

Knowledge Transmission from Islamic Civilization to Europe: A Historical Analysis of Educational Transformation

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ABSTRACT

This study examines the transmission of knowledge from Islamic civilization to Europe and its influence on the transformation of European education. It focuses on the role of Islamic intellectual traditions in shaping scientific learning, educational institutions, and cross-cultural knowledge exchange during the medieval period. The study employed a qualitative historical approach using library research and systematic literature review principles. Relevant scholarly books, journal articles, and historical studies were analyzed to identify major routes, institutions, figures, and mechanisms involved in the transfer of knowledge from the Islamic world to Europe. The findings show that Andalusia, Sicily, the Crusades, and Mediterranean trade networks served as important channels for transmitting Islamic knowledge to Europe. Through translation centers, libraries, educational institutions, and scholarly interactions, works in philosophy, medicine, mathematics, astronomy, geography, and other disciplines entered European intellectual circles. Islamic traditions of rational inquiry, empirical observation, debate, and integration between religious and rational sciences contributed to the enrichment of European curricula and academic culture. The study concludes that Islamic civilization played a significant role in the development of European education and intellectual traditions. Its contribution was not limited to the transfer of scientific texts but also included educational models, scholarly practices, and epistemological approaches that supported Europe's later intellectual advancement. These historical experiences remain relevant for contemporary education, particularly in promoting integrative, interdisciplinary, and cross-cultural models of knowledge development.

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1. INTRODUCTION

The transfer of knowledge between civilizations is a crucial theme in the study of global history and education because the development of human civilization has never occurred in isolation. Advances in science, education, and culture that have occurred in various parts of the world are the result of interactions, exchanges of ideas, and intellectual dialogue between nations and civilizations (Syamil, 2022; Suyanta, 2011; Wasito). In recent decades, scholars and educationalists have increasingly

emphasized the importance of studying cross-cultural knowledge exchange as a key factor shaping the development of global education and science. In this context, the relationship between Islamic and European civilizations is one of the most significant examples of how one civilization can transmit knowledge, intellectual values, and scientific traditions to another (Abdillah, 2014; Asy'ari, 2018). Various studies of exchange demonstrate that Europe's intellectual progress in the mid- to early modern era is inseparable from the contributions of Islamic civilization, which served as the guardian, developer, and disseminator of various branches of knowledge to the Western world.

One region that played a strategic role in this process was Andalusia. For nearly eight centuries (711–1492 CE), Andalusia was not only an Islamic territory in Europe but also flourished as a center of knowledge, education, culture, and intellectual innovation. The presence of universities, madrasas, libraries, translation centers, observatories, and scientific communities made Andalusia a center of learning, attracting students and scientists from across Europe. Through continuous educational and intellectual activity, Andalusia served as a major bridge connecting the Islamic world with Europe (Manan, 2020; Auhaina & Sari, 2022). Even as the Islamic political landscape declined and Islam fragmented into several small kingdoms, the scholarly tradition that flourished in Andalusia remained a center for the dissemination of knowledge. It was from this region that numerous scientific works in philosophy, medicine, mathematics, astronomy, and other disciplines were translated into Latin and then widely studied in European educational institutions (Burnett, 2024; Supriadin, 2020; Faidi, 2021).

The influence of Islamic civilization entered Europe not only through Andalusia, but also through Sicily, the Crusades, Mediterranean trade networks, and intellectual relations between the Islamic and Christian worlds (Abidin, 2021; Styawati & Sulaeman, 2020). Nevertheless, Andalusia remained the primary route for the systematic and continuous transfer of knowledge. Through translation processes, scholarly exchanges, academic travel, and interactions between educational institutions, the scientific works of Muslim scholars such as Ibn Sina and Ibn Rushd became important references in the development of higher education in Europe (Yahdi, 2024; Robbainah et al., 2025). This influence was evident not only in the development of science but also in cultural and linguistic aspects. A significant number of Spanish insights originated from Arabic, while various elements of Islamic architecture influenced building design in Europe (Izquierdo, 2018; Eliyah, 2021). These facts demonstrate that the relationship between Islamic and European civilizations was not merely a matter of cultural contact, but also a process of knowledge transfer that resulted in profound intellectual and educational transformation.

Several previous studies include those by Yani (2023), Diana et al. (2025), Afriadi (2024), Sianipar & Anwar (2023), Alvianti & Kusumaningrum (2025), and Rahman (2018). Although the contribution of Islamic civilization to European development has been widely discussed in various studies, most previous studies have focused on political, cultural, or general scientific developments. Studies specifically examining how this knowledge transfer process resulted in educational transformation in Europe are still relatively limited. Yet, changes in educational systems, learning methods, scientific traditions, curricula, and the development of educational institutions are crucial aspects explaining how Islamic intellectual heritage was received, adapted, and developed by European societies. This limited study of the dimensions of educational transformation indicates a research gap that requires further attention to achieve a more comprehensive understanding of the relationship between Islamic and European civilizations.

