

Data-Based Information System Management in Improving the Quality of Junior High School Education

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Abstract. The imperative of digital transformation in education requires adaptive and evidence-based institutional governance. This study aims to critically and thoroughly analyze the managerial process of data-based information systems (DBIS) in efforts to improve the quality of education in junior high schools (SMP). Using a qualitative approach with a case study design at SMPN 1 Sukanagara and SMPN 1 Sukaresmi, this study explores the implementation of management functions—planning, organizing, executing, and controlling (POAC)—in a digital context. Data were collected through in-depth interviews with the principal, vice principal, operators, and teachers, supported by participatory observation and documentation studies. Data analysis was conducted interactively following the Miles and Huberman model. The results of the study show three main findings. First, the planning and organization of MSIBD in both schools is contextual, with SMPN 1 Sukanagara adopting a pragmatic-adaptive approach while SMPN 1 Sukaresmi implementing a visionary-integrative strategy, both based on participatory needs analysis. Second, the effective implementation of the system transformed administrative work processes to be more efficient and accurate, and became a catalyst for a shift in organizational culture towards data-driven decision making. Third, the dynamic monitoring process, despite facing challenges of digital literacy and infrastructure limitations, was successfully overcome through adaptive strategies that reflected the continuous improvement cycle (PDCA). This study concludes that the success of MSIBD is not only determined by technological sophistication, but also by managerial process maturity, supportive leadership, and the organization's capacity to learn and adapt.

Keywords: Education Management, Information Systems, Education Quality.

1 Introduction

The global education landscape is currently undergoing a tectonic shift, driven by waves of digital disruption and the imperatives of the Fourth Industrial Revolution. This tide of change demands not only incremental adaptation, but also fundamental transformation at the institutional level [1]. The conventional paradigm of education management, which is often hierarchical and reactive, is no longer adequate to navigate the complexities of the times. Modern educational institutions are faced with the demand to evolve into agile organizations that are transparent in their operations and responsive to the dynamic needs of stakeholders [2]. At the heart of this transformation lies a

crucial capability that determines the competitiveness and relevance of institutions in the 21st century: the ability to effectively manage and utilize data.

As public accountability demands strengthen, evidence-based governance has shifted from being an option to becoming the gold standard. Strategic decisions—ranging from curricular policy design, resource allocation, pedagogical interventions, to teacher professional development—can no longer be based solely on intuition or tradition. Instead, these decisions must be rooted in accurate, comprehensive, and timely data analysis [3], [4]. It is in this context that Data-Based Information System Management (DBISM) emerges as a strategic enabler. DBISM is not just software or technological infrastructure; it is a socio-technical ecosystem that functions as the “nervous system” of an organization, integrating data from various subsystems to produce meaningful managerial information.

Its implementation promises radical operational efficiency, measurable accountability improvements, and most importantly, provides a solid foundation for a cycle of continuous quality improvement [5]. However, amid the optimistic narrative about the potential of technology, there is a significant paradox in the reality of DIMS implementation in the field, especially at the level of educational units in Indonesia.

This phenomenon can be described as the “data-rich, information-poor” syndrome. Many schools have adopted various digital platforms mandated by the government, such as the Basic Education Data (Dapodik) and e-Rapor. Massive amounts of data are collected routinely, but its use often stops at the level of fulfilling administrative obligations and bureaucratic rituals [6]. The data collection process is seen more as an additional workload for external reporting purposes, rather than as an opportunity for internal reflection and improvement. As a result, data that should be a dynamic strategic asset becomes a silent and passive digital archive, failing to be processed into managerial insights that can guide learning innovation or the formulation of more focused school policies [7].

The gap between potential and reality is rooted in a series of complex and interrelated factors. On the surface, the obstacles that are often identified are the limited digital competence of human resources and inadequate technological infrastructure [8]. However, the root of the problem is often deeper, namely organizational cultural resistance to change. A long-established work culture that prioritizes habits and seniority over data creates a reluctance to adopt the transparency inherent in data-based systems. This creates what is known as a “socio-technical gap,” where technology is physically present, but the social system—which includes values, norms, skills, and work processes—is not ready to adopt it in a meaningful way [9].

