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Management of Students Potential Development Using The Data Mining Clustering Method in MAN 2 Malang City

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| **Abstract** | Every human being is endowed with potential in himself. This potential must be managed correctly to produce academic and non-academic achievements. An achievement is a form of proving the success of learning and mastery of science. Many madrasas have an achievement crisis due to the mismanagement of students' potential. This study aims to provide new formulations to map students' potential and develop the potential for achievement. They are taking the pilot of Madrasah Aliyah Negeri (MAN) 2 Malang City as an Islamic educational institution. This research method is field-based with a descriptive qualitative approach, where data is taken from the principal, vice principal for student affairs, and the head of Ma'had there. The results showed that, first, the potential management developed was to trace students' potential through the acceptance of academic and non-academic achievement pathways according to the vision and character of the madrasah. The next stage is the development of potential: 1) cleaning and integration. Potential finalization results are filtered through unstructured interview test methods and excellent program-based question presentations. This stage produces clusters of science, language, and Islam; 2) pattern recognition. Merit awards evidence clustering based on the school's flagship program; 3) knowledge presentation. In the form of periodic evaluations to ensure that students have been able to achieve achievements. Second, the pattern of potential development is based on Islamic boarding schools, and each cluster has a markaz supported by a laboratory. |
| **Keywords** | Psycho-Achievement; Clastering; Data Mining; MAN 2 Malang City |

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1. INTRODUCTION

The basic concept of education states that every human being is endowed with potential (fitrah) from birth. No human being is born into the world without being equipped with potential by God. Each potential has its advantages and contexts—success in exploring potential, bringing good and beneficial impacts. But on the contrary, the fallacy of harnessing the potential is fatal to the future of man and society. As an educational institution, Madrasah has the task of uncovering and developing students' potential into achievements as a form of recognition of potential. Therefore, this paper explains and describes implementatively how MAN 2 Malang City manages students' potential by mapping and developing potential effectively.

Fuad said that mapping and developing the most effective potential had been possessed by Islamic education. Historically, Islamic education through Islamic boarding schools shaped students' potential (students, read.) using intellectual, skill, and moral patterns. Character values are the hallmark of Islamic education (Fuad et al., 2022). The basic cost of potential development in Islamic education rests on integrating morals (character) and science. The basic concept is the hypothesis that potential development requires spirituality (L Dodi & Abitolkha, 2022). Potential development is not necessarily directed at a point of academic and non-academic achievement, but also able to have a humane attitude, be responsible, have a work ethic, be honest, and have character. According to Yasa, such integration produces outstanding and compassionate outputs in all aspects; economic, social, and educational (Yasa & Julianto, 2018).

Potential development, conventionally not only concerned with assessing learning outcomes, is closely integrated with the manifesto of talents and passions. Achievement, measured through learning outcomes assessment, is pseudo-and tends to be abandoned after graduation (Fay, 2021). But achievements are explored through the development of potential, developing continuously. In Islam, the development of human potential is juxtaposed with norms and values called morality and character (Sulistiyawati & Supriyanto, 2021). Therefore, Islamic educational institutions prioritize students who live in Islamic boarding schools because they can carry out moral and controlled habituation (Chou, 2020).

With such a hypothesis, the problem of mismanagement of potential causes a crisis of achievement and incompatibility of output that hits Islamic education. So far, the potential in Islamic education is assessed through the numbers listed on the learning outcomes. The concept of learning, curriculum, and objectives of Islamic education is directed at how students can achieve high scores, while talents and potentials derived from fitnah (fadhalah) are allowed to freeze (Khaidir & Suud, 2020). The risk is that you are creating and innovating that students are chastising them. This results in post-learning output and the generations after it adhering to the old-fashioned culture of the Islamic educational institution, occurring continuously and continuously (Mohd Saiful Akmal Karim et al., 2021).

