Leadership change design: a professional learning community (PLC) project in eastern Indonesia

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ABSTRACT
A professional learning community (PLC) is a long-term sustainable program that can replace professional development (PD) to enable teachers to become teacher leaders and school principals to become instructional leaders. Using a case study from the establishment of the PLC project in 10 schools of Eastern Indonesia (Saparua island, Maluku), this research develops a progressive leadership change model through an ADDIE instructional design that changes school leadership. The research aims to investigate how to identify the most effective leadership change model by exploring different forms of learning communities between school principals and teachers. Using an action research approach to solve the problem, the data were collected over a 10-month period when the PLC project activities took place and embedded them as empirical materials that complement each other. The findings show that the leadership change design through PLC runs effectively if value alignment occurs between school principals and teachers after the open environment is established. The data also highlight that aligned values must be embedded as school identities, whereas a school principal must act as a change leader in order to ensure that these changes are sustainable. This study concludes by proposing policy recommendations for policy makers and education stakeholders on how to develop PD and PLC in Indonesian schools.

Keywords: Action research, ADDIE model, Indonesia, Leadership, Professional Learning Community (PLC)

1. INTRODUCTION
School principals hold a strategic leadership role in improving the quality of both teaching and learning. This notion sets a high bar for school principals to fulfill a set of criteria that are regulated by aspects that include: personality competence, management skills, supervision skills, entrepreneurial skills, and social skills [1]. To obtain those skills, school principals are provided with life-long Professional Development (PD) opportunities that are implemented by Lembaga Pengembangan dan Pemberdayaan Kepala Sekolah (LPPKS) Indonesia [2]. Despite receiving comprehensive trainings, school principals are stuck in an archaic mindset and remain to work in a bureaucratic culture. PD has not included efforts to change the leadership culture of school principals from bureaucracy to democracy and focus on instructional leadership that openly encourages mutual empowerment among students and teachers. To improve the quality of teachers and school principals, the government targets PD approaches that: (1) are costly, (2) are conducted separately for teachers (MGMP community) and school principals (MKKS community), (3) show a lack of integration between teachers and principals’ development efforts.
PD aims to improve the skills and knowledge of teachers and school principals; however many participate in compliance with other formalities framed by the government instead of viewing it as a personal need. The evidence shows that the PD approach at the policy level and practice at the schools is less likely to produce in-depth learning and tends to focus merely on superficial improvement on knowledge content [3], and it is disconnected from the personal and social development needs of teachers and school principals [4]. One option is to implement sustainable long-term coaching programs in the Professional Learning Community (PLC) that focus on collaborations among school principals as instructional leaders [5] and teachers as teacher leaders [6]. An approach that focuses on the synergy between school principals and teachers can be realized as long as there exist efforts that understand and reflect the interaction and behaviors between school principals and teachers.

1.1. Professional learning community (PLC)

A teacher-school principal learning community, usually referred to as a PLC, are schools or networks within schools in which teachers depend on each other for caring and support and in which teachers learn and inquire together as members of a shared practice [5]. One of the important characteristics of PLC is a collaborative culture with a focus on learning [6]. There are several characteristics to describe school cultures as “learning communities”: philosophy and beliefs, structures, governance, and activities [7].

Establishing an effective PLC model is not easy. Therefore, appropriate methods are necessary to solve this problem as well as to determine which important factors can help design the appropriate PLC models in educational environments. Action research is applied as the study method, because it is suitable for educators as a practical process to solve problems and improve within the context of the study [8]. Action research differs from qualitative and quantitative research but shares characteristics with both. An action researcher performs intervention to collect data, analyze it, and implement its action to complete education issues [8]. Without action, there is no action research. Therefore, the action researcher must understand the existence of the change process, which involves students, teachers, parents, and the community, and within these groups, some will resist change [8].

1.2. Aim of study

This proposed case study research in the context of high school in Eastern Indonesia (Saparua island, Maluku) aims to analyze the PLC project with action research perspective. We investigate how to identify the most effective factors that influence the success of school leadership changes (school principals and teachers) by exploring different forms of learning communities in each of the schools that embedded in this PLC project. More specifically, we ask the following research questions: What are the strategic factors would best support for leadership change in school through the establishment of PLC? What are the challenges to design leadership change model through establishment of PLC?

