Digital-Based Leadership Potential Searching to Improve the Quality of Learning

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Abstract. The research objective is to explore the potential for digital-based leadership and mentoring the potential for sustainable leadership. The researcher used a development research design with a total survey sample of 738 students as respondents in the first phase of the research. In the survey data collection, the researcher used a closed questionnaire with a total of 22 questions about leadership potential. The results obtained can be explored more deeply in this article. Models/prototypes based on indicators of leadership potential have been formed. This model can be followed up in the form of mentoring activities in the form of involving students in the training process, suggestions for participating in leadership extracurricular activities, participating in school leadership clubs, forming student leadership organizations, and no less important, namely through the learning process in the classroom through the cooperative learning method.

Keywords: Leadership Potential · Digital-Based Leadership · Mentoring Sustainable

1   Introduction

Leadership is a rare item to be practiced in high school education, although there may be various tiered training and organizational structures, but they are not well designed. Impressed only to abort extracurricular obligations or extracurricular complements. Efforts to provide theoretical and practical leadership skills can be seen in various research results, such as Mahuda & Huda (2021) through basic student leadership training, state defense and maritime affairs in improving leadership abilities (Aini, 2020), basic student leadership training (Mu'min et al. 2021), and the formation of leadership character through scouting activities (Ariyanti & Himsyah, 2021).

The results of these studies do not make the search for leadership potential the basis for conducting various leadership training activities for high school students. Whereas knowing the leadership potential in individuals is an important element for self-development, Pflug (2022) to find a person's leadership granite, requires a leadership foundation that needs to be nurtured from an early age. In time, leadership by Maxwell (2014) is said to be mastering the art of asking questions, using them to learn

and grow, connecting with people, challenging themselves, improving their teams, and developing better ideas.

Preparing a well-designed leadership foundation at the high school level, provides the possibility for the growth and development of student leadership potential. For student organizations, for example OSIS, PMR, and Scouts, Christina's findings (2020) mention that it is difficult for students with awareness to be involved in such organizations. Their reasons are the same as not supported by grades as achievements, in the end they choose only the new classes. The upper classes are usually ignorant.

In fact, the benefits of training leadership from an early age are a positive personal capacity capital. Various benefits can be obtained through digital-based search for leadership potential and mentoring students' sustainable leadership potential, Gahan et al., (2021) call it contributing to innovation-related abilities, Hayward (2011) states it helps raise their profile and ensures sustainable investment in leadership development in their organization.

So far, leadership at the high school level has been fostered through the OSIS OSIS, PMR, and Scouts. In addition, organizations have been created to accommodate interests in art, sports, religion, and hobbies. All these activities and forums are managed in school student management. Kurniawati (2014) explains that the coaching and development of student management has an important role in improving student achievement because it is not only a talent, interest, and ability but as a reference. Coaching is done through a process. OSIS is a place to accommodate the creative aspirations of students.

The standard of living and competition that continues to change due to the development of science, technology, and the transformation of society, should be the driving force to equip each individual high school student with leadership skills. Education 4.0 must be framed to support learning management, which must respond to changes in the social and economic environment to meet human resource needs. Göker (2019) states that giving students the opportunity to self-evaluate their learning practices makes them rethink their actual learning practices. Provides an overview of the available evidence and theoretical approaches in relation to forms of student leadership and includes a review of the evidence that enables student leadership and barriers to student leadership.

Bean (2021) argues that a 21st century learning framework organizes learning around student outcomes in core subjects and 21st century themes; Learning and innovation skills; information, media, and technology skills; and life and career skills. Based on the description above, the researcher is very interested in conducting development research on tracking digital-based leadership potential and mentoring the sustainable leadership potential of SMA Laboratory students, State University of Malang.

2   Methods

Research and development steps, carried out based on Borg & Gall (2003). Research and information collecting, carried out a literature study related to the search for digital-based leadership potential and mentoring students' sustainable leadership potential and preparation for creating a research framework. This step planning formulates skills and expertise related to digital-based leadership potential tracking and mentoring students' sustainable leadership potential, determining the goals to be achieved at each stage,

and conducting a limited feasibility study. Develop preliminary form of product, which is developing the initial form of the product. This step is in the form of preparing supporting components, preparing guidelines and manuals, and evaluating the feasibility of supporting tools. Preliminary field testing, which is conducting initial field trials on a limited scale by involving. Main product revision, namely making improvements to the initial product produced based on the results of the initial trial. Main field testing, the main test involving the subject.

Operational product revision, namely making improvements to the results of a wider trial, so that the product is already an operational model design that is ready to be validated. Operational field testing, step validation test of the operational model that has been generated. Final product revision, namely making final improvements to the developed model in order to produce a final product. Dissemination and implementation, steps to disseminate teacher distribution management products. This step data collection is done by means of interviews, observations, and questionnaires.

