



# Epistemological shifts in knowledge and education in Islam: A new perspective on the emergence of radicalization amongst Muslims

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## ABSTRACT

I theorize that the idea of knowledge and education has shifted in Islam from an inclusive and rational search for all knowledge to a narrowed focus on religious knowledge, void of rationality. By synthesizing literature on education and knowledge in Islam, this study identifies three shifts in the cultural history of Islamic education. I argue that those shifts in what was deemed valuable knowledge have played a significant role in the emergence of radicalization today. The study shows that once the social world of Islam destabilized, the sense of belonging and sense making became inward and less reflexive as compared to that of early Muslims. Belief became privileged over the rationality mechanisms that had previously formed Islamic endeavors. I demonstrate that a decline in intellectual and scientific production followed, allowing extremists to skew Islam's narrative by putting forward an idealized version of the Islamic caliphate divorced from rationality.

## 1. Introduction

The US electoral paroxysm of 2016 has had a consequential impact on Muslims globally. America's new and isolationist political narrative has normalized a negative portrayal of Muslims in the United States and beyond. In turn, societal Islamophobia has risen sharply: 83% of Americans are concerned with extremists' acts of violence conducted in the name of Islam (Abdo, 2017). Surprisingly, 82% of American Muslims and nearly 90% of American Muslim women share the same concern (Abdo, 2017). Muslims themselves are aware of the societal, political and cultural repercussions the violence of the fringe militant Muslims has on the Muslim collective.

The government's language on Muslims post 9/11 terrorist attack also impacted Americans' favorability of Muslims (Smith, 2013). Prior to the 9/11 tragedy, 80% of Americans were against racial profiling, but following the attack, 60% of Americans favored it, if it targeted Arabs and Muslims (Cole and Dempsey, 2002). Today, Muslim children face a challenging environment as their peers in the Western contexts often characterize Muslims as "stupid", "poor", and "very strict" (Revell, 2010). In 2016 alone, out of 34,676 terrorism deaths, 68 civilians were killed in the U.S. while the vast majority died in

predominantly Muslim countries: 21,061 were killed in Iraq, Afghanistan and Syria (Roser et al., 2018). In the same year, 24.5% of the 1,584 religiously based hate crimes in the U.S. were directed at Muslims (Federal Bureau of Investigation, 2016). These statistics paint a complicated global picture where Muslims hold a dual and bifurcated role in a larger political and social narrative on extremism: they are simultaneously a feared and targeted religious group.

Perceptions of Muslims, as violent and monolithic, have played a central role in the global discourse on extremism. But, very little work has been done in the field of education to decipher how Islam's historic conceptions of knowledge and education may have affected the emergence of radicalization in Islam today. I thus go back in time to transformative moments in Islam's history when shifts occurred in the meaning, reception and production of knowledge. By synthesizing literature on education and knowledge in Islam, this study identifies three shifts in the cultural history of Islamic education. This study argues that those shifts in what was deemed valuable knowledge and desirable education have played a significant part in the emergence of radicalization.

I recognize the inherent risk of generalizing when building a paradigm that helps explain the current fringe and radicalization efforts

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carried out in the name of Islam through moments in Islam's rich history when education and knowledge transformed in their role and meaning in Muslim communities. I also acknowledge that education and knowledge are not the only or omnipotent forces shaping the trajectory of radicalization in Islam. But, for the purpose of this paper, I zero in on the carefully selected transitional moments in Islam's history and examine how and why Muslim communities, their leaders, educators and educational institutions have gradually shifted their interpretation of education and knowledge. I theorize the idea of knowledge and education has moved in Islam from an ambitious, inclusive and rational search and respect for scientific and religious knowledge to a dangerously narrowed focus on primarily religious knowledge void of any rationality. I connect Islam's complicated past to the present because this redefinition of what is to be revered as knowledge has, I contend, helped create a fertile ground for radicalization amongst those seeking to legitimize acts of violence through Islam.

## 2. Transformation of knowledge and education in Islam

I have isolated three key historic shifts in knowledge and education in Islam. Education here is loosely defined to incorporate all formal and informal ways of acquiring knowledge. Knowledge is broadly understood as all human produced and revealed, religious knowledge. Radicalization refers to the interpretation and practice of Islam with the utmost rigidity and a related intolerance towards alternatives. It repudiates modernity amongst both Muslims and non-Muslims alike. At times, radicalization turns into violent extremism in the name of Islam, which is where much of the current academic literature on radicalization within social sciences rests. I expand those conversations by reframing the role of knowledge and education in radicalization via what I call a *three-stage knowledge transformation theory* in Islam.

### 2.1. First stage from the 7th to 11th century: defining knowledge and education in Islam

The primary purpose of early religious education in Islam was to encourage conversion and cultivate a sense of common Muslim identity amongst learners. According to Prophet Muhammad, each verse in the Quran represents God's word revealed to him during more than two decades starting in 610 CE. Each can be interpreted in seven different ways allowing for diversity of meaning and application (Abbas, 2011). Islam's beginning was rooted in diversity of cultural, linguistic and religious traditions of emerging communities dispersed over a vast and poorly integrated realm (Bulliet, 1994). During a time of great inequity and social discord amongst local tribes in the Arabian Peninsula, it served as an ideological platform that would bring social cohesion and social justice. The people of the Byzantine and Persian Empires, which preceded the arrival of the Islamic Caliphate, were exhausted from continuous wars and found enlightenment in Islam's acceptance and encouragement of learning: conversion or becoming part of the Islamic confederacy occurred across almost all Arabian tribes (Gregorian, 2003). For these reasons, Islam organically expanded and adapted to local contexts, over time, producing a multifarious global community of nearly a billion and half Muslims today.

Islamic education in its earliest form was not an institutional or uniform endeavor. There were limited formal institutions (Bulliet, 1994) throughout the Caliphate's large territory. *Madrassa*, Arabic for "school", does not even appear in Islamic texts until about the 10<sup>th</sup> century (Halm, 1977). During Islam's early expansion, Quran and the Prophet's sayings, *hadiths*, served as the ideological catalyst behind the newly converting Muslim communities' search for knowledge. With a mainly illiterate population, the oral transfer of knowledge was the pedagogical tool of that time. Islam's growth benefited from this narrative informality of early education in turn providing flexibility and inclusion. Local mentors and teachers brought the knowledge and practice of Islam into their communities. Traveling through the

expanding Islamic Empire to learn about Islam, young men would return to their communities to share knowledge (Bulliet, 1994). New converts learned from Prophet's early companions, or other learned men in informal settings or mosques.

