, take the form of a paper or set of papers which the trainee reads, after which he or she completes certain procedures in order to solve a problem or respond to a question.

There is a fair amount of semantic overlap between the terms "thinking tools," "types of thought" and "thinking skills." This overlap becomes apparent in a number of well-known training programs that aim to develop thinking skills. Maltesian physician and psychologist Edward de Bono has developed programs of this sort known as "CoRT," "Six Thinking Hats," and others. These programs aim to develop the skills people need in order to engage in certain types of thinking. There is a similar semantic overlap between "thinking tools," "ways of thinking," "thinking styles" and "thinking aids." Much of the literature of relevance to these various categories has to do with human development training programs which have come to enjoy a growing market in recent years.

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*Exercise*

Design a training situation in which trainees search for examples of human development programs that make use of thinking tools, methods, and styles. This can be followed by a discussion of trainees' experiences with these programs.

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Thinking tools include the things people do in order to organize and clarify their thoughts: by linking ideas, for example, or by expressing them through representative drawings or shapes. When ideas are linked to such drawings and shapes, abstract notions become tied to concrete figures, which renders them clearer and easier to remember, teach, review, test and critique. Someone might, for example, make reference to a close or necessary association between two things by placing his or her index finger and middle finger together, by moving his hand in a straight line to indicate a straight road, in a zigzag line to indicate a crooked road, and so on. Thinking tools need not be sensory or concrete in nature. In some cases they might be purely ideational or abstract, as when the tool is a familiar idea that one uses to refer to or speak about an unfamiliar one. However, one of the most commonly used thinking tools throughout the world is the practice of citing illustrative examples, where the example cited links the idea being discussed with a mental image of something known in the sensory, material realm, or of familiar social relationships or feelings.

This approach is used repeatedly in the Qur'an, which frequently clarifies ideas for its hearers and readers by means of examples drawn from the fates of bygone nations, natural phenomena and events, or human experiences and feelings. All of these examples are taken from the earthly realm in which we live in order to illustrate moral principles and truths or describe events that will take place on the Day of Resurrection. Such examples are also found frequently in the Prophetic hadiths, since the Messenger of God often resorted to the use of concrete examples in communicating with others.

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*Exercise*

One or more situations could be set up in which trainees recall verses from the Holy Qur'an or accounts from the Prophetic Sunnah in which concrete examples are cited. These examples can then be discussed in terms of how they function as thinking tools, what they are designed to communicate, and their meaning.

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## *Research Tools*

Research tools can best be discussed by distinguishing among the three

levels at which they operate: (1) research data collection, (2) research data analysis, and (3) research data interpretation.

Most of the literature published in books on research methods concerns itself with tools for collecting data from its sources. The discussion revolves around quantitative and qualitative data, the use of tests as a tool for measuring student achievement, the use of questionnaires as a tool for gathering facts from individuals who make up a study sample, the use of opinion polls as a means of determining what position on a given issue or set of issues is adopted by a community or representative sample thereof, attitude assessment criteria, document and record analysis, interviews, participatory observation, content analysis, etc. Books on research methods describe ways of constructing each type of tool, the cases and situations for which they are suited, conditions for their use, as well as their advantages and disadvantages. Even more importantly, they describe how to ascertain how reliable, consistent and objective a given research tool is prior to using it.

Which data collection tool one chooses for one's research depends on what question one is trying to answer, the type of data that needs to be collected, the nature of the members of the community involved, the size of the sample, the nature of the decision or decisions that will be made based on the outcomes of the research, as well as other conditions relating to the way in which the research process will be managed, and relevant ethical and psychological considerations. Such topics are treated in numerous works on research methods, so they need not be discussed any further in this context.

Data analysis tools have to do with quantitative (statistical) analytical procedures, qualitative analytical procedures, or a mixture of the two. There are books which deal specifically with each of these three types of data analysis and the research for which they are best suited.

