



The influence of school cultural values in improving students' learning achievement in senior high school in Palu city

Sa'ad Sa'ad¹, Sagaf S. Pettalongi¹, Mohamad Idhan¹ and Nurdin Nurdin^{1*}

¹ Department of Islamic Education, Postgraduate studies, State Islamic University of Datokarama Palu, Palu, Central Sulawesi, Indonesia

Correspondence Author: Nurdin Nurdin

Received 5 Feb 2025; Accepted 21 March 2025; Published 1 April 2025

Abstract

This research aims to analyze the role of school cultural values in improving student achievements at senior high schools in Palu City. Schools serve as educational institutions that develop academic abilities and are responsible for shaping students' character through the internalization of positive cultural values. Honesty, discipline, commitment, cooperation, and respect are believed to create a conducive learning environment that supports the learning process. This study employed a qualitative method with a case study approach. Data were collected through in-depth interviews, field observation, and document analysis. The research subjects are two reputable schools which are Senior High School of Al-Azhar and State Islamic Senior of Insan Cendikia Palu. The participants of this study are students, teachers, and school principals. The results of this study show that structured and continuous implementation of cultural values has significantly impacted the academic and non-academic achievement of the schools. In the academic aspect, both schools graduated many students who were accepted by reputable universities in Indonesia, such as the University of Indonesia, the University of Gadjah Mada, the Institute of Technology Bandung, the University of Padjajaran, and the University of Tadulako. Similarly, the schools also experienced high achievement in non-academic aspects such as national and international science Olympics. This study suggests that integrating school cultural values with students' psychological and spiritual needs can be an effective strategy for improving academic and non-academic performance. It is recommended that schools focus on strengthening their cultural values in their education process.

Keywords: School culture, Cultural values, Academic achievement, Non-academic achievement

1. Introduction

The quality of education is greatly influenced by school culture, which plays a role in determining student achievement (MacNeil, L., & Busch, 2009) ^[6]. Research shows a relationship between school culture in the context of educational ontology, which includes basic concepts of systems such as schools and educational structures. School culture reflects the conditions and climate that affect school activities, educator performance, learning processes, and overall educational progress (Renée, 1998) ^[11]. The development of positive school cultural values supports student learning achievement and makes schools more attractive.

School culture has been shown to have a vital role in influencing student learning achievement based on various studies (MacNeil *et al.*, 2009) ^[6]. The learning process carried out face-to-face or at school has a more positive impact on improving student learning achievement. School culture is not only related to the school's physical facilities but also includes all activities that occur in the school environment and involve all elements of the school. School culture is formed through habits that are continuously practiced without pressure and becomes the identity of students by creating a friendly environment, encouraging social awareness, and building trust that positively impacts student academic achievement.

School culture reflects the identity of the school and can be evaluated through various aspects, including input (initial resources), process (activities that occur in the school), and

output (results or achievements achieved by students) (Erickson, 1987) ^[2]. Schools that have a positive culture tend to produce positive outcomes while schools that have a negative culture tend to produce negative outcomes among students and staff. The development of school culture has a major impact on student motivation and development in various aspects. Therefore, a school culture that encourages a positive learning culture can significantly influence student learning outcomes, as documented in a study that showed a positive impact of learning culture on student achievement (DiMaggio, 1982) ^[1].

A number of key aspects in the concept of school culture that have the potential to improve achievement in both academic and non-academic matters involve a supportive environment, teaching quality, parental participation, maintenance of positive norms and values, acceptance of diversity and inclusiveness, formation of a sense of belonging to the school, focus on the learning process, and the implementation of an effective measurement and feedback system to identify areas that need improvement. The principle of a positive and supportive school culture to motivate students to reach their full potential and improve their performance. The findings of the study with a sample of 213 teachers from 26 provinces in Indonesia showed that there was an influence (Hargreaves, 1995), both direct and indirect, of the variables of school culture and work motivation on the variables of student learning achievement and teacher performance.

Everyone, including students, teachers, and parents, has the hope of achieving the highest achievement in education. During the learning process, we can assess the achievement or position of students in the class, whether the student is included in the group of smart, average, or less. Student learning achievement is the main goal in education and is often expressed in the form of symbols, letters, numbers, or sentences as an indicator of the level of success. In the context of Islamic education, learning achievement can also be interpreted as a process of change towards better expectations, and this is part of Allah SWT's plan since the time of the Prophet Muhammad SAW. which is also reflected in QS: Al-A'laq (96).

