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Text Mining of Avicenna's Intellectual Education and the Discovery of Functional Knowledge

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ABSTRACT

This research aims to analyze the intellectual education of Avicenna (Ibn Sina) and discover practical knowledge. The purpose of text mining in historical records is to identify relationships within existing data and extract knowledge from them. When the existing data are structured, it is easy to use data mining methods to extract knowledge from them. In relation to the research topic, the method employed in this study is text mining analysis, making this research exploratory. The TF-IDF weighting method is used in this research. Considering the high dimensionality of the data, where the number of features is much greater than the number of vulnerable samples, linear Support Vector Machine (SVM) is a more suitable choice for these tests. Various implementations of this algorithm are available. In this research, LibLinear SVM, which is one of the most suitable implementations, has been used. First, the conceptual texts of Ibn Sina's thought were analyzed by understanding the contexts of existence, knowledge, man, and values. Subsequently, a list of educational requirements was deduced using concepts and categories. Finally, models for the construction of cognitive perception and an educational model were proposed. It can be said that the ideal human being, according to the teachings of Sinai, is someone who, through their scientific perspective related to their existence, knowledge, and values, can attain proper intellectual development and happiness derived from understanding the truths of the universe. This individual can acquire intellectual knowledge, enhance their power of critical thinking and reasoning, and ultimately achieve perfection. ©authors

1. Introduction

The problem in today's world is not the lack of information, but the lack of reliable knowledge (Cheshmeh Sohrabi & Mashhadi, 2023). The purpose of text mining in past recorded knowledge is to specify the relationships between existing data and extract knowledge from them. When the existing data are structured, it is easy to use data mining methods and extract knowledge from them (Masjedy et al., 2022). But today, a large part of past information and knowledge is kept in the form of text, and texts are unstructured data. In order to extract and discover knowledge from the information of a text, a person must first understand it, to understand what meanings and concepts are there and what is the relationship between the concepts. However, the age of technology and data is looking for automation, even if it is understanding the knowledge of the text (Salehi, 2021).

The text mining of Sinoy education texts (Hajar, 2013) provides the knowledge of education and training, which is one of the essential needs and tools for the transfer of human material and spiritual values, to discover functional knowledge. Intellect has a special place in analyzing information and applying it in all aspects of life (Putri and Nurhuda, 2023). The coordination of man's actions and speech based on rationality and the application of reason in his epistemology is one of the most important individual, civilizational and social characteristics of man, because the benefit of societies and individuals from rationality has been introduced as a factor of growth and development, since man has the ability to perceive all available knowledge, so he can know all general and partial facts. The value of Avicenna's thoughts in the field of functional knowledge and reason in educational philosophy is discovered based on extracting knowledge from the valuable texts of this scientist (Yasmansyah & Wedra, 2021).

It should be said that as long as the raw data in Ibn Sina's unstructured texts are not analyzed in the process of text mining, there is no possibility of analysis and

interpretation and computer data mining to extract functional knowledge, which is done in text mining using machine learning technology and it can be done by general classification of texts, making their summaries, revealing vocabulary concepts, comparing similar texts and examining the relationships between them. In the depth of philosophical knowledge, Ibn Sina is a famous person whose philosophical-educational foundations of Sinavi are considered a reliable reference for educational issues in today's world, and by cultivating the intellectual power, the development of other areas of education is provided.

Human activities in two dimensions of theoretical knowledge and practical knowledge depend. The theoretical and practical education of the intellect has been considered (Sobhani & Rabbani, 2012).

Text mining, also known as text analysis, is a process that involves extracting meaningful information and knowledge from large volumes of discontinuous textual data. Avicenna, also known as Uwais. He was a prominent Iranian philosopher and physician who contributed significantly to various specialties including medicine, philosophy and Islamic theology. His works, such as "Book of Healing" and "Law in Medicine", contain considerable knowledge and insights.

By using text mining methods on Avicenna's works on intellectual education, we can discover practical knowledge and useful insights. Below, it was explained in general how to use text mining in this field:

Data collection: First, Avicenna's works on intellectual education are collected, including the relevant chapters or sections of his books and arrangements.