Based on these conditions, this study seeks to analyze the process of knowledge transfer from Islamic to European civilization through the perspective of educational transformation. The novelty of this research lies in its focus, which not only discusses the scientific contributions of Islamic civilization in general but also examines the mechanisms, institutions, intellectual networks, and educational processes that enabled this knowledge transfer. Thus, this research is expected to provide a deeper understanding of how Islamic educational traditions contributed to the formation of educational systems and intellectual culture in Europe. Furthermore, this research is also relevant to the current global context, which emphasizes the importance of intercultural dialogue and cross-civilizational

collaboration in fostering educational and scientific progress. Understanding the historical experience of knowledge transfer between Islamic and European civilizations can provide an important lesson that the progress of human civilization is fundamentally the result of interaction, exchange, and intellectual cooperation between various groups of people.

This research aims to analyze the process of Islam's entry into Europe, examine the contributions of Islamic civilization to education, science, and culture, and explain the process of the transfer of Islamic civilization to Europe and its influence on the development of educational systems and intellectual traditions in European society. The urgency of this research lies in the importance of providing a more comprehensive understanding of the role of Islamic civilization in the history of the development of science and education worldwide, while also correcting various views that tend to ignore the contribution of Islamic civilization to European progress. In addition, this research is expected to enrich the treasury of studies on the history of Islamic education, strengthen the perspective of civilizational dialogue, and become an academic reference in understanding the relationship between the development of Islamic civilization and the birth of the modern intellectual tradition in Europe.

2. METHODS

This study employed a qualitative historical research design using the Systematic Literature Review (SLR) method combined with a historiographical approach. The SLR method was selected to ensure a transparent, systematic, and reproducible process in identifying, screening, evaluating, and synthesizing relevant literature concerning the transmission of knowledge from Islamic civilization to Europe and its implications for educational transformation. The historiographical approach was subsequently used to interpret historical events, intellectual developments, and educational dynamics within their broader socio-cultural contexts. Through this combination, the study not only identifies historical facts but also analyzes causal relationships and intellectual interactions that facilitated knowledge transmission between civilizations.

The literature search was conducted between January and March 2026 using several academic databases, namely Scopus, Web of Science, JSTOR, SpringerLink, Taylor & Francis Online, Directory of Open Access Journals (DOAJ), and Google Scholar. The search focused on publications published between 2000 and 2026, while several classical and foundational works, such as those by Hitti (2005), Saliba (2007), and As-Sirjani (2012), were retained due to their historical significance and frequent citation in the field.

To identify relevant studies, the following search strings and keywords were employed in various combinations: "Islamic civilization" and "Europe"; "knowledge transmission" and "Islamic world"; "Islamic education" and "European education"; "Andalusia" or "Al-Andalus" and "knowledge transfer"; "Sicily" and "Islamic civilization"; "Crusades" and "intellectual exchange"; "educational transformation" and "Islamic contribution"; and "history of education" and "Islamic civilization". The literature identification and selection process followed the principles of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework. The initial search identified 312 records from all databases. After removing 87 duplicate records, 225 publications remained for title and abstract screening. During the screening stage, 141 publications were excluded because they focused primarily on political or military history without discussing educational, intellectual, or scientific transmission. The remaining 84 studies underwent full-text assessment. Subsequently, 46 studies were excluded due to insufficient relevance, lack of academic peer review, limited historical evidence, or inadequate discussion of educational transformation. As a result, 38 publications were included in the final synthesis and analysis.

The inclusion criteria consisted of: (1) publications discussing knowledge transmission from Islamic civilization to Europe; (2) studies examining educational institutions, translation centers, libraries, scientific traditions, intellectual networks, or scholarly exchanges; (3) peer-reviewed journal articles, scholarly books, and reputable academic publications; and (4) literature directly related to

educational transformation and scientific development in Europe. Meanwhile, exclusion criteria included: (1) studies unrelated to Islamic-European intellectual interaction; (2) non-academic publications lacking scholarly review; (3) sources with incomplete bibliographic information or unverifiable historical claims; and (4) studies focusing solely on political conflicts without discussing educational or scientific implications.

To ensure methodological rigor, a quality assessment procedure was conducted for all selected studies. Each publication was evaluated based on four criteria: (1) relevance to the research objectives, (2) credibility of publication source, (3) adequacy of historical evidence and documentation, and (4) contribution to understanding educational transformation. Only studies meeting at least three of these criteria were retained for final analysis. This procedure helped minimize bias and improve the reliability of the synthesized findings.