A positive school culture significantly influences student discipline, especially in more specific matters. The results of a study conducted by Punita Syah at one of Surabaya's public junior high schools showed that the highest value in the school culture indicator was related to the culture of enforcing discipline and obeying the rules, while discipline related to time had a lower value. Discipline is one of the effective factors in the learning process that aims to create an educational environment that supports student achievement. Discipline values are an integral component of school culture that plays an important role in shaping other values in various activities that support student achievement.

Although a number of studies have found a link between school culture and academic achievement, there has not been much research of this kind conducted in Islamic schools. Therefore, this study will examine the impact of school culture on academic and non-academic achievement in an Islamic school environment in the city of Palu, Indonesia. This study aims to provide an understanding to academics and practitioners regarding the relationship between school culture and student academic achievement. This study's results are expected to guide schools in implementing school culture to improve student academic achievement.

2. Literature review

2.1 The concept of school culture

Culture comes from the Sanskrit word "budayah," or "bodhi" which means intellect and everything related to the intellect, in the form of creation, feeling, will, and work (White, 1959) ^[15]. This is reflected in patterns of behavior, thoughts, feelings, and assumptions that are manifested in separate symbols in a group of community civilizations. In English, this term has evolved into "culture," which refers to human power and activity to process and change nature. The concept of school culture has been around since 1932, when an educational sociologist, Willard Waller, stated that every school has its own culture, including a series of rituals, traditions, and moral norms that shape the behavior and relationships of parents who constantly monitor the development of the school and the issues it faces. School culture is the collective attitudes, views, and behaviors of the entire school community (Gubbels, Lisette, Marjolijn, Isabelle, & Bakx, 2025) ^[14]. It is reflected in elements such as unwritten rules and assumptions, which include a combination of rituals, school traditions, symbols and artifacts,

language, and expressions used by all members of the school community. Culture also includes a vision for change and learning to meet needs. It is an organized and integrated expression of the attitudes, views, and behaviors of all students, administrative staff, and all those involved in the school's activities.

From the various definitions above, it can be concluded that school culture refers to ideas, thoughts, beliefs, and myths that reflect the school's vision and mission together to improve achievement. For the principal and teachers, it is an example and role model, while for students, it includes everything they see, hear, feel, and do during the learning process at school. If all schools are likened to a sailing ship and want to be directed to a dream island, then culture is like the wind that moves the sails of the ship, if we ignore it or go against it, we will definitely have difficulties and will not reach the desired destination, however, if we use it to move the sailing ship in the right direction, we will definitely reach the desired destination island. Thus, school culture includes everything that is organized and real in everyday life in the school environment, involving the principal, teachers, education staff, students, and school staff as an integral part of the education process. Culture also reflects the results of institutions' policies, agreements, provisions, and disciplines in providing education to students.

2.2 Academic achievement

Learning achievement is a term that combines two words, namely "achievement" and "learning". In terms of etymology, "achievement" refers to the results that have been achieved from the activities carried out (Zheng, Jiayu, Lu, & Gyasi, 2023) ^[16]. The word "achievement" can also be interpreted as the results obtained thanks to the learning efforts that have been made or achievements that have been completed. Therefore, "achievement" refers to the results obtained from effort and hard work according to plan.

Meanwhile, "learning" refers to a process in which a person experiences changes in their personality by improving the quality of behavior, such as increasing knowledge, skills, thinking, understanding, attitudes and other abilities (Forsgren, 2002) ^[3]. This process is a step towards achieving hopes and ideals in life. Learning is a process that occurs when a person interacts with their environment and experiences relatively permanent changes in behavior as a result of reinforced experience or practice. Learning is an activity or process that aims to gain knowledge, improve skills, improve behavior and attitudes, and strengthen personality. This involves interactions between educators (teachers) and students that are carried out consciously and in a planned manner, both indoors and outdoors, with the aim of improving students' abilities. Therefore, the learning process cannot be separated from the role of teachers who are responsible for teaching. Teachers and students are two very important elements in a school's education.