Early mosques' primary purpose was to provide a space for prayer and worship rather than formal learning. Discussion circles accommodated by mosques raised questions and taught various topics to the curious. *Hadiths*, Prophet Muhammad's statements for Muslims with instructional value to mirror Prophet's behavior, were widely discussed. In categorizing over 7,000 hadiths, Bulliet, 1994 determined that the vast majority of the Prophet's sayings represented pragmatic knowledge for the converting Muslims on topics relevant to their daily lives, including food, clothing, fasting, health, agriculture and business. Very few dealt with the broader knowledge on societal issues, such as criminal behavior or governance (Bulliet, 1994). This reasonably confirms that Muslims' learning about Islam centered on its flexible interpretation and localized adaptation to guide converts on all matters of their daily lives.

These early Muslims' lives and their learning were not exclusively focused on Islam. To the contrary, even those in search of Islamic knowledge would eventually re-shift their interests to business and family matters while only the most intellectually driven continued to broaden their religious knowledge or expand their search for knowledge to astronomy, medicine and other sciences (Bulliet, 1994). Brentjes (2009) concurs that the elites saw scientific progress as key to their prestige and, more broadly, societal development. Only about 4% of the urban elites (Bulliet, 1983) was deeply engaged in religious studies. Islamic scholars like Al-Jahiz (776–868 CE) argued teachers should exemplify knowledge and focus on critical thinking in mathematics and writing as the essential pillars to human progress, to which religious studies were secondary (Günther, 2006). Some, like Ibn-Sahnnun (817–870 CE), favored Quranic memorization and other subjects to be optional. Still, Ibn-Sahnnun advocated against a forceful approach to teaching faith to Christian children, implying that children of different faiths shared classrooms (Günther, 2006).

During this stage in Islam, scientific and religious forms of knowledge were not mutually exclusive. Instead, Islam's territorial expansion was paralleled with the support for scientific progress. Knowledge is one of the most frequently occurring terms in Quran, and Prophet Muhammad was explicit in his instruction to Muslims to search for knowledge even if that meant traveling to China. This messaging was interpreted to mean that all knowledge ought to be valued. The respect for rational inquiry and learning was reflected in scholarly and scientific developments that emerged during that time. For instance, Baghdad's House of Wisdom, built by caliph al-Ma'mun (813–833 CE), had compiled the world's largest book collection. Urbanization characterized this early period in Islam (Bulliet, 1994), and Baghdad became one of the most vibrant cities by the 10<sup>th</sup> century with 1,000,000 residents (Chandler, 1987). Meanwhile, London housed about 20,000 residents (Lambert, 2019). In Baghdad, knowledge was preserved and generated while Europe stagnated through the Dark Ages.

Muslims did not see religious knowledge as in conflict with the scientific knowledge nor did they see either of the two as uniform. With the economic prosperity and conquest, instead, the elites valued scholarship, financially supporting such work. Caliph Al-Ma'mun's appreciation for sciences was apparent in his peace negotiations with the Byzantine Empire during which he is thought to have requested the ancient Greek astronomer, Ptolemy's book (Angelo, 2008). Building on Ptolemy's work, Al-Battani (858–929 CE) expanded our understanding of our planetary system. Along with his recording of 489 stars, his use of trigonometry resulted in the corrections of many of Ptolemy's calculations apropos Moon and Sun (Chisholm, 1911; O'Connor and Robertson, 1999). Caliph Al-Ma'mun not only supported scientists, but funded the first known state project, an observatory, and regularly engaged in debates with other scholars (Welch, 2012).

The House of Wisdom compiled existing knowledge and expanded

on prior scholarship. Muslim and non-Muslim scholars translated past works into Arabic so that the new advancements could be made in mathematics, astronomy, optics, engineering, geography and other fields. Muhammad ibn Al-Kwarizmi (780–850 CE) introduced Algebra, providing the basis for Algebra textbooks throughout Europe until the 16th century (Hitti, 2002; Hill and Awde, 2003). A devout Muslim, yet Al-Kwarizmi's work included a Hebrew calendar treatise that detailed the Sun and Moon's longitude and other specifications relevant to Jewish year (Toomer, 1990). Diversity of knowledge and content deemed relevant and valuable during this era reflected Islamic Caliphate's rational approach and openness to all forms of knowledge and inquiry. Ibn Al-Haytham (965–1040 CE) was a polymath who advanced optics and is credited with introducing the Scientific Method: he argued that mathematics and experiments ought to be employed to demonstrate that a fact is indeed a fact (Ackerman, 1991; Smith, 1996). Both revealed and human produced knowledge was valued, each for its unique but complementary purposes, advancing critical inquiry, rationality and knowledge.

## 2.2. Second stage from the 12<sup>th</sup> through 18<sup>th</sup> century: narrowing knowledge and education in Islam to its religious and political purpose

The early territorial expansion in Islam was coupled with urbanization where new and old cities grew within the vast Islamic Empire. People migrated to cities in large numbers, over time, leaving rural areas without necessary labor to support agriculture: the urban growth outpaced agricultural productivity gradually ensuing in economic pressures (Bulliet, 1994). While the infighting within the Islamic Empire characterized much of its history due to its fast expansion across diverse communities, the gradual economic decline magnified the internal strife.

With Mongols' invasion of Baghdad in the 13th century, the Islamic Empire was in decline. Mongols destroyed Baghdad's then unequalled 36 public libraries and the House of Wisdom along with killing the elites and scholars (Murray, 2012). The estimates of those massacred widely range from 200,000–1,000,000 (Frazier, 2005), and Baghdad never regained its prior glory. As outside pressures and internal tensions grew, elites wanted conformity of the populous to ensure political support and stability. To secure power and loyalty, shift towards the specific religious and political purpose of knowledge in Islam began. A 12<sup>th</sup> century Iranian religious scholar, Abd al-Karim al-Sam'ani, wrote about teacher pedagogy when instructing students on learning and studying *hadiths* (Bulliet, 1983). Al-Sam'ani valued oral tradition in transferring religious knowledge, but, by his time, the informal and oral tradition was eroding in favor of formal studying in classrooms from a learned teacher (Bulliet, 1994).