The problem of achievement crisis is caused by teachers' inability to understand students' potential; teachers only focus on indicators of the achievement of teaching materials, so knowledge orientation often needs to pay more attention to aspects of hidden skills of students (Mutmainnah, 2019). This learning model is top-down, where students are given subject matter regardless of their other abilities. Such a learning pattern favors the institution as an object due to assessment-based learning evaluation. Idealism became the main measuring instrument, compared to realism originating from the protégé. It is not only sacrificed academic and non-academic achievements, but moral skills cannot beeloped (Putry, 2019). Non-academic achievement is an honorable achievement, religion, and social reality. Education is also directed at social and spiritual aspects (Limas Dodi, 2022).

Parmini, in his 2001 American study, uncovered important discoveries about academic achievement in Islamic educational institutions. The leading cause is the shackles of creativity and egocentric teachers to apply learning methods. Creativity is related to potential (Parmini, 2020). Meanwhile, potential must be explored through the superego hidden like the protégé. Amin Sudirman,

defines the superego as a part of the human consciousness given by supernatural powers. To dig it out, it must also be touched through constant talent search reactions (Aminin et al., 2018). Such a definition indicates that achievement has a path in the same direction as the superego as a manifestation of human talent and fitness. The inability to reveal the fitrah of students on the superego plain becomes a problem of achievement in education.

In the industrial era 4.0, students' achievements in Islamic education have a promotional value in the form of scientific recognition both to continue to a higher level of education and pursue a career (Burke, 2020). Changes in the curriculum and the direction of industry-based national education have made achievement increasingly find its role as a measure of knowledge and skills of students. Academic and non-academic achievement in the industrial era is a must for students (Jannah Amiratul, 2021). Both educators, education, facilities, and infrastructure are required to walk together to explore the potential and talents of students, and those potentials and talents are developed to produce achievements (Aziz M. S., 2018).

The phenomenon of achievement development is directly proportional to the depiction of academic and non-academic realities in one of the Islamic educational institutions, namely Madrasah Aliyah Negeri (MAN) 2 Malang City. The concept of clustering data mining as a theory applied there made MAN Malang City score a quintrick for winning Indonesia's most National Science Olympiad (OSN) medals. ClasClusteringa mining integrates intellectual, skill, and character education (Loka Andari et al., 2019). All three principles refer to the values of morality. Morality has the meaning of seeing the side of the "good point of view" (paradigm positivism), including positivistic (Susanto, 2021). Meanwhile, claclustering as a special dormitory for developing students' potential is based on Islamic boarding school coaching.

The application of the data mining clustering model that integrates the science and character of students is a new implementation study. Previous research studies on the potential development of students have yet to be found, especially those with clustering data mining. Ari Sulistiawati dan Eko Supriyanto developed the K-means Clustering Algorithm model in mapping student excellence; their findings revealed that learning outcomes were mapped into a database form as documentation for the preparation of extracurricular activities (Sulistiyawati & Supriyanto, 2021). In another aspect, Ida Ayu and I Wayan Darsana offer a Problem-Based Learning (PBL) model as a portfolio of mapping learning outcomes. Still, the mapping results are only used as a database for processing school data (Loka Andari et al., 2019). Nur Fuad and Listiarini (2022) describe implementing the K-Means method for the admission of new students; the K-Means method studied by Nur Fuad is based on raw data, not on talent search (Fuad et al., 2022). Herein lies the significance of this study, where the mapping of talents and potentials is analyzed using data mining clustering based on the integration of science and character implemented in MAN 2 Malang City.

2. METHODS

This research uses a qualitative approach with a type of phenomenology whose data is collected in a descriptive form (Rosyada, 2020). Qualitative data is needed to obtain the breadth of studies in patterns and shapes of implementing clustering data mining to develop students' potential in MAN 2 Malang City. Descriptive is directed at data on mapping and developing potential that integrates science and character as a foundation for the value of developing students' potential. So for data collection, using the independent interview method and participant observation (Sugiyono, 2014). Interviews were conducted with the principal, head of ma'had al-Qalam, and Waka Kesiswaan MAN 2 Malang City. The data obtained are student achievement data, SOPs for new student admissions, school programs, extracurricular activities, teacher achievements in 2020-2023, strategic plan for achievement development. This study uses a data flow model analysis model (Rukajat, 2019). The data analysis has several steps, namely as follows: data reduction, data presentation, and drawing conclusions (John W.