Responding to this gap, this study is positioned to move beyond the descriptive question of “whether” technology is used, towards the analytical question of “how” it is managed effectively to achieve organizational goals. Rather than focusing on the technology itself, this study highlights the managerial processes that surround it. Using the analytical lens of Terry's [10] classic POAC (Planning, Organizing, Actuating, Controlling) management functions as a structural framework and Deming's [11] PDCA (Plan, Do, Check, Act) philosophy of continuous improvement as a dynamic framework, this study aims to dissect and understand the “black box” of MSIBD implementation.

The case studies at SMPN 1 Sukanagara and SMPN 1 Sukaresmi were selected purposively because they both represent a crucial context: public schools in non-metropolitan areas that are in the midst of a struggle to undergo digital transformation. They are neither elite schools with abundant resources, nor underprivileged schools without any access at all. They are a reflection of the majority of schools in Indonesia, where the real battle to integrate technology into daily management is taking place. An in-depth analysis of the narratives, challenges, and adaptive strategies that have developed in these two schools is expected to provide authentic and context-rich insights. Thus, this study seeks to make a significant contribution to the educational management literature by presenting an in-depth empirical narrative of the socio-technical dynamics of innovation adoption and offering practical implications for school leaders and policymakers in guiding educational transformation in the digital age.

2 Method

This study adopts a qualitative approach with a case study design to obtain a deep, rich, and contextual understanding of the phenomenon under study [12]. This approach was chosen because it is most suitable for exploring the complexity of managerial processes and social dynamics accompanying the implementation of technology in an organization, something that is difficult to capture through quantitative methods. The research was conducted at SMPN 1 Sukanagara and SMPN 1 Sukaresmi, which were selected through purposive sampling based on the following criteria: (a) they are public schools of reference in their subdistricts, (b) they have consistently implemented information systems (Dapodik and e-Rapor) for at least three years, and (c) they demonstrate leadership commitment to the use of technology for school management.

Data collection was conducted intensively over six months using three main techniques to ensure credibility through triangulation [13]. First, semi-structured in-depth interviews were conducted with a total of 14 key informants, consisting of the principal, vice principal for curriculum, system operator, and senior teachers from both schools. These interviews were designed to explore perceptions, experiences, and strategies related to each stage of MSIBD management. Second, participatory observation was conducted by directly observing relevant activities such as management team coordination meetings, data input processes by teachers, and internal training sessions. This observation aimed to capture actual practices and nuances of interaction that might not be revealed in interviews.

Third, a documentation study was conducted by analyzing documents such as the School Work Plan (RKS), meeting minutes, SOPs for system use, and sample output reports from the system. Data analysis was carried out using Miles and Huberman's interactive model, which involves three simultaneous streams of activity: data reduction, data presentation, and conclusion drawing/verification [14].

Interview transcripts and field notes were reduced by identifying and coding key themes relevant to the POAC framework. The coded data was then presented in the form of comparative matrices and descriptive narratives to map patterns, similarities, and differences between the two cases. The process of drawing conclusions was carried

out iteratively, in which initial findings were continuously tested and revalidated with field data until saturation point was reached and robust and accountable conclusions were produced.

3 Result

3.1 Planning and Organization: The Managerial Foundation of Digital Transformation

The transformation journey at SMPN 1 Sukanagara and SMPN 1 Sukaresmi did not begin with the procurement of technology, but with a fundamental managerial action: listening. In-depth analysis shows that the planning and organizing phase was not carried out as a top-down bureaucratic process, but as a structured organizational dialogue that was heavily influenced by the unique context of each school. The main foundation that was built was a participatory needs identification process, a conscious step by the leadership to create a sense of collective ownership from the outset. In both institutions, the principals proactively facilitated dialogue forums or “*rembug*” with teachers and operators, changing the dynamics from what was originally “orders from above” to “joint solutions.”

A teacher at SMPN 1 Sukanagara clearly described this process: “We weren't suddenly told to use the application. We were invited to sit down together and asked what was the most troublesome and time-consuming part of our daily work. The majority of the answers, almost unanimously, was the manual recapitulation of final semester grades. It was from this shared complaint that the initial focus on e-Rapor began.” This quote reveals a smart managerial strategy. By framing the adoption of technology as a solution to a shared “pain point,” management succeeded in breaking down potential initial resistance and building a solid coalition of supporters. The information system was no longer seen as an additional burden, but as a tool that would ease the burden.