By the 13<sup>th</sup> century, the learning was more formalized and situated in *madrasas*, which were the schools typically attached to and funded by mosques. Places of scientific inquiry became marginalized in scope and focus (Makdisi, 1973). The social prestige steadily detached from sciences and instead affixed to the production of religious knowledge, triggering the elites to redirect their funding to madrasas, away from the institutions pursuing scientific research (Chaney, 2016). As Bulliet, 1994 agrees, this second phase in Islamic religious education was fundamentally different from the early period of oral tradition that was malleable and adaptable to local context. He concurs religious education was situated in formal institutions and reframed through the relationships between students and their teachers. One of the influential Islamic education theorists, Al-Ghazali (1058–1111 CE), argued that religious knowledge ought to be above all else and that the teacher was the ultimate authority: if necessitated, he urged learners to neglect their friends and family to ensure perfect acquisition of knowledge on Islam (Günther, 2006).

Education became removed from critically examining the Quran in lieu of a continued shift towards memorization. Centrality of memorization as a pedagogy minimized critical inquiry that characterized the

initial stage in the development of education in Islam, where Socratic Method was favored to question assumptions. Some felt that there was no need to continue to critically examine religious content. "Blind acceptance" was encouraged (Hilgendorf, 2003). Memorizing of the Quran was difficult given it averaged over 600 pages along with the fact that mnemonics were not popular amongst Muslims as a memorization strategy. Islam was now increasingly utilized to solidify political power in the region, facilitated by the neglected critical thinking and expanding authority of the religious knowledge.

Challenges to the stability of the Empire along with the shift away from critical thinking and towards religious knowledge led to a lesser scientific advancement. Chaney (2016) for instance analyzed Harvard University's collection of all books regionally published from the 12<sup>th</sup> through the 18<sup>th</sup> century and demonstrates a consistent decline in the publication of science books during this period in Islam. Decline in the scientific work is positively correlated with the substantive increase in the religious books on Islam (Chaney, 2016). Religious leaders gradually gained political power and expectedly a greater financial support was given to religious education; as a result, this changing dynamic led to a growing number of scholars opting to study religion rather than committing their capacities to the scientific inquiry (Chaney, 2016; Makdisi 1973; Gibb, 1982).

I further posit that this shift towards religion and neglect of sciences during the second transformational stage for knowledge and education in Islam has adversely influenced the reception of the technological advances within the Islamic Empire as compared to the European experience during the same period. Eisenstein (1980) argued that printing revolutionized access to knowledge in Europe easing the scientific exchange, lowering expense and broadening access to education beyond the upper classes: the populous could study on their own.

Within the Islamic Empire, printing did not have a comparable positive effect due to the Islamic Empire's late adoption of the technique. The first attempt to print the Quran was made in 1538 while by 1500, Europe had already printed "fifteen to twenty million copies of 30,000–35,000 separate publications" (McLuhan, 1962, 207, as cited in McGugan et al., 2017). It was Alessandro Paganini (1450–1538), a printer in Venice, who first printed the 464-page Quran (Nuovo, 1990, 2013). Given the complexity of the Arabic script, his version of the Quran had many errors. Arguably, this mishandling of the Quran's printing led to Muslims' adverse reaction further enhancing Islamic world's hesitation to print. While Paganini hoped to sell his printed Quran throughout the Ottoman Empire, the last Islamic Caliphate, which peaked at that time, he instead went bankrupt likely dissuading others from following in his footsteps.

While one cannot reliably predict what might have happened if the initial effort to print the Quran was fruitful, it is reasonable to assume that it would have over time expanded literacy through a broader access to the Quran. It would have also been indicative of the Muslims being more amenable to accept technological innovation in education during that time. The world's literacy rate at the onset of the 18<sup>th</sup> century was estimated at 12.1%; by the beginning of the 19<sup>th</sup> century, it rose to 21.4% (Roser and Ortiz-Ospina, 2018) while for Muslims it ranged from 2% to 3% (Quataert, 2004). In the 18<sup>th</sup> century, the Ottoman Empire allowed printing of some books, but not the Quran. By comparison, Jews established their first printing press in Hebrew in 1494 (Galanti, 1947, as cited in Birinci, 2019); Armenians did it in 1567 (Gerçek, 1939, as cited in Birinci, 2019); and Greeks followed in 1627 (Moschopoulos 1931, as cited in Birinci, 2019). While the Ottoman Empire was centuries behind in printing, Christians and Jews were exempt from the printing ban placed on the Quran and other Islamic religious texts. When Ottomans allowed printing - due to the books' lower costs - even the Islamic world witnessed "the expansion of book ownership" (Hanna, 2007, 189). In other words, a broader access to the written language and increased literacy could have positively redirected Muslim learners away from the primary focus on the memorization of the God's word and towards a more flexible thinking that

Muslims espoused during the Golden Age.

### 2.3. Third stage from the 18<sup>th</sup> century to today: narrowed knowledge and education, and its impact on radicalization

This study synthesizes the literature on education, religion and science in Islam to contour the key three stages during which the ideas of knowledge and education in Islam took on different meanings. Today, the global Muslim community includes secular Muslims as well as those solely accepting of an ultraconservative and puritanical interpretation of Islam. Each community contextually interprets the ideas of knowledge and education as they see it fit. Still some overarching ideas have emerged throughout history and presently impact a global radicalization movement in Islam. Even beyond radicalization itself, the shifts in how Muslims have historically experienced and viewed education and knowledge are still impacting education and knowledge in the Muslim communities. Jointly, Arab nations are minimal consumers of knowledge produced by other countries with annually only 300 books translated or 20% of what Greece alone translates (Rima et al., 2002). There are 57 predominantly Muslim countries, with collectively 600 higher education institutions while the U.S. has 10 times that many universities (Saleem, nd). Of all Christians, 8 out of 10 are literate while only 6 out of 10 Muslims are (International Islamic News Agency, 2015). The ideas of knowledge and education in Islam have narrowed over centuries with profound consequences for the economic development of the affected population. These circumstances have helped the fringe radicalization forces successfully target the poor, young and marginalized.