Creswell, 2016). The reduced data is data on the model of developing student achievement starting from the admission of academic and non-academic outstanding students, mapping potential according to SOP MAN 2 Malang, and data on clustering talents or potentials. The setting of this study takes locus in one of the best Islamic education in East Java, namely MAN 2 Malang City, chosen based on the consideration that MAN 2 Malang City is the only school the canto won medals in consecutive science olympiads and also the nuances of learning that are in line with the character of Indonesian education.

3. FINDING AND DISCUSSION

Profile and Achievements of MAN 2 Malang City

Madrasah Aliyah Negeri (MAN) 2 Malang City, the history of its establishment is called PGAN Malan,g which has been running since 1946. The purpose of the establishment of PGAN is to provide competent and professional Islamic teachers in the archipelago. PGAN Malang has produced a lot of human resource output for social stability, such as being a state official, a religious figure to a successful businessman. That is, from birth to development, the embryo of an educational institution with a history of the output of achievements and careers of its graduates is already formed. Even PGAN Malang has been famous in East Java as a school that produces many of the best graduates and can compete nationally and even internationally. In 1992, the Ministry of Religious Affairs issued decree Number 42 regarding the change of school name from PGAN Malang to MAN 3 Malang City, but in 2016 through the Decree of the Minister of Religion (KMA) number 673 of 2016, MAN 3 Malang City was changed to MAN 2 Malang City (Multazam & Irawan, 2022).

The scientific qualifications on which the main focus is understanding the field of Islam as a basis of value and an integrated general scientific field. This can be seen from the school's vision to become a role model for madrasahs as centers of excellence and references for academic and non-academic qualities accompanied by al-karimah's moral behavior. To achieve this vision, MAN 2 Malang City developed a skill development program, including the tahfidz al-Quran program, robotics, laboratories, scouts, and local industries. Such a vision is not just any target; the Ministry of Religion appointed MAN 2 Malang City as one of the leading MAN in Indonesia, which has the potential to become a center for developing academic and non-academic achievements (Mulyaningtyas et al., 2020).

To achieve the dream of being the best and most outstanding aliyah madrasah in Indonesia, MAN 2 Malang City has made extraordinary achievements over the past five years (2017-2022). This achievement has reached 95% of graduates accepted at leading state universities in Indonesia, such as Brawijaya University Malang, ITB Bandung, UGM Yogyakarta, ITS Surabaya, UNAIR Surabaya, UM Malang, UIN Malang, UIN Jakarta, UNDIP Semarang, and UNESA Surabaya. Not only at the national level, but many MAN 2 Malang City graduates are accepted as outstanding graduates in al-Azhar Cairo, Egypt, Japan, Sudan, Australia, and Japan (Widjajanti1, 2020).

The progress of MAN Malang City's achievements is inseparable from the core values held together: honesty, hard work, achievement, and dignity. Honest character is the main value base that fences all madrasa policies. Honesty has three indicators, namely 1) being honest in achievement, that is, the achievement is really from the results of his own knowledge and skills, there is no manipulation or other fraudulent things; 2) honest work, yes all work activities in the classroom and outside the classroom are based on a sense of honesty; 3) honestly do, that is, create honest and transparent work. Hard work is defined as a spirit of doing godly achievements. Hard work has two meanings; 1) the spirit of completing the task; 2) work is based on a right, moral attitude and by Islamic rules. While outstanding, it has four criteria; 1) learning achievement; 2) work performance; 3) life achievements, and 4) achievements of the MAN 2 Malang City institution as a madrasa that carries the jargon of the truly qualifies Madrasah (Widjajanti, 2022).