Data analysis was carried out in several stages. First, all selected literature was reviewed thoroughly to identify major themes related to transmission routes, educational institutions, intellectual figures, translation movements, and their influence on European educational development. Second, thematic analysis was employed to categorize findings into broader conceptual themes. Third, historiographical interpretation was conducted to examine the historical significance of events, institutional developments, and anticivilization interactions that contributed to educational transformation in Europe. Finally, the synthesized findings were organized into an analytical framework illustrating the relationship between Islamic intellectual heritage and the emergence of European educational traditions.

To enhance the validity and credibility of the findings, source triangulation was applied by comparing evidence from books, peer-reviewed journal articles, historical documents, classical manuscripts, and previous research. Cross-checking across authors, publication periods, and academic perspectives was also undertaken to reduce interpretative bias. The combined use of primary and secondary historical sources strengthened the reliability of the analysis and ensured that the conclusions were grounded in consistent and academically credible evidence.

Table 1. PRISMA Flow Summary

Stage	Number of Records
Records identified through database searching	312
Duplicate records removed	87
Records screened	225
Records excluded after title and abstract screening	141
Full-text articles assessed for eligibility	84
Full-text articles excluded	46
Studies included in final review	38

3. FINDINGS AND DISCUSSION

3.1 Findings

3.1.1 The Process of Islam Entering the European World

Before discussing the three phases of Islam's entry into the Western world, it is important to understand that the relationship between Islam and Europe was a very long and complex historical process (Sukti et al., 2024). This interaction occurred not only through warfare or political expansion, but also through trade, migration, diplomacy, cultural exchange, and the transfer of knowledge (Ali, 2023). Since the emergence of Islam in the 7th century CE, the Islamic world has developed into one of the greatest centers of civilization, connecting Asia, Africa, and Europe (Hitti, 2005). Its strategic geographic location and advances in science, economics, and government have given Islamic civilization a broad influence on the development of European society.

Throughout its history, the relationship between Islam and Europe has experienced various dynamics that have changed according to the political and social conditions of each period. On the one

hand, this relationship has been marked by conflict and power struggles, such as those seen during the Crusades and various military expansions (Affan, 2016). However, on the other hand, this relationship also gave rise to productive intellectual collaboration through the translation of scientific works, the exchange of philosophical ideas, and the development of educational institutions that served as bridges for the transfer of knowledge from the Islamic world to Europe (Yahdi, 2024). Therefore, the presence of Islam in Europe cannot be understood solely as a religious phenomenon, but also as part of the process of shaping modern Western civilization.

Historians generally divide the entry and development of Islam in the West into several historical phases that demonstrate the changing patterns of relations between the two civilizations. Each phase has its own characteristics influenced by different political, economic, and social conditions (Taufik & Maarif, 2023). These phases reflect how Islam arrived in Europe through conquest, the formation of kingdoms and empires, and the migration of peoples affected by colonialism and global change. According to Asari (2016), the process of Islam entering the Western world (Europe) can be explained through three main phases, namely the classical phase marked by the glory of Islam in Andalusia and the Crusades, the expansion phase of the Ottoman Empire into European territory, and the colonialism phase, which encouraged the formation of Muslim communities in various European countries until the modern era. The entry of Islam into the Western world (Europe) occurred in three phases, as follows (Asari, 2016):

- a. The first phase, the classical period, which lasted approximately from the 2nd to the 8th century CE to the mid-9th to the 15th century CE, was the first phase. Two significant events influenced this phase: first, the success of Muslims in ruling and establishing civilization in Andalusia, or the Iberian Peninsula, now Spain, and much of the Mediterranean Sea. According to historical documents, the period of Muslim domination was a brilliant era for Spain and Sicily. The second event was the Crusades, which lasted approximately two centuries, from 1095 to 1250. This was the longest and most impactful conflict in the relationship between Islam and Europe.
- b. The second phase, during which the Ottoman Empire reintroduced Islam to Europe through several routes, including Anatolia, Central Asia, and Eastern Europe, occurred in the second phase. Beginning with the conquest of Constantinople in the mid-9th-15th centuries CE, this Islamic state left a historical mark, establishing Muslim colonies as far away as Croatia, Hungary, Ukraine, and Slovakia. This vast empire wielded considerable power across Europe until the 13th-19th centuries CE.
- c. The third phase, this third phase, saw the colonization of Muslim-populated regions in Africa and Asia by various European powers. Colonial periods varied, but peaked between the 13th and 19th centuries CE and the mid-14th and 20th centuries CE. In a very different pattern of relations, colonialism attracted a number of Muslims to Western countries for various reasons, particularly as unskilled laborers. This colonization also shaped the current pattern of Muslim settlement in Europe.

