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Risk Analysis and Mitigation Learning from Home During the COVID-19 Pandemic: An Effort to Transform the Quality of Education

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RISK ANALYSIS AND MITIGATION LEARNING FROM HOME DURING THE COVID-19 PANDEMIC: AN EFFORT TO TRANSFORM THE QUALITY OF EDUCATION

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ABSTRACT

The COVID-19 pandemic in Indonesia necessitated that schools provide learning services from home for all students starting in mid-March 2020, leading to concerns about a decline in the quality of education. However, these limitations have also prompted improvements. This study leverages challenges and difficulties as catalysts for change. Employing qualitative methods, this case study examines the risk management of implementation Learning from Home during the COVID-19 Pandemic at SMA 'X' in North Jakarta. The risk analysis process began with risk identification through interviews with several teachers. The likelihood and impact ratings are derived from internal school documents and focus group discussions with homeroom teachers. Risk values were calculated by multiplying the probability and impact factors and then presented in the heatmap matrix. Bow Tie Diagrams were used to illustrate each event comprehensively, including the mitigation procedure applied to each likelihood and impact. The study's findings identify contributing factors to the decline in education quality, including teachers' readiness and skills, unaltered learning methods, and difficulty measuring student competency. An intriguing phenomenon was identified for further study, providing a basis for developing more effective learning methods to mitigate risk in this school and other schools with similar contexts, thereby improving the quality of education.

Keywords: Learning from Home, Risk and Mitigation, Education, Transforming

Introduction

The COVID-19 pandemic caused significant disruptions in many human activities, including the education sector. Educational institutions had to modify their operational system rapidly, shift to substitute teaching and learning methods, and implement new work arrangements. These changes led to many adjustments and challenges for the school management and employees (Mostajo et al., 2021). Since mid-March 2020, the pandemic has compelled schools to provide remote learning services to all students. Although limited offline classes have gradually resumed in Indonesia since October 2021, remote learning has continued to be implemented concurrently. From the outset, the home learning procedures have received numerous complaints and encountered difficulties from all parties involved, including parents, students, teachers, and school management. All parties have been forced to adapt and operate within these constraints.

Indonesian Government Policy for the Implementation of Learning from Home

The learning-from-home program is governed by Circular No. 4 of 2020 from the Ministry of Education and Culture of the Republic of Indonesia, which addresses implementing Education Policies during the Emergency Period of the COVID-19 Pandemic. This policy mandates that online and distance learning be implemented to provide meaningful learning experiences for students without the pressure of completing all curriculum objectives. Instead, it emphasizes life skills education to help students adapt to living with COVID-19, with varied activities and tasks tailored to their interests and conditions. Learning outcomes are to be assessed through qualitative feedback rather than quantitative grading. This regulation was further reinforced by Circular No. 15 of 2020, which provides Guidelines for Organizing Learning from Home, emphasizing that learning materials should be inclusive, culturally relevant, reflective of students' character and uniqueness, and should promote positive interaction and communication between teachers and parents.

The learning-from-home method is executed through two primary approaches: online and offline learning. Schools may opt for an online, offline, or blended approach based on the availability and readiness of their facilities and infrastructure. Online learning utilizes gadgets or laptops, accessing resources through various government and school-provided portals and learning applications. Offline learning can be delivered via television, radio, self-study modules, worksheets, printed materials, and teaching aids derived from the surrounding environment.

The primary principle of the learning-from-home initiative is to ensure that children's rights to quality education are met while protecting all school members and preventing the spread of COVID-19. Accordingly, the government has provided guidelines and steps for implementing this initiative.

The implementation steps for learning from home by schools include (1) establishing a school management model that supports remote working and teaching for educators and staff, including scheduling picket duty if necessary; (2) ensuring the affordability and accessibility of the learning system for all students; (3) creating a learning continuity plan by coordinating teachers to adapt online and offline teaching materials creatively; (4) providing guidance and monitoring to teachers through learning reports; (5) ensuring the availability of necessary

facilities and infrastructure for both online and offline learning, such as gadgets, laptops, internet access, and distribution methods for modules and teaching aids.

Teachers play a crucial role in the execution of the learning-from-home program. They are responsible for preparing both online and offline learning implementation plans by (1) ensuring the achievement of the specified competencies, (2) preparing relevant teaching materials, (3) determining appropriate methods and interaction strategies, (4) selecting suitable teaching media, and (5) enhancing their capabilities by participating in various online training sessions focused on organizing distance learning. (Ministry of Education and Culture, 2020)

The Challenge of Learning from Home

The COVID-19 pandemic is an unforeseen event that has drastically altered the learning patterns of students worldwide, exposing inherent vulnerabilities in educational systems globally (Ballena et al., 2021). Adaptability, shifts in habitual patterns, and changes in mindsets are crucial in addressing the challenges posed by these transformative conditions.