The Relationship of Potential and Character in Islamic Education

In the concept of Islamic education, man is created with his inherent potential. Every human being, like anything, has indeed been born with the potential (faddhala) to be able to develop and survive. The potential is hidden and requires thought to be known and then developed. Taken alone, man is endowed with reason to be able to think based on science, theory, and science. Muhammad Uthman Najati described man as a unique and perfect being. Have the sense to explore its potential, be given the intellect to analyze and with reason to be a useful being. Because potential is a fitrah, the theme is on the ego principle (deepest), which can only be approached through the science of fitrah (Bukaliya, 2012).

The potential of producing achievements. Wirantasa interprets achievement as a form of a person's success in mastering material knowledge and skills—such indicators of mastery evidenced by recognized results. In the aspect of "recognition", students feel that they continue to excel to get "recognition" of the knowledge and skills they have (Wirantasa, 2017). That way, the first stimulus to build is to build self-character to achieve students' achievements. The theory of learning achievement initiated by John Lowis, as quoted by Kotevsk, states that students' achievement can be measured in three aspects: cognitive, affective, and psychomotor. The mental aspect is divided into six points, namely knowledge, understanding, application, analysis, synthesis, and evaluative. Affective aspects include feelings, interests, attitudes, emotions, or values (Kotevsk, 2017). While psychomotor is related to gestures such as stepping, communicating, walking, behaving, ethics and so on (Dadakhon, 2022). Of the three aspects, fitrah studies are in the position of basic development values as drivers and controls.

More profoundly, Bentri found strong motives that affect learning achievement, divided into internal and external. Internal factors include pent-up interests, motivation,s and talents in physiological and fitrahs. Meanwhile, external factors, including the phenomenon of the family environment, are social in the form of culture and learning infrastructure (Shaik, 2022). The inequality of internal factors affects the attention of external motives. In contrast, external factors have little influence on the performance of internal aspects (Onyema et al., 2019). Thus, internal aspects such as mental conditions, talents, interests, and other elements of fitrah are the primary keys to achieving students' achievements. The fitrah aspect of students becomes the main bridge for increasing the talents and potential of students.

Therefore, the fitrah aspect is the main element that affects students' achievements. The relationship between fitrah and the students' achievements rounded relations, that is, it cannot be separated because of physical and essential unity. Santrock, in Ulinnuha's writings, divides the relationship into three parts (Ulinnuha et al., 2021). First is the motivational relationship. Motivation is defined as a stimulant to provide enthusiasm and optimism, move behavior, strong encouragement, and direction. For example, students who are not enthusiastic about learning are given the motivation to learn, encouraged, encouraged, and directed with all attention to achieve goals. Motivation has two forms; material and immaterial. Material, including pragmatism, is tangible such as reward (reward). Immaterial, in the form of a movement of the soul that burns weak and pessimistic traits (Sujadi, 2019). They were presented with a picture of the future (future), words of wisdom, expediency, honor, and pride.

In self-efficacy theory, motivation is directed at the peak of confidence to obtain the expected result. Beliefs are the basis of the whole basis of thinking, acting and analyzing. In education, confidence manifests in aspects of the individual's ability to understand what should be learned, to do from what is learned and to strive from what is learned. The individual (protégé, read.) can assess, think about, and know what may be gained from knowledge and skills, and at the final stage, is believed to achieve success (Rahmi et al., 2019). Bandara (1986) says that a protégé's self-confidence is a perception of his abilities and skills in order to be able to produce the results achieved through the desired impulse of the soul (Harfiani, 2019). Therefore, self-efficacy, one of the motivation theories, emphasizes the

achievement of achievements through beliefs oriented towards the axioms of success and tangible results.

