International Journal of Social Science And Human Research

ISSN(print): 2644-0679, ISSN(online): 2644-0695

Volume 06 Issue 01 January 2023

DOI: 10.47191/ijsshr/v6-i1-34, Impact factor- 5.871

Page No: 252-258

Indonesian 2013 Curriculum Management in Elementary Schools: (A Multi-Site Study at SDN Sungai Jingah 1 and SDN Sungai Jingah 6 Banjarmasin)



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ABSTRACT: School principals and teachers must synergize so that the achievement of the quality of education runs effectively. The management of the Indonesian 2013 curriculum implemented by the school could not run well without the role of the principal and teachers. For this reason, the role of the principal is very important for teachers in giving material related to the norms in each field of study that are developed, explicit, and connected with the context of daily life. The objectives of this study are (1) planning an analysis (2) implementation (3) evaluation (4) constraints in its implementation. This research approach was a qualitative type of multi-site study. The data was collected through participant observation, in-depth interviews, and documentation. The results of this study showed that: (1) planning; (2) implementation; (3) evaluation; (4) constraints in its implementation. Suggestions from this study are aimed at (1) for schools to improve the quality of education can continue to be developed in the 2013 curriculum (2) for students' parents are expected to support their children in cooperation with schools (3) for students to be able to apply learning (4) for authors and researchers are expected to conduct further research on 2013 Curriculum Management Link.

KEYWORDS: curriculum 2013 management, planning, implementation, evaluation, constraints

INTRODUCTION

Education as a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual power, self-control, personality, intelligence, noble character and the skills needed for themselves, society, nation and state (Suriansyah Ahmad, 2011). The quality of learning is influenced by several aspects, namely the environmental-based curriculum, teacher pedagogic competence and literacy learning. The results of researchers on several previous studies stated that there is a connection between the quality of learning and the environmental-based curriculum (Aprianti et al., 2022).

The core of the educational process at school is the curriculum. The educational outcomes achieved depend on the implementation of the curriculum. The curriculum is a medium to achieve goals and as a guide in carrying out teaching at all types and levels of education (Pangestu et al., 2021). Curriculum development entails the designing of learning opportunities designed to encourage the desired behavior change in students and the evaluation of the extent to which these changes have occurred (Bahri, 2017). The implementation of the 2013 curriculum starts from a number of perceptions including future challenges, future competencies, negative phenomena, and public perceptions. These four perceptions underlie several dominant aspects, namely the convergence of science and technology, quality, investment and transformation in the education sector as well as the ability to think clearly and critically, the ability to consider the moral aspects of a problem, plagiarism, and social unrest as well as the lack of character (Anwar, 2014).

The 2013 curriculum is an innovative educational structure. The 2013 curriculum is a government policy implemented in schools, especially formal schools in Indonesia. The 2013 Curriculum Policy serves as a complement and refinement of various shortcomings existed in the previous curriculum. The 2013 curriculum is structured by developing and strengthening aspects of attitudes, knowledge, and skills in a balanced manner. The 2013 curriculum differs from the previous curricula. In addition to emphasizing knowledge and expertise, the 2013 Curriculum notably alters teaching strategies and grading systems (Retnawati et al., 2016).

The 2013 curriculum, abbreviated as K-13, is a manifestation of the government's efforts to continue to make curriculum adjustments. It has stipulated that curriculum at all levels and forms of education be designed according to the idea of diversity, taking into account educational units, regional potentials, and students. In such situation, the job of the educator becomes crucial.

Teachers are a significant component of the learning system that contributes to curriculum development. In compliance with the requirements of the legislation, the curriculum must be pertinent to the demands, needs, and growth of society (Sudirman, 2019).

Good management enables educational objectives to be attained ideally, effectively, and efficiently. Therefore, management is an inseparable component of the educational process. With management, it is intended that educational institutions or organizations can strive for the implementation of a business that is systematically planned and can be evaluated correctly, accurately, and thoroughly in order to fulfill educational objectives (Astuti, 2021).