Although starting from the same participatory foundation, the strategies that were subsequently formulated showed two diametrically different approaches, reflecting differences in leadership vision and resource realities. SMPN 1 Sukanagara adopted an approach that can be termed “pragmatic-adaptive.” The school's leadership conducted an honest assessment of the existing limitations: a limited budget, digital competency gaps among teachers, and a lack of capable internal technical resources. Instead of forcing a big leap, they chose to focus on optimizing one platform that was already provided by the government, namely e-Rapor. Their plan was very focused: to master all the basic functionalities of the platform thoroughly. The organization was also designed to be agile and supportive. A lean Data Management Team was formed, led by an operator as the technical hub, with several more tech-savvy teachers appointed as coordinators for each grade level. This structure serves as a socio-technical safety net, ensuring that every teacher has a close companion to contact when facing difficulties. This approach is a strategy of “small wins” that aims to gradually build confidence and momentum.

On the other hand, SMPN 1 Sukaresmi implemented a contrasting approach, namely “visionary-integrative.” Supported by leadership with a long-term vision and slightly

more adequate resources, this school was not satisfied with simply adopting existing platforms. Their planning is more architectural in nature, encompassing the development of an internal School Information System (SIS) designed to integrate various data silos: academic, student affairs, finance, and library. The principal of SMPN 1 Sukaresmi explains the philosophy behind it: "We don't want to do things halfway. The main problem in schools is fragmented data. Curriculum data is different from student data. Our goal is a 'single source of truth', a single source of valid data for all needs. This is a long-term investment in management effectiveness." To execute this vision, the organization is more formal and complex. A solid "Digital Transformation Team" was formed, led directly by the Deputy Principal for Curriculum, with a clear division between the technical team, the content quality assurance team, and the socialization team. This is a gamble with higher risks, but it promises much greater transformational returns. The sharp contrast between these two approaches underscores a fundamental principle in innovation management: there is no universal blueprint. The success of this foundational stage is largely determined by the leadership's ability to design a strategy that is contextually aligned with the vision, resources, and culture of the organization.

3.2 System Implementation and Work Process Transformation

The implementation (actuating) phase is the arena where the managerial blueprint is tested in the reality of day-to-day operations. In both schools, the tangible impact of the information system unfolded in two waves. The first wave was the most visible and immediately felt impact: a radical increase in administrative efficiency and accuracy. Processes that had previously been a nightmare at the end of the semester—such as manually recapitulating dozens of grade components, analyzing classical learning completeness, and compiling report bundles for the education office—can now be executed automatically with a few clicks. An operator at SMPN 1 Sukanagara vividly describes this change: "In the past, the week before report cards were distributed was the most stressful time, working late into the night, my eyes sore from checking numbers. Now, as long as the data from the teachers is entered on schedule, the finalization and printing only takes a few hours. The workload has been reduced by more than 50%. I can use the remaining time for other more substantive matters."

This narrative reveals more than just time savings. It is about freeing human resources from repetitive and low value-added tasks, so that they can be allocated to more strategic activities. Data accuracy has also increased significantly; the risk of calculation or typing errors inherent in manual processes can be minimized, which in turn increases the credibility of school reports. This tangible victory is the strongest justification for the investment of time and energy that has been expended during the adaptation period, as well as fuel that keeps the momentum of transformation alive.

However, if efficiency is the fruit that ripens on the surface, then the deeper impact of the second wave is hidden at its root: the role of the system as a catalyst for cultural transformation in the workplace. This phenomenon is most evident at SMPN 1 Sukaresmi, where data integration enables richer analysis. The data generated by the system is gradually changing the nature and substance of professional dialogue among

educators. Learning evaluation meetings are no longer dominated by discussions based on assumptions or anecdotal personal experiences. The Vice Principal of Curriculum there describes this fundamental shift: "Our conversations in the staff room have completely changed. In the past, we often heard statements such as 'I think the kids are having trouble with this material'. Now, we open the dashboard on the projector, and the sentence becomes 'the data shows that 60% of students in class 8A scored below the minimum passing grade on the Pythagorean Theorem chapter. Let's analyze the questions and discuss the most appropriate intervention'. This is a shift from guessing to diagnosing."