It can be concluded that the entry of Islam into Europe was not a new phenomenon but rather a long-standing one. The entry of Islam began with the conquest of the country of Andalusia (711-1492 AD) on the Iberian Peninsula, and then through Sicily, as well as the control of the Balkan region by the Ottoman caliphate (1389). Islam became increasingly influential in Europe when Constantinople fell to Muhammad II in 1453 during the Ottoman Empire. At that time, Islam experienced a golden age in Constantinople, which was the capital of Byzantium, and then changed its name to Istanbul. The conquest of Constantinople made the empire expand further into the Balkans and central Europe in the 14th and 15th centuries AD (Kepel, 2023).

3.1.2 Transmission of Islamic Civilization to Europe

The following are known as stepping stones for Islamic civilization and culture to Europe: Andalusia, Sicily, and the Crusades. Or, we could say, through Southern France, Southern Italy, and translation institutions in Northern Spain, France, and Italy. Furthermore, we must not forget the role

of Muslim trade between Islamic countries, extending to Europe and Asia (Salim, 1980). Of the many ways in which Islamic civilization spread to Europe, Andalusia played a central role. This was achieved through the transfer of knowledge that flourished in Andalusia, or through the development of knowledge in the Middle East (Islam) and its arrival in Europe via Andalusia, or through the Crusades.

a. Andalusia

Gustave Le Bon said, "Once the Arabs conquered Spain, they began to establish a message of civilization there. In less than a century, they revived a dead land, rebuilt ruined cities, erected magnificent buildings, and established strong trade relations with other countries. They then devoted great attention to the study of science and literature, translated Greek and Latin books, and founded universities that became the sole source of knowledge and civilization in Europe for a long time (Sirjani, 2011).

Translation of Arabic books into European languages was also active, especially in the city of Toledo for two centuries, namely the 12th and 13th centuries AD. Translations were made from Arabic into Spanish, then from Spanish into Latin. The translations included not only the works of Arab scholars but also Greek scientific works that had been translated two centuries earlier in the East. Among the translations in Toledo The most famous was *Jirarit Al-Karimuni*, nicknamed Ath-Toli-Toli. He came to Toledo from Italy in 1150 AD.

b. *Shaqalliyah* (Sicily)

Islam entered Sicily after a Byzantine prince and naval commander named Commander Euphemius invited Zidayatullah, the third Sultan of the Abbasid dynasty during the classical period, to intervene in Sicily in 827 CE. Sultan Zidayatullah accepted the invitation and sent his troops under the leadership of Commander Asad ibn al-Furat to join Euphemius' army and land at Mazara in 827 CE. After destroying the Byzantine army at Mazara, the attack continued on Syracuse and besieged the city for a year. However, Commander Asad was struck by a deadly plague that claimed many lives. Sicily is a strategic region, located in the Mediterranean Sea basin, making it a crucial object for Byzantium in maintaining the stability of maritime trade power in the east. Furthermore, Sicily also held strategic value because for Muslims, Sicily was an area where Islam developed from the center of Christian power in Italy through the gateway to the Adriatic Sea. Sicily lies between Northern Italy and North Africa. Islamic rulers believed that Sicily could become a center of Islamic power, from which Islam would spread throughout Europe. (Misbahuddin, 2015).

In Sicily, Latin Christianity was influenced by Muslims at that time. During the first conquest, in 652 CE, the city of Syracuse was invaded and its power was lost. Then, in 831 CE, the city of Palermo was also conquered by Muslims. The conquest of Italy continued until the 9th century, in 871 CE. The end of Muslim rule over Italy and Central Europe was marked by the recapture of Bari by Christian forces. The emergence of the Normans, led by Roger II from 1060 to 1091 CE, successfully conquered all Islamic and Byzantine territories in Sicily and adopted Islamic civilization within their rule, in the fields of literature, art, industry, and other fields (Gaffar, 2016).

Sicily was also the most important bridge between Islamic civilization and Europe. It also served as a bridge between southern Italy and Sicily. Muslims conquered Panormos, the capital of Sicily, in 216 AH/831 CE. They maintained control of it until 485 AH/1092 CE, or approximately 260 years. Life in Sicily was imbued with Arab-Islamic influences. During their stay, Muslims built and established signs of civilization, such as mosques, palaces, public baths, hospitals, markets, and forts.

Various important industries flourished there, such as paper, silk, and mining. Science and various arts advanced rapidly. Seekers of knowledge from Europe came there. Thus, Sicily became a crucial center for the transfer of Islamic heritage to the West. Translations of Arabic books into Latin also took place there, resembling the translation movement in Andalusia. Although Islamic rule in Sicily ended at the end of the eleventh century, Islamic civilization there continued under the auspices of the Norman (Norwegian) rulers, and many Muslim scholars and scientists remained there (Sirjani, 2011).

c. The Crusades

The Crusades were an armed religious conflict waged by Christians that lasted for approximately two centuries. The goal of the Crusades was to seize control of Jerusalem and the "Holy Land" from Muslims. For Europeans, these wars were a blessing, contributing significantly to the development of Islamic civilization and culture in Europe. The advancement of European science and civilization was inextricably linked to the centuries-long contact between the West and the East during the Crusades (Aniroh, 2020).