Improving the quality of education can be incorporated into the 2013 curriculum management. Norms or values-related learning materials in each subject of study must be established, made plain, and connected to the context of everyday life. Thus, value education and the improvement of the quality of education involve not only the cognitive level, but also internalization and real-world experiences. SDN Sungai Jingah 1 in North Banjarmasin District, Banjarmasin City, and SDN Sungai Jingah 6 in North Banjarmasin District, Banjarmasin City are schools that have incorporated the 2013 curriculum beginning with the 2015/2016 academic year, have made the efforts stated above. Despite having fairly restricted facilities, the two schools continue to manage the 2013 curriculum to enhance the quality of education (Trisnantari et al., 2019).

Based on the advantages of these two schools, the researchers were interested in conducting a study entitled "Indonesia 2013 Curriculum Management in Elementary Schools: A Multi-Site Study at SDN Sungai Jingah 1 and SDN Sungai Jingah 6 Banjarmasin."

METHODOLOGY

The researchers employed a qualitative method to examine the research on 2013 Curriculum Management in Elementary Schools at SDN Sungai Jingah 1 and SDN Sungai Jingah 6 Banjarmasin. Given that, the researchers intended to examine the management of the 2013 curriculum in elementary schools and all the data that the researchers collected would be summed up in wording, with no calculations required. Qualitative methodology as a research procedure produces descriptive data in the form of written or spoken words of people and observable behaviors." Furthermore, qualitative research can be used to examine the background, for example motivation, roles, attitudes and perceptions (Sidiq & Choiri, 2019). This study used a multi-site descriptive approach in which the data collected through in-depth interviews, observation participants and documentation. Data analysis was carried out by using interactive analysis models (Anjarsari, 2022).

The researchers applied qualitative approach based on several considerations: first, adjusting qualitative methods is easier when dealing with multiple realities. Second, this method presented directly the nature of the relationship between the researchers and the respondent. This research on 2013 Curriculum Management in Elementary Schools (multi-site study at SDN Sungai Jingah 1 and SDN Sungai Jingah 6 Banjarmasin) used phenomenological qualitative research. The phenomenological qualitative approach was chosen because the object under study took place in a reasonable setting and aimed to know, understand, and live carefully and in more depth about the management of the implementation of the 2013 Curriculum at SDN Sungai Jingah 1 and SDN Sungai Jingah 6 Banjarmasin. The data collection technique used in this study was participant observation where the researchers observed the behavior of parties whose data was needed to support the research, in-depth interview techniques, and documentation techniques. The reason for using this technique is because the approach used is qualitative. The data analysis techniques used were individual case data analysis and cross-case data analysis (Mahrianti et al., 2022). Data analysis in a single site was a data analysis of each school that is used as a research case study, namely SDN Sungai Jingah 1 and SDN Sungai Jingah 6 Banjarmasin.

RESEARCH RESULT

Based on the results of data analysis, this study showed the following results.

Focus 1

The 2013 curriculum management planning in elementary schools began in July 2014 for 1 semester and is already at the stage of implementing stages in accordance with the recommendations of the 2013 curriculum from the government. The 2013 curriculum management planning involves the principal, teachers, students and all school residents with planning and guidelines in the form of Document I or KTSP which contains the school curriculum. In planning, the first form is a Curriculum Development Team which would be in charge with the principal in designing the KTSP which then comes down to the lesson plans by the teacher and prepares the assessment of the students.

Focus 2

The implementation of 2013 curriculum management in its implementation of KTSP has been in accordance with the conditions and needs of the school as stated in the school's vision and mission and the school's short, medium and long-term plans which include daily, weekly (extracurricular and project), monthly (community service work), semester (distribution of report cards), and annual (6th grade graduation events).