Western colonialization followed the Ottoman Empire's decline, and its eventual disintegration in the early 20th century politically and economically weakened the largely Muslim regions. Starting with Napoleon Bonaparte's first invasion of Egypt in late 18th century, Western powers invaded and began to shape the Muslim world through the 20th century. They often took rights away from the Muslim citizenry and fostered internal divisions amongst Muslims allowing Europeans to map out the Muslim world into organizational units that benefited European imperialist agendas. For instance, when French invaded Algeria, property and political rights of the native Algerians were taken away to pave a way for French and European settlers, unless Muslims abandoned Islam to retain their political rights (Calvet, 2017). The French building and opening of the geo-strategically important Suez Canal (Wilson, 1939) in the 19th century eased European colonizers' access to Asia further sharpening Western interests towards the Middle East. By 1908, the oil discovery in Iran by a British company, now an oil and gas multinational BP, increased Europeans' appetite for their dominion over the Middle East (Alfred, 2008).

As the World War II ended, the history of the Middle East became even more complex with the United Nations' 1947 resolution dividing Palestine into a Jewish and an Arab state. At the time, both the US and its European allies grappled with ways to address the needs of the Jews who survived the Holocaust (Quandt, 2010). They responded with the UN proposal, in which: "[t]he Jews were being offered 55 percent of Palestine when in fact they had owned only seven percent of the country" (Mattar, as quoted by NPR, 2002). By 1948, the state of Israel was established and the Arab world was angered prompting Egypt, Syria, Iraq and Jordan to invade Israel later losing the war against this newly formed state. As a consequence of losing the war, Benjamin Beit-Hallahmi (as quoted by NPR, 2002) said, by the end of 1949: "Israel ended up with 78 percent of Palestine...and [t]he Palestinian community in Palestine just disintegrated. The majority of Palestinians became refugees, and Palestine – the geographical term Palestine – disappeared from the map."

While the lack of statehood for the Palestinian people remains a global concern, the Palestinian plight has been effectively leveraged by the radicalized groups to recruit Muslim youths in the Western context (Husain, 2009). As Husain (2009, np) notes: "The Palestinian suicide

bombings were considered by *all* Islamists of *all* persuasions as legitimate, and endorsed by their skewed and unscholarly reading of Islamic law." In his work, Husain (2009) refers to a known verse from Quran: "Whoever kills an innocent person, it is as if he has killed all of humanity" (Quran 5:32). Other conflicts involving Muslims have similarly been employed by the militants to justify the recruitment of youths and perpetuate terrorism in the name of Islam.

In early 1990s, the global Muslim community watched Bosnian Muslims ethnically cleansed during the larger political and economic shifts transpiring with the fall of communism in Eastern Europe and the related break up of the former Yugoslavia. The international arms embargo, adopted by the UN Security Council in 1991 (Ceulemans, 2005), was intended to lessen violence. The West assumed that the Yugoslav National Army (YNA) would be a neutral player and prevent violence amongst ethnic groups, but YNA was *de facto* Serbs' army (Moratti and Sabic-El-Rayess, 2009a, 2009b). As a consequence of the arms embargo, only Bosnian Muslims remained unarmed. Rather than being protected by the arms embargo, Muslims became the primary victims of the horrific violence due to the arms embargo maintaining the vast imbalance of power between Serbs and Muslims (Sabic-El-Rayess, 2009). The US eventually intervened in the summer of 1995, but by then, the narrative of Bosnian Muslims' suffering reverberated globally inciting Muslim youths to radicalize (Sabic-El-Rayess, 2016a; Alexander et al., 2004; Husain, 2009). In the same manner in which the lack of Palestinian statehood has been used by the militant groups to incite hate towards the West and its agenda (Husain, 2009), Bosnia has provided another reference point that has strengthened Muslim militants' recruitment narrative as they approach marginalized Muslim youths in the West and beyond.

In response to these complex and cumulative economic and political developments over the last few hundred years, Muslims have typically resorted to Islam as a unifying or organizing force. Muslims have first resisted the infiltration of the colonial powers and later the Western neocolonial forces and their educational, institutional and cultural norms because Muslims perceive them as self-serving, corrupt and damaging to the Muslim way of life. A reformist Salafi movement, for instance, initially emerged as the anti-colonial force calling Muslims to return to a pure version of Islam free of the external influences and corruption. It gradually spread through Egypt, Algeria, Tunisia, Morocco, Indonesia and other Muslim nations from 19th through the 20th century (Campo, 2009). Fueled by oil revenues, Saudi Salafis in particular have broadened their global influence and supported the spread of Salafism often seeding ultraconservative Salafi ideology in the crisis prone regions (Sabic-El-Rayess & Mansur, forthcoming in 2020; Sabic-El-Rayess, 2016a).

Salafism's early rejection of the Western imperialism in the Muslim world during the colonial period has broadened and led into the emergence of the terrorism and militancy prone Salafi factions in recent decades. From Al-Qaeda, to Boko Haram and ISIS, militant Salafism has evolved with the goal of leading jihad against both Western influences and the local, corrupt and authoritarian regimes in the Muslim nations. Muslims and non-Muslims alike have become targets of these militant and Salafism inspired groups resenting the West, but also all forms of Islam except for their own. In 1970s, the militant Salafis have even attempted to overthrow what its followers saw as a corrupt and US-influenced leadership of the Saudi state (Campo, 2009).