The Crusaders saw equality, justice, and brotherhood among Muslims. Therefore, they rebelled against the bourgeois system and the dehumanizing practices prevailing in their country. They rejected the authoritarianism of the church and protested the flow of wealth solely to officials and those close to them. They adopted much of what they discovered, including knowledge, art, and civilization. This resulted in the transfer of industry, plants, medicines, dyes, architectural art, and fortifications.

Yusuf Al-Wa'i said, "They also imported many Islamic traditions in clothing, dress, and family life to Europe. When they returned to their homeland, they felt as if an electric shock had awakened them to the ugliness of their condition, the stupidity of their thinking, and the misguidance of their society. They immediately arose to seek knowledge and sought to bring about social reform and progress in thought, industry, and ethics.

3.1.3 Contribution of Islamic Civilization to the European World

One of the most striking aspects of the succession of civilizations is that later civilizations actually built upon older ones. No civilization begins from scratch. Consequently, Islamic civilization had a profound influence on the modern European civilization that followed. The influence of Islamic civilization on Europe encompassed many areas and dominated several aspects, encompassing various levels of life in Europe in general. It also included systems and norms, including creeds, scientific aspects, language, literature, laws, social, political, and so on (Sirjani, 2011).

a. Creed and Law

Islam arrived with the creed of monotheism in a society and world filled with polytheism and paganism. Islam affirms the oneness of God, purifies Him from materialism and shortcomings, and frees humanity from worshipping anything other than God. Islam does not recognize any intermediary or church system between God and humanity. After the world learned about the clear creed of Islam, especially during the rise of Western civilization, every religious adherent began to interpret polytheism, symbols of polytheism, and paganism within their religious systems and traditions. They then lied in their statements and attempted to express and explain them as close to Islamic monotheism and as similar to it (Sirjani, 2011).

The arrival of Islam with its concept of monotheism not only brought about changes in the religious sphere but also gave birth to an intellectual tradition that placed reason, knowledge, and education as essential elements in social life. This tradition encouraged the development of educational institutions, libraries, and translation centers that became means of producing and disseminating knowledge. Through interactions between the Islamic world and Europe, particularly in Andalusia and Sicily, various scientific works in philosophy, mathematics, medicine, and science were translated into Latin and then adopted by European educational institutions. This knowledge transfer process contributed to the transformation of European education through curriculum enrichment, the development of logic- and dialectic-based learning methods, and the emergence of a more systematic scholastic tradition and university model. Thus, Islam's contribution to Europe is not only seen in the intellectual aspect, but also in the formation of educational foundations that supported the rise of science and the development of European civilization from the late Middle Ages to the Renaissance (Saliba, 2007; Hasse, 2016).

b. Field of Knowledge

Islam has prioritized education from the beginning and has a long and rich intellectual tradition. The first and most important teaching of Islam is knowledge (Hussain, 1987). The translations carried

out by Muslims from various languages related to philosophy and other sciences led the Muslim community to the peak of its glory. From the translation products, which were then integrated with the texts of the Quran, Hadith, and logic, scientific achievements reached their peak. Among those who are quite famous for their translation products are Yahya ibn al-Bitriq (d. 200 H/ 815 AD) who translated many medical books by Greek thinkers, such as Kitab al-Hayawan (a book about living things) and Plato's Timaeus. Al-Hajjaj Ibn Matar who lived during the reign of al-Ma'mun and translated Euclid's book into Arabic and interpreted Ptolemy's al-Majisti book. Abd al-Masih ibn Na'imah al-Himsi (d. 220 H/ 835 AD) who translated Aristotle's Sophistica book. Yuhana ibn Masawaih a clever doctor from Jundisapur (d. 242 H/ 857 AD) who was later appointed by the caliph al-Ma'mun as head of the library of the al-hikmah house, translated many classical medical books. A translator renowned for his numerous translations was Hunain ibn Ishaq al-Abadi, a Nestorian Christian (194-260 AH/810-873 CE) (Sunaryo, 2003).