Second, self-esteem. Recognition of students' abilities, both material and immaterial, is an internal factor that plays a huge role in the achievement of students' achievements. Recognition from superiors to subordinates for abilities and skills can provide multiple motivations to achieve company goals (Fajar Sakti & Alim, 2019). Recognition of self-existence can take the form of internal and external. In the internal aspect is a theory of self-esteem, which is born of self-correction through external impulses (Evita et al., 2019). For example, the self-confidence that arises from students is successfully revealed by the teacher or principal based on the advantages of the students themselves. Sometimes, the protégé is not aware that in him has great potential. Self-esteem, then, gives the perception that the recognition of one's potential is born of oneself, and in the process gives rise to a sense of optimism. Externally, it is called the self-esteem theory, which is self-recognition driven by external experiences. The protégé can feel appreciation for events that occur outside of himself, then generate enthusiasm to move, achieve his goals (Uge et al., 2019). This recognition of existence is the source of self-motivation from within and outside. This perception is supported by Rosberg (1998), who said that the theory of self-esteem needs to be complemented by a combination of internal and external called the self-esteem scale, namely:

> A child who learns requires recognition from the teacher that the child can be smart. Even though the child is having difficulty understanding the lesson conveyed by the teacher. A teacher should not say "stupid child" or "you are different from the others", it makes children feel unappreciated. Teachers must be able to provide a high sense of trust in children, recognize that there is potential, and admit that all children can be successful. Through theories of personality development, the teacher's task is to explore what students are passionate about, and what they like, provide motivation from the existence of students and provide enthusiasm for the possibility that students themselves can develop. The abilities of students from within themselves with abilities from outside themselves are united in one package of motivation. This is a tactical step to reveal the identity and potential of students (Ridwan, 2020).

Third, environmental mastery. Knowledge and direction of life goals are one of the elements of the theory of psychological well-being which assumes that life success can be achieved through mental health coaching which includes affectivity with oneself, having good relationships with others, having creative freedom, mastering the environment, having life goals and growing personally (Nova et al., 2019). The first thing that must grow as a man created by God is the purpose for which it was created. In education, students are touched by the spirit through the statement that human beings are created with thousands of fitrahs to achieve goals. There is a purpose in life in the form of achieving achievements and also a purpose in life in the form of human existence. Each protégé is introduced, directed, and honored to their own purpose in life. From that goal comes the spirit and desire to excel (Anzani et al., 2021). The claim of life purpose with regaboutand contextualization of life goals is achievement ent.

Mapping and Potential Development Using the Data Mining C Method at MAN 2 Malang City

Definitively, a cluster analyzes data groupings based on information in the field, either directly or indirectly. Information can be in the form of valid data or structured observations (In'am & Sutrisno, 2020). The cluster aims to determine the level of ability of each different object to obtain different development patterns according to the level. Generally, the cluster takes assessment scores (Hatzichristou et al., 2020). So that it can be known which objects have similarities and which do not. Later, each object that experiences similarities is collected in a certain group, and object levels are also grouped. Through the cluster method, the object's level of ability, knowledge and skill is known and grouped (Burke, 2020).

Meanwhile, data mining is a process to explore the knowledge of objects through known information. The information is obtained by distraction and pulling databases to extract knowledge

about knowledge discovery databases (KDD) (Motevalli et al., 2020)—data mining function to obtain direct or indirect data-based information to increase knowledge for developers. Thus, data mining, also called pattern recognition, processes object data to uncover hidden potential patterns and produce new knowledge (Edu et al., 2021). From the knowledge of the new data, decisions are then made as improvements in the future.