Contextual challenges involving nonorganic formation of nations that have aligned more with the Western interests than those of Muslim populations have often coincided with the rise of corrupt and authoritarian leaders in those local contexts. Broader research has confirmed how profoundly adverse effects of corruption can lead to both disengagement and demoralization of youths who gradually lose the trust in the system (Sabic-El-Rayess, 2019, 2016a, 2016b, 2014, 2013, 2012, 2011, 2009; Sabic-El-Rayess et al., 2019; Sabic-El-Rayess & Seeman, 2017; Sabic-El-Rayess & Mansur, 2016; Sabic-El-Rayess & Otgonkhagva, 2012). These combined neocolonial and corrupt markers

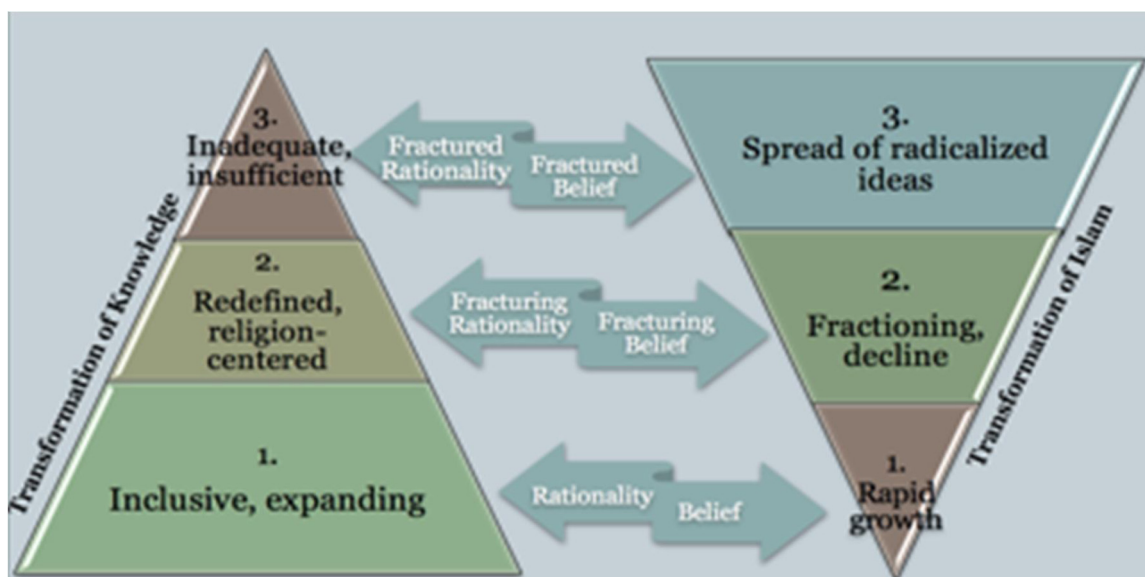


Fig. 1. Fractured Belief & Rationality Framework: Three Stages of Knowledge.

undergirding many predominantly Muslim nations today have lessened both the economic and educational opportunities for Muslim youths. Muslim youths are increasingly resentful for being excluded from the political decision making processes in their countries, in turn resulting in grievances feeding the rise in radicalization and militancy.

The militant groups often see scientific knowledge and progress as synonymous with the Western influences and thus wrongly equate rejection of scientific knowledge with the rejection of the Western political, social and economic markers and ambitions. What the radicalized typically fail to recognize is that knowledge and learning - rather than violence - is of essence in Islam's true message as reflected in the very first interaction Prophet Muhammad is claimed to have had with angel Gabriel who instructed Muhammad to "read!" (Al-A'zami, 2003).

While the above discussed colonial effects and contemporary geopolitical dynamics cannot be underestimated as they provide contemporary militants with the grievances to leverage in the youth recruitment, our analysis is centered on Muslims' own conceptions of knowledge and education, which have transformed through three mega stages that frame a continued social transformation of education and knowledge in Islam. This third phase suggests that the conceptions of knowledge and education within diverse Muslim communities today are limiting, which has allowed the radicalized groups to grow in their influence. The radicalized have rejected the scientific knowledge and called for the destruction of what signifies human progress. For instance, during their control over Iraq's city of Mosul, ISIS fighters nearly decimated Mosul University, burned its well-known library and closed its 20 faculties while keeping employed only the medical faculty members whose services they needed during fighting (Stefan, 2017). Their call for purity and truth in Islam has been synonymous with their negation of rational inquiry and innovation in sciences.

Their messaging creates an egregious misconception of what early Islam stood for and what knowledge was valued. The radicalized in Islam are able to recruit followers and convince them that not all knowledge is desirable and only the curated content with religious underpinnings is acceptable (Sabic-El-Rayess & Mansur, forthcoming in 2020; Sabic-El-Rayess, 2016a). ISIS, for instance, has directed women to disengage from learning "worthless worldly sciences" in a "Western lifestyle and sitting in the midst of another culture" (Abdul-Alim, 2015, np). Instead, women are required to limit their education to the study of religion at home, living sedentary lives centered around gendered roles of mothers and wives (Abdul-Alim, 2015). While the extremists call for a return to the blind adherence to their interpretation of Islam, they

have failed to understand the key point I make in this study: early expansion of Islam, which groups like ISIS aspire to return to, was accompanied not by a rejection or neglect of science but rather by its broad endorsement and an open call for rational inquiry and search of knowledge, as inspired by the Quran. If the Muslim world is to progress, it ought to revive and reclaim its passion for knowledge the early Islamic Empire demonstrated. It is not a rejection but rather search for all knowledge that produced the Golden Age of Islam.

The ultraconservative groups in Islam today refer to the import of Muslims' return to the origins in Islam, but they have reimagined it as monolithic and rigid. Militant groups like the Islamic State of Iraq and Syria (ISIS) or even those that are non-militant but radicalized have recruited followers by marketing their return to early Islam as being conjoined with the rejection of modern knowledge and sciences. For them, the only acceptable and desirable knowledge is highly curated religious content that is in conflict with the scientific progress of the West, which ironically, I show, was founded upon the scientific advancements of the early Islamic Caliphate. During early Islam, the Quran called upon Muslims to search for knowledge about the universe (Gregorian, 2003). For Muslims, "There was just one science" (Gregorian, 2003, 28). At the time, the West and China were far behind the scientific and technological progress of the Islamic Empire (Huff, 2017; Chaney, 2016). Yet, this espousal of scientific progress as one of the drivers of Islamic Caliphate's growth is not known to those marginalized and at risk for radicalization today. A recent United Nations study (Dearden, 2017) on extremism demonstrated that ISIS members lack even the very basic knowledge of Islam. They see scientific knowledge and progress as synonymous with the Western influences and thus wrongly equate rejection of scientific knowledge with the rejection of the Western political, social and economic markers and ambitions. They are therefore easily susceptible to the extremists' damaging reframing of the conceptions of knowledge and education in Islam. These conceptions of education and knowledge are limited to highly curated religious content and refrainment from a pursuit of the scientific advancement, which is in discord with the early Islam's welcoming attitude towards advancing all forms of knowledge.