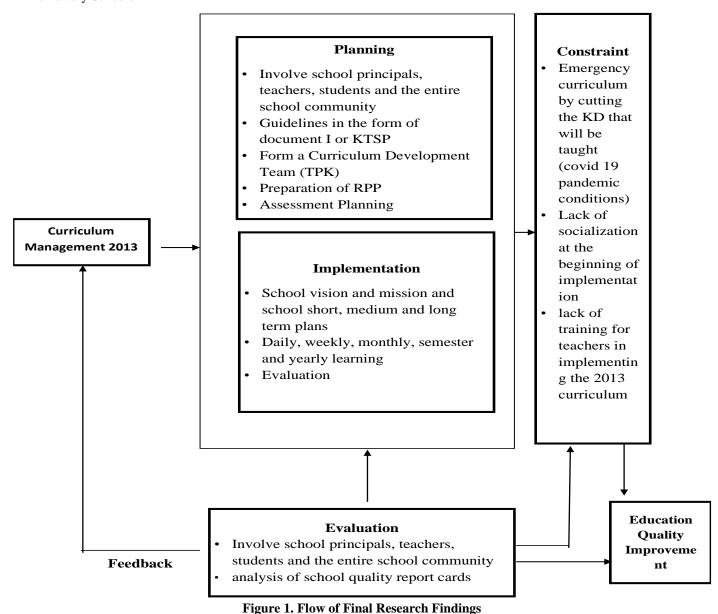
Focus 3

The 2013 curriculum management evaluation involves the principal, teachers, students and all school residents every year with the supervisor who is expected to provide input for KTSP planning in the next year along with school quality report card analysis.

Focus 4

Basic competencies that have not been attained owing to pandemic restraints are the impediments to the implementation. When the school implemented an emergency curriculum by reducing the amount of core competence that would be taught and at the beginning of the implementation, including the lack of socialization at the beginning of the implementation, the need to adapt the old curriculum to the new curriculum, and the lack of training for teachers in implementing the 2013 curriculum. These obstacles were overcome by approaching, socializing, adapting, and updating the 2013 curriculum.

Based on the findings above, it can be described from the flow of the final findings of the 2012 Curriculum Management research in Elementary Schools



A description of the findings in 2013 curriculum management can be seen in the following research discussion

A. The 2013 Curriculum Management Planning

Improving the quality of education is influenced by work habits, work culture, and interconnected organizational culture. Without a work culture and organizational culture that leads to a quality work culture, optimal quality improvement efforts will not be achieved as expected (Suriansyah, 2014).

School as an institution and social system has its own cultural characteristics (culture of school) which is an accumulation of the school's organizational culture and individual culture (Suriansyah, 2014). This individual culture differs from one individual to another teacher so that the school as a social system has a diverse culture and is influenced by the value system, perceptions, habits, educational policies and behaviors of the people who are in it (Putra et al., 2021). Work cultures that can improve quality are: (1) self-discipline; (2) control student learning progress; (3) high expectations for students; and (4) the focus of attention of residents of educational institutions on the learning process (Suyata, 1996).

Curriculum planning is the selection and sequential arrangement of content and learning experiences to present to learners. In curriculum planning a number of elements are considered, namely learners, teachers, society, educational philosophy, learning psychology, exams, community economics, resources, subject specialists, and values. All these factors have to do with culture, since nothing can be done in education without resources to the culture of a society that depends on their demands and aspirations in learning to achieve certain goals. Referring to this understanding, there are two dimensions of the curriculum, first is the plan, objectives, content and learning materials, second is the method used for learning activities (Offorma, 2016).

Curriculum management planning is a comprehensive function intended to generate systems for the effective design, development, implementation, and evaluation of the curriculum. Planning includes several stages of work and should be established and communicated in a comprehensive curriculum management policy with administrative procedures or plans adopted by the board to direct the process. This is in line with the 2013 Curriculum planning in both institutions starting with an analysis of internal and external conditions with a SWOT analysis which then the institution determines the vision, mission, and objectives to be implemented in programmatic activities. Two of these institutions became K-13 pilot schools. The school prepares a document of one School curriculum that includes (a) vision, mission, and goals, (b) content of the school curriculum, (c) learning load, and (d) educational calendar. In addition, it is also compiled in the appendix to document 1 of the Curriculum an extracurricular guide (Nichols et al., 2006).

In learning activities, including teacher teaching activities and student learning activities, teacher teaching activities and student learning activities are often called learning interactions. This learning strategy is a combination that is composed of humane elements, materials, facilities, equipment and procedures that influence each other to achieve learning objectives (Sujarwo, 2008). In developing a learning design, at least four assumptions (Salim & Mujtahidah, 2020) namely (1) in developing teaching preparation must use a system, (2) knowledge about students must be a reference in developing learning planning, (3) the ease of students in learning must be a goal in educational planning and (4) in the formation of student competencies and planning Education must be carefully crafted. The system created is very necessary for the development of learning planning, this refers to the components contained in the learning objectives must be in accordance with the lesson plan which is optimally compiled in accordance with its principles in order to form student competencies.

