

## **Human Intelligence and Human Development: A Systematic Literature Review**

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**Abstract :** Human intelligence is an important aspect from which to examine the development in human. However, human intelligence and human development remain two separate study and not being systematically reviewed. The current study presents a systematic review of papers within the last five years on human intelligence and human development. By adopting a systematic review approach, the current study attempts to present a suitable explanation for the human intelligence development. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was adopted which utilised three main journal databases, namely Scopus and Google Scholar and the other one through handpick from various journal. The eligibility resulted in a total of 25 articles that can be analysed systematically. Based on thematic analysis, there are 3 major themes and 19 sub-themes of the human intelligence and human development. There major themes are education, society/humanity and cultural/civilization. The study offered contribution, challenges and gap of human intelligence and human development studies. It is expected to inform specific areas that should be the study of human intelligence to influence human development to a more clear direction.

**Key words:** Human Intelligence, Human Development, Systematic Literature Review

### **1.Introduction**

Every revolution in history demands different kind of human development. The latest Industrial revolution 4.0 (IR4.0) poses challenge in form of artificial intelligence (AI). The development of this AI in integrating all technology of the past revolution; engine, electric and internet present challenges that no past generation has encountered. Either it is rival or promote to the development of human intelligence is open for further debate. However, the synthesis of human intelligence and human development remains a major challenge and not as fast as revolution in IR 4.0. It has been assumed that human intelligence and human development is discussed as two separate issues.

Human intelligence and human development are two different dimensions in the academic research. In human intelligence study, many theories have been proposed to explain the factor behind it either it is general or specific, nurture-nature, single or many. Identifying its nature also has come to differentiate between one intelligence and others. Empirical evidences to the theory built have been tested in the context of education, organization and society (Aydin, 2017). However, the development of human intelligence remain silence. Meanwhile, a considerable amount of existing systematic review related to human intelligence and human development have been conducted separately. Study in human development evolved along the current progression in human civilization and has been one important indicator in Sustainable Development Goals (SDGs). The Human Development Index (HDI) has been the most successful attempt to capture human development in a different way. The work of Amartya Sen (1984) on human capabilities had been referred and in 1990, the current version of the index comprises three dimensions: economic, educational, and health (Aydin, 2017).

This systematic literature review is unique because its dealt with human development and human intelligence to meet the objective of this research on the development of human intelligence. Therefore, study that covers human intelligence development need to be searched from two different dimension; human intelligence and human development especially in the aspect of human capital development and human resource management.

This systematic literature review (SLR) is carried out to answer the main research question: How human intelligence can be developed to meet current challenges? The principal focus of the investigation was on human intelligence development. Given that focus, we limited our qualitative synthesis to recently published paper.

## 2. Methods

This section explained the method used to retrieve articles related to the development of human intelligence. The reviewers used the method called PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses), which includes resources used to run the systematic review, eligibility and exclusion criteria, steps of the review process (identification, screening, eligibility) and data abstraction and analysis (Shaffril, Samah, Samsuddin., & Ali, 2019; Karantzas, Romano, & Lee, 2019; Esmailikia, Radun, Grzebieta, & Olivier, 2019). Guided by the PRISMA Statement review method, resources and materials largely have been extracted from the Scopus, Google scholar, MyJurnal and other databases to locate related studies.

The review relied on two main journal databases – Scopus and Google scholar. Scopus is the first database used in the review. It is one of the largest abstracts and citation databases of peer-reviewed literature with >22,800 journals from 5000 publishers worldwide. Scopus consists of diverse subject areas such as psychology, social science and human development. The second database used is Google scholar. This review also employed handpick approach to extract data from MyJournal.

### 2.1 Systematic Review Process and Protocol

#### Identification

Identification of this SLR using two main key word “human intelligence” and “human development”. Online thesaurus used to enhance the keywords and for the intelligence, the synonyms has 49 words. Out of 49 words, both authors of this article selected only 4 the most appropriate which are wisdom (wise), understanding, comprehension(comprehending) and ability (able). For “human development”, the term variation selected is “human capital development” and “human resource management”.