The information system has provided an objective "common language." Data has become a point of reference accepted by all parties, enabling discussions that focus more on the problem rather than on individuals. Criticism has become more constructive because it is based on evidence rather than opinion, thereby reducing the potential for personal conflict and fostering a healthier culture of collaboration. This phenomenon marks a crucial leap from simply collecting data (for reporting) to utilizing data (for improvement). This is the essence of an institution moving towards a culture of data-driven decision making, a key pillar in the framework of continuous quality improvement mandated in national education policy. Thus, the implementation phase shows that the impact of MSIBD is dualistic: it not only automates old work processes but also actively shapes and facilitates new ways of thinking and collaborating to improve the quality of learning.

3.3 Supervision Dynamics, Challenges, and Adaptive Strategies

The journey of digital transformation is never a straight path without obstacles. The monitoring (controlling) and adaptation phases are the true test of an organization's managerial maturity and resilience. In both schools, formal monitoring mechanisms were implemented to maintain system integrity. SMPN 1 Sukanagara conducted routine monitoring by checking the completeness of weekly data input by the deputy principal. Meanwhile, SMPN 1 Sukaresmi, with its more complex system, implements periodic cross-validation, where the Digital Transformation Team conducts sampling audits to compare data in the system with physical documents (such as teachers' original grade lists). This check process is crucial, not as a policing measure, but as an effort to build and maintain user trust.

Without trust in data accuracy, the emerging data-driven culture would wither before it could flourish. However, it is precisely in the face of inevitable challenges that an organization's true capacity is revealed. Both schools faced two similar major challenges, representing the friction between technology and the reality of the social-infrastructure context.

The first challenge is the human dimension: the digital literacy gap. This is particularly felt by senior teachers. A senior teacher at SMPN 1 Sukanagara candidly admitted his feelings: "At first I gave up, it felt faster to write by hand. The system felt unfamiliar and complicated. I often had to ask the operator for help until I felt uncomfortable and like I was being a bother. There was a feeling of being left behind and incompetent. This narrative goes beyond mere "resistance to change"; it reveals anxiety, a sense of

loss of control over one's work, and fear of negative judgment, a psychological aspect that must be managed with empathy.

The second challenge is the infrastructure dimension. Unstable internet connections are a significant source of frustration. One teacher described his experience: spending an hour inputting complex grade data, then suddenly losing the connection and all his work. Incidents like this, while seemingly trivial, can quickly erode morale and enthusiasm.

The most striking finding of the research was not the existence of these challenges, but rather the adaptive strategies developed by both schools to respond to them. They did not allow the problems to become permanent obstacles, but rather viewed them as feedback for improvement, a tangible manifestation of the organizational learning cycle. To address the issue of digital literacy, both schools independently arrived at the same solution: a peer tutoring program. Teachers who were more technologically proficient were informally paired with colleagues who needed help. This strategy proved far more effective than formal, classical training. Its non-hierarchical nature reduced awkwardness, the assistance was just-in-time (provided when problems arose), and the process simultaneously built collaborative bonds and social capital among staff. It was an elegant social solution to a technical problem. In response to infrastructure issues, the management of SMPN 1 Sukaresmi invested in providing backup internet connections and scheduled “data entry hours” outside of peak hours. This proactive and solution-oriented response shows that the monitoring process not only serves to control, but also to trigger a cycle of improvement (the Check and Act phases in the PDCA cycle). This dynamic confirms that an organization's capacity to learn, adapt, and formulate human-centered solutions ultimately determines the success of digital transformation more than the technology itself.

4 Discussion

When placed in dialogue with the broader literature, the findings of this study offer several important theoretical and practical implications for the discourse on digital education management. The narratives from both schools go beyond mere stories of technology adoption; they become in-depth case studies of change management, leadership, and organizational learning. First, this study strongly reaffirms the centrality of contextual leadership in guiding technological innovation in educational settings. The sharp difference in approach between SMPN 1 Sukanagara (pragmatic-adaptive) and SMPN 1 Sukaresmi (visionary-integrative) provides empirical evidence that challenges the notion of a single “one best way” to manage digitization. Success is not determined by a single leadership style—whether transformational or servant leadership—but rather by the leader's ability to make an accurate organizational diagnosis and then formulate a strategy aligned with that diagnosis. This approach is very much in line with Contingency Theory in leadership studies, which states that the effectiveness of leaders depends on the suitability of their style to the situation at hand, including the level of readiness of followers and the complexity of the task [15], [16]. These findings support the argument that technology adoption in schools is not merely a technical process of

procurement, but rather a complex organizational change process that must be managed strategically [17], [18].