In general, "learning achievement" can be interpreted as a positive result achieved by students, individually and as a group, after completing the learning process. This achievement

involves measuring students' cognitive, affective, and psychomotor factors after following the learning process. Furthermore, "learning achievement" is also an educational assessment of student's progress in various aspects of knowledge and skills that they acquire after the learning process, which is obtained while at the institution or school, including the experience, knowledge, attitudes, and values that they acquire through exercises during learning.

3. Methodology

This study uses qualitative methods. In qualitative research, the use of theory is only a guide in data gathering and analysis (Nurdin & Pettalongi, 2022; Nurdin, Stockdale, & Scheepers, 2016) ^[8, 10]. The data was collected through direct observation, in-depth interviews, and written document analysis at the research site (Rusli, Hasyim, & Nurdin, 2021; Rusli & Nurdin, 2022) ^[12, 13]. This research was carried out in two reputable schools in Palu city. The schools are Senior High School fo Al-Azhar and State Islamic Senior High School of Insan Cendikia which have graduated may students who have succeed enrolled in several reputable universities in Indonesia.

Data were collected through direct observation, in-depth interviews, and written document analysis. The interviews involved two school principals, five teachers, and twenty students. The interviews were recorded and transcribed. The results of the transcripts were consulted with the participants to obtain their consent (Nurdin, Scheepers, & Stockdale, 2022; Nurdin, Stockdale, & Scheepers, 2014) ^[8, 9]. The data analysis technique used a deductive thinking technique, which can be interpreted as a research procedure that produces deductive data from the interviews and field notes. Data analysis was conducted using thematic analysis from Strauss and Corbin (1998) ^[14]. The analysis started with open, axial, and selective coding. The final result of the data analysis is themes found from the data.

4. Results and Discussion

4.1 Strategy implementation of school culture

The instillation of school cultural values in both schools includes moral, social, and academic aspects. The aim is to shape students into religious, high-achieving, and noble individuals. School cultural values are implemented through daily activities, school rules, and self-development programs.

4.1.1 Religious values

A religious attitude helps students have calm, focus, and mental strength in facing learning challenges. Routines such as praying before starting activities, reading verses from the Koran every morning at 06.45 followed by listening to the translation, and holding Zuhur and Asr prayers in congregation at the school mosque have become part of the student's daily culture. Apart from that, the commemoration of Islamic holidays such as Islamic holidays, the Prophet's birthday and Isra Mi'raj are also held in an effort to strengthen religious values. The principal of Al-Azhar Mandiri High School emphasized the importance of getting into the habit of praying with Tawassul, including reading the Al-Fatihah letter for

Aulia and ulama as a form of appreciation, blessing, and ease in all things. Students are also used to saying hello, kissing the teacher's hand, and praying for each other, especially at certain moments such as the release of students who will take part in competitions. This creates emotional closeness between students, teachers, and mentors.

Every morning, the activity begins with officers reading the Quran through a loudspeaker, which can be heard in each class. Students follow and listen to the translation of the verses, then end with a prayer together, which begins with the tawassul of previous teachers, remembering this school as the porch of Al-khairat. Every day all students pray Dhuhur and Asr in congregation at the school mosque before going home, except for Friday prayers. Students pray on Friday at the nearest mosque around the school. Students are also accustomed to saying hello and kissing the teacher's hand; when they are about to leave for the competition, they are usually released ceremonially and prayed for by the teachers; that is the touching and proud moment, the closeness of the students with the teachers and mentors is very much felt.

4.1.2 Honesty Values

The implementation of co-curricular and extracurricular activities also supports the development of student character, including honesty. In co-curricular activities such as homework and laboratory practice, students are encouraged to be responsible and honest in completing assignments. Meanwhile, extracurricular activities, such as sports and religious activities, instill the value of honesty through direct practice in everyday life.

The vice principal added that every subject in the school integrates character values, including honesty, into the learning process. This is implemented by including character values in the syllabus, lesson plan, and learning process. School discipline is also emphasized to support the value of honesty. For example, during class hours, students are not allowed to leave the school area except for study purposes, such as buying stationery. When students are allowed to go outside, they are expected to be honest by only buying items that are needed for study. All students uphold the value of honesty by completing assignments and exams on their own, which not only improves their understanding of the material but also gives deep meaning to the achievements they have made. Several rules in both schools underlie the instillation of honesty values, including the principle that the results of their achievements are proportional to their learning efforts, the prohibition of the practice of 'washing report cards,' and the obligation to leave school only for relevant purposes.