Text Preprocessing: In this step, the text is cleaned and free of unwanted punctuation, punctuation and common words (such as "and", "of", etc.). Then, the text is broken down into smaller units (such as words or phrases) in preparation for further analysis.

Thematic analysis: In this step, the patterns, concepts and topics in the texts are identified. This analysis will help you

identify recurring patterns, ideas, and key concepts in Avicenna's works on intellectual education.

Extraction of knowledge: In this stage, information and knowledge related to the function and rational principles in Ibn Sina's works are extracted. This may include concepts, philosophical principles, rational training methods, etc.

Network analysis: In this step, connections and connections between various concepts and principles of Avicenna about rational education are analyzed. This analysis can be done through graph networks, network diagrams and other network analysis methods.

Analysis of patterns: Patterns and patterns in Ibn Sina's works are analyzed to discover functional knowledge and theories related to rational education. This can include repetitive patterns in the use of concepts and principles, descriptive and logical arrangements, etc.

The use of text mining techniques enables researchers and enthusiasts to gain a deeper understanding of Avicenna's intellectual upbringing and discover the practical knowledge embedded in his works. Of course, the success of this process depends on the quality of the textual data, preprocessing steps, and the selection of appropriate algorithms and methods for analysis.

In this research, an attempt has been made to obtain a clear and comprehensible picture of the light of fundamental ideas in the field of functional knowledge of education by using the text of his ontology, epistemology, values and anthropology and considering Ibn Sina's rationalism, so that by extracting the principles, Aims and methods achieved the implications of education and in anthropology to present a model in the perception of the cognitive construction of Sinowi rational education.

Therefore, the current research seeks to answer the following questions:

What methods are effective for discovering Ibn Sina's historical knowledge in the field of education?

The extraction of semantic relations in Ibn Sina's educational resources determines what functional knowledge?

What is the application of text mining in order to complete the extractive knowledge of Avicenna's texts?

2. Literature Review

With regard to the studies that have paid attention to the foundations of Ibn Sina's functional knowledge, wisdom, or education. Salleh & Embong (2017), investigated Avicenna's educational perspective and educational knowledge and showed that a systematic review can identify new angles of Avicenna's knowledge. Yasmansyah & Wedra (2021) investigated Ibn Sina's educational knowledge through content analysis in terms of functional knowledge. Gharayaq Zandi (2020) examined the knowledge of leadership in Ibn Sina's thoughts. He showed that the knowledge intended by Ibn Sina is not only the conventional knowledge that is available to everyone but there must also be a proper internal mechanism so that a person can achieve the highest level of knowledge and habitual intelligence. Putri and Noorheda (2023) in the study of Ibn Sina's educational and educational knowledge, pointed out the originality and closeness of thinking and functional knowledge.

Shibani (2009) studied the functions of theoretical and practical reason from Ibn Sina's point of view. Alvandian & Badashti (2018) studied anthropology from Ibn Sina's point of view, which deals with anthropology twice from Ibn Sina's point of view and then hints to reach the peak of humanity. Rashidi Kochi (2013) studied the comparative study of education and training from the point of view of Ibn Sina and Aristotle, and considers the most important and main goal of education and training to be the achievement of happiness and perfection for the individual and the society, and also considers the acquisition of moderation and moderation as one of the most important goals of moral education. Almasi (2016) studied the role of rational education in education from the point of view of Ibn Sina and Aquinas, and this research points to the

differences and commonalities of these two thinkers regarding the place of reason in education and the fields of epistemology, the rational thinking of humans, the non-materiality of reason. Tighsazzadeh (2015) investigated Ibn Sina's anthropological knowledge and its educational implications. In this research, while dealing with Ibn Sina's view of man, the educational implications related to this view have been investigated. Jafarianyasar (2014) studied Ibn Sina's knowledge of education and the education system from the point of view and from perspective of paying attention to the dimensions of its spiritual performance. Lachinani (2012) studied Avicenna's anthropology and by examining various works of Avicenna's philosophical, medical, and mystical knowledge examines man from different angles in order to reach anthropology from his point of view. Considering the mentioned researches, each of them only examines one component based on Ibn Sina's knowledge, for example, anthropology, Islamic education, and epistemology, now according to the mentioned examples, it is necessary to have a source as a reference that facilitates the achievement of the maximum of the mentioned components and acts comprehensively. It is necessary and according to the purpose of the research, conceptual analysis and interpretation methods have been used. In this text analysis method, the semantic elements of a concept, and the relationships between these elements are explored in the relationships between the whole concept and other concepts that are related to it in some way (Coombs & Daniel, 1991). Tayarani & Jalali (2019) introduced text mining as a reliable and reliable method to discover knowledge in texts. Emphasizing the importance of text mining, Rafiee and Keramatfar (2022) showed that the average growth rate of scientific documents in Iran in the field of text mining is higher than in other subject areas.