An initial analytical study by SMERU identified several factors contributing to inequality in distance learning. These factors include the quality of teacher-student communication during home-based learning activities, the teaching methods employed during the pandemic, the assessment of the learning process, the dynamics of student learning, and the teacher's perceptions of their workload during the implementation of remote learning (Bima, 2020).

Research by Wunong Zhang et al. highlights potential difficulties faced by online learning policies, such as the inadequacy of online teaching infrastructure, the inexperience of teachers, disparities in learning outcomes due to varying teacher experience, the information gap, and the complex home environment (Zhang et al., 2021).

The decline in learning quality during the home-based study period is a significant concern. Usman (2021) warns that ineffective learning-from-home could jeopardize Indonesia's projected demographic bonus expected in 2035. Additionally, a 2020 study by The SMERU Research Institute outlined the challenges faced by the learning-from-home program in Indonesia, including uneven access to online learning facilities and disparities in teacher competencies (Bima, 2020).

Pokhrel and Chhetri (2021) highlighted challenges such as inadequate online teaching infrastructure, limited exposure of teachers to online teaching methods, information gaps, non-conducive learning environments at home, equity and academic excellence issues in higher education, and difficulties in authentic assessment and grading in remote learning settings. They also identified opportunities such as innovative teaching methods, enhanced parent-teacher collaboration, the use of online platforms for education, and improved support for learners with special needs.

Risk Management

Risk management is the systematic process of identifying, assessing, and mitigating potential risks within an organization or specific context. Risk, as described by Arthur J. Keown (2000),

pertains to the possibility of an undesired outcome, often associated with the likelihood of adverse events and the impact of uncertainties (Kirchsteiger, 2002).

In organizational settings, Aven (2011) characterizes risk as the probability of specific effects resulting from hazards within defined timeframes or situations. This perception of expected value, grounded in analysts' assigned probabilities, leads to quantifiable predictions of negative outcomes.

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) emphasizes the link between strategy and performance in managing risks (Chelsey, 2004). COSO delineates eight interconnected components guiding enterprise risk management that are: (1) Internal Environment, (2) Objective Setting, (3) Event Identification, (4) Risk Assessment, (5) Risk Response, (6) Control Activities, (7) Information and Communication; (8) Monitoring.

This dynamic, iterative process ensures that each component influences the others, fostering a comprehensive approach to risk management. By understanding and implementing risk management concepts, organizations can enhance their ability to identify, evaluate, and manage risks effectively, thereby improving their capacity to achieve objectives.

In this study, the COSO framework serves as the methodological approach for risk management. This framework, outlined by Chelsey (2004), provides a structured method for identifying, assessing, and mitigating risks associated with implementing learning-from-home services during the COVID-19 pandemic. By adhering to this framework, the study aims to systematically address potential risks and enhance the effectiveness of risk management strategies.

Moreover, the COSO framework ensures alignment with organizational objectives, promotes transparency through effective communication, and facilitates ongoing monitoring and evaluation to adapt to changing circumstances. Employing the COSO framework establishes a robust approach to managing risks and enhancing the resilience of educational institutions in response to the challenges posed by the pandemic.

Objectives

This research leverages challenges and difficulties as catalysts for change, with a specific focus on Risk Analysis and Management within the context of institutional research. The risk analysis was conducted to identify challenges arising from the learning-from-home process and to develop mitigation strategies. These findings are further examined to provide actionable insights for advancing educational transformation.

Risk Analysis and Management are crucial components of institutional research, as they help educational institutions identify, assess, and prioritize risks that could hinder their operational effectiveness and educational outcomes. By systematically analyzing risks, institutions can develop strategies to mitigate these risks, ensuring a more resilient and adaptive educational environment.

The learning-from-home methods during the pandemic cannot be uniformly applied across all schools. Learning needs to be tailored to the specific conditions of each school, with different educational levels facing unique challenges. The implementation of distance learning policies varies significantly and is influenced by numerous factors (Bima, 2020). Consequently, this study employs a case study approach in a single school institution, with the aim that the results will apply to other institutions, particularly those with similar backgrounds.

The objective of this research is to analyze the risks associated with the implementation of learning from home during the COVID-19 pandemic faced by Dharma Suci High School. By identifying these risks and developing mitigation strategies, the study aims to contribute to the broader field of institutional research. The insights gained from this case study are intended to offer implications and recommendations that can be generalized for schools across Indonesia, particularly in North Jakarta.

The findings will provide a framework for other institutions to assess and address their unique challenges in implementing remote learning, develop targeted risk mitigation strategies based on identified risk factors, enhance teacher readiness and adaptability to different teaching modalities, improve student engagement and competency measurement in a remote learning environment, and foster better communication and support mechanisms between teachers, students, and parents. These recommendations are designed to ensure that the results obtained are relevant and beneficial for a wide range of educational institutions, promoting an overall improvement in the quality of education during and beyond the pandemic.