2. RESEARCH METHOD

2.1. Case selection

Studying micro-institutional change, schools are often considered the best exemplary model for institutional reform [9], [10]. In public and private schools in Indonesia, most principals still apply a transactional leadership type. Their chain of command still uses hierarchical authority or bureaucratic authority as leaders. Teachers respond because there is mandate or rules and regulations. One way to examine the context of the school culture for professional learning is by organizing adults into learning communities, which requires skillful leadership and resources to support adult learning and collaboration [7]. Therefore, our empirical qualitative research is embedded in the PLC project in 10 schools that include public, private, vocational, and religious schools in Eastern Indonesia (Saparua Island, Maluku). This research was conducted for over 10 months with 40 participants (10 principals and 30 teachers). This project was assisted by the Heka-Leka Foundation, a non-profit organization that focuses on assisting with non-academic professional development for teachers and school principals of high schools in Saparua Island.

2.2. Data collection

Data collection occurred over a 10-month period during which the PLC project took place, with activities including two focus group discussions, two workshops, mentoring of the action plan, and a field visit activities. Through this activity, the data collection includes empirical materials that complement each other in questionnaires, interview transcripts, focus group discussion transcripts, research journaling, and field visit notes. The empirical materials are summarized in Table 1.
Table 1. Empirical materials

<table>
<thead>
<tr>
<th>Activities</th>
<th>Duration</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus Group Discussion (FGD) with Heka Leka Foundation team</td>
<td>2 months</td>
<td>FGD transcripts</td>
</tr>
<tr>
<td>FGD with school principals</td>
<td>2 months</td>
<td>FGD transcripts</td>
</tr>
<tr>
<td>Field visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. School observation &amp; In-depth Interview with teacher and school principals</td>
<td>1 month</td>
<td>Field visit notes: observation notes and interview transcripts</td>
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<tr>
<td>b. In-depth Interview with the head of Maluku Education Agency, Ministry of Education and Culture</td>
<td></td>
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<td>PLC Training</td>
<td>1 month</td>
<td>Pre-post test</td>
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<tr>
<td>Value Alignment Training</td>
<td>1 month</td>
<td>Pre-post test</td>
</tr>
<tr>
<td>Mentoring implementation of Action Plan</td>
<td>2 months</td>
<td>Action plan document and reflection note</td>
</tr>
<tr>
<td>Evaluation with field visit to school</td>
<td>2 months</td>
<td>Slide presentation</td>
</tr>
</tbody>
</table>

The CAQDAS (computer-assisted qualitative data analysis) program, namely Nvivo software used by researchers in analyzing this data, is highly recommended to assist researchers in analyzing qualitative data [11]. If the researcher needs to perform a quantitative analysis, then this action research will only use descriptive statistics.

2.3. Production and analysis of empirical material

The effectiveness of the development of school leadership change model through the establishment of PLC was analyzed at each stage of the model of the ADDIE system approach for designing instruction, as exhibited in Figure 1 [12].

Figure 1. Analysis of empirical material [12]

The first steps in the analysis phase of the ADDIE model are to identify instructional goals, conduct instructional analysis, analyze learners and contexts, and form a focus group in the field with the Heka Leka Foundation and school principals to obtain an assessment of professional development needs and determine the goals of PLC project. The focus group will generate the knowledge, attitudes, and skills that match the learning strategies appropriate to the participants who will join the program [13]. This phase will also analyze the characteristics of school principals and teachers with archipelagic contexts and cultures so that they can understand the instructional model to be built, since this model requires designers to create an instructional analysis and identify entry behaviour and learner characteristic [12].

The second phase of designing the model involves writing performance objectives, developing assessment instruments, developing instructional strategies, and revising instruction. The data are obtained and analyzed by developing the school culture instrument, peer review, and instructional leadership are given to the participants of PLC project in the form of a workshop. Development of instructional strategies is also provided with post-workshop assignments to document the good practices undertaken as part of their action
In the next stage, the development of instructional materials, the data are obtained through the distribution of instructional materials in the form of protocol-protocol meeting, class observation, and some examples of professional development activities that the participants will implement. They will be challenged to exercise perception and will have the opportunity to make observations on the implementation of the action plan that they implement.

In the final evaluation of the ADDIE model, the researchers will design and perform a formative and summative evaluation instruction, in which participants will measure their own success rate from the indicators they specify. During this evaluation phase, participants will have the opportunity to reflect and make improvements in the instruction model.