### 3. Theoretical framework: fractured belief and rationality

I utilize the discipline of knowledge studies to support my conceptualization of transformation of knowledge practices in Islam. I add to the theories of rationality (Weber, 1978; Kalberg, 1980; Habermas,

1984) to create a fractured belief and rationality framework I apply to the three stages of Islam (Fig. 1). In the first stage as Islam expanded through rapid growth, belief and rationality were harmonious. In the second stage, when Islam began to faction and the Islamic empire declined, belief began to be privileged over rationality adversely impacting the definition of knowledge. In the third stage, I see the results from a complete fracturing of belief away from rationality in the actions of radicalized Muslims.

Fig. 1

This framework is not recreating the dichotomies already present in the literature of Islamic pedagogy: that of Islamic education as doctrinal, based on memorization and consent to authority or Islamic education as “flexible” (Waghid, 2011; Meijer, 2009; Asad et al., 2013; Parvez, 2016). While both typologies of Islamic education have been evident in Islamic history, the purpose in theoretically framing the three stages of knowledge transformation in Islam is to show the change in the governing of knowledge practices at different periods of Islam’s history.

I define “rationality” and “belief” models in the knowledge discipline. In knowledge studies, rationality is the theory of reason. Rationality means to use all valid information or knowledge to pursue an objective, which is the operating definition of rationality I employ. Within the studies on rationality, ideal rationality aims to achieve “resolutions that are rationally appropriate with (absolutely) everything relevant taken into account—that are optimal pure and simple” while practicable rationality is “geared to resolutions that are rationally appropriate with everything relevant taken into account that I can effectively manage to take account of in the prevailing circumstances—that are optimal as best I can manage to tell” (Rescher, 2003, 191). A form of practicable rationality, bounded rationality is a state of cognition in which one has limited awareness (Simon, 1972). The limited awareness may stem from “constraints on the information-processing capacities of the actors” (Simon and Siklóssy, 1972, 162). All humans experience bounded rationality: power and knowledge reduce the boundedness but do not erase it. I define a belief as “justified. . . when there is a standing presumption in its favor and no preestablished (rationally justified) reason that stands in the way of its acceptance” (Rescher, 2003, 94). With this essential framework on belief and rationality, I articulate how the two, initially, worked in harmony to later experience internal discord ultimately leading to the fracturing of belief from rationality. Unlike in Islam’s most prosperous days, belief no longer stimulates deeper engagement with rationality to guide a broad and inclusive pursuit of the human produced knowledge. As a result, belief is now more susceptible to being used as the blind acceptance of deviant narratives about Islam serving the needs of the extremist groups whose agendas reject rationality as the driver of human learning.

### 3.1. First stage: rationalizing scientific knowledge through religious belief in early Islam

I provide historical support of how rationality and belief were not perceived as incongruous in the first stage of Islam. Belief was not an eschewing of rationality and being rational did not suggest a lack of belief. Belief and rationality complemented and worked in tandem with each other. Scientific knowledge and discoveries were used to increase faith and belief in the creator. Such a unity led to the growth of robust inquiries into all forms of knowledge. Watts states: “It is clear that the influence of Islam on Western Christendom is greater than is usually realized. Not only did Islam share with Western Europe many material products and technological discoveries; not only did it stimulate Europe intellectually in the fields of science and philosophy; but it provoked Europe into forming a new image of itself” (as cited in Gregorian, 2003, 26–27).

I posit that when Islam began spreading, knowledge was inclusive and expanding. It was rooted in an ontological “becoming,” in learning how one should be a Muslim. The Prophet’s hadiths elevated the

pragmatic concerns of Islam rather than the esoteric spaces of knowledge available only to a privileged few. Rationality and curiosity fueled one’s quest for knowledge. Knowledge was valued as available everywhere in the social and physical existence of the world. The historical overview suggests that the Golden Age of Islam was propelled by a curiosity of belonging in the world. There were limited boundaries between the world of religious studies and the studies of the physics of the world.

Evidence of knowledge was sought beyond the Quran. This practice of the early Muslims did not display a contradiction but rather a congruence supported by the Quran (96:1): “Read!” For early Muslims, “read” meant to understand and learn about the world in its created magnificence. Early Muslim philosophers and theologians employed “kalam, a form of dialectic debate and argument” to engage and converse with their Jewish and Christian counterparts (Khalili, 2010). In this argument, I connect the social development of Islam to the inclusive knowledge apparatus practiced by early Muslims. Based on our synthesis of historical evidence, early Muslims did not see a contradiction in the pursuit of rationality as scientific knowledge and sense-making, and the pursuit of their beliefs.

In this stage, the intertwining of belief and rationality is perhaps most evident in the following hadith, “Trust in God but tie your camel” (Jāmi’ at-Tirmidhi 2517). What should one do: leave a camel untied or tied while trusting in God? Prophet Muhammad stated it was necessary to believe and do the rational by taking into account the laws of the world. The hadith guided early Muslims into how they should act with both belief and rationality. They were dissuaded from believing in miraculous interventions that may not be aligned with rational actions. Early Islamic practices did not disavow, but rather accepted the logical sequence of an action. Belief required rationality. Today, ISIS members who believe that a suicide bombing would secure a place in heaven have reimagined belief falsely with no ties to rational behavior.

Early Muslim philosophers such as the Mu’tazilites promoted ‘rational theology’ and suggested that reason should be used to “assess the claims of revelation” (O’Hear, 1982, 13). Mu’tazilites, of the rationalist school of Islamic theology (8th-10th century), valued rational means to judge good and evil. For the Mu’tazilites, “good and evil are rational categories which can be established through unaided reason” (Fakhry, 1983, 47). Contemporary jihadists use “Mu’tazilite” as a derogatory term for their rival groups to reduce their credibility and show disdain for a rational basis of religion, demonstrating the fracturing of belief and rationality.