4.1.3 Tolerance values

The value of tolerance is an inseparable part of the school culture, implemented through various daily activities and interactions. The school strives to create an environment that respects differences in terms of religion, culture, and individual views. This school is not only Islamic-based but also has students from other religious backgrounds, such as Catholic, Protestant, and Hindu. This shows the school's success in

building students' awareness of the importance of living side by side in harmony despite different beliefs.

The value of tolerance is integrated into the curriculum, especially through the subjects of Civics and Religious Education. Students are taught to appreciate cultural and religious differences and to develop an attitude of mutual respect. During their time at school, there has never been any conflict between students due to religious differences. All students are treated equally in terms of social discipline, without any discrimination. This tolerant attitude also makes students better able to work together in groups when working on projects and in extracurricular activities. Learning from differences can broaden their understanding and experience and improve their achievements. The value of tolerance applied in the habituation of attitudes and views during learning plays a vital role in creating a conducive environment and supporting optimal achievement.

4.1.4 Discipline values

In both schools, discipline is implemented through strict rules regarding school entry and exit times. Students who are late will receive sanctions in the form of coaching to train their time management skills. According to the principal, discipline implementation begins with filling out the school rules agreement format, followed by an annual meeting involving parents, students, school committee, teachers, principal, and foundation chairman before the School Environment Introduction Period (MPLS). In this meeting, parents symbolically hand over their children to be educated at school. As a form of discipline enforcement, students who are not in class during learning hours will be given sanctions, while canteen managers who violate the rules will be dismissed. The vice principal for curriculum explained that the foundation designed the disciplinary rules based on experience and conditions in the field. These rules cover all educational activities, both extracurricular and co-curricular, and apply both inside and outside the school environment.

Overall, discipline in both schools has helped students build consistency in learning and complete assignments on time. The rules set begin with socialization, followed by the application of fair and educational sanctions. These sanctions aim to provide a deterrent effect, are effective, and benefit student development.

4.1.5 Environmental values

Environmental awareness teaches students the importance of responsibility and order, which in turn influences their learning habits. A clean and comfortable school environment supports a more optimal teaching and learning process. Environmental awareness values are instilled through various educational activities that emphasize the importance of protecting and preserving the environment. One of the main activities is the school's participation in the Adiwiyata program, which aims to create a clean, green, and beautiful school environment. In this program, students are involved in tree planting, waste management, and gardening activities. Students' active involvement increases their environmental awareness and

motivates them to participate in environmental-themed competitions.

At the beginning of each school year, the school holds an introductory activity for new students that aims to introduce them to the school environment and emphasize the importance of maintaining its cleanliness. Through this activity, students are invited to understand their role in maintaining the beauty and cleanliness of the school, thus creating a conducive learning atmosphere and supporting academic achievement. In addition, the student's responsibility is to clean the classroom. For example, teachers often ask students to clean up any remaining trash before lessons begin. Outside the school, there are special officers who maintain the cleanliness of the corridors. Students are also involved in activities to clean the school environment, plant trees, and clean the surrounding area, further increasing students' sense of responsibility for the environment. Both schools strive to instill environmental values in students through these various programs and activities. These values are not only applied in the school environment but are also expected to shape students into individuals who are responsible for environmental sustainability.

4.2 Internal factors influence on students achievement

4.2.1 Learning motivation

Students interested in a particular subject tend to be more enthusiastic and understand the material easily, so their achievements increase. Both schools focus on science, where all students are interested in learning in this field. Of the more than 500 applicants in 2024, only 200 were accepted, indicating that those who passed had a high interest in learning. Achievements in both schools were obtained through real effort with no tolerance for "report card washing". Grades are entirely based on student attendance and effort, as recorded in the Ministry of Education's Education Information System. Students who are absent or do not study enough will get low grades, while those who study consistently will achieve satisfactory results.

Extracurricular activities in both schools, such as Basketball, Volleyball, Futsal, and Badminton, have played an important role in developing students' interests and talents. Sports and arts competitions are also a source of additional motivation. Students who participate in the Olympiad receive intensive guidance from teachers. The closeness between teachers and students is very pronounced, especially when students say goodbye to participate in the competition, where teachers and the foundation provide full support. Students who are confident in their abilities are more motivated to try hard and face challenges, which positively impacts their achievements. In the independent curriculum, learning focuses on students so that teachers can accommodate their interests through work and content. Students' talents are also developed through guidance and activities such as sports, arts, IT, Arabic, English classes, and Tahfizh Al-Qur'an. When students' interests and talents are accommodated, students' self-confidence increases.