2.4. Analytical approach to improve design

Through developing the PLC in each school included in this project, we develop a progressive leadership change design using an ADDIE model as proposed [12]. It then follows the action research spiral method as proposed [13], [14] to continuously make improvements to the design, and at the same time, we try to solve the problems that arise [8] in this PLC project, as illustrated in Figure 2.

![Figure 2. Action research spiral phases in leadership change design [14], [16], [13]](image)

The technical phase of action research started with the interrogation of the ideas, actions, observations, and reflection phases to be utilized as data collection and analysis methods [15], [16]. The effectiveness of the design was measured in each action research phase. Action research was considered to be the most appropriate method due to its participative nature that brings co-researchers to find practical solutions for problems in their PLC [17]. All activities in PLC are sustainable programs, since they must be implemented independently through daily or monthly activities with the shift of the isolated teaching methods to become an open system that is susceptible to feedback and peer review from colleagues to tear down boundaries and gaps between school principals and teachers. Hence, trust and respect arise, with solid attention to students’ outcomes.

2.5. Data validation: Triangulation strategy

To prevent bias in this qualitative research, due to the large amount of data, and the need for verification regarding which data are available or not yet, which data are feasible for analysis, or that which have been confirmed with other data sources, the researchers conducted a triangulation strategy [18]. This is beneficial because data are often corrosive, with the researcher verifying the explanation given by others, then testing the thesis that appears this is more serious than just "losing data" [19]. In this study, researchers used four types of triangulation as suggested by [20]-[22]. First, the researchers applied the method of triangulation by comparing information or data using interviews, observations, and surveys to check the validity. Secondly, triangulation investigators were employed by using more than one person in the data collection and analysis processes. Third, data source triangulation was obtained by collecting written documents in the form of a reflection note, document, official action plan, or pictures or photos during PLC activities. Finally, the researchers used theory triangulation. The final results of the research in the form of information formulas or thesis statements were compared with the theoretical perspective that is relevant to
avoid the individual biases of the researchers from the findings or conclusions produced. The researcher also made a data record sheet. This data record sheet assists researchers in organizing data and making temporary summaries of related research problems while crosschecking the correctness of data through the triangulation method.

3. RESULTS AND DISCUSSION

3.1. Developing an open environment

The research findings of ADDIE model from the analysis until evaluation stages are about the importance of open interaction and value alignment in school culture. As expressed by one of the school principals:

“We need to develop trust and throw away our ego, whether I come from a public school, a vocational school, private Christian school, or an Islamic Madrasah…” (Interview)

The social interaction helps us to define and build our own self-concepts and to reduce the anxiety and fear we experience in the work environment [23]. Argued that openness of mind and attitude are instruments that have proven effective in dealing with change and also differences [24]. This supports the work by self, who asserted that openness can be an instrument to help improve the state of the organization when openness is an important part of overcoming a problem in the organization [25]. As stated in the FGD results with the school principal and the Heka Leka foundation team:

“If you look at the data related to the value of Teacher Competency Test (UKG) in Maluku Province, which is quite low, namely 44.57, this result is below the average requested by the government, which is 55, then the need for changes for school stakeholders in the region to improve the value UKG. With an understanding of the lack of achievement and regard it as constructive criticism, it is a good start to change…” (FGD)

In other studies, openness is not only the ability to function as an instrument to face differences, but also to stimulate creativity. The study of the relationship between creativity and openness is still debated, because it still cannot be concluded. Several studies that support the study, reveal that openness can be a catalyst for individuals and organizations to be more creative [26]. Conversely, a lack of openness results in a lack of creativity. Similar studies were carried out in several places which showed a direct link between openness and creativity in organization [27].

Other findings from the analysis phase of the ADDIE model is to unlock mental blocking in which difficulties to open were found at the beginning of the workshop. The psychological gap in power distance between school principals and teachers was removed to create equality. Their positions are equal, in line with the learners’ mentality that is open to learn new things and respect each other. Although an open environment between teachers and school principal exists, school leadership will not happen without value alignment from both parties.