B. The 2013 Curriculum Management Implementation

The task of teachers is closely related to the improvement of human resources through the education sector, therefore efforts are needed to improve the teaching of quality teachers to become professionals thus, improving the quality of education can go well. The improvement of the quality of education depends on many things, especially the quality of teachers. Teachers, students and teaching materials are the dominant elements in the learning process in the classroom. The three elements are interconnected, influencing and supporting each other. If one element does not exist, the other two elements cannot relate well and the learning process will not go well (Mujiati, Suriansyah, Effendi, 2019).

The basic role of the teacher is to be an instructional leader. To fulfill that role, the teacher must deal with the social, intellectual, and physical structure of the classroom. Classroom life involves the implementation of the curriculum; organize routine procedures; collecting resources; organize the environment to maximize efficiency, monitor student progress; and anticipating, preventing, and solving problems (Joyce & Fisher, 2003).

The implementation of the curriculum is divided into two levels, namely the implementation of the school-level curriculum and the grade level. At the school level, the role is the principal, and at the class level, the role is the teacher. Although there is a distinction between the duties of the principal and the duties of the teacher in the implementation of the curriculum and there are differences in the level of administrative implementation, namely the grade level and the school level, but between the two levels in the implementation of curriculum administration always go hand in hand and together are responsible for carrying out the curriculum administration process (Nasbi, 2017).

Over time in the future, the educational revolution through a paradigm shift needs to be carried out through (1) strengthening prophetic values, (2) changing the mindset of educators and strengthening character education, (3) humanizing technology in learning, (4) the inclusion of information technology in the learning room, (5) self-services and paperless tasks (Fitri et al., 2019).

C. The 2013 Curriculum Management Evaluation

Curriculum changes often occur in the world of education. The curriculum used today in educational units is the 2013 curriculum. With the change in the curriculum, teachers should know the important points in the 2013 curriculum, namely: (1) knowledge

about the 2013 curriculum; (2) skills in designing learning tools for the 2013 curriculum; (3) skills to implement the 2013 curriculum. The implementation of the 2013 curriculum is based on a scientific approach, the skills of homeroom teachers in compiling the 2013 curriculum lesson plan based on a scientific approach (Wulandari, 2020).

Evaluation can be used in various fields and activities, including in guidance activities and counseling activities, supervision, selection, and learning. Each field has a different purpose. In guidance activities, the purpose of evaluation is to determine the state of the learning situation so that corrective measures can be taken to improve the quality of education. In learning activities to find out the level of knowledge, skills, and attitudes of students (Iqra, 2018).

Students conduct an assessment of attitude competence through observation, self-assessment, and peer assessment. The instrument used is a checklist or a grading scale. Attitude assessment is related to the attitude of students towards the subject matter, teachers / teachers, learning process, values / norms that are related to the learning material. This assessment is related to the competence of students' skills in following the learning process. Educators assess skills competencies through performance appraisals, which are assessments that demonstrate a particular competency using practice tests, projects and portfolio assessments. The instrument used is in the form of a checklist or assessment scale (Mastur, 2017).

Evaluation is a deliberate and purposeful activity. Evaluation activities are carried out consciously by an educator with the aim of obtaining certainty about the learning success of students and providing input to educators about what he or she is doing in teaching activities. Evaluation is carried out by an educator aimed at knowing the lesson materials delivered whether they have been curbed by students or not. In addition, whether the learning activities it carries out are in accordance with what is expected or not (L, 2019).

Training evaluation is an assessment of the training that has been carried out. Training evaluation serves to determine whether a training is effective. This is done in order to find out how effectively the training has achieved its goals (Sopiah, 2018). Both institutions evaluate training activities by assessing the performance and competence of teachers in the learning process.

D. The 2013 Curriculum Management Constraints

In declaring a learning process successful, each school member has their own views in line with each other and carries out the curriculum management process with maximum efforts in achieving educational goals in schools. The perception of school residents that is in line with the applicable curriculum is refined, among others, by the learning process about teaching materials is declared successful if the instructional objectives, especially (ICT) can be achieved. (Sudirman, 2019)

With this success, it can improve the management used in learning and the quality of teachers in teaching as well as the efforts of all school residents in improving school achievement. Through this success, accompanied by evaluation activities, it can make a reference and feedback on the success of curriculum management in schools. It can be seen in the quality of education and school achievement so that it can achieve the quality of education in schools, especially in the curriculum whose target is achievement in school accreditation (Mastur, 2017)