4.2.2 Intelligent

Extracurricular activities in both schools are not only aimed at improving academic intelligence but also developing students' intelligence holistically, including cognitive, emotional, social, and physical aspects for example sports not only improve kinesthetic intelligence but also support teamwork, discipline, and physical health, which have an impact on concentration and academic performance. Activities such as debates also encourage the development of linguistic intelligence, critical thinking skills, analysis, and communication. One of my proudest achievements is the success of the English debate team in winning first place in 2023 at Ahmad Dahlan University Yogyakarta. Cognitive ability plays a vital role in understanding lesson metrics. Both schools select students through exams that cover Science and English materials, showing the importance of intellectual intelligence as the principal capital. Teacher selection is also carried out strictly to ensure the quality of learning.

The ability to manage emotions, especially when facing competition or exam pressure, is very important for student success. The school provides special guidance for competition preparation, supported by psychological consultation to help students manage stress. A comfortable learning environment and motivation from teachers help students stay focused and productive. The ability to interact with others is an important aspect of learning. Students who have social intelligence find it easier to work together in groups and discuss, which supports academic achievement. Research shows a significant relationship between social intelligence and academic success. Thinking creatively and finding innovative solutions is an added value in learning. Both schools encourage problem-based learning and projects to hone students' creativity. Regular monitoring and evaluation of learning ensure that this method runs well.

4.2.3 Cognition

Cognition is a crucial aspect that affects student achievement, involving mental processes such as perception, memory, thinking, and problem-solving. Research shows that students' talents and cognitive abilities play a major role in academic achievement. Based on cognitive load theory, students with higher cognitive abilities can manage the learning load better, thereby increasing learning effectiveness and academic outcomes. The ability to remember information that has been learned is an important factor in supporting achievement. SMA Al-Azhar Mandiri Palu pays special attention to developing students' talents and interests through extracurricular activities, such as Tahfiz, Arabic, and art classes. Repetition-based learning methods are applied to strengthen students' memory. In addition, additional tutoring programs outside of class hours, such as mathematics, social studies, and language, aim to improve conceptual understanding, problem-solving skills, and exam preparation.

The Project-Based Learning approach is also a focus in this school because it has been proven to improve student understanding. In this approach, students are given long-term projects that encourage them to conduct research, plan, and implement solutions to real problems. For example, in biology

class, students work on a project to overcome air pollution in a school located on the side of a highway. This project involves discussion, planning, and direct implementation so that students can connect theory with practice. Another important cognitive factor is the ability of students to maintain concentration during learning. The comfortable and disciplined learning environment applied in both schools has supported students to stay focused. The relationship between a conducive environment and concentration in learning shows the success of the school in creating a supportive learning atmosphere. Thus, both schools have succeeded in developing students' cognitive abilities through various effective learning approaches, additional programs, and adequate facilities. A disciplined and conducive school environment supports the achievement of the school's vision, namely "Smart with Morals".

4.2.4 Metacognition

Metacognition is the ability of students to understand their cognitive potential, including recognizing strengths and weaknesses and determining effective strategies to overcome weaknesses and develop their talents and interests. At SMA AL-Azhar Mandiri Palu, teachers conduct surveys at the beginning of learning activities through Google Forms to understand students' motivation and learning styles, such as visual, kinesthetic, or auditory. This initial assessment helps teachers adjust their learning approaches, which is essential for increasing students' learning motivation.

Education in both schools focuses on science, in accordance with the target achievement to be achieved, namely the science olympiad competition. Education is carried out systematically with three main components: Input, namely the purpose of education, namely having clear goals, adequate facilities and infrastructure, and having high dedication from all parties; Process, namely involving competent educators and principals with strategic roles; and Output, namely achievements resulting from the learning process. In line with this, the principal emphasized the importance of focusing education on the goals to be achieved. For example, challenges arise when schools receive operational funds that are used for sports and Science, the inconsistency of these areas becomes an obstacle because it does not support the main areas that are the school's strengths.

