

Analysis of Leadership Development Using the STEAM Model for Smart Education

Ghasa Faraasyatul 'Alam¹, Burhanuddin², and Raden Bambang Sumarsono³

^{1,2,3}Department of Educational Management, Faculty of Education
State University of Malang, Indonesia

ghasa.faraasyatul.2201329@students.um.ac.id; burhanuddin.fip@um.ac.id;
raden.bambang.fip@um.ac.id

<https://orcid.org/0000-0001-5245-6163>; <https://orcid.org/0000-0002-7389-5138>;

<https://orcid.org/0000-0002-7189-9354>

Abstract

The skills of 21st century students are a challenge to the world of education as well as organizational leaders who are required to be able to produce intelligent generations in the future. The success of educational institutions can be identified through leadership development so that smart education can be optimally realized in the midst of the shocks of the challenges of 21st century education. The inability of leaders to manage their institutions is an urgency for the world of education that must be restored as soon as possible, so that intelligent education in the 21st century can be properly realized. The purpose of this research is to analyze the leadership development for smart education at full day Islamic school which applies the STEAM learning model in its teaching and learning activities. This research method uses a quantitative type of survey with factor analysis to find out how many factors are formed in leadership development. The data analysis utilized the IBM SPSS Statistics 22 program with 20 teachers and 80 students as respondents who were taken using an online questionnaire. The results of the study include leading self is 26%, leading people is 28%, and leading the organization is 46%. The most important leadership development can be seen from how they lead their organization in accordance with full day Islamic school standards so that it can have a positive impact on organizational progress. Leadership development is able to have the strengths and advantages of other people so that commitment of organizational members is increasingly created. The implication of this finding is the realization of an organizational culture with an effective and efficient STEAM model in implementing ideal leadership development so that full day Islamic schools can become optimal smart education.

Keywords: STEAM model, leadership development, smart education

1. Introduction

At present, education in Indonesia has implemented the STEAM teaching model in every school, because it is in accordance with the existing curriculum. The potential for student empowerment in the context of the STEAM teaching model can improve transdisciplinary abilities when they solve problems that exist in the community. The STEAM teaching model is also able to understand the experiences and learning outcomes of students in stages, because in its application it can develop critical reflective social thinking, collaborative decision-making skills, and increase awareness of the need to protect the environment to be able to optimally support sustainable development [1]. Project-based learning is integrated with STEAM consists of five aspects including science, technology, engineering, art, and mathematics where it can be implemented with teaching and learning activities [2]. The learning that is built into the STEAM model can make improving students'

skills in the 21st century more effective so that they are in accordance with the curriculum implemented in schools.

When talking about schools, there is also an organization within which will demand leadership development that must be sensitive to all kinds of contexts of educational issues and be able to support organizational transformation so that it can produce meaningful goals for the institution [3]. Leadership development itself being a multifaceted phenomenon with multiple definitions and meanings should require more thorough exploration. According to the research has revealed six different categories and ways of understanding leadership development that are currently developing, including self-development, fulfilling leadership roles, personality development, development in becoming leaders and leading organizations, collective leadership development, and human development [4]. Based on this phenomenon, it is very necessary to understand, analyze, design, and implement leadership development programs as a form of challenge in the world of education and the main factors in developing the capabilities of leaders with various methods and approaches [5].

Today's students in the 21st century also have some excellent skills that must be honed and developed as well as possible with the support of teachers and an educational institution leader who can maximally facilitate all their organizational needs [6]. The challenges of the 21st century is a particular threat to students, especially at the most vulnerable levels, namely junior high school and high school where they are still very unstable in terms of emotion so they need definite guidance from leaders and teachers. The inability of leaders to be able to manage and foster their organizations properly in accordance with these educational standards is a separate urgency that must be addressed so that the implementation of smart education can be realized correctly [7]. The success of educational institutions can be identified in a number of ways, one of which is by having optimal leadership development in the midst of the current shocks of 21st century educational challenges [8].

One of the institutions at the education level for junior and senior high schools that apply the STEAM teaching model to be able to support smart education in Malang City is SMP-SMA Plus Az-Zahroh. Az-Zahroh School is a girls' school that combines the national education curriculum with the foundation's typical diniyah curriculum and in its learning has also implemented a full day school system. This is an interesting thing to study and analyze more deeply regarding leadership development at Az-Zahroh schools so that they can realize smart education to the fullest. The goal of smart education in providing learning to students in schools has enormous benefits because of the implementation of modern technology to be able to fully prepare students to face a world that is currently growing rapidly where the ability to adapt to the environment is also needed and considered. important for students [9]. Development of leadership and human resource capacity also greatly influences the implementation of smart education. The novelty of the smart education phenomenon is significantly influenced by leadership development and produces a positive relationship so researchers need to further analyze the leadership development in Az-Zahroh full day school [10].

Based on some of the findings from previous research and supported by various kinds of theories and phenomena that occur in the world of education, researchers must identify and further analyze leadership development in SMP-SMA Plus Az-Zahroh. Leadership development is one of the main things that causes the success of educational institutions that must be known more deeply about the kind of organization that has been fostered by leaders at these girls' special schools. The main purpose of this research is to find out and analyze leadership development for smart education in Az-Zahroh full day Islamic school which applies the STEAM learning model in its teaching and learning activities to students.