In knowing students' potential and formulating their development, MAN 2 Malang City uses a data mining clustering analysis method based on the values of Islamic moral characters. With such a motto and pattern, MAN 2 Malang City has succeeded in becoming the madrasa with the most scientific achievements in Indonesia. One big thing that MAN 2 Malang City applies in accepting student achievements until it becomes a matter of pride is mapping and accepting students. MAN 2 Malang City grouped the talents and interests of students in two conditions; when conducting the admission of new students and when drawing up a development program. In detail, the form of grouping the talents and interests of students (clustering) in the form of mapping the students' potential, talents, and passions. Mapping is carried out at each stage of the admission of new learners (PPDB). MAN 2 Malang opens two lanes, achievement and regular. Achievement pathways are academic and non-academic. So far, academic ones such as class champions, science Olympiads, quiz champions, Essay and LKTI competition winners, mathematics and physics Olympiad champions, Arabic and English debate champions, read the Yellow Book (M. Husnan, Interview: 2022)

Tentang pemetaan potensi, bakat dan kegemaran calon siswa melalui jalur prestasi akademik dan non akademik, bisa dilihat pada data dari Waka. Kesiswaan di bawah ini:

Table 1. Mapping the academic achievement of MAN 2 Malang City at PPDB 2021/2022

No.	Name	Academic Achievement	Potential Score
1.	XX	2nd Winner of LKTI at the Regional level	78
2.	XX	3rd Winner of LKTI at the Regional level	70
3.	XX	2nd Winner of the Yellow Book Reading Competition	78
4.	XX	3rd Winner of the Indonesian Debate Competition	75
5.	XX	1st Winner of Arabic Speech	70
6.	XX	1st Winner of Arabic Speech	70
7.	XX	2nd Winner of Arabic Speech	65
8.	XX	3rd Place in Reading Poetry	65
9.	XX	2nd Winner of Poetry Creation	60
10.	XX	2nd place in a physics competition	90
11.	XX	1st Winner of Materimaka competition	95
12.	XX	1st place in the Acceptance competition	95
13.	XX	1st Winner of painting competition	65
14.	XX	1st Winner of an Essay writing competition	75
15.	XX	Read Certificate Yellow Book	70
16.	XX	English Toefl Certificate	85
17.	XX	English Toefl Certificate	85
18.	XX	English Toefl Certificate	85
19.	XX	English Toefl Certificate	85
20.	XX	1st runner-up in robotics	95
21.	XX	1st runner-up in robotics	95
22.	XX	1st Winner of physics competition	95
23.	XX	1st place in mathematics competition	95
24.	XX	1st place in the caricature competition	80
25.	XX	Arabic Toafl Certificate	75

Table 2. Mapping the non-academic achievements of MAN 2 Malang City at PPDB 2021/2022

No.	Nama	Prestasi Akademik	Skor Potensi
1.	XX	Best scout members	80
2.	XX	2nd place in running competition	80
3.	XX	1st Place in Chess Competition	80
4.	XX	1st Place in Chess Competition	80
5.	XX	1st place in Porsema calligraphy competition	70
6.	XX	2nd place in Porsema calligraphy competition	65
7.	XX	2nd place in health science of art competition	90
8.	XX	1st Winner of Kominfo photography competition	75
9.	XX	3rd Place in Pormaba Basket	60
10.	XX	1st winner of the poetry event "The Meaning of Water."	80
11.	XX	1st Winner of review writing competition	80
12.	XX	1st place in poetry with the theme "Rice."	80
13.	XX	National poetry writing events	70
14.	XX	Futsal champion	75
15.	XX	2nd Winner of national dance competition	80
16.	XX	2nd Winner of the folklore festival competition	85
17.	XX	2nd place in pancak silat	80
18.	XX	1st place in traditional running competition	80
19.	XX	1st place in taekwondo district cup	85
20.	XX	2nd place in student and student captions	90
21.	XX	1st place writing Arabic calligraphy	76

From the results of interviews and narrative table data processed above, mapping student potential is obtained through valid data based on certificates. The pattern of admission of students in the achievement path is in the same direction as the clustering pattern based on potential agreement, namely mapping and selecting talents in the same direction as the vision and mission of the company's institution (Widjajanti, 2022). The admission system for new students is based on the awards achieved and is related to academics. Academic achievements are not entirely selected but through the filtering, stage directed at the needs and alignment with the vision and achievements of MAN 2 Malang City. Potencial agreement as a characteristic of human resource recruitment MAN 2 Malang City is exactly the within-cluster pattern initiated by Gudono, which is to take a high score in one understanding (Ulfiandi et al., 2022). Thus, the score determination in the table above is adjusted to the needs and suitability of the school's vision and mission. Thus, The affective concept played out in a regret style by highlighting the side of the need institution.