Second, the results of this study enrich our understanding of the role of MSIBD as a catalyst for organizational cultural transformation. The finding that the system is capable of shifting professional dialogue from assumption-based to data-based is in line with the fundamental principles of Total Quality Management (TQM), which emphasizes the importance of decision-making based on facts and evidence, rather than opinion [11]. However, the implications go deeper than that. The information system, in this case, functions as an “epistemic artifact”—a tool that fundamentally changes how educators know about learning processes and outcomes. The deepest impact of digitization, therefore, is not on efficiency alone, but on its ability to instill and facilitate the development of analytical and reflective mindsets among educators [17]. Information systems become an objective mirror that forces organizations to look at their performance, spark critical dialogue, and in turn drive a cycle of continuous improvement. It is this shift from “data collection” to “using data for dialogue” that marks the transition to a mature data culture, where data is not just a report, but fuel for pedagogical innovation.

Third, and perhaps most significantly, the narrative of how both schools overcame challenges of digital literacy and infrastructure provides strong empirical evidence for the concept of schools as learning organizations. Rather than viewing obstacles as failures or reasons to stop, school management saw them as essential feedback loops for improvement. Bottom-up strategies such as peer tutoring programs are brilliant manifestations of an organization's capacity to learn from its experiences and capitalize on its internal social capital. This challenges the deterministic view that often dominates the discourse on technology, which assumes that a lack of resources (e.g., training budgets or sophisticated infrastructure) will automatically thwart innovation [19], [20]. Instead, this research shows that adaptive management and a strong collaborative culture can mitigate resource constraints. The solutions found are often social and organizational in nature, rather than purely technical. This confirms that the resilience and sustainability of digital transformation depend more on “social software” (trust, collaboration, willingness to learn) than on computer hardware and software alone.

Overall, these findings synthesize a view that effective MSIBD implementation is a complex socio-technical phenomenon. Success is not the result of a single factor, but rather the fruit of a harmonious orchestration of targeted managerial strategies, supportive and contextual leadership, functional technology, and—most importantly—an organizational culture that is ready to continuously change and learn from its journey.

5 Conclusion

This study concludes that data-based information system management, implemented through structured POAC managerial functions, significantly contributes to improving the quality of education governance at SMPN 1 Sukanagara and SMPN 1 Sukaresmi. The success of the implementation does not lie solely in the superiority of technology, but in the maturity of the managerial process, which is participatory in planning,

structured in organization, systematic in implementation, and adaptive in supervision. The information system has proven capable of transforming school operations to be more efficient and accurate, as well as gradually fostering an organizational culture based on data and evidence. Although challenges related to human resource capacity and infrastructure remain, responsive leadership and a collaborative culture have enabled both schools to develop effective solution strategies, reflecting their capacity as learning organizations. Therefore, to realize the full potential of digital transformation in education, the focus of policy and practice must shift from simply procuring technology to strengthening managerial and leadership capacity at the school level.