Database	Search string
Scopus	((("human intelligence" OR "human wisdom" OR "human understanding" OR "human comprehension" OR "human ability" OR "human capability" OR "human competency") AND ("human development" OR "human capital development" OR "human resource management" OR "human resource development" )
Google Scholar	"human intelligence" OR "human comprehension" OR "human wisdom" OR "human understanding" OR "human ability" OR "human reason" "human development"
Others	All in title: ("Human Intelligence" OR "Intelligence factor" OR “intelligence explanation) AND ("Islam" OR "Islamic perspective")

#### Screening

The screening process has been set into 4 criteria of inclusion and exclusion. The publication timeline of 2015 to 2020 is the first criteria. Document generated using search string above resulted 252 documents from Scopus and Google Scholar. Using limitation function of both database, data limited to 2015-2020 to represent latest development of the topic of review. Document type also limit to article with empirical data. English language is also limitation of this review. Limitation also set to social sciences, psychology, art and humanities. Table 1 is the summary of inclusion and exclusion criteria for screening purpose.

Criteria	Inclusion	Exclusion
Publication timeline	2015-2020	2015 and before
Document type	Article (with empirical data)	Conference proceeding, thesis, chapters in book, book series, books etc
Language	English	Non-english
Nature of the study	Focus on social science, psychology, art and humanities	Pure, hard science and technology advancement

#### Eligibility

A total of 60 articles were retrieved based on exclusion and inclusion criteria. The eligibility process was carried out at this third stage where title, abstracts and the main contents of all articles being scrutinised to fit the objective of the study. The second author consulted in this process. Consequently, a total of 35 articles were excluded because did not focus on human intelligence development and not in the form of article journal. Finally, a total of 25 articles endorsed by both authors to be analysed.

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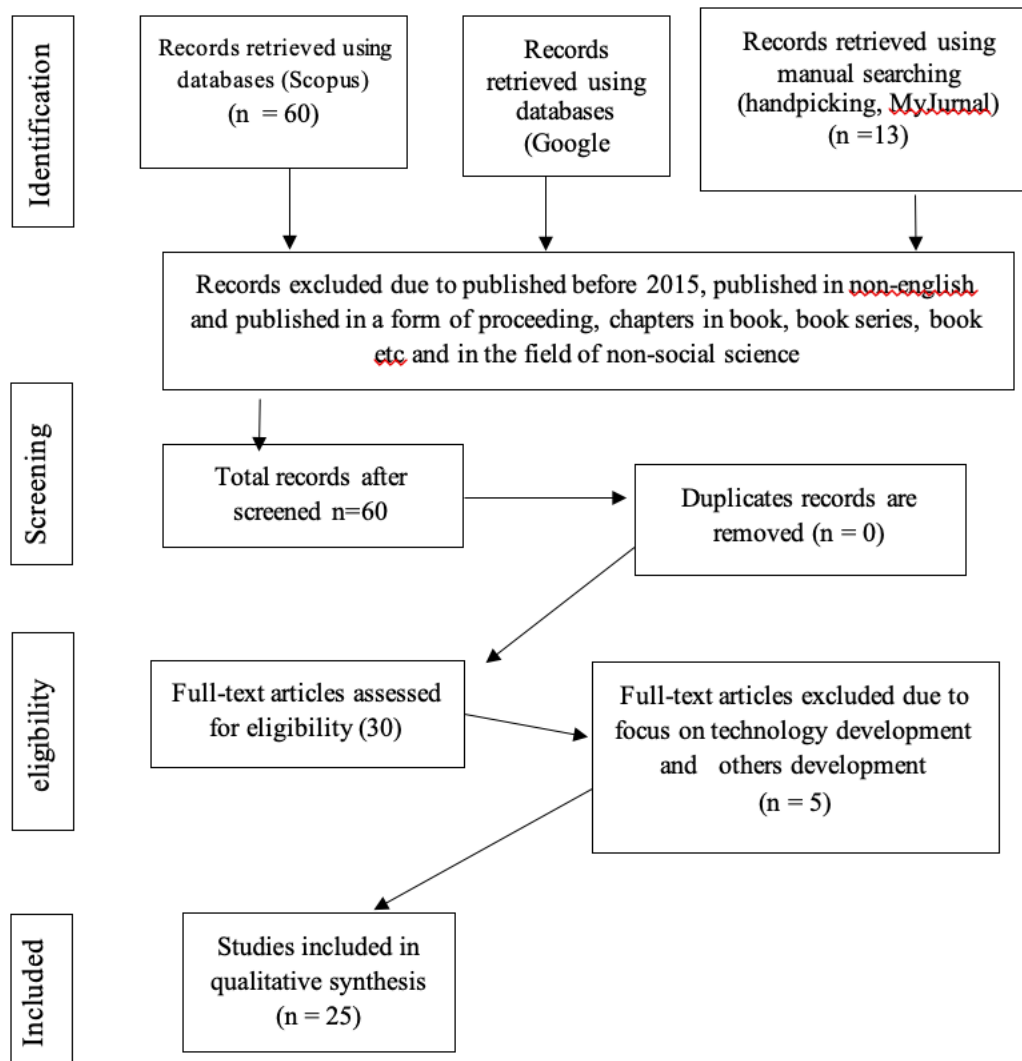


Figure 1: A flow diagram detailing the application of PRISMA to the qualitative synthesis of published studies into the development of human intelligence conducted between 2015 to 2020

## 3. Result

Further review of 25 selected articles resulted in three broad categories of major themes – Education, Community/humanity and Culture/Civilization. The selection of these major themes for this SLR support some of the finding made by Madsen (2016) with health, growth and development and by Khoja-Moolji, (2017) with self, community and meaningful life.