The influence of Islamic knowledge on the development of science in Europe is evident in various fields, such as medicine, pharmacy, mathematics, chemistry, optics, geography, and astronomy, especially through the process of knowledge transfer and translation of the works of Muslim scientists into Latin since the 12th century. This contribution is often seen as one of the important factors in enriching the curriculum and intellectual tradition of Europe from the Middle Ages until the early development of universities. A number of historians of science also emphasize that the Islamic world played a significant role in the transmission and development of knowledge that was later utilized in Europe, although the assessment of the extent and duration of this influence remains a debate in modern historiography (Sirjani, 2011).

c. Language and Literature

Westerners, especially Spanish poets, were greatly influenced by Arabic literature. Heroic literature, the spirit of struggle, figurative language, and high-quality and beautiful fiction entered Western literature through Arabic literature in Andalusia, in particular. The famous Spanish writer Abaniz said, "Indeed, Europeans were unfamiliar with heroic poetry, did not pay attention to its ethics, and did not appreciate its fighting spirit before the arrival of the Arabs in Andalusia and the spread of their warriors and heroes to the Southern Hemisphere."

Ibn Hazm, with his famous book Thawq Al-Hamamah, greatly influenced the poets of Andalusia and southern Spain when Muslims mixed with Christians. At that time, Arabic was the common language and the language of the elite. In many Christian royal courts, Christian and Muslim poets gathered at the royal court (Siba'i, 1998).

d. Education and Social Relations

Imitation in the fields of science, art, and poetry is clearly perceptible, as it represents a material influence that can be clearly identified and studied. Social and humanitarian influences (education and social relations) are discernible, but their level of clarity is still lower than that of science, art, and poetry. The longer the influence of these social fields, the more significant and clearer their social developments. Furthermore, social issues are usually related to culture, philosophy, and religion, all three of which remain areas of conflict between Islam and the West to this day (Sirjani, 2011).

Gulliver Costauray stated in his book The Laws of History, "Europe owes its existence to the favorable conditions of the Arab period of thought. Four centuries have passed without any civilization other than the Arab one, whose scientists were the most powerful flagbearers of its civilization" (Kard Ali, 1968).

e. Art

To prove this, Gustave Le Bon cited the example of Arabic calligraphy. He said, "The suitability of calligraphy as a beautiful decoration reached such a level that Christian artists in the Middle Ages and the Renaissance copied Arabic script from church walls for decoration without any other consideration. They did so solely for the sheer pleasure of beauty." Lungabrih, Monsieur Lavara, and others witnessed much of this in Italy. Among the things Monsieur Lavara witnessed was a doorway in the treasury of

the Cathedral of Milano, built in the form of a two-compass figure. The doorway was encircled with stone decoration composed of repeated Arabic sentences (Le Bon).

The influence of Islamic art on Europe was not only evident in the adoption of aesthetic elements such as Arabic calligraphy in the architecture and decoration of churches during the Middle Ages and Renaissance, but also contributed to the transformation of European education and intellectual culture. Interest in Islamic art and manuscripts led European scholars to study Arabic to understand the original texts on science, philosophy, mathematics, and medicine. This process fueled the translation movement from Arabic to Latin, which in turn enriched the curricula of cathedral schools and early universities in Europe. In addition to expanding access to scientific knowledge, the transmission of Islamic manuscripts and intellectual traditions also influenced the development of learning methods based on textual analysis, logical argumentation, and scholastic traditions that characterized European higher education at the time. Thus, the influence of Islamic art is better understood as part of a network of cultural and knowledge exchange that supported the development of educational institutions and the intellectual renaissance of Europe (Burnett, 2001).

f. Arabic and Persian Literature

The two most common languages, Arabic and Persian, have dominated Islamic literature and art for centuries. Each language has its own distinctive characteristics, forms, metaphors, symbols, and motifs that make the Arab-Islamic world rich and unique. Before Islam, there was a pre-Islamic literary tradition in the region. Persian literature in Iran has been another vital contributor to Islamic literature and art. Especially during the golden age of Persian literature, Iranian scholars produced many successful works of art. The greatest Persian poet known to history is Rumi. He is the most prominent representative of Persian literature in the European world (Kuruducu, 2021).

Arabic and Persian literature not only served as a cultural and literary expression of Islamic civilization but also served as an important medium for the transmission of knowledge that influenced the development of European education. Works written in Arabic and Persian covered a wide range of subjects, such as philosophy, ethics, science, medicine, mathematics, and Sufism, which were then translated into Latin through translation centers in Andalusia and Sicily. This process enriched the curricula of European educational institutions in the Middle Ages, particularly in the teaching of philosophy, logic, and the natural sciences. Furthermore, the intellectual tradition that developed in Islamic literature, including the works of figures such as Jalal al-Din Rumi, Al-Farabi, Ibn Sina, and Ibn Rushd, contributed to the introduction of a reflective, rational, and dialogical approach that influenced the development of pedagogy and the scholastic tradition in European universities. Thus, the contribution of Arabic and Persian literature to Europe lies not only in the literary aspect, but also in its role in the transfer of knowledge that supports the transformation of curricula, learning methods, and the development of higher education institutions in Europe (Menocal, 2002).