3. Method

Considering the topic of the research, the method of this research is text mining analysis, so this research is exploratory.

Considering the applicability of functional knowledge, this research is practical. The following 5 steps are used to discover knowledge from the texts shown in Figure 1. In this research, the TF-IDF weighting method is used, using the obtained values, feature vectors are made for the data and the training and test data of the classifier is selected from the data set. After that, a classification method is selected. The classifier is trained using training data and evaluated using test data.

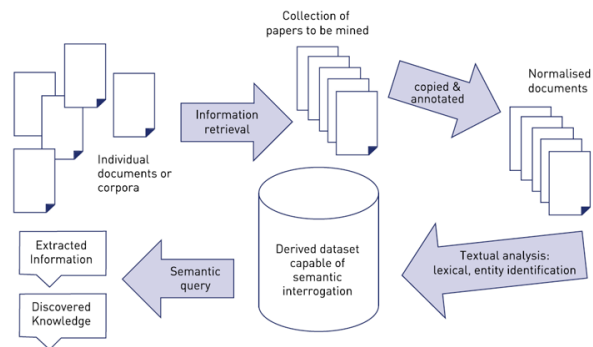


Figure 1. The process of conducting research based on text mining

The researcher describes and analyzes the documents and texts and by identifying their content and analyzing the text, he takes out their educational implications. Our method consists of two stages. First, the researcher reviews the texts and extracts from the review texts about philosophical foundations and rational education and the goals of philosophical foundations. In the second stage, he puts the philosophical foundations in the table and by inferring from them, he extracts the goals, principles, method and categorizes those propositions.

The analytical model of this research is the analytical model of Mayring (2014), which is firstly an approach in which the researcher tries to summarize the data as much as possible while maintaining the structure of the text, secondly, an approach in which the researcher attempts a level of interpretation while summarizing, and finally, an approach that It tries to extract the structure that governs the text (Kohlbacher, 2006). The unit of analysis of this research is the textual propositions of Ibn Sina's treatises. The researcher first analyzes Ibn Sina's philosophical foundations in the macro-fields of ontology, epistemology, and value in the

shadow of anthropology, and based on this, the research uses conceptual analysis methods to reduce and interpret and access categories related to the subject. The research aims to extract the components related to the research by using the results of the conceptual analysis method and using the above two types of communication to interpret the research. In addition, the cases that are examined as samples are not known in advance and the selection of each case depends on the adequacy of the previous information. Therefore, sampling continues until the theoretical saturation of the categories. Also, this method is flexible (Abol-Maali, 2018). The flexibility of this method is because the researcher can refine his chosen sample from this data collection. In the upcoming research, all of Avicenna's works were examined and studied according to their relevance to the subject, their availability, and limitedness, and these authentic texts that express Avicenna's thoughts will be examined until the data is saturated. Sampling ends when further investigation does not produce new information. Therefore, the targeted sample in this study is first-hand sources and second-hand sources, which according to the purpose of the research, which is to extract educational implications from the philosophical foundations and rational education of Sinavi, provides the researcher with rich information and a lot of understanding about the subject under study.

In fact, in this research, determining the sample size has no meaning and cannot be specified.

In studying a topic such as extracting educational implications from the philosophical foundations and rational education of Sinavi, the use of first-hand and second-hand sources can provide very valuable resources. Considering that the purpose of the research is based on the philosophical foundations and intellectual education of Sinawi, the use of first-hand sources directly from Ibn Sina's own works and the primary sources related to him makes it possible to extract educational implications. These types of first-hand sources, in terms of accuracy and

achievement, provide rich information and understanding about the subject under study.