The result produces another 18 sub-themes under these three major themes. Education has 8 sub-themes which discusses about leadership program, vocational training, modern education, multiple intelligence module, educational philosophy, teacher education program, integrated education and cognitive development. The Community/humanity theme has 5 sub-themes issues which are poverty issues, gender issues, virtue ethics, conflict management and ontology of society development. The Culture/Civilization theme has 5 sub-themes; intellectual culture, transhumanism and artificial intelligence, concept of wholesome being, capacity building and spiritual human resource.

Years of study also tells the trend of research. In 2015, the trend of the research focus on two areas education and culture/civilization. Under education themes, the foundation of integrated education started being discussed. While under culture/civilization, the spiritual leadership is considered importance. In 2016, the trend is in education and community/humanity themes. It shows the need of improvement in education area as well society in term of model of integrated Islamic education, teacher education program and also the need for “more human” society.

While in 2017, conflict management, virtue ethics and educational philosophy among the topic discussed. In 2018, the sub-themes are leadership, capacity building and gender issues. In 2019, the topic scattered around three major themes. In education, the sub-themes seems to focus on multiple intelligence module. While community/humanity themes has sub themes of women and poverty issues under it besides another sub-themes of ontology of society development. In culture/civilization themes, the issues of transhumanism and artificial intelligence emerge to be discussed. Year 2020, showed three strong elements under education themes which are the need of modern education, vocational training and leadership program. Table 1 highlighted the major themes and sub-themes from 25 articles reviewed.

**Table 1: The Development of Human Intelligence major themes and sub-themes from 2015-2020**

No	Author	Years	Education	Community/ humanity	Culture/ Civilization
1.	Samul J.	2020	Leadership program	-	-
2.	Parker D.A., Roumell E.A.	2020	Vocational Training	-	-
3.	Siayah, Syarofis; Kurniawati, Novi Khoirunnisa; Setiawan, Adib Rifqi;	2020	Modern education	-	-
4.	Islam M.N., Al-Amin M.	2019	-	Poverty	-
5.	Sarwar A., Imran M.K.	2019	-	Gender women issues	-
6.	Pool F.W.	2019	-	Ontology of society development	-
7.	Bouzenita, Anke Iman;	2019	-	-	Transhumanism
8.	Nurulwahida Hj Azid @ Aziz ,Aizan Yaacob & Sarimah Shaik-Abdullah	2019	Multiple intelligence module	-	-
9.	Rahman, S. N. M. A., & Ibrahim, A. (2019).	2019	-	-	Artificial intelligence
10.	Lama P.D.	2018	-	Gender issues	-
11.	Eger C., Miller G., Scarles C.	2018	-	-	Capacity building
12.	Mahadi, M. H. (2017). Human Development Through Leadership from Islamic Perspective.	2018	-	-	Spiritual Leadership
13.	Baharuddin, E., & Ismail, Z	2018	-	-	Wholesome being
14.	Khoja-Moolji S.S.	2017	Educational philosophy	-	-
15.	Green A.	2017	-	Virtue ethics	-
16.	Ayub N., AlQurashi S.M., Al-Yafi W.A., Jehn K.	2017	-	Conflict management	-
17.	Arponen V.P.J.	2016	-	-	Intellectual culture
18.	Maniam, Vegneskumar;	2016	Teacher Education program	-	-
19.	Aree, S., & Rahman, S. M. A.	2016	Integrated Education	-	-
20.	Tengku Mohd Farid Tengku Abdul Aziz, Nurul Iman Ahmad Bukhari and Muhammad Luqman Ibnul Hakim Mohd Saad	2016	Integrated model of Islamic	-	-
21.	Saleh Hasan Ahmad Dahry	2016	Concept of Islamic Intelligence	-	-
22.	Oktaviani F., Rooney D., McKenna B., Zacher H.	2015	-	-	Leadership wisdom
23.	Khader S.J.	2015	Cognitive development	-	-
24.	Embong, Rahimah; Abdullah, Abdul Hakim; Adnan, Nur Dina;	2015	Foundation Integrated Education	-	-
25.	Dahlia Zawawi, and Nur Fatin Idris	2015	-	-	Spiritual Human Resource

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## 4. Discussion

The discussion of human intelligence and human development systematic review fall into 3 major themes, education, community/humanity and culture/civilization. The first discussion is on education themes.