Theoretical Framework

The theoretical framework for this research draws upon several key concepts and theoretical perspectives to guide the analysis of challenges and mitigation strategies in the implementation of learning-from-home during the COVID-19 pandemic.

At the core of the framework lies the principles of risk analysis and management. Drawing from the fields of risk management and organizational theory, this framework emphasizes the systematic identification, assessment, and mitigation of risks associated with remote learning implementation. By applying risk management principles, educational institutions can proactively address potential challenges and enhance their resilience in adapting to remote learning environments.

Drawing from the field of adaptive management, this framework underscores the importance of adaptive capacity in responding to complex and uncertain environments. Adaptive capacity refers to an organization's ability to learn, innovate, and adapt in response to changing circumstances. By enhancing adaptive capacity, educational institutions can effectively navigate the uncertainties of remote learning implementation and continuously improve their practices based on feedback and experience.

Methodology

Research Approach

This study uses a qualitative design that is widely used in the field of education as a tool for collecting research data (Gay et al., 2012). Qualitative research aims to understand social phenomena from the participants' perspective, who are invited for interviews, and observations and asked to provide data, opinions, thoughts, and perceptions (Sukmadinata, 2006). Qualitative data is collected through document studies (Creswell, 2007).

This research design is a case study that presents as much information as possible on the risk management of the implementation of learning-from-home services during the COVID-19 pandemic at Dharma Suci High School, located in North Jakarta. The case study research is intended to intensively study the individual, group, institution, or community (Rasyid, 2019).

Data Collection

The purpose of the preliminary research is to identify the risky events associated with the implementation of learning-from-home during the COVID-19 pandemic. The data collection technique employed for this purpose is an interview with 12 full-time teachers, who constitute 60% of the teaching staff at Dharma Suci High School. This sample group is deemed representative of the overall teacher population, as the remaining 40% are part-time teachers. The full-time teachers include 1 principal, 4 vice principals, 2 guidance counselors, and 6 homeroom teachers.

Primary data for the research was collected through a detailed study of several school documents, such as summaries of evaluation results gathered from the students and parents, which are relevant to the research objectives. Other sources include teacher performance reports and meeting documents. Different categories of respondents and sources are associated with various types of risk events based on specific purposes. The information obtained from document analysis reflects the results of the school's internal analysis and evaluation, summarized from the data of all teachers, 90% of students, and 60% of parents in the school.

To verify and strengthen the data obtained, both data collection methods and the information used, the researchers employed triangulation techniques. Triangulation involves using multiple methods or sources of data to cross-check and validate research findings. In this study, triangulation was performed through repeated checks from different sources of information. For instance, insight from interviews with full-time teachers was cross-verified with data from school documents and evaluation summaries.

Triangulation is a technique for checking the validity of data through the convergence of information from various sources (Bryman, 2008). By integrating diverse perspectives and cross-verifying information, the researchers aimed to ensure the reliability and accuracy of the findings. This process included repeated comparisons and checks of information from interviews, document analysis, and focus group discussions (FGDs), where expert judgments were solicited. This iterative approach of verifying data from multiple angles helped to identify any discrepancies and inconsistencies, thereby enhancing the credibility of the research outcomes.

Data Analysis

Risk analysis is carried out through the following research flow:

Figure 1: Research flow

1. Internal Environment

Understanding the internal conditions of schools that provide learning from home will involve examining several key elements. This includes the school's vision and mission, the National Education Standards document, and the school curriculum. This analysis will involve interviewing various representatives from the school community, including teachers, students, and parents. These interviews will provide deeper insight into the school culture, the policies governing learning-from-home services, and the school's risk appetite.

2. Event Identification

The event identification stage focuses on recognizing potential risk events that may arise from various risk sources. The identification of these risks will be based on a literature review, previous research on the risks associated with learning from home, and field observations. The results of this identification process will be organized using a fishbone diagram (also known as an Ishikawa diagram), which is a method used for analyzing the causes of a problem or condition.

3. Risk Assessment

Risk assessment involves measuring the probability and impact of each identified risk event, with the data from these assessments being converted into a measurable scale. The Likert scale, an ordinal scale, is used to gauge the level of respondents' perceptions of the identified risks and their impacts. This process includes both qualitative and quantitative steps.

Initially, risks were qualitatively assessed through interviews and discussions with experts, including school principals and homeroom teachers, who are knowledgeable about the school environment and the challenges of learning from home. These experts considered various factors such as past experiences, current conditions, and external influences that might affect the likelihood of each risk event (Cooke, 1991; Morgan & Henrion, 1990). After the qualitative assessment, the likelihood and magnitude of each risk event were measured quantitatively using a numerical scale.