CONCLUSION

From the findings in the research conducted at SDN Sungai Jingah 1 and SDN Sungai Jingah 6 on 2013 curriculum management, the following conclusions are drawn: (1) The 2013 curriculum management planning at SDN Sungai Jingah 1 and SDN Sungai Jingah 6, which is prioritized, is a method of discussion between teachers and students, and includes the development of cognitive aspects, affective and psychomotor aspects to improve the quality of education in schools. (2) The implementation of curriculum management 2013 to improve the quality of education at SDN Sungai Jingah 1 and SDN Sungai Jingah 6 with school management, utilization of learning resources, use of learning media, use of learning strategies and models, and good teacher performance. In this case, teachers have a major role in driving the learning process. Supported by the role of parents as well as the students themselves. With quality human resources, it will produce human resources who have cognitive, affective, and psychomotor learning achievements to be able to achieve qualified quality education. (3) The evaluation of curriculum management 2013 in improving the quality of education at SDN Sungai Jingah 1 and SDN Sungai Jingah 6 found that students are more enthusiastic in learning, both in groups supported by a learning atmosphere that does not have to be in the classroom making students have a new learning experience because students are required to obtain or search for the material to be studied themselves so that students feel they can remember the material they themselves find well. Evaluation of cognitive aspects is carried out using oral, written or assignment techniques. (4) The constraints in the management of the 2013 curriculum that schools are faced with a lack of training for teachers at the beginning of the implementation of the 2013 curriculum, lack of socialization of the 2013 curriculum, slow adaptation to the 2013 curriculum and passing the transition period from the old curriculum to the new curriculum. However, these obstacles and obstacles are biased to be overcome by the 2013 curriculum management which is quickly responded to by the school itself to be able to achieve good quality education.