3.1.4 The Process of Transferring Islamic Civilization to the European World

During the Middle Ages, the development of science exhibited different dynamics between the Islamic world and Europe. Although some European regions experienced limitations in scientific development due to complex social, political, and institutional conditions, the Islamic world developed as an important center of science through the support of educational institutions, libraries, and the translation movement of various works from Greece, Persia, and India. This progress was supported by an intellectual tradition that valued the pursuit of knowledge and Islamic teachings that encouraged learning and the development of knowledge. These conditions gave rise to advances in various fields, such as medicine, mathematics, astronomy, and philosophy, which subsequently made important contributions to the development of science in various regions, including Europe (Huff, 2003; Saliba, 2007).

Regarding the special role of Cordova in the transmission of Islamic civilization, J. Brand Trend said, "Indeed, Cordova, more advanced than European cities in the tenth century, was a place admired worldwide, like Venice in the Balkans. Tourists coming from the north heard something more akin to

the city's solemnity and dignity. It had seventy libraries and nine hundred public baths. If the leaders of Lyon, Nevert, or Barcelona needed surgeons, engineers, architects, tailors, or musicians, they did not go directly to Cordova, but rather to Islamic enclaves in Damascus, Baghdad, Cairo, and then Cordova." (Sirjani, 2011).

Regarding Andalusia in general as a bridge for the transfer of Islamic civilization to the West, Sigrid Hunke said, "Mount Brans did not prevent these connections. From here, Arab-Islamic civilization found its way to the West. It was Andalusia that became an important center among the centers of Islamic civilization and one of the most important bridges in the transfer of Islamic civilization to Europe." A war of transmission between European and Andalusian cities. Thousands of Christian Europeans seeking their way to Santiago came into contact with Arab traders and Christians from northern Andalusia. The annual influx of troops, merchants, and religious figures from Europe to Spain also played a role in transmitting the principles of Andalusian civilization to their lands. Jewish merchants, doctors, and scholars brought Arabic knowledge to the West. They also participated in translation activities in Toledo, rendering numerous tales, fictional stories, and war histories.

Christian Spaniards, fascinated by the brilliance of Islamic civilization and aware of their own inferiority in art, literature, philosophy, and science, quickly adopted the Arab way of life, calling them *al-mustaribun* (*Muzarreb*) in European languages. With the creation of the term "*muzarabes*," Islamic knowledge easily entered Europe. Various other European kingdoms feared the name of Islam, not the *Muzarabes*, even though Islam had already fallen in Europe. Thus, Europe dared to swallow quinine wrapped in European packaging (Sunanto, 2003).

3.2 Discussion

Research findings indicate that the transfer of Islamic civilization to Europe took place through a complex and continuous network of interactions, particularly through Andalusia, Sicily, and the Crusades. These three routes served not only as a medium for political and cultural contact but also as the primary means of transferring knowledge, intellectual traditions, and educational practices from the Islamic world to Europe. These research findings reinforce the view that Europe's intellectual renaissance did not occur suddenly, but rather resulted from a long process of knowledge exchange between civilizations. Andalusia, in particular, became the most influential center of transmission, successfully integrating Islamic, Christian, and Jewish intellectual traditions within a single, productive academic environment. The translation of Arabic scientific works into Latin, which took place in Toledo and Cordova, enabled various disciplines, such as philosophy, medicine, mathematics, astronomy, and geography, to become widely known in Europe (Saliba, 2007; Bsoul, 2019; Ghanzanfar, 2010).

This finding aligns with Yahdi's (2024) research, which shows that Islamic educational centers in Andalusia played a crucial role in the spread of knowledge to the West. It also supports Asy'ari's (2018) argument that the transfer of Islamic knowledge was a key factor in the European Renaissance. A more detailed analysis of the various pathways of knowledge transmission and their impact on the development of European education can be seen in Table 1.

Table 1. Transmission Routes of Islamic Civilization to Europe

Transmission Route	Forms of Transfer	Educational Impact
Andalusia	Translation, universities, libraries	The Birth of the European Academic Tradition
Sicily	Cultural and scientific exchange	The Spread of Knowledge to Southern Italy
Crusades	Social and intellectual contact	Transfer of Technology and Practical Knowledge
Muslim Trade	Exchange of goods, ideas and manuscripts	Expansion of intellectual networks across regions

Furthermore, this study shows that the influence of Islamic civilization on Europe was not limited to the transfer of scientific materials but also encompassed educational institutional models. The existence of large libraries, translation centers, observatories, and educational institutions such as

madrasas created an academic culture that later inspired the development of early universities in Europe. The Library of Cordova and the House of Wisdom in Baghdad are examples of institutions that served not only as repositories for manuscripts but also as centers for research and knowledge production. These findings are relevant to Yahdi's (2024) study, which explains that the development of European universities cannot be separated from the influence of academic traditions that developed earlier in the Islamic world. Thus, the history of modern higher education demonstrates an intellectual continuity between Islamic and Western civilizations, not a separate or isolated relationship.