Once the risk probabilities and magnitudes were assessed both qualitatively and quantitatively, they were converted into standardized scales for easier analysis and comparison.

Expert judgment played a crucial role in both qualitative and quantitative assessments. Experts, including school principals who also served as researchers, along with homeroom teachers, engaged in focus group discussions to evaluate and reach a consensus on the likelihood and impact of various risk events. Their combined expertise and experience ensured a comprehensive and reliable assessment of risks (Cooke, 1991; Morgan & Henrion, 1990).

This measurement will be guided by the Godfrey scale (1996) and refined through Focus Group Discussions with the School Foundation, considering the specific needs of the school.

Table 1: Risk Probability and Impact

Scale	Probability	Frequency Level	Impact	Consequence Level
5	$80 \leq x \leq 100\%$	Frequent	Threatened financial and reputational conditions	Catastrophic
4	$60 \leq x < 80\%$	Probable	Relatively significant loss in goodwill	Critical
3	$40 \leq x < 60\%$	Occasional	Hampered learning process for students	Serious
2	$20 \leq x < 40\%$	Remote	Disruption in the students' learning process from home in terms of fulfilling administrative and service requirements	Marginal
1	$0 \leq x < 20\%$	Improbable	Disruption in the school's administrative system and normal work patterns	Negligible

4. Risk Response

The determination of risk acceptance at Dharma Suci High School is specifically tailored to the school's conditions and risk appetite. This process involves preparing a heatmap that reflects the school's unique context. The acceptability of risks is evaluated using the Godfrey scale (1996), and researchers develop a narrative to account for the specific needs of the school.

5. Mitigation

Mitigation actions are determined based on their level of risk acceptance. Dominant risks, or major risks, which fall into the categories of unacceptable and undesirable, require special and immediate attention due to their significant impact. Conversely, risks that are deemed acceptable and negligible theoretically do not necessitate mitigation actions.

Risk control actions are carried out in two main directions: mitigation of probabilities and mitigation of impacts. Probability mitigation aims to reduce the likelihood of the occurrence of an unwanted event, while impact mitigation focuses on lessening the severity of the impact should the event occur.

The analysis to determine risk mitigation strategies is conducted using a bow tie diagram. This diagram illustrates the causes of unwanted events, their potential impacts, and the corresponding prevention and mitigation efforts.

Result

Risk Analysis

1. Internal Environment

Dharma Suci School is a private institution based on Buddhist teachings located in North Jakarta, Indonesia. The high school level (SMA) began its operations in 1997. SMA Dharma Suci implements the national standard curriculum, which is the 2013 Curriculum.

The vision of Dharma Suci School is "The Leading Buddhist School in Indonesia." In alignment with this vision, SMA Dharma Suci has articulated a relevant vision: "Leading in achievement and faith, capable of self-leadership, and inspiring others to excel." The mission of Dharma Suci School is "To Build Happy and Open-minded Children." To achieve these vision and

mission objectives, Dharma Suci School has developed core values or character values, which include compassion, respect, creativity, and truthfulness.

At SMA Dharma Suci, the learning-from-home policy is structured around an online and synchronized study schedule, with students attending three subjects per day, equivalent to ten hours of lessons. Subject teachers have simplified this curriculum to suit the abilities and needs of the students. To foster skills, talents, and interests, the school offers various extracurricular activities, workshops, and online student engagements.

The learning-from-home strategy at SMA Dharma Suci involves a blended approach. This combined method includes online, semi-online, and offline components, with online, face-to-face interactions scheduled throughout all learning hours. Online learning is facilitated through Google Classroom as the Learning Management System (LMS), while Google Meet and ZOOM Meeting are used for real-time interactions with students. Semi-online learning is conducted via WhatsApp groups and LINE groups for more effective discussion compared to Google Classroom's discussion boards.

To ensure the effective and efficient delivery of remote learning across all subjects, the use of Google Classroom is meticulously managed. The procedures for implementing distance learning at SMA Dharma Suci are as follows:

- Instruction Methods. Teaching methods are like those used in traditional classrooms but adapted to the constraints of remote learning. Teachers provide explanations in written form via Google Classroom or through WhatsApp/LINE. Students complete assignments on Google Forms or upload their work to Google Classroom. For some assessments and projects, students present their work via Google Meet or ZOOM.
- Continuous Monitoring. The principal and vice-principal continuously monitor the learning process. Monitoring includes checking WhatsApp groups, lesson plans, teaching journals per session, and daily reports.
- Attendance Tracking. Both teacher and student attendance are tracked directly in Google Classroom for each session. The principal and activity coordinators can access all Google Classroom subjects to observe interactions, assignments, and submissions.
- Virtual Classroom Monitoring. Monitoring also extends to virtual face-to-face classes on ZOOM or Google Meet. The principal and vice-principal can join any class to observe real-time interactions.
- Issue Resolution. Technical and learning process issues are addressed immediately as they arise. Coordination among teachers and discussions with class advisors and counselors help monitor the learning process both in and out of virtual classrooms. Regular and as-needed teacher meetings are held either in person at school or via ZOOM meetings.