References

- [1] N. M. Maryati, H. Hidayat, N. Sulastri, and S. Anwar, 'School Management in Preventing Bullying in Primary Schools', *J. Innov. Res. Prim. Educ.*, vol. 4, no. 4, pp. 1891–1903, 2025, doi: <https://doi.org/10.56916/jirpe.v4i4.1770>.
- [2] G. Floistad, *A Note on Religious Identity and Cultural Identity, Paper presented at Conference of Human Security, Democracy, and Philosophy Section*. UNESCO, 2016.
- [3] P. S. Sondang, 'Sistem Informasi Manajemen', *Jakarta Bumi Aksara*, 2006.
- [4] H. Husnawati and P. Pujiarto, 'Strategi Kepala Sekolah dalam Meningkatkan Kinerja Operator Sekolah terhadap Data EMIS dan SIMPATIKA di RA', *JIIP - J. Ilm. Ilmu Pendidik.*, vol. 6, no. 12, 2023, doi: [10.54371/jiip.v6i12.2475](https://doi.org/10.54371/jiip.v6i12.2475).
- [5] D. Wulandari and T. Ernawati, 'Manajemen layanan bimbingan karir berbasis teknologi di sekolah menengah', *J. Manaj. Pendidik.*, vol. 10, no. 1, pp. 45–58, 2022.
- [6] T. Rosadi, 'Manajemen Mutu Pendidikan Dalam Upaya Meningkatkan Kemandirian Madrasah', *Cakrawala J. Manaj. Pendidik. Islam dan Stud. Sos.*, vol. 5, no. 1, pp. 86–106, 2021, doi: [10.33507/cakrawala.v5i1.287](https://doi.org/10.33507/cakrawala.v5i1.287).
- [7] U. Suherman *et al.*, 'Implementing a Kindness-Based Leadership Strategy in Islamic Elementary Education', *EDUKASIA J. Pendidik. dan Pembelajaran*, vol. 6, no. 1, pp. 281–292, 2025, doi: <https://doi.org/10.62775/edukasia.v6i1.1384>.
- [8] H. Jesika Dwi Putriani, 'Penerapan Pendidikan Indonesia di Era Revolusi Industri 4.0', *Edukatif J. Ilmu Pendidik.*, vol. Volume 3, pp. 831–838, 2021.
- [9] S. Anwar and H. Umam, 'Globalization and The Crisis in Islamic Education: Al-Attas' Epistemological Response and The Reconstruction of Adab-Based Pedagogy', *J. YAQZHAN Anal. Filsafat, Agama dan Kemanus.*, vol. 11, no. 1, pp. 135–149, 2025, doi: [10.24235/jy.v11i1.21161](https://doi.org/10.24235/jy.v11i1.21161).
- [10] G. R. Terry, *Principles of management*. Richard D. Irwin, 1977.
- [11] W. E. Deming, *Out of the Crisis*, 2nd ed. Cambridge, MA: MIT Press, 2018.
- [12] J. W. Creswell and C. N. Poth, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, 4th ed. Thousand Oaks, CA: Sage Publications, 2018.
- [13] N. K. Denzin and Y. S. Lincoln, *The Sage handbook of qualitative research*. sage, 2011.
- [14] M. Musnaeni, 'Pentingnya Manajemen Strategi Dalam Meningkatkan Kualitas Pendidikan', *CENDEKIA J. Ilmu Pengetah.*, vol. 2, no. 2, pp. 98–104, 2022, doi: [10.51878/cendekia.v2i2.1168](https://doi.org/10.51878/cendekia.v2i2.1168).
- [15] E. Mulyasa, *Manajemen dan Kepemimpinan Kepala Sekolah*. Bandung: Remaja

- Rosdakarya, 2015.
- [16] S. P. Robbins and T. A. Judge, *Organizational Behavior*, 18th ed. Harlow: Pearson Education, 2019.
- [17] N. Sulastri, S. Anwar, U. Suherman, and E. S. Cipta, 'Deep Learning-Based Planning Model for Islamic Education in Indonesian Integrated Schools', *EDUKASIA J. Pendidik. dan Pembelajaran*, vol. 5, no. 2, pp. 645–658, 2024, doi: <https://doi.org/10.62775/edukasia.v5i2.1734>.
- [18] Y. Liu and X. Zhao, 'Principals' Instructional Leadership and Its Effect on Teachers' Professional Competence: The Mediating Role of Academic Supervision', *Teach. Teach. Educ.*, 2021.
- [19] I. Fitriyah and A. B. Santosa, 'Kepemimpinan Kepala Sekolah Dalam Menghadapi Era Revolusi Industri 4.0 Untuk Meningkatkan Mutu Sekolah', *JMKSP (Jurnal Manajemen, Kepemimpinan, dan Supervisi Pendidikan)*, vol. 5, no. 1, 2020, doi: [10.31851/jmksp.v5i1.3538](https://doi.org/10.31851/jmksp.v5i1.3538).
- [20] C. Chotimah and K. Nisa, 'Peran Manajemen Sumber Daya Manusia Dalam Meningkatkan Mutu Pendidikan Di MA Bertaraf Internasional Amanatul Ummah Pacet', in *Prosiding Seminar Nasional Multidisiplin*, 2019, vol. 2, no. 1, pp. 125–128.