In research that involves the use of quantitative data, the data are analyzed through the use of statistical methods or tools. These include: (1) descriptive statistics, which involves the use of frequency tables, central tendency measures, data curves, measures of association, change criteria, bar graphs, percentages, statistical ranking, and others; (2) analytical statistics, which calls for the use of statistical tests having to do with correlation, differences between averages, variance analyses,

covariance analyses, and others; and (3) nonparametric statistics, such as chi square, t-tests, the Wilcoxon rank-sum test, and others. In the past, arithmetical procedures and algebraic formulas of varying degrees of complexity were used in order to perform such statistical tests, and the resulting analyses were quite time-consuming. Now, however, computer programs are able to perform the statistical analysis in a matter of a few seconds once the data has been organized and properly entered.[20]

As for research involving qualitative data, the data being employed will be descriptive. As such, it will take the form of observations recorded in various ways (responses the researcher has recorded while conducting interviews or during participatory observations and other forms of written narrative; audio or audiovisual recordings of dialogues or narratives, documents, observation forms, etc.). There are specialized references that detail techniques for analyzing this type of data, including procedures for converting the data from raw material into material capable of being systematically analyzed. It is usually necessary to choose units for analysis best suited to the type of research being done, with the units of analysis generally being on the order of partial thoughts and observations concerning the contexts and patterns in which such ideas appear.

Qualitative data analysis might, for example, take the form of what is termed conversation analysis, which looks at the forms of verbal interaction that take place in a particular environment or social context. The analysis aims to examine the indicators of the interaction needed in order to preserve the existing social order, and any indicators that disturb this order. The analysis involves observing verbal and non-verbal communication, both direct and indirect, in search of messages that lay hidden within the communication, and noting sequences of events and varying patterns of emotional intensity. The topic of interest in the observation and analysis may be the content of the discourse rather than its form, the purpose being to reveal the attitudes and cultural, racial or political biases and prejudices contained in the discourse, and the way in which the discussion of a particular topic has been structured. Alternatively, the topic of analysis might be the type of communication, which is then classified under one or more of a

number of communication patterns that are customary in the culture of the local community, such as, for example, irony, sarcasm and ridicule, gossip and slander, debate, threat, optimism, etc.

Qualitative analysis is essentially inductive in nature, its aim being to move from partial facts and data to the formulation of a general conclusion or theory that goes beyond the original givens. The process of analyzing qualitative data is distinguished by the fact that it takes place in the course of data collection rather than after the data collection has been completed. The researcher arrives at a tentative conclusion during a particular phase of his/her observations. He/she then tests this conclusion by making further observations, which will either support the initial conclusion or lead the researcher to modify it in whole or in part. Qualitative data analysis is also distinguished by the fact that it is selective and eclectic in nature. Hence, it is not defined ahead of time, nor are decisions about it made in advance. Rather, the researcher chooses specific tools of analysis when and if they are seen to be needed.

The process of analyzing qualitative data involves two distinct strategies which nevertheless go hand in hand. The first strategy entails deconstructing the larger body of qualitative data and reorganizing it into sets which are easy to compare and link with the research questions being proposed. The second strategy is that of contextual interpretation, that is, explaining the data within an overall, consistent context that establishes the connection between the overall narrative and its specific events. These two strategies are sometimes combined in the presentation of the research results. For example, the results might be presented in the form of conceptual schemes or maps, matrices, or figures and tables that show the links among the various elements of the theoretical structure that has been arrived at.[21]

Theorists working on the topic of research in the social and human sciences have noticed that reliance on research that is strictly quantitative or strictly qualitative does not necessarily lead to the best results, and that some situations and topics call for the use of both types of research together. In cases such as these, the researcher chooses some elements from quantitative research and others from qualitative research in keeping with the requirements of the situation or topic at hand.

Recent years have witnessed the emergence of books devoted to what are termed mixed research methods.[22]

As for the tools used to interpret research results, they can be likened to those used in interpreting the Holy Qur'an. Interpreting the Qur'an entails efforts to arrive at an understanding of the meaning of Qur'anic texts through the use of a number of exegetical tools, including language, occasions of revelation (*asbāb al-nuzūl*), the principle of abrogation according to which some Qur'anic verses abrogate others (*al-nāsikh wa al-mansūkh*), and others. Some researchers make use of certain linguistic concepts on the basis of which they attempt to understand the meaning of the Qur'anic text. In an attempt to explain the meanings of foreign names (or, at least, names that are suspected of being foreign) in the Qur'an, one researcher made use of six linguistic concepts or phenomena to which he referred as "exegetical tools," namely, synonymy (*al-tarāduf*), opposition (*al-taqābul*), Arabization (*al-taʿrīb*), translation (*al-tarjamah*), correspondence (*al-mushākalah*), and general context (*al-siyāq al-ʿāmm*).[23] This researcher's thesis was that the Qur'an explains such foreign names within the context of the verses in which they occur, and that by the use of the aforementioned exegetical tools we can comprehend the Qur'an's explanation of these names.