In addition to first-hand sources, the use of second-hand sources is also very important. These sources can include books, articles, theses and other research sources that have been published in the field of Ibn Sina's intellectual and philosophical education. By studying and analyzing these sources, the researcher can get more information about his subject and examine the functional knowledge and theories related to rational education. In this research, the determination of the sample size may not have a special meaning, because the main purpose of the research is to extract educational implications that are directly based on primary and secondary sources. But through a detailed and extensive analysis of the available sources, valid implications can be extracted and acceptable results can be reached. In general, in studies such as extracting educational implications from Ibn Sina's works, it can be difficult to determine the exact sample size. Instead, the researcher should carefully examine the first-hand and second-hand sources and select the appropriate and sufficient sources to investigate and draw conclusions about educational implications.

4. Findings

In this section, the method of conducting experiments and the results of classification and prediction are presented. Linear SVM classifier and random forest were used in these experiments. Considering the high dimensions of the data, which causes the number of features to be much more than the number of vulnerability samples, linear SVM is a more suitable choice for these experiments. Various implementations of this algorithm are available, in this research, Lib Linear SVM, which is one of the most appropriate implementations, has been used. To conduct experiments with random forest, the implementation of Random Jungles, which is suitable for high-dimensional data, was used. SVM and random forest are used in this experiment. It is clear that random selection along with placement leads to overlap between different training sets and

different number of samples of training sets. At each stage after training, the classifiers vote for each sample of the test data. The voting result, which is +1 or -1, shows whether educational and functional knowledge will be recognized or not. Each of the numbers presented in this research is the average of several experiments. Table 1 shows the results of the prediction test of functional educational knowledge for the

number of different classifiers. As it is clear in this table, in this test, random forest classifier performs better than SVM and the best result is obtained in the case where the number of classifiers is 9. It should be noted that although random forest performs better than SVM, but because its P value is not less than 0.05, it cannot be claimed that this superiority is significant.

Table 1. Comparison of SVM and Random Forest methods.

Categories	The number of classifiers	SVM		Random forest		P VALUE
		precision	standard deviation	precision	standard deviation	
Ontology	3	77.37	0.34	0.092	0.092	0.092
Epistemology	5	80.03	0.29	0.089	0.089	0.089
Axiology	7	80.3	0.4	0.066	0.066	0.066
Anthropology	9	85.67	0.38	0.062	0.062	0.062
Educational basics	11	80.4	0.47	0.079	0.079	0.079

A- Ontology

In Avicenna's ontology (Tercan & Gulzhikan, 2022) to reach educational knowledge, his opinion about the three categories of God, man, and the world is worth mentioning (Avencia, 2013).

Theological knowledge

Searching for the concept of existence and existence has always occupied the attention of philosophers since the beginning of philosophy. In Ibn Sina's opinion, ontology forms the main axis of Ibn Sina's philosophical system, which is decisive both in theology in the specific sense and in metaphysics in the general sense, and the first philosophy (The first) equates it with wisdom and considers it the knowledge of theology (Avancia, 2016)."

Anthropological knowledge

Ibn Sina's theory about anthropological knowledge begins with reason, which distinguishes man from other creatures. His theory about reason is conceived in an objective and concrete way in the form of divine guides and angels who guide man to the highest levels of divine knowledge (Zebakalam, 2011). So it can be seen that the knowledge of education and training that Avicenna has in mind is under the umbrella of spirituality and with an emphasis on thinking and rationalizing things, and this is because, from the point of view of many

researchers, this philosopher has a rational approach to education and training.

Knowledge of cosmology

Ibn Sina summarizes his theory of cosmology, the name of this writing is Risalah al-Arus, he says: "Everything in the world has its origin - that is, what was not and then became (Bagheri, 2016). Before its origin, it was possible to exist, because if it was impossible to exist It would not have come into being, and if it had been necessary, it would have already existed." So, here the reason is raised whose purpose and goal are intrinsic, and reason, wise and sensible are one thing for it, and knowing, knower, known is one thing for him (Religion & thought group, 2009).