I underline the importance of rationality, especially in context of knowledge in religions. In Abrahamic religions, including Islam, followers have faith or belief in an omniscient power. Yet, these belief systems are contextualized through human rationality and the social effects of doing ‘good’ versus ‘bad’. Consequently, belief is framed in religion as undergirded by rationality. Those who have undergone the fracturing of belief and rationality reduce belief to its baseless rigid form, devoid of rationality. These radical agents may seek to justify their awry beliefs as truth through irrational means. Radicals may be cognitively driven by “presumptively justified beliefs” (Rescher, 2003, 86), unchallenged by their rational underpinnings. Militant jihad prompts many radicals to become suicide bombers. Radicals reinterpret their truth of belief in jihad, irrationally ending lives. They fail to understand that ending one’s own and others’ lives is considered a grave sin in all Abrahamic religions. Such discrepancies demonstrate the essence of the completion in *fracturing of belief and rationality*.

### 3.2. Second stage: privileging religious knowledge & divorcing rationality in Islam

As Islam began to faction, the process of divorcing rationality from belief began. The dominion of rationalist schools dwindled and interpretation of revelation was given a higher place over rational thinking (Ashraf, 1985, 27–32), due to the influence of Al-Ghazali on Muslim

thought. The influence in the broader discourse of Islamic education (Halstead, 2004) has provoked the deep cleavage between the multifaceted rich philosophy of early Islam and the narrow notions of knowledge that lead to radicalization and extremism. Chaney (2016) demonstrates this transformation with the mushrooming of madrasas, first in the east followed by their expansion to the west of the Islamic Caliphate (Lapidus, 2014). The rise of madrasas paralleled the scientific production's decline; 12% of the knowledge produced in the Islamic Caliphate were science books, dropping to 3% by 1200s (Chaney, 2016). As madrasas spread through the west of the caliphate, the scientific book production declined. Instead, there was growing focus on derivations (Chaney, 2016) of the earlier works rather than original inquiry seeded in the rational probing and expansion of knowledge.

As the social world of Islam rapidly destabilized, knowledge was redefined as a more exclusive endeavor, something that could be valued and gained only by insiders. Memorization, in madrasas regulated knowledge. A societal shift towards belief occurred. This shift crowned the traditionalists' victory over rationalists where "the traditionalists reli[ed] on faith and shun[ed] reason (Makdisi 1962, 38, as cited in Chaney, 2016, 6–7). Traditionalists feared the rationalists' displacement of the religious intermediaries in the matters of faith as rationalists in Islam consistently encouraged direct relationship with God (Crone, 2006) and saw belief as a stimulant for the rational scientific inquiry.

Rote learning and memorization but not rational inquiry became key forms of gaining knowledge. The sense of belonging and sense making in the world became inward and less reflexive as compared to that of early Muslims. Belief as truth was privileged over the rationality mechanisms that had previously formed Islamic endeavors. A significant decline in intellectual and scientific production within the Muslim world followed.

### 3.3. Third stage: fractured belief and rationality in contemporary Islam

In the current stage of a "comparative intellectual stagnation in the Muslim world" (Bugaje, 1996, 58), belief has begun to be understood as the sole purveyor of privileged knowledge without taking into account the rationale underlying the beliefs. I underscore that "belief" as a knowledge practice is based on an interpretive schema and can be damaging without its rationalistic basis. Radicals such as ISIS members fail to know the basis of Islamic practices. Islamic scholars note these are based on rationality rather than imagined privileged ways of being that uphold certain beliefs. The radicalized attempt to restore Islam's failures to its past glory actually by recreating and perpetuating failures through fundamentalist Islamic movements (Hoodbhoy, 1991).

This type of restorationist response suggests that there is a pure idealized Islam of the past to which all Muslims should adhere to recreate Islam's glory. Salafism, a rigid and restorationist interpretation of Islam that first emerged in the 18th century and has since propelled some radicalized groups into militancy during the 20th and 21st century, champions this goal (Sabic-El-Rayess & Mansur, forthcoming in 2020; Sabic-El-Rayess, 2016a). No such past existed. Islam began with a rationalist approach that was not insular. The historic evidence shows that not only is there no such idealized past, but any attribution of the Islam's early prominence to its claimed rigidity and blind acceptance of belief, as is currently marketed by the radicalized groups, is flawed.

The extremists' goal to resurrect the imagined glory of Islam through jihad, the militant application of their belief resentful of rationality, has instead unglorified Islam and solidified its negative perception globally. In the U.S., Muslims are presently viewed less favorably than 7 other key religious groups - Jews, Catholics, Protestants, Hindus, Mormons, Buddhists and evangelical Christians - while more than half of the population in the U.S., Russia and Western Europe see Muslims as "fanatical" (Lipka, 2017).

Rapid radicalization is correlated with this shrinking space of what knowledge means, how it is gained and the ontological connections to

knowledge. Hoodbhoy, 1991 noted that the contentions on whether science was Islamic have pervaded many Islamic countries including powerful actors like Saudi Arabia. Commenting on Hoodbhoy's work, Edward Said stated "scientific rationalism at a time of social crisis and questioning within the world of Islam..." is a great need (n.d.). A way of being in the world as based on belief is disconnected to the ways of gaining rational knowledge. Gaining rational knowledge is not seen as a way to further belief.

The effects of "preserving Islam" from "corrupt secular influences" has paralleled the rise of radicalization (Hoodbhoy, 1991, 1). I note here two diverse trends in the Muslim world: one depicting high trends of illiteracy and lack of education (International Islamic News Agency, 2015), and the other displaying educated Muslims, even women, to gravitate mostly to the STEM fields (Weingarten, 2017). Yet, a fractured belief and rationality framework is applied not to the level or type of education but to the epistemological stance on the relation between Islam, belief, rationality and knowledge practices. For instance, Gambetta and Hertog (2009) find that a disproportionately high number of college educated extremists are engineers likely due to their preexisting rigid "mindset" with which they entered their training. Extremist groups have aimed to 'preserve' Islam from corrupt secular influence through different means, including withholding education for girls and blasting suicide bombs with destructive use of engineering.