Many Qur'anic exegetes these days make use of modern sciences as tools for understanding the meanings of the Qur'an. The culture of modernism and post-modernism has developed categories of thought that are of great value for the work of thinkers and philosophers. Some of these categories have become methodological entry points for understanding and interpreting both phenomena and texts. Others have developed into integrated theories or schools of thought that govern the work of thinkers in terms of the way they understand what they wish to understand, particularly written texts, be they religious, poetic, literary or historical in nature. Hermeneutics, for example, is now an interpretive tool that gives the reader the meanings he or she wants from the text regardless of what the text's own writer intended!

Little has been written on tools for the interpretation of test results. However, such tools tend to be latent within both a researcher's attitudes and worldview, and the research situation or environment. After all, no one begins the research process with a blank slate. Rather,

he or she comes to the research with already existing knowledge about the topic to be investigated. He or she will also have expectations and desires concerning the results the research may yield. The researcher will know, for example, that specific results were yielded by a study in the past for particular reasons, while similar results were not yielded by another study for other reasons.

An example of research–result interpretation within a particular frame of reference can be found in the area of educational evaluation. When, for example, we have the results of an evaluation of the performance of a particular group of learners, we interpret these results within what is termed an evaluation frame of reference. Three types of evaluation frames of reference may be identified:

1. *Criterion-referenced evaluation*, which identifies a particular target level of performance on the basis of which results are evaluated, such as setting 60 percent as the minimum passing score on an academic test.
2. *Norm-referenced evaluation*, in which the basis for judgment is a comparison with the mean performance of a standard group. In this case, results are evaluated based on the degree to which a given score deviates (by points or fractions of a point) from the [statistical] norm.
3. *Self-referenced evaluation*, in which the individual is compared to himself or herself. That is, the individual's performance at a given time is compared to what it was at a previous time. The degree or percentage of change is noted, as well as how regular or even such change is.

Results might be interpreted in light of a given confidence interval and test of significance. The confidence interval (CI) is a statistical tool used in measuring the availability or nonavailability of sufficient statistical evidence to reject the null hypothesis.[24] The confidence interval may be set at 1 percent, 5 percent, or as high as 10 percent depending on the nature of the decisions which the researcher or the society will be making in light of the research results. The size of the confidence interval will, quite naturally, also depend on the research domain. In

the exact sciences, for example, it would be difficult to allow for even a one-percent chance of error. In the social and human sciences, on the other hand, it might be possible to allow for as much as a five-percent chance of error. In fact, a ministry of education might be willing to risk embarking on a new policy or making some other education-related decision based on research results with a ten-percent chance of error for particular economic or social reasons.

Just as theories or theoretical models are constructed in light of research results, they then become explanatory tools in subsequent studies. Economic researchers, for example, explain some of the economic phenomena they observe in their research based on knowledge they already possess about economic practices and market mechanisms. Researchers in other fields also depend for their interpretations on prior knowledge of this sort.

When doing qualitative research, we will of course need tools of a qualitative rather than statistical nature for interpreting our research results. One reason for this is that qualitative research aims at gleaning information that is linked to the researcher's own worldview.[25] Interpreting the results of such research also calls for a significant degree of intuition and creativity, and an exceptional ability to link research outcomes with the cultural background of the community or society in which the study is being done, including its social customs, economic practices, ethical values and standards, religious frames of references, etc. Reference was made earlier to the strategy of story-telling or the use of examples and parables, which is a methodological tool employed frequently in the Qur'an and the Prophetic Sunnah. Stories, parables and examples might be used as tools for interpreting research results as well.

## *Fifth*: A MODEL FOR EPISTEMOLOGICAL INTEGRATION

The epistemological integration model is an attempt to summarize and link everything that can be understood about the sources and tools of knowledge from an Islamic perspective. This model is made up of two parts: sources and tools. Epistemological integration within the Islamic

worldview emerges on three levels: integration of sources, integration of tools, and integration of sources and tools together.