B- Epistemology

In epistemology, the criteria of epistemology are; The domain of knowledge, the method of reaching it, and the criterion of its correctness and incorrectness.

The realm of knowledge

In the realm of knowledge, it should be said that it includes the supernatural and matter. The domain of knowledge includes knowledge related to the supernatural and matter. In the sixth part of the natural healing and rescue, Ibn Sina mentioned smaller signs and writings in such a way that I see objects

that have a voluntary movement and the origin of these works is the soul or the psyche, and the psyche It is not a body, but its realm is a form of perfection, and it includes all types of soul from all directions, and it even includes soul separate from matter. But in terms of the nature of the psyche, it is part of the organization of the body.

Method of arrival

The ways to reach knowledge can be through; sense, reason, and imagination. Perception of the cognitive construction of Sinavi intellectual education, one can realize that the ways to reach knowledge pass through sense, reason, and imagination, and the reason is the source of sense and imagination, and it is divided into two types, theoretical and practical, which according to Sinoy's moderate approach and using both theoretical and practical reason and their foundations are used in the formation of cognitive perception in a practical way.

Setiment

Ibn Sina's books on soul issues are divided into two general categories. In the writings quoted from Aristotle's material and in the book he wrote at the end of his life, such as the treatise Nafs, Shafa, which shows his specific philosophical ideas better (Qutbuddin shirazi, 2006).

Intellect

Intellectual knowledge is very important in the eyes of Ibn Sina in that he considers the goal of man to be reaching active reason (Ghaffari, 2015). He considers the effects of rational knowledge on man to be one of inference and reasoning to discover the unknown from the known. Ibn Sina enumerates different stages for human beings based on the division of theoretical and practical reason. (Avecia, 2020:96).

Fiction

According to Ibn Sina, knowledge and perception include feeling, imagination, illusion, and reasoning. Regarding imagination, we should use an example to say that if we close our eyes, although the perception of vision disappears, the image

that is perceived from the outside remains in another faculty, which is called perception. They say imaginary (Rezaei, 2011); In other words, imaginary perception does not have the first condition of sensory perception, but it will have the other two conditions, which are the combination of complications and the partiality of evidence (ArshadRiahi, Sadeghi and Jalilibahabadi, 2014). That is, the imaginary form, although it is not conditioned by the presence of a substance, but like the sensory form, it will have a specific quantity and quality (Faly, 2008).

C- Axiology

Values have a high place in Ibn Sina's thinking. The general recognition and examination of values is called value science. The concept of value refers to a rational state that can be recognized in the existence of individuals or groups or societies through several manifestations (ideals and behaviors, tendencies, goals, desires and beliefs). (Rashidi Kochi, 2013).

D- Anthropology

Compared to other creatures, human beings have feelings and voluntary movement and perception of details in addition to actions, and are superior to rational thinking and general perception (Avencia, 2012). The human soul has two aspects, on the one hand, it faces the body and controls the body by its instruments, and on the other side, it activates the acquisition of grace from the intellect, and in a discussion about the ontology of the human intellect, it should be said that it is dependent on the abstraction of the soul and is made up of parts. and the effect of the body on the breath is like an image that affects the breath for a long time. In his educational goals, the way to cultivate these talents is a priority (Nasr, 2015).

Table 2 shows the best case results with more details. In Table 2, true positive means positive samples that are correctly predicted as positive samples by the classifiers. True negatives are negative samples that are correctly predicted as negative samples. False positives are negative samples that were wrongly predicted as positive samples

and false negatives are positive samples that were wrongly predicted as negative samples. As shown in Table 2, the accuracy of SVM is approximately 87% and this value is 2.49% less than the result (40). But when this test was tested with a positive label for rumored samples (same as (40)), the prediction accuracy increased to 90.42%, and this value is better than the result of (40).