### 4.1 Education

Education themes is first to be reviewed because out of 19 sub-themes, 9 sub-themes are derived from education. The trend being observed in this education themes is the need for integrated education system. The foundation of integrated education system be based on cultivations of values and transformation of knowledge to produce good man instead of good citizen. The aims of education are to produce good man with high moral standards, excellent at socializing, and capable of achieving an elevated level of well-being. (Salem & Hussien, 2016)

According to Salem & Hussien (2016), the development of curriculum in education system must focus developing learners' identities and not only content acquisition. A highly literate man may be highly uneducated, while an illiterate man may be highly enlightened, wise, and educated in terms of human morality and higher goals and purpose of life. Ideally, education must be measured by the quality of knowledge and skill embed with human morality and purpose of life. In this ideal and real sense, higher level of literacy may be found helpful but not essential for one to be educated. This answer to the problem produced by neoliberal rationalities and logic agenda where education is reduced to producing wage-based labor and an accumulation of skills that only enhance labour flexibility (Khoja-Moolji, 2017). In fact, it will be interesting to test this hypothesis in contemporary societies in the world. (Kalam, 2020).

The foundation and philosophy of integrated education above is also called to be cultivated in modern and vocational education training which seems lack emphasis on developing value in learners' identities. A functional contextualist approach to mastery learning achieves is not only develop skills but also encourage higher order thinking. It also being found out that learning is context bound and should promote broader human capabilities that support both employability and the continuing development of life literacies. (Parker & Roumell, 2020).

Faith is important elements in education. Faith and learning are also profoundly interconnected. According to Khoja-Moolji (2017), it is the spiritual responsibility to discover knowledge that enable us to understand how to serve God better. He further argued of using formal education as education intertwined with faith. He quoted Aga Khan (2006) as being said "Once we have acquired knowledge, it is important that the ethical guidelines of faith be invoked, helping us apply what we have learned to the highest possible ends. And it is also important that those ends be related to the practical needs of our peoples".

Islamic education takes step by step approach, Iman, Islam and Ihsan and also by multiple approach according to situation and level. The acknowledgement also been given to multiple intelligence module to cater this need. The education purpose in Islam covers three levels: the individual, the community and humanity at large. Therefore, the role of *murabbi* is important and teacher education program is another important factor in the context of education.

### 4.2 Community and humanity

As being discussed in previous section the ideal purpose of education covers three levels: individual, community and humanity. Therefore, as a continuous topic of discussion of this SLR on human intelligence and human development, community and humanity issues are considered the next major themes. The major issues as derives from sub-themes are poverty, gender and women, virtue ethics, conflict management and ontology of society development.

The themes in community and humanity reflects who is considered as underprivileged group in human intelligence and human development. Here, there are two groups identified, the poor and the women. Poor people is associated with poverty. Poverty is the antonym to the word prosperity. In barriers to prosperity, the development of healthy brain is associated with equality in income (Madsen, 2016). While Islam & Al-Amin (2019) stated that poverty and human development should not be focused on income alone. Therefore, Islam & Al-Amin (2019) used capability framework to interpret poverty and well-being. Madsen (2016) and Islam & Al-Amin (2019) have common arguments that barriers to capability resulted in poverty. Using capability framework developed by Sen (1999), Nussbaum (2000) explained ten central human capabilities: (1) life; (2) bodily health; (3) bodily integrity; (4) senses, imagination, and thought; (5) emotions; (6) practical reason; (7) affiliation; (8) other species; (9) play; and (10) control over one's environment. These 10 central human capabilities are much related to cognitive development argued by Madsen (2016) in order to be success in society life.