The research procedure consists of the following steps: (1) conducting a needs analysis, (2) identifying the desired model, (3) developing an initial model (hypothetical model), (4) conducting expert testing, (5) conducting a scale trial small (test using the model), and (6) conduct a field trial (test the application of the model) using experimental research.

The data analysis techniques used are: (1) To process the prototype and product development data, a description analysis technique is used in the form of the Aiken index; (2) Analysis of instrument validity data, used to retrieve data used descriptive analysis techniques in the form of the Aiken index; (3) Analysis of the practicality of the system data, carried out from the results of the observer's assessment of the activities in simulations and field tests, using descriptive analysis techniques in the form of percentages; and (4) Product effectiveness data analysis, to find out, field trials were carried out. Data obtained through the instrument. The analysis used is descriptive analysis related to leadership potential that is being explored.

3 Results and Discussion

Calculation of the content validity of the items of the digital-based leadership potential tracking instrument and mentoring potential using the Aiken formula can be seen in Table 1 and Table 2.

Furthermore, the calculation of the validity of the overall questionnaire can be seen in Table 2.

Aiken (1980) has a content validity coefficient of 25 (twenty five) or more as a rater with 5 (five) categories of answers. If the value of V < 0.4 then the validity is low; if V 0.4–0.8 moderate validity; if the value of V is above 0.8 then the validity is high.

The results of the calculation show that all the content validity of each instrument item or the entire instrument is obtained more than 0.4 less than 0.8 so that all items of the digital-based leadership potential tracking instrument and mentoring potential using the Aiken formula have met the validity criteria with the "moderate" category. "The average validity value is 0.512.

In addition to meeting the validity requirements, a good instrument must also meet the reliability requirements. The instrument is said to be reliable if it has a high consistency

Table 1. Results of Analysis of the Instrument Aiken Index for Each Item

	S1	S2	S3	S4	N (c−1)	Nilai Validitas	Validitas
Butir 1	0	3	0	1	2952	0,266599	Valid
Butir 2	0	0	2	1	2952	0,411247	Valid
Butir 3	4	4	4	4	2952	0,609417	Valid
Butir 4	2	4	4	4	2952	0,606707	Valid
Butir 5	3	0	0	0	2952	0,110434	Valid
Butir 6	0	0	0	0	2952	0,054201	Valid
Butir 7	3	3	2	2	2952	0,587737	Valid
Butir 8	1	4	0	4	2952	0,746612	Valid
Butir 9	3	1	4	0	2952	0,479675	Valid
Butir 10	3	2	3	1	2952	0,536247	Valid
Butir 11	2	4	4	4	2952	0,700203	Valid
Butir 12	2	4	4	4	2952	0,509146	Valid
Butir 13	4	4	4	1	2952	0,679201	Valid
Butir 14	1	4	4	4	2952	0,697154	Valid
Butir 15	3	4	2	2	2952	0,664973	Valid
Butir 16	3	4	2	2	2952	0,667344	Valid
Butir 17	3	4	4	4	2952	0,749661	Valid
Butir 18	2	2	0	1	2952	0,228659	Valid
Butir 19	1	0	2	4	2952	0,282859	Valid
Butir 20	0	0	1	4	2952	0,25	Valid
Butir 21	4	4	4	3	2952	0,789295	Valid
Butir 22	4	3	3	3	2952	0,641599	Valid

Table 2. Analysis Results of Aiken Instruments Index

	S1	S2	S3	S4	S5	Nilai Validitas	Validitas Instrumen
Butir 1–22	48	58	53	53	43	0,512226	Valid

value. In this study, the data reliability was tested using an internal consistency approach, because data collection was only taken once without repetition and did not require two forms of instruments.

The results of calculations using Cronbach's Alpha formula in this research questionnaire are obtained as Table 3.

Table 3. Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
0,730	22

Table 4. Summary of Analysis Results Description

Indikator	N	SKOR	MEAN	TCR	Categori
Analytical Skills	738	8543	2,315176	57,87940379	Low
Learning Agility	738	4435	1,201897	40,06323397	Very low
Drive	738	7418	2,010298	67,00993677	Currently
Emergent Leadership	738	18945	5,134146	73,34494774	Currently
Social Skills	738	10162	2,75393	55,07859079	Low
MEAN	738	49503	2,683089	60,979305	Low
			3		

The results of the calculations in Table 3 can be analyzed through interpretation according to Wiratna (2014), where the questionnaire is said to be reliable if Cronbach's Alpha value is >0.6. While the Cronbach Alpha value was obtained at 0.730. So it can be concluded that the research instrument used by the researcher is reliable because 0.730 > 0.6.