Table 2. Prediction accuracy

SVM		Random forest		
Test	Learning	Test	Learning	
88.88%	97.96%	81.51%	99.55%	True negative
85.18%	99.79%	89.01%	99.69%	True positive
11.12%	2.04%	18.49%	0.45%	false negative
14.82%	0.21%	10.99%	0.31%	false positive
85.67%	99.27%	87.21%	99.65%	precision

It should be noted that the parameters of this test method, including the number of classifiers and the number of test samples, were obtained experimentally. This method has good accuracy and is very useful for use in an application software, but 10 times 10 folds cross validation was also used to compare and justify the efficiency. With this method, the prediction accuracy is 84.1% in the case of samples marked with a negative label. But in the case of samples with a positive label, it is 90.15%, which is still higher than the accuracy value (40). Therefore, the proposed model based on text mining algorithms is shown in Figure 2:

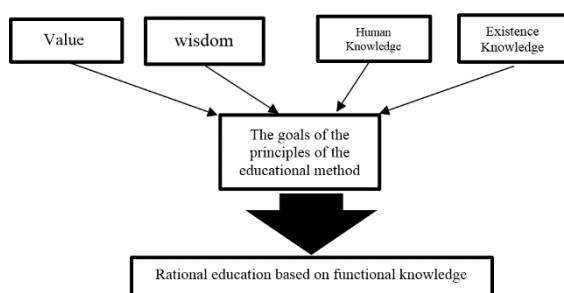


Figure 2. Conceptual model of Ibn Sina's intellectual education and discovery of functional knowledge based on text mining

The conceptual model of Ibn Sina's intellectual education and the discovery of functional knowledge based on text mining can be focused on the four main dimensions of knowledge of existence, human knowledge, knowledge and value.

The knowledge dimension of existence: In this dimension, the focus is on knowing and

understanding the inherent realities and the real existence of the world. Ibn Sina dealt with the realities of existence by examining and analyzing philosophically and scientifically. It includes the examination of concepts such as existence, reality, non-existence, etc. Through text mining, these concepts and knowledge of existence related to intellectual education can be identified in Ibn Sina's works and gain a deeper understanding of them.

Human knowledge dimension: In this dimension, the focus is on knowing and understanding humans and their characteristics and capabilities. Ibn Sina used to analyze and investigate human characteristics, beliefs and human knowledge. It includes topics such as reason and rationality, will and agency, human knowledge and cognitive abilities. By using the text analysis, it is possible to identify Ibn Sina's opinions and thoughts about human knowledge and its role in intellectual education.

The dimension of knowledge: In this dimension, the focus is on knowing and understanding epistemological and scientific processes and relationships. Ibn Sina dealt with knowledge and scientific teachings and highlighted its importance in intellectual education. It includes the examination of epistemological methods and tools, logic and scientific reasoning, and epistemology. By using the text of the analysis, it is possible to examine the topics related to the knowledge and scientific methods of Avicenna about intellectual education.

Value dimension: In this dimension, the focus is on knowing and understanding human values, ethics and goals. Ibn Sina studied human values and ethics and paid attention to their role in intellectual education. It includes moral values, goals of life and upliftment of humanity. By using the text analysis, it is possible to identify Ibn Sina's values and morals about intellectual education and gain a better understanding of the role of values in intellectual education and growth.

By using the conceptual model of Avicenna's rational education and discovering functional knowledge based on text mining in the four

dimensions of knowledge of existence, human knowledge, knowledge and value, it is possible to achieve a deeper analysis and understanding of Avicenna's views and opinions about rational education and related functional knowledge. discovered with it. This conceptual model helps us identify the connections and connections between different concepts and dimensions of intellectual education in Ibn Sina's works and reach a more comprehensive picture of his theories and views in this field.

5. Discussion

The real perfection of man is in intellectual knowledge and the performance resulting from this knowledge. Human knowledge begins with sensory perception, but sensory perception is a way to knowledge, and in order to acquire knowledge, we must benefit from our thoughts and intellect, that is, from our rational perception. The main goal of learning science and knowledge should be the development of intellectual ability and correct functioning and acquisition of functional knowledge. In the goals of Avicenna's rationalism, he reaches reasoning by using analysis and combination, and considers the achievement of happiness through rational education (Avencia, 2020). By having this intellect, a person can communicate with the active intellect, but the perfection of the practical intellect is to be able to correctly distinguish good and evil due to the multiplicity of experience and observation (Zebakalam & Heydari, 2008). The goals of Sinoy's intellectual education Ibn Sina's attention to the knowledge of experience is due to the attention of the mind to the phenomena and realizing the causal relationship between the phenomena. The mind realizes the essence of things by realizing the causal relationships, and the intellect is involved in the process of experience (Avencia, 2006). Therefore, Ibn Sina considers reason both for sensory experiences and as a criterion and justification for distinguishing truths from errors, so by mentioning the mentioned points, we can understand these points: 1- The goals of Sino's reason pay attention to