The submission of the mapping table for academic and non-academic achievements in MAN 2 Malang City above is raw data that still needs to enter the development of potential. That is, the mapping above is only the entrance in the form of acceptance, not on the development of potential that gives birth to prestigious achievements. The development of students' potential is carried out with a data mining-based clustering pattern. Namely, taking the talents and potentials of students by the SOP for the development of MAN 2 Malang achievements, while achievements in the culprits outside the SOP are ignored, but they are given recommendations to continue in schools that are in the same field. (A. Yusianti, Interview: 2022).

Acceptance of achievement pathways, both academic and non-academic, according to the upgrading of MAN 2 Malang City is limited to pre-real knowledge whose validity value is uncertain. This stage by Gamber (2012) in Widjayanti is assumed to be the stage where the institution already knows that the resources recruited have competence but are not necessarily accurate and precise

(Widjajanti1, 2020). Then it is necessary to develop the potential to achieve actual achievements. In addition to Gamber, Tamba also argues that human knowledge is often capricious, uncertain, and dynamic from time to time (Tamba, 2018). So it requires development in all its aspects. Based on this idea, it is natural that MAN 2 Malang City conducts clustering based on data mining to strengthen accuracy for potential development. The following are the stages of data mining-based clastering carried out by MAN 2 Malang City, along with the final stages of depicting each group, namely:

First, data cleaning and integration. Definitively, data cleaning is defined as the inconsistent deletion of old data. Then, data integration is carried out, namely, old data that was cleaned and previously integrated with test results as the initial data processing development (Br Sembiring et al., 2022). The above academic and non-academic achievement data are filtered again by the vision and mission, objectives, and availability of infrastructure. So far, the flagship programs of MAN 2 Malang City are olympic and research programs, world exploration programs, TOEFL participation class programs, and TOEFL and TOAFL test programs. From this excellent program, educators select student talents to be directed and given special programs to develop (M. Husnan, Interview: 2022).

The pattern of data cleaning and integration lies in the "alignment" or "adjustment" between talent and the vision and mission of MAN 2 Malang City. Where talents and potentials are re-finalized through random competence techniques, namely exploring the potential in the classroom by special teachers, both written and oral tests (Dacwanda & Nataliani, 2021). Random competence, according to Betner, takes the form of unstructured interviews that are unknown to students and is based on a written test answering questions in class (Langher et al., 2017). From there, it is known that students are capable of both cognition and psychomotor aspects. After the data cleaning and integration process is carried out, the cluster below appears:

Table 3. Student potential cluster after data cleaning and integration process 2021/2022

Featured Programs	Cluster	Number of Students
Science Olympiad	Mathematics	13
	Physics	3
	Chemistry	4
	Robotic	5
	Astronomy	2
	Economy	3
Language Olympiad	English	6
	Arabic	3
Islamic	Yellow Book	4
	Arabic literature	2
	English literature	2
Sport	Scout	8
	Football	25
	Basketball	18
	Athletic	9
	Taekwondo	11
	Pencak Silat	13
	Rock climbing	5
	Futsal	17
	Badminton	12

The table above shows that the potential of students has been relevant to the superior programs of MAN 2 Malang City as a squeeze of its vision and mission. After going through the unstructured interview tests and questions, students' potential is classicized based on interests, talents, abilities, and skills. This adjustment pattern, according to Aktas, is categorized as a tactical step that unites the sense of the object with the subject through the restarting stage (Aktas & Yurt, 2017). The table can also be analyzed that students' main priority is directed towards the Olympics and Islam, while sports become

extracurricular activities that almost all students participate in. At the same time, the potential lies in the Olympics. This distinguishes the quality of MAN 2 Malang City with its main educational institutions.