4.2.5 Interest and talent

High interest in certain subjects and natural talent in certain fields can drive student learning achievement. Although the focus of learning in both schools is Science, the school still provides space for students to develop their interests and talents, including those they already had before entering this school. Various interest and talent groups are managed by the school, such as Arabic, Al-Quran memorization, sports, and arts. In line with the implementation of the independent curriculum.

This school is open to students interested in various fields such as arts, sports, and languages or memorizing the Qur'an, by providing special classes such as Language, Tahfiz, and arts.

The goal is to allow students to achieve, both academic and non-academic. Interesting activities such as PMR, Paskibra,

Journalism, photography, dance, and foreign languages are also provided to develop their talents and interests.

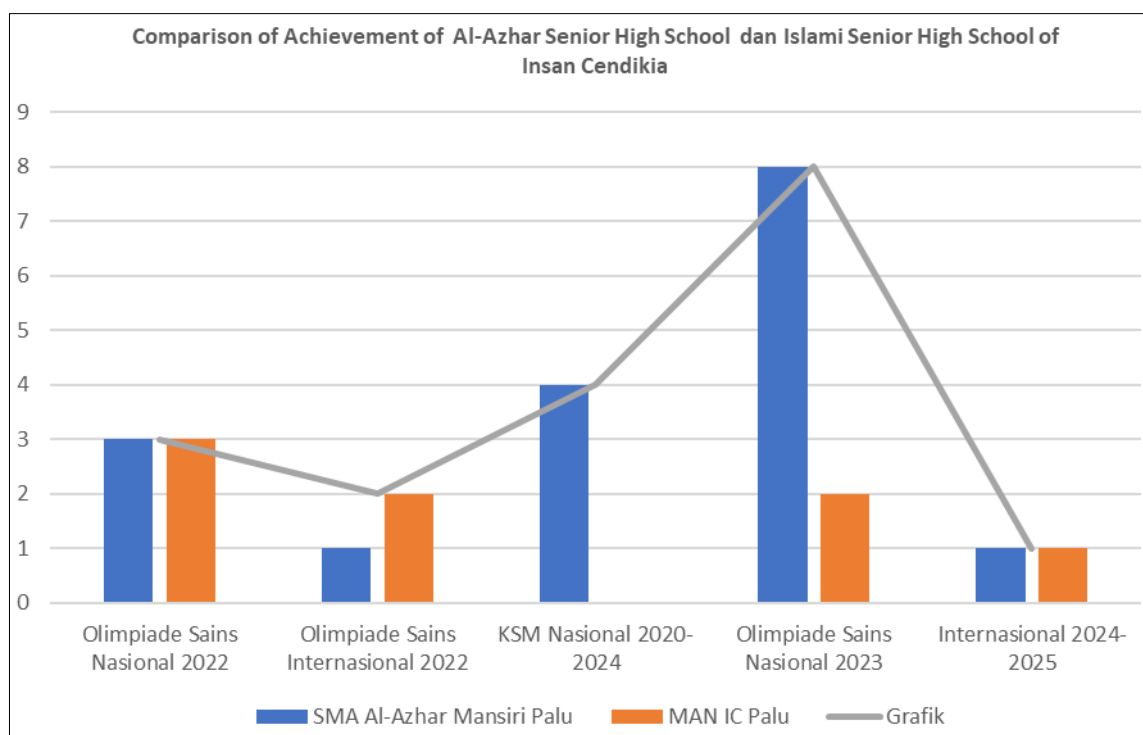


Fig 1: Comparison of academic and non-academic achievement

Graph 1 above shows the trend of achievement in both schools has increased significantly in medal acquisition at the national level (2022: 2 medals, 2023: 4 gold medals). Students show achievements at the international level as evidence of global capacity development. Driving factors: first, focus on science and expansion into the humanities. Second, there is support for international competitions. Then, the trend of achievement also shows consistency in the field of integrated Science and research. Research festivity is one of the leading ones at the national level. Driving factors include support for scientific research and integration programs for religious education and science.

Visualization of comparative data from Figure 1 also shows achievement between Al-Azhar senior high school and Insan Cendikia high school based on the number of medals won in various competition categories. Al-Azhar high school is superior in the quantity of medals won, especially in the national science Olympiad category. Meanwhile, Insan Cendikia school shows excellence in scientific fields, such as Research and innovation and scientific work.