3.2. The importance of value alignment

Other research findings are seen in the development phase of ADDIE after the two workshop activities, 23% increase in the participants’ knowledge of this program, but only 10% of them understand how to practice protocols to equalize values (Pre & Post Test PLC Workshop). The understanding and knowledge about the value alignment is needed before making the establishment of this PLC. During the implementation phase of ADDIE, three public schools that have developed a climate of openness have failed to implement the action plan of leadership change due to the obstacles of principal behaviour that have not applied the value alignment and open collective leadership. As teachers from public schools stated:

"Very limited time for teachers in public schools to gather, discuss, and agree on shared values, because of the many jobs outside of teaching”(FGD)

This issue is justified by policy makers:

".... the problem for public schools is the number of administrations they have to take care of and they (teachers and principals) must go through bureaucratic rules, because the funds they use must be accountable to the State…” (interview)
The organizational changes need to be addressed in order to improve the schools to achieve better performance. To deal with these changes, school as an organization should be done with the principle of prudence given the high potential risks [28]. Although schools must make changes, organizations often focus too much on anticipating changes from outside the organization rather than from within [29]. In fact, the change from the inside must also be considered. Argues that the values generated by the organization are capable of becoming the organization's catalyst for moving forward [30]. Therefore, the role of understanding of values becomes very important to every member of the schools. Aligning schools values cannot occur naturally because values are abstract; they are then projected in the form of actions and behaviors [31].

The need for alignment of organizational and individual values as it allows for differences between the two. Values are centered on something that is considered important by the individual to his or her life which is strongly influenced by his or her cherished culture or religion [32]. Culture and religion will help the individual in carrying out his work. Individual environments also affect individuals in building values [33] derived from the environment and past experiences reveals that values can come from several sources, including national culture, local society, religion, family and also company [34], [35]. As an example, statement from one of school principals from public schools:

"The school values that we profess are in accordance with the values given by the national education ministry, such as tut wuri handayani" (reflection notes)

### 3.3. Building a school identities from values

In the evaluation phase of the ADDIE model, the study reveals that success in the implementation of PLC only happens in two private schools; Christian High School and Islamic High. In addition to forming an open environment, they also agreed to re-align their values that suit the ecosystem of their school by incorporating religious values as their new school identities. As the principal of Saparua Christian High School, a religion-based school, stated:

"We include the values of Christianity as a school identity, such as more often greeting each other with ‘Syaloom’" (interview)

These school changes can be observed through good practice in teacher and student behaviors. Absenteeism, tardiness, littering, and rudeness decreased, and the quality of teaching and learning increased. As a teacher mentioned:

"... we made slogans related to the values of schools in every classroom and school environment... one of our slogans is honesty... we make an honesty canteen, where students pay for their food and drinks without going through the cashier, directly entering the fund box..." (reflection notes)

Individuals who work in or contribute to an organization not only work for life, but there are also some other things to consider [28], [36], like equivalent values. Another problem that arises is the failure of individuals to understand the structure and culture of the organization [37] in which the organization is unable to immerse itself in the culture and values it has for its members. This is what happens with public schools that fail to establish school identity from mutually agreed-upon values. The alignment of school values and culture with individuals requires a shared understanding of the goals across the organization [38]. Differences in perspective can also be caused by different levels of organizational structure. Variations across levels and across organizations have the potential to hinder performance and improvement within the organization. For example, a system that is too bureaucratic and top down between a school principal and a teacher in a public school requires communication and participation from individuals at all levels of the organization in order to improve access and share information at a lower level, thus empowering employees to use information for decision making [39].

The value of an organization can serve as a benchmark standard that guides the behavior of members in various situations. Value becomes very important for individuals and organizations, because it is useful to maintain its survival. These values are embedded in the culture and form the desired behavior, which ensures harmony in society [40]. Many works of literature also show that the positive contribution of the right combination of organizational value can significantly affect the organization's performance [37], [41], [42].
3.4. The collaboration process of school principals as a change leader

In the evaluation phase of the ADDIE model, principals who use a collaborative leadership style in implementing action plans have more successfully changed the school culture. As expressed by teachers:

"The principal is always involved in giving directions at every PLC meeting and contributing to providing input regarding the action plan that we will run... the headmaster conducts a quarterly monitoring and evaluation for each action plan implementation agreed upon in the PLC meeting" (reflection note)

The existence of PLC will help teacher to become involved in the school change. They can participate in planning and implementing the change and gradually will increase teachers’ confidence in themselves as successful implementers. Furthermore, when the openness environment had been formed, change is not enough. This change must lead to improvement, the sustained improvement that leads to achievement of our purpose [5], and to lead this, we need change leaders [43].