Second, is pattern recognition. A pattern of processing old potential to find new potential to produce new potentials and contains futuristic elements, namely the achievement of ideals as an adult and the determination of scientific fields in higher education (Anggraeni et al., 2019). Making the old potential pattern the basis of objective measures, then giving birth to new potentials relevant to the vision and mission and in line with students' ideals, is the strength of pattern recognition as a strategy for potential development. That means the achievements achieved have superior value to the institution and help students achieve their wishes. Engin said that such a pattern is the most realistic and visionary compared to other talent development theories (Engin, 2020).

The priority cluster model, perhaps the right one, is attached to the pattern of potential development in MAN 2 Malang City. After the formation of the cluster, there are mandatory and secondary priorities in other clusters, such as Hakim stated, that the human potential cluster is not stagnant, but is complex but some are favored(Hakim & Syofyan, 2018). Similarly, Lock in Melinda grouping students' talents in schools is authority. That is the output has more value that is favored by all scientific fields. Scientific authority is produced from the squeeze of programs and activities, not on infrastructure(Melinda, 2018). This is what allows MAN 2 Malang City to use the fields of science and mathematics as a superior program.

Third, knowledge presentation. The stage where students' interest is explored and firmly tied is when they can achieve achievements. With this pattern, students who do not achieve achievements with the specified cluster are reanalyzed as new users. The intent of new users is new clusters, new scientific fields, and the transfer of talents to other interests after going through the stage of in-depth evaluation. In general, this process is carried out in semester 2. The assumption is that the scientific field must produce results called achievements. Achievement is a proof of ability and expertise as well as the achievement of learning and fostered results. To ensure the results, MAN 2 Malang conducted an evaluation of the achievement of achievements. Special activities will be carried out if some students are half or not achieved (M. Husnan, Interview: 2022).

Wahyuni judged that evaluation has two forms; periodic and final (Wahyuni & Sugiharta, 2019). MAN 2 Malang City applies an evaluation pattern by measuring reaction and probability, where the achievement of the program is seen from the recognition of competence. In physical-based theory, self-recognition is recognized as multiple motivations, let alone supported by traditions agreed upon by objects. That means changes every time an event (fruitlessness, read.) developed by MAN 2 Malang City leads to effective and innovative patterns to develop students' potential as objects. Thus, the nature of the hierarchy pattern applied in MAN 2 Malang City is an effective development pattern to improve the achievement of students. Especially for the good of their future and the excellence of institutions, more so in the current era of global industry.

4. CONCLUSION

From the research and discussion above, it can be concluded that an important thing, namely mapping and developing potential developed by MAN 2 Malang City juxtaposes elements of cognition, psychomotor and character education. The pattern of potential development is based on science and Islam as the basis for the value of science. The first stage of tracing students' potential is explored through academic and non-academic achievement pathways. The achievement is adjusted to the vision and character of the school depicted in the superior program. After the search for potential has been successfully finalized, the next stage is the development of applied psycho-achievements: 1) cleaning and integration. Preliminary data from potential finalization results are filtered through unstructured

interview test methods and excellent program-based question presentations. This stage produces clusters of science, language, and Islam; 2) pattern recognition. Merit awards evidence clustering based on the school's flagship program. These achievements have a future orientation to students' ideals; 3) knowledge presentation. In the form of periodic evaluations to ensure that students can win achievement medals from cluster activities. Otherwise, students are transferred to other relevant scientific field clusters.

The recommendation from the results of this study is, first, the measurement of the success of students is not seen from the results of learning alone but is evidenced by academic achievements that can support the sustainability of education and careers in the future. Second, the achievement is directed at integrating science, language and Islamic values so that students and the resulting output master competence while having good self-character. Third, the existence of alums needs to be made a relationship group to continue the tradition of achievement.

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