In addition to influencing educational institutions, this study also indicates a significant influence on the development of pedagogy and learning traditions in Europe. The Islamic scientific tradition, which emphasizes rationality, intellectual dialogue, empirical observation, and the pursuit of truth through research, became an essential foundation for the development of the modern scientific method. The works of Muslim scholars such as Ibn Sina, Al-Farabi, Al-Khwarizmi, and Ibn Rushd not only served as academic references in European universities for centuries, but also introduced a more critical and systematic approach to learning (Gutas, 2002; Shogar, 2018; Rosser-Owen, 2012). This finding aligns with research by Natsir et al. (2026), which asserts that the development of modern science in Europe is closely linked to the Islamic scientific tradition that developed since the Middle Ages. Therefore, the influence of Islam on European education is not only a transfer of knowledge but also a transfer of epistemology that shapes scientific thinking in the Western educational tradition. More broadly, the contribution of Islamic civilization to curriculum development, educational institutional models, and modern pedagogy can be seen in Table 2.

Table 2. Contribution of Islamic Civilization to European Education

Educational Aspect	Contributions to Islamic Civilization	Influence on Europe
Curriculum	Integration of religious and rational sciences	Development of a more comprehensive university curriculum
Educational Institutions	Madrassas, libraries, the House of Wisdom, observatories	Inspiration for the establishment of universities and research centers
Pedagogy	Scientific discussions, academic debates, observations, experiments	Foundations of scientific methods and critical learning
Academic Literature	Works of Ibn Sina, Ibn Rushd, Al-Khwarizmi, Al-Farabi	Becoming a leading reference for European universities
Literacy Culture	Traditions of reading, writing, and translation	Development of academic and research culture

In the context of curriculum development, this study demonstrates that one of the main strengths of Islamic education lies in its integrative nature. The Islamic education curriculum during the classical period did not strictly distinguish between religious and rational sciences, thus allowing for the simultaneous development of various disciplines (Sahin, 2018; Hashim & Langgulung, 2008). This educational model has proven capable of producing multidisciplinary scientists who have made significant contributions to the development of world civilization. These findings support Sahin's (2018) study, which states that the integration of knowledge is one of the main characteristics of Islamic civilization that contributes to global intellectual progress. From a contemporary educational perspective, the results of this study have important implications for the development of modern curricula, particularly in efforts to overcome the dichotomy between religious and general sciences that remains a challenge in many educational institutions. Thus, the contribution of Islamic civilization to Europe is not only of historical significance but also offers conceptual inspiration for the development of 21st-century education that is more integrative, inclusive, and based on a strong scientific tradition.

4 CONCLUSION

This study demonstrates that the entry and development of Islam in Europe occurred through a long and complex historical process, primarily through Andalusia, Sicily, and the Crusades, which served as the main channels for the transmission of knowledge. These routes facilitated the transfer of various disciplines, including philosophy, medicine, mathematics, astronomy, and geography, from the Islamic world to Europe. Beyond serving as centers of intellectual dissemination, Islamic civilization also made significant contributions to the development of European education through the establishment of educational institutions, libraries, translation centers, and scholarly traditions that fostered a vibrant intellectual culture. The Islamic scientific tradition, characterized by rational inquiry, empirical observation, intellectual dialogue, and the integration of religious and rational sciences, contributed substantially to the emergence of the scientific method and educational systems that later became foundations of Europe's intellectual advancement. These findings confirm that the contribution of Islamic civilization to Europe extends beyond historical significance and remains relevant for the development of modern education that is more integrative, interdisciplinary, and knowledge-oriented.

Despite these contributions, this study has several limitations. First, it relies on a library research approach, making its findings dependent on the availability and interpretation of historical sources. Second, the study primarily focuses on knowledge transmission and its educational impact, without extensively examining the social, political, and economic dynamics that also influenced interactions between Islamic and European civilizations. Third, the analysis remains broad and does not investigate in detail the specific contributions of individual scholars, institutions, or academic disciplines. Therefore, future research should explore the roles of prominent Muslim scholars, such as Ibn Sina, Al-Farabi, Al-Khawarizmi, and Ibn Rushd, in shaping European intellectual and educational traditions. Further studies may also examine the influence of Islamic educational institutions on the development of European universities and assess the relevance of the integrative curriculum of classical Islamic education for addressing contemporary educational challenges. Employing manuscript analysis, archival research, comparative studies, and bibliometric approaches would provide a more comprehensive understanding of the contribution of Islamic civilization to the development of global education and civilization.

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