2. Method

The research method used is quantitative with a survey type approach and uses factor analysis. The steps in quantitative research include research processes, research problems, literature reviews, research questions, quantitative research, research designs, quantitative designs with surveys, sampling, instruments, data analysis, interpretations, discussions, and conclusions [11]. The research data was taken by distributing online questionnaires via Google Forms to 20 teachers and 80 students as respondents at SMP-SMA Plus Az-Zahroh full day Islamic school, Malang City. The data that has been collected was analyzed using the IBM SPSS Statistics 22 program so that it can be represented properly. The conceptual framework in research, explains that SMP-SMA Plus Az-Zahroh educational institution that implements the STEAM teaching model with the full day Islamic school mechanism can see its success through leadership development where it is divided into three, namely leading self, leading people, and leading the organization. The three aspects will also have an impact and influence the improvement of smart education in SMP-SMA Plus Az-Zahroh.

3. Result and Discussion

The results of research on the highest level of importance of leadership development using STEAM model for smart education at full day Islamic school shown in Figure 2.

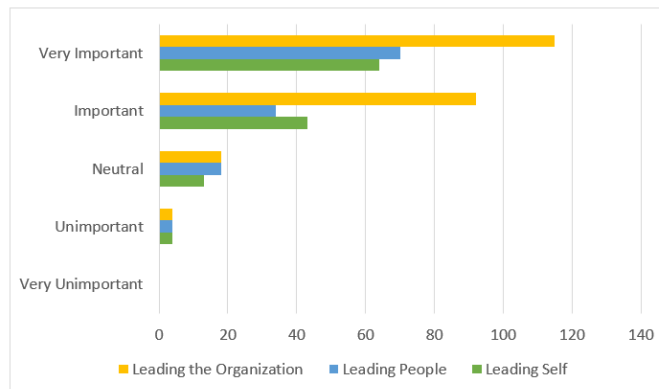


Figure 1. Analysis of Leadership Development at Full Day Islamic School

Figure 1 illustrates an analysis of leadership development at full day Islamic school as measured by five categories of important. The very important category in this data analysis is seen to get the highest results when compared to the other four aspects.



Figure 2. Leadership Development Level Using STEAM Model for Smart Education

Figure 2 shows the findings from research regarding the percentage of leadership development level using STEAM model for smart education, including leading self which is 26%, leading people is 28%, and leading the organization is 46%. So, it can be said that the highest level of leadership development is leading the organization.

Leadership is a process of giving influence and is often interpreted as a relationship in serving, motivating, and empowering others to be able to get the most out of organizational goals. One important aspect of leadership itself is leading self or self-leadership where it includes self-awareness, setting goals for oneself, respecting oneself, actively rejecting pessimistic thoughts, and becoming agents of change. Individual is actively involved in cumulative self-leadership it can produce behavioural strategies, the relationship with each individual becomes stronger, and focuses on oneself and positive behaviour that is radiated to others so that self-leadership becomes a future direction forward to develop their own abilities [12]. Other findings also imply that effective leadership includes the ability to lead an organization, the ability to lead others, and the ability to lead oneself is one of the main things contributing to increasing trust among members of the organization and those around them, can encourage success, implementing management processes in institutions, and in turn can also increase quality organizational performance without limits [13].

The results of the current study show that leadership that is able to empower the strengths of others and is able to show commitment can explain why the behaviour of these leaders can influence decision making in organizations [14]. Empowering leadership to manage others can provide organizational members in contexts of autonomy and development support more effectively. It is also considered capable of having a beneficial effect on the decisions of members of the organization to be able to attend and stay in the institution and to give their affective reactions to the organization in the form of psychological commitment. Leadership skills that have a developmental nature and lead people provide evolutionary where it requires continuous improvement with a variety of experiences possessed and skill development with an organizational nuanced perspective [15]. Relation to leading people in leadership in schools, it is a significant predictor of the performance of educational institutions [16].

Development of a mindset in a well-distributed leadership approach can enable organizations to operate effectively through collective processes such as learning and innovation in teaching and learning activities so that in the future the leading organization is able to operate in a distributed setting with flexible school performance arrangements based on phenomena and current educational challenges [17]. In all types of existing organizations, it is necessary to know together that leaders need to focus on improving leadership skills and development where this has been considered as fundamental in directing institutions to the functions and objectives of the organization effectively [18]. Leadership development in an organization plays an important role, because it is able to offer alternative ways for educational institutions to be able to consider material-economic and socio-political arrangements including the culture of trust allocated in human resources in a democratic manner with a division of power and an openness to activism and growing creativity [19].

4. Conclusion

The conclusion that can be drawn from the research analysis of leadership development using the STEAM model for smart education at full day Islamic school is the percentage of the three important aspects, including leading self by 26%, leading people by 28%, and leading the organization by 46%. It can be seen that the teachers and students at SMP-SMA Plus Az-Zahroh full day Islamic school have the view that the highest aspect that is considered very important in a leadership development is how they lead the organization properly and correctly in accordance with the standards that apply to full day Islamic schools. Leadership development that has been realized to the maximum extent possible it will make leading self moving beyond self-management, managing and leading people through great skills, and leading the organization to be responsible school.

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