Seen from an Islamic perspective, methodology has two sources: written revelation and the created world. Hence, any and all epistemological and methodological approaches must seek to integrate these two sources. As creations of God, human beings have no choice but to relate to the created realm around them on its three levels – the natural world, the social world, and the psychological world. Human beings relate to these worlds regardless of their religious and intellectual frames of reference. However, as someone who believes in the written revelation embodied in the Qur'an, the Muslim is both answerable to God and equipped with the God-given ability to relate to the world in light of the guidance the divine revelation, which directs us to develop a God-centered awareness of the world and respond to it accordingly.

This, then, is the true nature of integration between the written revelation and the created world as sources of knowledge and sound methodology.

Similarly, methodology seen from an Islamic perspective has two tools to work with: reason and sensory perception. The senses cannot perform their intended function without reason, just as reason cannot function properly outside the realm of concrete reality. As we have seen, even the most abstract concepts are conceptualized by the human mind in terms of sensory experience, and the Qur'an urges human beings not to exert any effort in connection with realities to which they have no access. As God Almighty declares concerning himself, "…there is nothing like unto Him, and He alone is All-Hearing, All-Seeing" (*sūrah al-Shūrā* 42:11). Hence, there is no need to think about the divine Essence. Rather, it is sufficient for human beings to think about the creatures that point to the attributes of their Creator.

This, then, is the true nature of epistemological integration between reason and the senses as tools of knowledge and sound methodology.

The epistemological integration equation makes clear that deriving knowledge from the written revelation requires not only reason, but sensory perception, just as deriving knowledge from the created world requires not only sensory perception, but reason as well. This is what we mean by epistemological integration between sources and tools.

The diagram below is an attempt to illustrate these three types of integration:

## Epistemological Integration Model
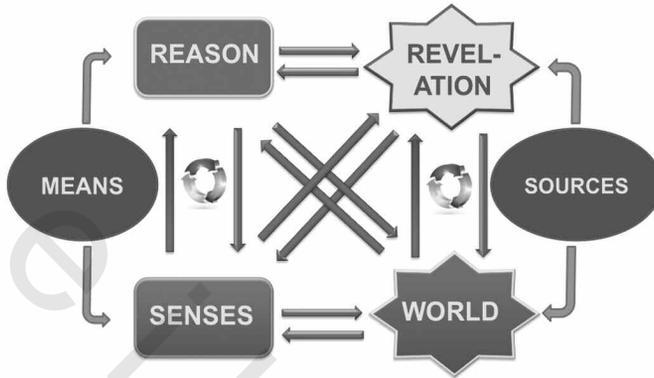


The inborn nature with which God has endowed human beings and other created beings has an important role to play in our understanding of the complementary nature of the sources and tools of knowledge. It helps us to understand God's purposes in creation and guides our thoughts and actions as God's *khalīfah* on earth toward achievement of these purposes. The written revelation in its capacity as a source of guidance ("…there shall, none the less, most certainly come unto you guidance from Me:…" – *sūrah al-Baqarah* 2:38), and reason in its capacity as a tool for understanding the purposes of the revelation ("And in the succession of night and day, and in the means of subsistence which God sends down from the skies, giving life thereby to the earth after it had been lifeless, and in the change of the winds: [in all this] there are messages for people who use their reason" – *sūrah al-Jāthiyyah* 45:5) complement one another in people's efforts to understand and apply the messages brought by this revelation. God Almighty knows best what human beings truly need in his earthly life, and has thus given us a place on earth and means of sustenance: "…We have given you a [bountiful] place on earth, and appointed thereon means of livelihood for you: [yet] how seldom are you grateful!" (*sūrah al-Aʿrāf* 7:10). Anything that disturbs the ecological balance of land, sea, and air prevents the Earth from fulfilling its God-given purposes.

Hence the use of biological, chemical and nuclear weapons, for example, whose destructive effects linger for hundreds and thousands of years, does nothing but corrupt the Earth. The ways in which this corruption manifests itself are evident to us based on observation, experimentation, and measurement, as well as our awareness of the pristine state in which the world existed before all this destruction began.