The results of the study obtained from the distribution of questionnaires conducted by researchers are depicted in Table 4. In general, the average level of achievement of respondents in this case is the search for the leadership potential of students in the "low" category, which is around 60.97%.

Meanwhile, the respondent's level of achievement in each indicator that reflects the gradation/level of their respective leadership potential in sequence starting from the lowest achievement of leadership potential to the highest achievement in students, namely the indicator of student learning agility is 40.06%.

With the category of "very low"; followed by the skills of students by 55.07% in the "low" category; and furthermore, the skills of students in analyzing are 57.87% in the "low" category; increased again on the drive indicator in students, which is related to their efforts and success in a particular business by 67.009% with the "medium" category; and the greatest indicator of leadership potential is in the students of SMA Laboratorium UM which is related to emergent leadership or the ability to recognize one's own weaknesses and strengths associated with accepting ideas, ideas, and suggestions from others with an achievement of 73.34% being in the category "currently".

If the results of the analysis are described sequentially by the magnitude of their potential search, a digital-based model or prototype of the leadership potential of students will be formed starting from the smallest potential to the largest leadership potential
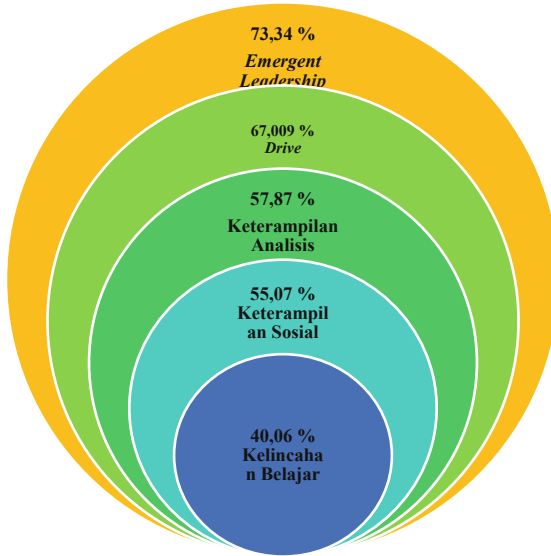
Fig. 1. Model or Prototype of Digital-Based

which can then be used as a foothold/basis for conducting sustainable leadership mentoring. The researcher describes the model or prototype of the digital-based leadership potential as shown in Fig. 1.

If it is described in more depth, the model/prototype in more detail can be ordered by the components of its leadership potential through the proposed sub-indicators. The sequence and details of the indicators and sub-indicators of leadership potential can then be used as material for the preparation of sustainable leadership mentoring targeted at high school students. Because the initial research data can be accounted for related to the model/prototype formed.

Starting from Fig. 1 and Fig. 2, the researcher believes that leadership, apart from being a product given since birth to each individual, is also something that can be learned and developed through a series of concepts and learning from any symptoms that arise based on individual experiences as well as groups. This is in line with the explanation from Aymoldanovna, et al. (2015) which states that "the effectiveness of leadership development of students depends on the integrity, complex psychological and pedagogical conditions as integral aggregate consisting of specially organized activities of the student government, providing students stay in a leadership role, the development priorities of leadership qualities". It is interpreted that the effectiveness of student leadership development depends on integrity, complex psychological and pedagogical conditions as part of organized student activities, assigning leadership roles and making quality-based leadership development a priority through activities stemmed from within the institution.

The analysis implies that the leadership that is manifested from the potential leadership attitudes of students can be learned and taught through formal and non-formal educational institutions. Researchers explore what aspects can be used as models for developing student leadership potential with successive results, namely indicators of

student learning agility of 40.06% with the "very low" category; followed by the skills of students by 55.07% in the "low" category; and furthermore, the skills of students in analyzing are 57.87% in the "low" category; increased again on the drive indicator in students, which is related to their efforts and success in a particular business by 67.009% with the "medium" category; and the greatest indicator of leadership potential is in the students which is related to emergent leadership or the ability to recognize one's own weaknesses and strengths associated with accepting ideas, ideas, and suggestions from others with an achievement of 73.34% being in the category "currently".

The main highlight that can be used as reinforcement in the research objectives achieved by researchers is that leadership can be learned and taught. Likewise, the opinion conveyed by Channing (2018), the majority of participants, 86.36%, reported that leadership can be taught and only 3.79% of participants indicated that leadership cannot be taught and is considered a skill. The implementation of leadership learning can be carried out through formal education, workshops, participation in a program, the achievement of certain degrees, and special guidance from experienced leaders, as well as sharing leadership experiences among students as an illustration in the field based on their respective opinions. At this conclusion, it is also stated that human relations and communication skills are an important emphasis for leaders and are of particular concern for prospective leaders to be learned.