2. Event Identification

In studying the learning-from-home process implemented at SMA Dharma Suci, researchers identified events characterized by uncertainty that negatively impact the achievement of learning objectives. This identification process began with preliminary interviews. Researchers conducted initial interviews with several teachers and parents. Following these interviews, the researchers, along with class advisors, held focus group discussions. Through these discussions,

researchers categorized the identified adverse events into six risk sources: students, teachers, parents, learning methods, infrastructure, and character and competence.

These risk events were identified by examining the learning-from-home process as outlined in the school curriculum document, along with insights from the interviews and focus group discussions. The identified events are systematically presented using a fishbone diagram, which facilitates a comprehensive analysis of the underlying causes and impacts (See Figure 2 below).

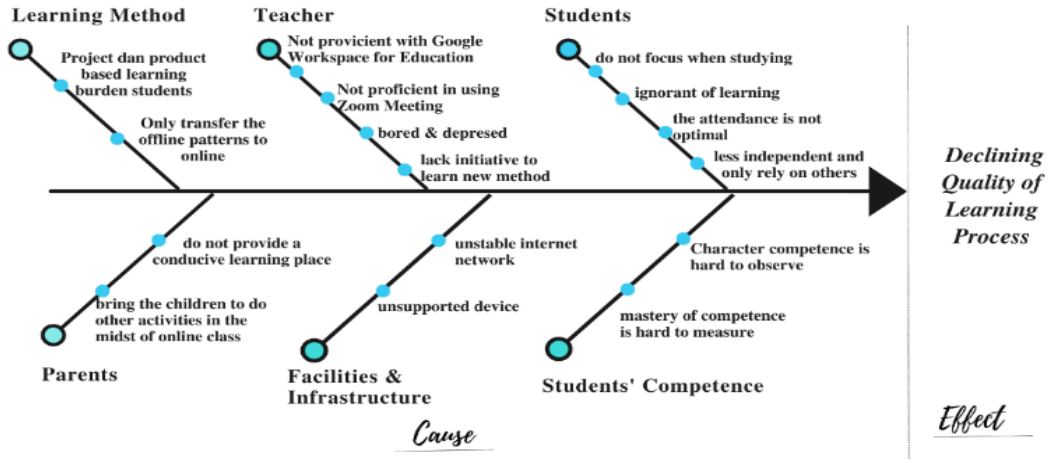


Figure 2: Fishbone Diagram of Risk Identification for Learning from Home

3. Risk Assessment

The measurement of the risk value at Dharma Suci High School involves a thorough analysis of existing data from various documents. The primary documents reviewed include:

- Document Analysis of Learning from Home for the Academic Year 2020/2021. This report contains survey results from 90% of students' parents at the end of the 2020/2021 school year.
- Recapitulation of Teacher Assessments for the 2020/2021 Academic Year. Compiled by the principal, this document is based on class visit supervision, LMS supervision, and survey results completed by 98% of students.
- Final Report for the Academic Year 2020/2021. This report to the Foundation details the home learning process, including data on student grades, incident records, and notes from the homeroom teachers.
- Student Self-Evaluation Analysis Document for the 2020/2021 Academic Year. This analysis includes results from a self-assessment survey filled out by 98% of students.
- Minutes of the 2020/2021 Academic Year-End Evaluation Meeting. These minutes capture teachers' opinions and narrative comments about the learning process, which describe the probabilities and impacts of various risk events.
- Minutes of Homeroom and Parent Meetings. These minutes document homeroom teachers' observations regarding the home learning situation for each student and the outcomes of discussions with parents.

In the Focus Group Discussion (FGD) process, data was converted into measurable units using the Likert scale. This conversion was necessary due to the diversity of the data sources, which included narrative descriptions, percentage data, survey results with other ordinal scales, and various metrics. The assessment of these measures was based on consensus reached during the

FGD. Expert judgment involving the principal and homeroom teachers, who directly engaged with the field, was deemed valid and acceptable.

Based on this document analysis, the researchers conducted a Focus Group Discussion (FGD) with six homeroom teachers to determine the probabilities and impacts of each identified risk event. The risk value for each event was then calculated by multiplying the probability by the impact. The results of these calculations are summarized in the table below.