The lack of dialogue between the rational spheres and the belief as truth spheres is hinged on the perception that they are incompatible. When a "rational approach to human problems is considered alien to Islamic culture," radicalization and extremism arise (Hoodbhoy, 1991, 1). For those who are radicalized, the fracturing is complete between the two spheres. In our framework, the complete fracturing leads actors to irrational solutions. The complete fracturing has implications for individual actors and for Islamic society generally. A radicalized Muslim may simplify even complex phenomena such as economic crises to being caused by "the lack of belief" (Sabic-El-Rayess, 2016a; Sabic-El-Rayess & Mansur, forthcoming in 2020).

The disassociation between belief and rationality affects all aspects of actors' lives. Their relationships deteriorate as they withdraw from Muslims and non-Muslims. They may ignore obligations to family who had not undergone the fracturing process. Actors imagine a community whose boundaries are marked by belief oriented knowledge practices. These communities are grounded in reestablishing an imagined Islamic splendor of morality and actions. The continued rise of Salafism demonstrates one such community that has suffered the fracturing of belief and rationality. Within these imagined communities, only a literal interpretation of the Quran is permissible because it associates the actor with the first generation of Muslims who are presumed to be exemplary and moral. ISIS morality police was known to sanction behaviors according to their imagined morality framework (Almohammad and Spechard, 2017).

The empirical evidence (Sabic-El-Rayess, 2016a; Sabic-El-Rayess & Mansur, forthcoming in 2020) of practices among the radicalized shows that they put their trust in belief based knowledge practices. The radicalized imagine their truth of Islam to be gained in communities such as ISIS and amongst radicals who act on their extremist beliefs. The fracturing explains the challenges that are seen with radicalization today. A conflict laden geographical state supported by laws and governance for which there is no rational basis create a space for their sense of belonging. Their followers do not challenge or inquire but mindlessly follow trite imposed beliefs of the recruiters including violence, human trafficking, reduced status of females in illegal marriages, and widespread murder - none of which could rationally and justifiably be derived from Islam's original intent.

## 4. Discussion and implications

The implication of our fractured belief and rationality framework is evident in markedly different contexts. When there is cohesion in a

system, organization, country or empire between rational thinking and values that create beliefs, it leads to growth and inclusion. In such contexts, democratic principles govern knowledge and education practices. In the first stage of Islam, the social and political governing bodies of the Islamic Empire challenged the ideas of 7th century Arabia from which Islam had sprung. Racism was challenged. Female infanticide was stopped as the Quran banned it (Qur'an 17:31 and 81: 8–9, Oxford World's Classics edition). When European women had few rights, women gained the legal authority in Islam to own and inherit property and consent to marriage (Esposito, 2005; Lewis, 2002). Of the total number of books produced between 8th and 11th century, about 10% generated new scientific knowledge (Chaney, 2016).

The second stage of Islamic history shows that the Islamic Empire neglected science sacrificing future progress. It began the process of introversion which furthered decline of social progress and political structures. Leaders and elites lessened their support for scientists' work in the framework of rationality. This transformative distancing from rationality as the basis for inquiry was not linear or immediate. Complex societal change never is. Rationality continued to play a role, but to a notably lesser extent. Scientific knowledge production was on a decline: the number of the scientific books in the Islamic world plummeted by about half in the 12th century and again halved by the 17th century (Chaney, 2016). While pockets of scientific production continued to operate during this stage, they gradually lessened and many dissipated. This disregard for sciences as the driver of progress and modernity solidified at the time when Europe pursued its own scientific revival. Europe began to leverage knowledge generated during the Islamic Golden Age. While earlier centuries in Islamic thought were marked by the extraordinary hunger for the creation and building of new knowledge, this second stage was marked by bounded derivations (Chaney, 2016) of earlier works.

I draw a parallel here to the current US political tactics of creating boundaries and walls and turning inward from geopolitical partnerships when its power is challenged in its current formulation. Politics of white nationalism's solidification occurs at the expense of internal dissent and divisions. Similar to the discussed divorce of the restorationist forces in Islam from rationality in order to return Islam to its idealized glory via blind belief, exclusion and violence, current events in the U.S. are also a demonstration of my framework of the fracturing of belief and rationality. Growing white nationalism that idealizes the imagined past void of ethnic, racial and religious diversity is pushing the country's leading political narrative to reflexively reject rationality and reimagine its strength in the rejection of a more inclusive, open and diverse country. Yet, the United States has undeniably become a multi-racial and multi-ethnic country, complicating the white nationalists' aspiration of fracturing the American unity. The inward looking mindset revived by the white nationalists has been helped by the rigid interpretation of the Christian belief similarly void of rationality. Such calls to return to the rigidity of Christian belief are reminiscent of the 1933 call by a German pastor who spelled out strict yet irrational guidelines for German Christians: "We are conscious of Christian duty toward and love for the helpless, but we also demand that the people be protected from those who are inept and inferior" (Hossenfelder 1933, as cited in Camacho, 2018, np).

My framework shows how tensions seeded in the prominence of belief void of rationality and contextual adaptability produce exclusion and narrowing of vision rather than growth through exploration and inclusion. Challenged by the combined factors of external and internal problems, the Islamic Empire turned away from inclusive rationality in Islam. To unify its people under threat, the Islamic Empire sacrificed future progress in science, and eventually met decline. The stagnation of progress led to greater tension, characterized by limitation and introversion, giving rise to radicalization within Islam.

## 5. Conclusion

Islam is not incompatible with science. I also do not support a view of Islamic society as monolithic and backward. I have shown a novel connection between stagnation of knowledge practices in Islam and the current rise of radicalization. Extremists skew Islam's narrative by putting forward an idealized version of the Islamic caliphate divorced from rationality. The Muslim world should now consider restoring the Islam's original coupling between belief and rationality.

I have also shown broader relevance of the fractured belief and rationality framework to other contemporary settings at risk, an agenda that is beyond the parameters of this paper. I hope others will use what I have presented in this study to further explore the danger of the United States and other nations falling into the traps of the fractured belief and rationality framework. For Muslim communities, a new transformational stage in Islam would provide the space and opportunity to restore the fractured relationship between their belief and rationality. I hope that such restructuring would reignite the intellectual growth and scientific revival in the Muslim world. This transformational shift would mitigate what has been lost to the centuries long neglect of the rational scientific inquiry.

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