Another important aspect that is in line with the results of this study to be learned and taught is that the leader/teacher must be directly involved in the process through a series of self-reflection learning by recognizing weaknesses, knowing one's strengths, proceeding to receive and use feedback or ideas and suggestions from others. Others, as well the process of being able to accept and admit one's faults. This opinion is a reflection of the model/prototype on emergent leadership indicators with data acquisition of 73.34% of the total respondents.

In addition to this concept, another thing that is possible to be carried out on an ongoing basis after the formation of this development model is the form of mentoring. The results of research from Alimbekova (2016) stated that in order to develop the leadership potential of students it is necessary to have pedagogical assistance from a professional (teacher) and it is also manifested in extracurricular activities, school leadership clubs/student organizations that are specifically guided and guided in the context of develop this leadership potential. Hess (2007) also issued a similar opinion where efforts to improve student management actions and leadership skills are generally based on behavioral modeling and experiential learning.

Petre (2020) also explains that the skills in the 21st century that are good to develop are leadership skills. The development of leadership skills to students can be implemented through cooperative learning methods in classes, where students work in groups, the teacher becomes a facilitator, and assigns a role to each student, then positive results regarding the development of leadership skills will appear and be seen. The practice of implementing leadership develops along with the times and technological advances. Likewise, the leadership potential that exists in students also undergoes changes to adapt to the previous generation coupled with the culture/environment that is being experienced at that time. The era of rapid development of all aspects today encourages researchers to contribute to seeing the gaps/potential for student leadership in terms of digital aspects.

Kiber (in Cahyono, 2022) provides 7 (seven) tips for managing today's millennial generation which can also be directed into tips for managing student potential, namely (1) creating a work environment in accordance with what the millennial generation wants today, which involves technology and given a little freedom in making decisions; (2) increasing forms of appreciation and recognition; (3) adapting the training style to the learning style of the millennial generation; (4) based on the principle of collaboration as a result of listening to the instructions given; (5) minimization of micromanage; (6) provide employees or students as participants in the development of a job that has a big goal; (7) involve technological sophistication that today is progressing so rapidly.

It is concluded that a model/prototype based on indicators of leadership potential has been formed. This model can be followed up in the form of mentoring activities in the form of involving students in the training process, suggestions for participating in leadership extracurricular activities, participating in school leadership clubs, forming student leadership organizations, and no less important, namely through the learning process in the classroom through the cooperative learning method. which can direct students to the group process that is vulnerable to the process of communication and discussion with each other which is also part of the indicators in the leadership variable.

These activities in particular must pay attention to the components/leadership potential shown by the prototype starting from the lowest to the highest potential. Teachers can oversee the process of implementing these activities through a mature lesson plan. So that students are expected to be able to express their potential to the fullest.

Leadership potential is interpreted as multi-dimensional and can be explored on an ongoing basis. It is important to know that the actions of an individual whether the individual chooses to remain silent or act will also affect the condition and development of an organization or community. Although the results of the research shown by the students of SMA Laboratorium UM in order to explore the potential for digital-based leadership are in the "low" category, the research team is optimistic that if these results are followed up through the application of the model/prototype that has been produced and followed by a continuous mentoring process, it will bring good results in order to produce potential leaders.

4   Conclusion

The average level of achievement of respondents in this case is the search for the leadership potential of students in the "low" category, which is around 60.97%. Meanwhile, the respondent's level of achievement in each indicator that reflects the gradation/level of their respective leadership potential in sequence starting from the lowest achievement of leadership potential to the highest achievement in students, namely the indicator of student learning agility is 40.06%. With the category of "very low"; followed by the skills of students by 55.07% in the "low" category; and furthermore, the skills of students in analyzing are 57.87% in the "low" category; increased again on the drive indicator in students, which is related to their efforts and success in a particular business by 67.009% with the "medium" category; and the greatest indicator of leadership potential is in the students which is related to emergent leadership or the ability to recognize one's own weaknesses and strengths associated with accepting ideas, ideas, and suggestions

from others with an achievement of 73.34% being in the category "currently". Models/prototypes based on indicators of leadership potential have been formed. This model can be followed up in the form of mentoring activities in the form of involving students in the training process, suggestions for participating in leadership extracurricular activities, participating in school leadership clubs, forming student leadership organizations, and no less important, namely through the learning process in the classroom through the cooperative learning method. Which can direct students to the group process that is vulnerable to the process of communication and discussion with each other which is also part of the indicators in the leadership variable.

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