Our inborn moral awareness leads us to strive for justice, promote human rights and treat one another with integrity and equity, for it is in these ways that human beings' best interests are served. As for practices such as cheating others out of what is rightfully theirs, it corrupts relations between people, causing injustice, violating people's rights and causing people to harbor growing resentment and hatred in their hearts: "...Give, therefore, full measure and weight [in all your dealings], and do not deprive people of what is rightfully theirs; and do not spread corruption on earth after it has been so well ordered: [all] this is for your own good, if you would but believe" (*sūrah al-Aʿrāf* 7:85). The Qur'an explicitly commands us to demonstrate concern for others' welfare and forbids us to act in a niggardly fashion. It warns those who act in this way of a severe chastisement to come, since this type of conduct spreads corruption on earth. Armed with the mental capacities we have been given and the input we receive through our senses, we can understand the Qur'anic text by reflecting on examples of altruism and of selfishness, whose forms differ from one time and place to another but whose essence remains the same. Our God-given moral compass works together with the tools of knowledge to enable us to understand the messages conveyed by the written revelation, which is our source and authoritative point of reference; it also assists us in making practical distinctions between cases of altruism and selfishness, righteousness and evil.

As applied to the sexual relationships that serve people's true interests, our inborn moral compass leads us to strive for love and affection that nurture peace of mind and protect both husband and wife from temptations to satisfy their sexual urges outside their marital bond. Marital relations help to preserve the species through childbirth, while enabling people to carry on their family names and enter into fruitful, cordial relationships with other families, thereby forming tribes and

entire peoples and nations while reinforcing a cohesive social fabric. Any sexual relationship that deviates from the God-given norm by taking place outside of marriage or between two members of the same sex brings corruption on earth, imbalance in both individual psychological makeups and the social structure, and destruction to social relationships. The written revelation is a moral authority that commands us to exercise sexual restraint with everyone other than our spouses; our reason helps us discern the wisdom inherent in this command, while our God-given moral compass helps us to distinguish between the sound relationships that serve people's true interests, and corrupt relationships that violate human interests and bring destruction, hardship, and social and psychological harm in their wake.

Such considerations highlight the need for us to deepen our understanding of the divinely intended order of things so that we can integrate sources and tools of knowledge with ever increasing efficacy.

## CONCLUSION

It will be clear from the foregoing that the two sources of human knowledge within the Islamic framework – the written divine revelation and the created world – complement one another in enabling human beings to access greater and greater knowledge. It is true, of course, that God Almighty, being the One who bestows revelation from on high and being Creator of the World, is ultimately the sole Source of all knowledge. The term "revelation" as we are using it here refers to both the Holy Qur'an and the Prophetic Sunnah, which are viewed as the highest revealed authority for all human knowledge, while the term "created world" is understood to include the three distinct but interrelated domains of: (1) the natural world, that is, the realm of physical entities, (2) the social world, that is, the world of people as individuals, families, peoples, tribes, language groups, cultures and civilizations, and (3) the psychological world, that is, the world of the human soul as mind/reason, spirit, thought and behavior, including what we know of these realities and what we do not, and the full range of emotions that the individual experiences, both good and evil.

As the locus of the knowledge we are discussing, human beings have been brought into this world to be God's *khalīfah* on it, where the world itself is made subservient to them. When human beings were brought into the earthly realm, there descended with them the Revealed guidance they would need in order to fulfill their purpose of being *khalīfah*. This world with its three domains is the subject of the written revelation that guides people in their strivings to develop and populate the Earth and to live meaningfully and prosperously. It goes without saying, then, that this world is likewise a source of knowledge for human beings.

The same can be said about the tools of knowledge, since it would be impossible for human beings to manage their earthly affairs with nothing but abstract, disembodied reason. After all, the senses are the avenues by means of which the mind achieves understanding and awareness of both the messages of divine guidance and facts about the world in which we live.

The mind's God-given function, which is to discern the meanings of the divine revelation and to glean and understand facts about the world, lies at the heart of the divine purpose for creation. The function of the senses, which is to make the meanings of the divine revelation and the facts about the world easily accessible to the mind, is likewise God-given and central to the divine purpose for the created realm. Consequently we might say that just as the two sources of knowledge (revelation and the created world) are inherently complementary, so also are the two tools of knowledge (reason and sensory perception).

We have, additionally, the capacity to develop secondary sources of knowledge, as well as sophisticated devices that enable us to acquire more and more know-how, both theoretical and practical. And as we continue to progress to higher levels of understanding we should pray, "...O my Sustainer, cause me to grow in knowledge!" (*sūrah Ṭā Hā* 20:114).