sensory knowledge, and the steps are gradual to actualize as much as possible. It is potential talent. 2- In the goals of intellectual education, correct and accurate orientation of the individual is necessary. 3- Attention to the environment as a basic factor for intellectual development. 4- Providing grounds for the emergence and growth of intellect. (Nowrozi & Shahriari, 2019). The principles of Sinui's rational education In the texts related to the rational principles in Avicenna's thought, we can see that he emphasizes principles such as self-knowledge, self-education, attention to individual differences, setting the program based on the development of children and adolescents (Avencia, 2014). In other words, the form of education to achieve reasonable things; It is either speculative or educational (Avencia, 2013). Sinoy's method of rational education Sinoy's rational education development methods are to achieve the goals of educational systems so that the goals and plans are determined according to the students' talents and status, and achieving the goals of each level is a prelude to reaching a higher level, so that finally the students in the educational system can achieve the happiness that is the same. It is close to God. Therefore, in the Sinavi intellectual education system, according to educational activists, the growth and perfection of reason does not happen all at once, but it requires passing through different levels, and in each level, the learners must have the necessary conditions for that intellectual level. Educational methods include; Active use of the senses, direction of imagination and creativity, investigative training and strengthening of thinking, intuition or in-person and esoteric observation (guessing), integrated method, imitative method, disciplinary method, method of using games and entertainment, group training, scientific tour method or Experimental activity, exploratory method, Socratic method, problem solving method, punitive method are (Sayahan, 2008).

6. Conclusion

For the analysis of Ibn Sina's intellectual education and the discovery of Ibn Sina's

functional knowledge using epistemological and mathematical techniques, it can be stated that the expected human being based on Sinai's knowledge is a person who can use his scientific perspective that is related to his existence, knowledge and values. He should find his proper intellectual upbringing, the happiness resulting from knowledge of the truths of the universe, intellectual knowledge and the power of thinking and reasoning and reach perfection. In today's world, theoretical knowledge is used to reach practical reason and to cultivate the dimensions of human existence, and practical reason is used to apply the learned theoretical knowledge, and reasonable life is a combination of theoretical reason and practical reason, and their combination is a prelude to achieving total reason and along the path of educational methods that are appropriate to the goals and educational principles of Sinoy, it provides the preparation for the perception of rational things, so the soul must cultivate and practice virtue and practice contentment and moderation, and in itself rational perception and virtue. So that educators should stay away from any extremes and consider the intrinsic value of truth and moderation as the criteria for evaluating actions.

Based on the conceptual model of Ibn Sina's rational education and the discovery of functional knowledge based on text mining in the four dimensions of knowledge of existence, human knowledge, knowledge and value, the following practical suggestions for rational education can be presented:

1-For rational education, it is important for people to understand the realities of existence and develop knowledge of existence. Educational programs can guide scientific and logical knowledge based on Avicenna's concepts of existence, reality and non-existence.

2- For rational education, it is necessary to improve human knowledge. Education should emphasize on examining human characteristics, the role of reason in decision-making, and human ethics.

3-Educational programs should enable people to understand epistemological concepts and scientific and logical reasoning.

Teaching epistemological methods and tools to promote critical and analytical thinking.

4- Rational education pays attention to the concepts of values, ethics and human goals. Educational programs should strengthen human values and morals and promote a correct understanding of values and their impact on the growth and education of people.

5-Combining the knowledge of existence, human knowledge, knowledge and value: educational programs should use these four dimensions in an integrated and balanced way. They should examine the connections between them and present the knowledge of existence, human knowledge, knowledge and value to people in the form of an integrated model.

6- Rational education requires the development of rational skills such as logical, analytical and critical thinking. Educational programs should strengthen these skills and help learners use these skills to make better decisions and understand and analyze their knowledge.

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