Table 3: Risk Measurement

Risk Code	Unwanted Events	Probability	Impact	Risk Value
Risks from Teachers				
R01	Teachers are not proficient with Google Workspace for Education	4	3.3	13
R02	The teacher is not proficient in using ZOOM Meeting	3.4	3.5	12
R03	The teacher is bored and/or depressed	3.6	3.5	13
R04	Teachers lack the initiative to learn new methods	4.4	2.5	11
Risks from Students				
R05	Students do not focus when studying	2.5	2	5
R06	Students are ignorant of learning	2	3	6
R07	Student attendance is not optimal	2	1	2
R08	Students are less independent and more reliant on others	1	2	2
Risks from Parents				
R09	Parents do not provide a conducive learning environment	2	3	6
R10	Parents engage children in other activities during synchronous online class	1	3	3
Risks from Learning Methods				
R11	Project and product-based learning methods burden students	4	3	12
R12	The learning method only transfers the offline pattern to the online	4	3	12
Risks from Facilities and Infrastructure				
R13	Unstable internet network	3	1.5	5
R14	Unsupported Device	3	2	6
Risks to Students' Competence				
R15	Character building is hard to observe	4	2.5	10
R16	Mastery of competence is hard to measure	4	*3.5*	*14*

4. Risk Response

The level of risk acceptance is presented in a heatmap, as shown in Figure 3 below.

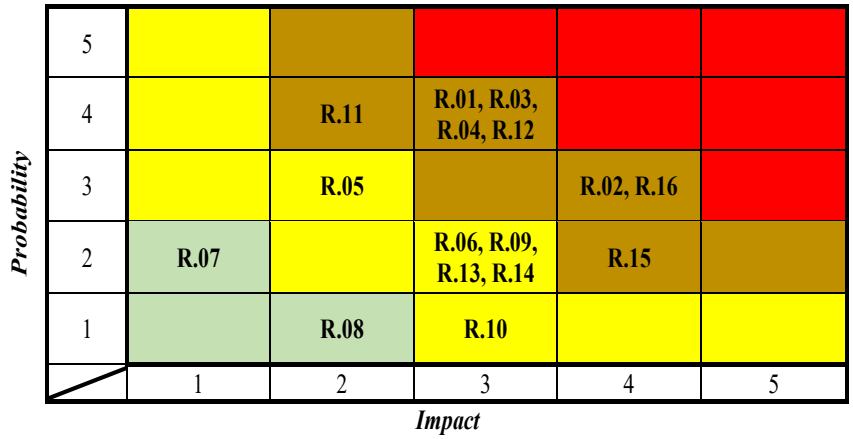


Figure 3: Heatmap of the Risks of Learning-from-Home at SMA 'X'

The level of risk acceptance is marked by the color on the heatmap as follows:

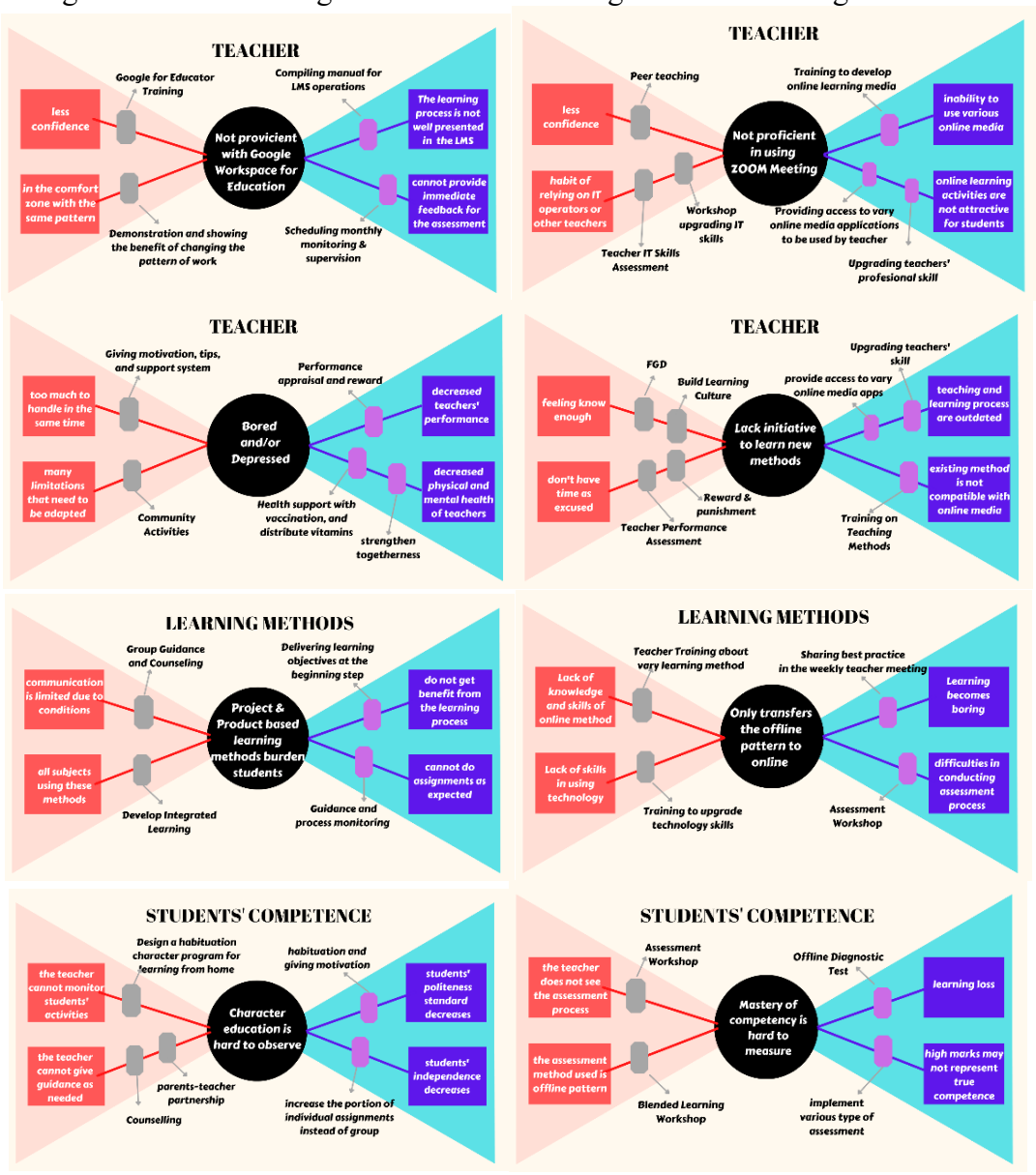
- *Negligible risks:* These risks are very small and do not require special mitigation.
  - R.07: Student's attendance is not optimal.
  - R.08: Students are less independent and more reliant on others.
- *Acceptable risks:* These risks are manageable and do not necessitate special mitigation measures. Standard management control and supervision are sufficient to handle these risks.
  - R.05: Students who do not focus when studying.
  - R.06: Students ignorant of learning.
  - R.09: Parents who do not provide a conducive learning environment.
  - R.10: Parents who engage children in other activities during online classes.
  - R.13: Unstable internet network.
  - R.14: Unsupported device.
- *Undesirable Risks:* These risks are not desirable as they have a critical impact on the quality of the learning process. They require serious attention and appropriate mitigation measures to reduce their impact.
  - R.01: Teacher is not proficient with Google Workspace for Education.
  - R.02: Teacher is not proficient in using ZOOM Meeting.
  - R.03: Teacher is bored and/or depressed.
  - R.04: Teacher lacks initiative to learn new methods.
  - R.11: Project and product-based learning methods burden students.
  - R.12: The learning method only transfers the offline pattern to the online.
  - R.15: Character building is hard to observe.
  - R.16: Mastery of competence is hard to measure.

By categorizing the risks into these three levels—negligible, acceptable, and undesirable—Dharma Suci High School can prioritize its risk management efforts effectively. This categorization ensures that serious risks receive the necessary attention and mitigation to maintain the quality and effectiveness of the learning-from-home process.

5. Mitigation

The analysis to determine risk mitigation is prepared using a bow tie diagram, as illustrated in Figure 4. In the bow tie diagram, the unwanted event is positioned in the middle, with the causes depicted in the left bow and the impacts in the right bow. The mitigation strategies for each cause and impact are articulated on the connection lines between them.

Figure 4: Bow Tie Diagrams of The Risk Mitigation for Learning from Home



Discussion

The results of the risk analysis highlight three significant sources of risk events: teachers, learning methods, and students' competency as the learning outcomes. While concerns about infrastructure and distractions at home were noted, they were deemed manageable through

technical school policies. However, the main components of learning, particularly teachers, methods, and learning outcomes, present more significant challenges.

In terms of teacher risks, challenges in technology adaptation and teacher stress indicate the need to enhance professional competence. Teachers' adaptation to new methods and technologies is crucial, as indicated by the risks associated with proficiency in using online learning platforms and feelings of boredom and stress.

Regarding risks associated with learning methods, burdensome project-based learning events and the mere replication of offline patterns to online were noted. Again, the learning method cannot be separated from the teacher's teaching skills. When students feel burdened, the teacher's role is to accompany, direct, and encourage them, as well as evaluate their learning methods. Learning that only moves the offline pattern to online is caused by the lack of the teachers' skills in packaging online learning, which stems from the teacher's lack of initiative to learn and try new things. These issues underscore the importance of teachers' teaching skills and their ability to adapt learning methods to online environments.

For learning outcomes, difficulties in assessing students' character and competencies underscore the importance of teacher competence in assessment practices. Teacher proficiency directly impacts the measurement of learning outcomes.