Emphasizing the importance of leadership in organizations, define leadership as a process of influencing people to achieve goals, while management mobilizes an organization toward the attainment of its goals [44]. In practice, the interests between the organization and its members need to be constantly adjusted [45]. Therefore, the organisation required a leader who can carry out the task; such a leader is called a transformational leader. Unlike transactional leaders, who apply the strength of many followers, transformational leaders are capable of inspiring, intellectually stimulating, and giving individual’s encouragement. The value of leadership will have an impact on the surrounding environment [46].

Assert that transformational leadership is positively related to the performance of individual-level followers [47]. In addition, transformational leadership is positively related to team and organizational performance. In order to achieve the desired goal, the school principal must be capable of transformational leadership. Collective work with transformational leaders generates more ideas, but individualists generate more ideas with transactional leaders [48]. More generally, group performance is generally higher than for self-employed individuals. A leader with a transformational leadership style is urgently needed by schools to improve school culture. As expressed by a teacher from a religion-based school:

"We managed to build the value of the school and implement it because we wanted to spend our time together with our school principal which we know she is busier than we are. She motivated us that what we doing will be successful... and she is a role model for us."

That a leader is willing to sacrifice himself for the organization, be a role model, and also display ethical standards [49]. They also stated that a leader can provide inspirational motivation. Leaders like this usually use charisma, build an evocative vision, and use emotion-based arguments. The nature of transformational leadership is not only in the top leadership, among school principals, but in all layers of the organization at which the teachers can be developed [45]-[50].

4. CONCLUSION

The collaboration of collective leadership between teachers and school principals in PLC is a key to changing school culture. They can participate in planning and implementing the change and will gradually increase teachers “confidence in themselves as successful implementers. Action research highlights four strategic factors that influence effectiveness in the development of leadership change model: (1) the need to develop an open environment before forming a learning community; (2) although open environment exists, implementation of leadership change will not happen without value alignment between school principals and teachers; (3) school identities are built on values that are agreed upon by school principals and teachers; and (4) school principals must actively participate in the collaborative process as change leaders in this leadership change model development.

4.1. Policy recommendation

Implications from this research include the need for change in the current education policy in Indonesia. Our first recommendation for the provision of PD to public schools is to revise government policies with a top-down approach to become a bottom-up approach. If teachers and school principals are not involved in determining the needs of PD in their schools, it is not likely that teachers will participate in the approach that does not align with their values. The second policy change would regulate the workload of teachers and principals so that they have time to conduct PD or PLC meetings, thus preventing teachers and
principals from becoming caught up in bureaucratic administrative matters such as paperwork. Third, regulations should be offered for even the slightest incentive mechanism at the school level or at the district level by the Local Education Agency or the Ministry of Education and Culture with social incentives or rewards. For example, teachers who are actively involved in PLC activities get social rewards in the form of development training or promotion proposals. Lastly, district-level PLCs should be established in which tri-quarter or quarterly meetings are held between each school PLC to evaluate the changes in each school by using indicators of the changes in school culture, such as changes in student character, teaching of evaluation results, and student learning.

4.2. Limitations and further study
Future research needs to further develop this leadership change design to public schools in urban areas in Western Indonesia (Java and Sumatera Island), especially those that have more access to conduct professional development. We can use a research method or quantitative experiment to construct leadership change design that suitable for application in that areas. In addition, due to the limitation of funds and time on the PLC project which lasted only for 10 months, it was not possible for researchers to conduct an impact evaluation after 3-4 months within the completion of this project. The addition of the sample is also not possible, in which there are several teachers and principals from 10 sample schools not present in the PLC workshop activities but bring value alignment to the workshop and vice versa. This has the potential to limit the broad range of experiences, insights, and interrogations that might be obtained from these findings. Therefore, a representative sample is very important to create shared knowledge and problem solving that arises through this action research approach. The role of the writer as a model designer, teacher, and researcher can also create the potential for research bias. In accordance with the advice of Green and Huntington (2017), we overcome this bias by interrogating the participants regarding the data and findings that appear to be verified through their validity and truth [13].

4.3. Conflict of interest
The researcher stated that there were no conflicts of interest, as from the beginning of the study, we tried to reduce this conflict of interest with the approval of the ethics committee and the signing of an integrity pact related to this research. We also stated that there was no influence of the organizations involved in this project, such as Heka Leka Foundation, ALPHA-I, USAID, Maluku Education Agency, Ministry of Education and Culture, and other organizations regarding the methods or outputs of this research.

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