5. Conclusion

Relationship between Instilling School Cultural Values and Student Achievement. Based on Schein's theory, it is proven that there is a significant relationship between school culture and student achievement, which has an influence on fulfilling students' psychological needs, as well as a correlation between school culture and achievement. Based on the findings using the Bloom Taxonomy approach, SMA Al-Azhar Mandiri Palu is more religious because spiritual values are more widely

applied in everyday life. MAN IC Palu is more academic and disciplined in its learning structure.

The results of the t-test show that SMA Al-Azhar Mandiri Palu excels academically. Still, in 2023, MAN IC Palu was able to approach the achievements of SMA Al-Azhar, indicating that cultural factors also influence academic improvement. SMA Al-Azhar Mandiri Palu has a higher average score in the final exam, especially in 2022 and 2024. MAN IC Palu showed academic improvement in 2023, which shows the effectiveness of the Education program and school culture implemented. The habituation of academic culture, such as discipline, teaching methods, and students' internal motivation, plays a role in this achievement.

References

1. DiMaggio P. Cultural capital and school success: the impact of status culture participation on the grades of U.S. high school students. *Am Sociol Rev.* 1982;47(2):189–201. DOI:10.2307/2094962
2. Erickson F. Conceptions of school culture: an overview. *Educ Adm Q.* 1987;23(4):11–24. doi:10.1177/0013161x87023004003
3. Forsgren M. The concept of learning in the Uppsala internationalization process model: a critical review. *Int Bus Rev.* 2002;11(3):257–77. doi:10.1016/S0969-5931(01)00060-9
4. Gubbels J, Hornstra L, Van Weerdenburg I, Diepstraten M, Bakx AWEA. Educational professionals' attitudes, self-efficacy, and classroom practices toward high-ability students: the role of collaborative school culture and

- schools' collective efficacy. *Roeper Rev.* 2025;47(1):32–46. doi:10.1080/02783193.2024.2420362
5. Hargreaves DH. School culture, school effectiveness and school improvement. *Sch Eff Sch Improv.* 1995;6(1):23–46. doi:10.1080/0924345950060102
 6. MacNeil AJ, Prater DL, Busch S. The effects of school culture and climate on student achievement. *Int J Leadersh Educ.* 2009;12(1):73–84. doi:10.1080/13603120701576241
 7. Nurdin N, Pettalongi SS. Menggunakan paradigma studi kasus kualitatif interpretatif online dan offline untuk memahami efektivitas penerapan e-procurement. *Coopetition: J Ilm Manaj.* 2022;13(2):155–68.
 8. Nurdin N, Scheepers H, Stockdale R. A social system for sustainable local e-government. *J Syst Inf Technol.* 2022;24(1):1–31. doi:10.1108/JSIT-10-2019-0214
 9. Nurdin N, Stockdale R, Scheepers H. Coordination and cooperation in e-government: an Indonesian local e-government case. *Electron J Inf Syst Dev Ctries.* 2014;61(3):1–21.
 10. Nurdin N, Stockdale R, Scheepers H. Influence of organizational factors in the sustainability of e-government: a case study of local e-government in Indonesia. In: Sodhi IS, editor. *Trends, Prospects, and Challenges in Asian E-Governance.* Hershey (PA): IGI Global, 2016, p281–323.
 11. Smith-Maddox R. Defining culture as a dimension of academic achievement: implications for culturally responsive curriculum, instruction, and assessment. *J Negro Educ.* 1998;67(3):302–17. doi:10.2307/2668198
 12. Rusli R, Hasyim MS, Nurdin N. A new Islamic knowledge production and fatwa rulings: how Indonesia's young Muslim scholars interact with online sources. *J Indones Islam.* 2021;14(2):499–518.
 13. Rusli R, Nurdin N. Understanding Indonesia millennia ulama online knowledge acquisition and use in daily fatwa making habits. *Educ Inf Technol.* 2022;27(3):4117–40. doi:10.1007/s10639-021-10779-7
 14. Strauss A, Corbin JM. *Basics of qualitative research: grounded theory procedures and techniques.* 2nd ed. California (USA): Sage Publications, Inc., 1998.
 15. White LA. The concept of culture. *Am Anthropol.* 1959;61(2):227–51.
 16. Zheng L, Niu J, Zhong L, Gyasi JF. The effectiveness of artificial intelligence on learning achievement and learning perception: a meta-analysis. *Interact Learn Environ.* 2023;31(9):5650–64. doi:10.1080/10494820.2021.2015693.