The researcher highlights an intriguing observation regarding the convergence of significant risks within the domain of teachers' responsibilities. This phenomenon underscored the pivotal role of educators, both in traditional classroom settings and particularly amidst the challenges of remote learning. Despite the transition to home-based learning during the pandemic, teachers remain the linchpin of education, embodying the frontline of instructional delivery.

The pandemic has underscored the paramount importance of enhancing teacher competence as a fundamental resource in educational transformation. To effectively navigate this shift, teachers need to cultivate a diverse array of competencies, encompassing personal, pedagogic, professional, dan social dimensions. As delineated by the Law on Teachers and Lecturers Government of Indonesia, 2005). These competencies constitute the cornerstone of effective instructional practice.

The findings of this study underscore the imperative of prioritizing the development of teacher competence as the primary driver of educational excellence. Particularly pertinent in the context of Dharma Suci High School is the need for heightened teacher competencies to effectively implement project and product-based learning methodologies. Consequently, Dharma Suci High School must innovate and adopt a more structured approach to school development to meet the evolving demands of education.

In this regard, the Sekolah Penggerak Program, spearheaded by the Ministry of Education and Culture of Indonesia, emerges as a transformative initiative aimed at fostering holistic learning outcomes in students. This program advocates for internal school transformations facilitated through the empowerment of school leaders and educators. By strengthening the capacities of principals and teachers, Sekolah Penggerak catalyzes systemic reform within individual schools, with the potential to drive broader regional and national-level changes (Ministry of Education and Culture, 2020).

In summary, the researcher's findings underscore the critical role of teacher competence as the linchpin of educational transformation. By investing in the development of educators' skills and capacities, schools like Dharma Suci High School can effectively navigate the challenges of contemporary education and emerge as catalysts for positive change within their communities and beyond.

Conclusions

The results of the risk analysis conducted in this case study reveal three significant sources of risk events: teachers, learning methods, and learning outcomes. These risks converge on the realm of the teacher's responsibilities, emphasizing the critical need to enhance educator skills amid the COVID-19 pandemic. Skilled and adaptable teachers are essential for developing teaching methods that align with students' current needs, designing assessments tailored to individual circumstances, and accurately measuring expected competencies.

Like two sides of the same coin, the pandemic has led to different impacts. While the pandemic has presented challenges, sadness, and discomfort, it has also sparked creativity, renewed enthusiasm, and resilience. The constraints imposed by the pandemic are prompting schools to cultivate positive habits and undergo a transformation in the education sector.

The risk analysis conducted at Dharma Suci High School underscores the pivotal role of teachers as the primary drivers of education. Regardless of circumstances, adaptive, proactive, and creative teachers are indispensable for designing, implementing, and evaluating effective learning experiences. The ability of teachers to organize and motivate themselves is crucial for fostering adaptive and innovative learning environments. Collective transformation begins with individual growth and commitment.

Building upon the findings of this study, Dharma Suci High School has applied for the Sekolah Penggerak Program, an educational transformation initiative initiated by the Ministry of Education and Culture of the Republic of Indonesia. Following a rigorous selection process, Dharma Suci High School was designated as Sekolah Penggerak in the second batch. Subsequently, structured training sessions for principals and teachers in April–June 2022. Moreover, the implementation of a new curriculum, known as Kurikulum Merdeka (Independent Curriculum), commenced in the academic year 2022/2023, starting in July 2022.

Recommendations

For SMA X: Schools should prioritize initiatives aimed at enhancing teacher competence, recognizing the pivotal role educators play in driving educational transformation. Despite the apparent easing of the pandemic, the ongoing development of teacher skills remains essential for delivering quality education services. Establishing a dedicated budgetary program for teacher training and incentives is advisable.

For future researchers: This study has focused solely on a single case study at Dharma Suci High School, which is relatively economically homogeneous and well-equipped for fully online learning. To broaden understanding, future research could investigate schools with a more socio-economically diverse student population for a comparative analysis.

For teachers all around the world: As frontline educators, it is incumbent upon teachers to embrace a commitment to continuous professional development. Drawing from the wisdom of Ki Hadjar Dewantara, the first Minister of Culture and Education of the Republic of Indonesia, an exemplary teacher leads from the front. Setting an example by actively engaging in learning, demonstrating initiative, and embracing a proactive approach to acquiring new knowledge (*ing ngarso sung tuladha)*; stands alongside students, fostering collaborative learning experiences, empathizing with their challenges, providing guidance, sharing enthusiasm, and collectively advancing toward growth and innovation (i*n madya mangun karsa)*; stands behind to provide support, offering encouragement and reinforcement to students who may falter or feel disheartened along the learning journey (*tut wuri handayani)*.

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