Beside poor people deprived from the human capabilities and cognitive development due to lack healthy nutrition and education, women are also categorized as underprivileged group especially in career prospects of income generation. Women are primarily articulated as economic actors: potential consumers, labor, and/or entrepreneurs and had been subjected to economic logic, the real problem that should be addressed (Khoja-Moolji, 2017). However, the findings of career prospect of women in Pakistan showed an interrelated web of factors interacting at three levels; macro, meso, and micro; that were explained on the premises of the social role theory. Major impediments to women's career progress were religious

interpretations, socio-cultural factors and Sifarish (i.e., favoritism/nepotism) at the macro-level. At the meso-level, the barriers involved segregation, discrimination, harassment, and lack of work-family balance initiatives at the workplace. The microlevel obstacles involved personal values and needs, queen bee syndrome and a lack of awareness (Sarwar & Imran, 2019). The ontology of social development must also be revisited to combat the issues of inequality that lead to poverty in society (Ayub, AlQurashi, Al-Yafi, & Jehn, 2017; Green, 2017; Arponen, 2016).

This finding showed the importance in calculating secular values and religious values in interpreting ontology of social development. Pool (2019) argued worthwhile development is a development taking into account inclusive dialogue between secular and religious ontology and accepting the transcendental sources and fundamental human values. In this aspect, virtue ethics is the turning point that separate between secular and religious ontology. In discussing virtue ethics, there are two conceptions. One conception takes its roots to tradition and divine law and another conception liberate itself from tradition and divine law. Both has significant influence to create and sustain ethical society as well help in managing conflict in society (Green, 2017). In modern appreciation of diversity in society, religious interpretation must be made in light of societal change while in extending one capabilities and possibilities for a wide diversity of virtues ones must not forget its connections to tradition and divine law. In doing so a better culture and civilization could be built. The next section will discuss about the culture and civilization as the third major themes of this SLR.

### 4.3 Culture and Civilization

Culture and civilization could be viewed as end product of human intelligence and human development studies. Management of human capital referring to humanity and quality of life (Mahadi, 2017). At this stage the previous discussion of society and humanity reflect here in its ideal form. There are 5 sub-themes under this theme which are spiritual leadership, intellectual culture, concept of wholesome being, capacity building, transhumanism and artificial intelligence.

In human development especially in human resource, it is interesting to find out concept of spiritual leadership is needed to form ideal society in building culture and civilization. In Islam, spiritual leader bears the essence of *khalifah* (vicegerent of Allah SWT) and is responsible for developing human civilization and prospering the universe based on faith in Allah and doing good deeds. Excellent leader will create a brilliant society. Leaders here is not only referring to leader of state but also leader in organization and family (Mahadi, 2017). According to Mahadi (2017) balance of material development and spiritual development requires an integrated and balanced leadership.

However, the challenge to develop civilization that is balanced materially and spiritually called for understanding the intellectual culture that lies beneath it. There are two intellectual culture that influenced modern philosophy in facing modern crises: epistemic/representationalism and normativism. Former deals with inner space (mental process and mental substance) and latter deals with experience/practice. Climate change and economic crisis are the two examples how human relationship to nature being perceived and handled (Arponen, 2016). Both epistemic and normativism are important elements where in epistemic, mentality is employed to understand and explain the crisis and normativism contributes in term of practice and experience of integrated network of people (Arponen, 2016).

Therefore, it is foreseen in this discussion that capacity building must entails virtues ethics neither from universal human experience nor specific tradition but most importantly ethics derives from transcendent sources. This include the concept of wholesome being to be promulgated in producing human intelligence superior and viable in all area of development. The future of human capital development and human resource management is dealing with affective commitment towards organization not only based on emotional intelligence but also higher level of intelligence of wholesome being that include emotional, spiritual as well social or culture intelligence (Baharuddin & Ismail, 2015; Zawawi & Idris, 2016).

The most dangerous ideas if development is not accepting transcendental sources and fundamental human values are transhumanism and its artificial intelligence. Transhumanist visions entail the annihilation of any distinction between the biological and the mechanical or between physical and virtual reality. Transhumanism has been described as a Religion of Technology for its utopian visions, presenting technology as the savior of mankind (Bouzenita, 2018). However, according to Siti Noor Mawar Abdul Rahman & Azrin Ibrahim (2019) it can be controlled by mastering certain knowledge. Both authors in agreement that the advancement of technology need not be prevented rather than accelerated its development by controlling it through certain mechanism. The mechanism is through mastering knowledge as in *Tasawur* (Islamic worldview), *maqasid al-shariat* (wisdom of Islamic jurisprudence) and *Hisbah* (principal of enjoining good and prohibiting evil). This is foreseen to be mechanism in developing future ability.

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## 5. Conclusion

The SLR of human intelligence and human development tells about the need to have full integration of development as being identified in human intelligence and the need to impart this development of intelligence in society, so that society issues such as discrimination, poverty, conflict can be managed and overcome effectively. Therefore, the institution for the development process will have human with appropriate capability to bring society to another level of advancement and civilization building.

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