REFERENCES

- 1) Anjarsari. (2022). Implementation of Entrepreneurship-Based Vocational Education (Multi Site Study at Slb Negeri 1 Martapura Dan Slb-C Negeri Pembina Provinsi Kalimantan Selatan). *International Journal of Social Science and Human Research*, 05(06), 2744–2751. https://doi.org/10.47191/ijsshr/v5-i6-111
- 2) Anwar, R. (2014). Hal-Hal yang Mendasari Penerapan Kurikulum 2013. *Humaniora*, 5(1), 97. https://doi.org/10.21512/humaniora.v5i1.2987
- 3) Aprianti, A., Suriansyah, A., & Syaifuddin, A. R. (2022). International Journal of Social Science And Human Research The Correlation Between Environment-Based Curriculum and Teacher Pedagogical Competence with Learning Quality through Literacy Learning at State Junior High Schools in East Banjarmasin District. 05(12), 5275–5279. https://doi.org/10.47191/ijsshr/v5-i12-04
- 4) Astuti. (2021). Manajemen Peserta Didik. Adaara: Jurnal Manajemen Pendidikan Islam, 11(2), 133-144.
- 5) Bahri, S. (2017). Pengembangan Kurikulum Dasar Dan Tujuannya. *Jurnal Ilmiah Islam Futura*, 11(1), 15. https://doi.org/10.22373/jiif.v11i1.61
- 6) Umar Sidiq. (2019). Metode Penelitian Kualitatif di Bidang Pendidikan. In *Journal of Chemical Information and Modeling* (Vol. 53, Issue 9). http://repository.iainponorogo.ac.id/484/1/METODE PENELITIAN KUALITATIF DI BIDANG PENDIDIKAN.pdf
- Fitri, A. Z., Nafis, M., & Mujib, F. (2019). Integration of Walisongo'S Da'Wah Spirit With Science in Indonesian National Qualification Framework Based Curriculum. *El Harakah (Terakreditasi)*, 21(1), 37. https://doi.org/10.18860/el.v21i1.5926
- 8) Hanes Puji Pangestu, Siti Mauludah, Muhammad Ilman Nafi'an, Irma Azizi, Ahmad Hidayatullah, R. S. (2021). Pentingnya Pengembangan Kurikulum di Sekolah dalam Upaya Meningkatkan Mutu Pendidikan. *At-Tahdzib: Jurnal Pendidikan Dan ...*, 1–19. http://ejurnal.iaipd-nganjuk.ac.id/index.php/At-Tahdzib/article/download/372/267
- 9) Iqra, I. (2018). Konsep Dasar Evaluasi Hasil Belajar Siswa Di Sekolah. *EL-Muhbib: Jurnal Pemikiran Dan Penelitian Pendidikan Dasar*, 2(2), 151–159. https://doi.org/10.52266/el-muhbib.v2i2.373
- 10) L, I. (2019). Evaluasi Dalam Proses Pembelajaran. *Adaara: Jurnal Manajemen Pendidikan Islam*, 9(2), 920–935. https://doi.org/10.35673/ajmpi.v9i2.427
- 11) Mahrianti, M., Hadi, S., & Saleh, M. (2022). Parental Involvement in Schools: A Multi-site Study at Kuin Utara 4 and Sungai Jingah 4 Elementary Schools in Banjarmasin. 05(12), 5967–5976. https://doi.org/10.47191/ijsshr/v5-i12-84
- 12) Mastur, M. (2017). Implementasi Kurikulum 2013 dalam pelaksanaan pembelajaran di SMP. *Jurnal Inovasi Teknologi Pendidikan*, 4(1), 50. https://doi.org/10.21831/jitp.v4i1.10131
- 13) McLeod Joyce, Jan Fisher, and G. H. (2003). The Key Elements of Classroom Management: Managing Time and Space, Student Behavior, and Instructional Strategies. In *St. Alexandria*, *USA*: Association for Supervision and Curriculum Development Alexandria (ASDC). (Vol. 106, Issue 8).
 - http://search.proquest.com.ezp.lib.unimelb.edu.au/docview/211343525?accountid=12372%5Cnhttp://sfx.unimelb.hosted.exlibrisgroup.com/sfxlcl41?url_ver=Z39.88-
 - 2004&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&genre=unknown&sid=ProQ:ProQ%3Aeducation&atitle=The+Key
- 14) Nasbi, I. (2017). MANAJEMEN KURIKULUM: Sebuah Kajian Teoritis. *Idaarah: Jurnal Manajemen Pendidikan*, 1(2), 318–330. https://doi.org/10.24252/idaarah.v1i2.4274
- 15) Nichols, B., Shidaker, S., Johnson, G., & Singer, K. (2006). Managing Curriculum and Assessment: A Practitioner's Guide. In *Teacher Librarian* (Vol. 34, Issue 2).
- 16) Offorma, G. C. (2016). Integrating Components of Culture in Curriculum Planning. *International Journal of Curriculum and Instruction*, 8(1), 1–8.
- 17) Putra, A. P., Suriansyah, A., & Dalle Juhriyansyah. (2021). Lembaga Penelitian dan Pengabdian kepada Masyarakat. *Lembaga Penelitian Dan Pengabdian Kepada Masyarakat Universitas Udayana*, *6*(2), 1–7. http://www.lppm.unud.ac.id
- 18) Retnawati, H., Hadi, S., & Nugraha, A. C. (2016). Vocational high school teachers' difficulties in implementing the assessment in curriculum 2013 in Yogyakarta Province of Indonesia. *International Journal of Instruction*, 9(1), 33–48. https://doi.org/10.12973/iji.2016.914a
- 19) Salim, M., & Mujtahidah, N. (2020). Penerapan Kurikulum 2013 Revisi 2018 dalam Meningkatkan Prestasi Belajar Siswa. *Al-Idaroh: Jurnal Studi Manajemen Pendidikan Islam*, 4(1), 86–107. https://doi.org/10.54437/alidaroh.v4i1.146
- 20) Sopiah. (2018). Evaluasi Program Pelatihan Dan Pendampingan Bahan Ajar Bagi Guru-Guru Sman 5 Kediri. *Jurnal Pendidikan Ekonomi*, 11(2), 125–136.
- 21) Sudirman, H. S. (2019). Strategi Implementasi Kurikulum: Suatu Kajian Perspektif Teori Di Sekolah Dasar. *Adaara: Jurnal Manajemen Pendidikan Islam*, 9(2), 936–951. https://doi.org/10.35673/ajmpi.v9i2.428
- 22) Sujarwo. (2008). Desain sistem pembelajaran. Universitas Negeri Yogyakarta, 2008, 1–18.

- http://staffnew.uny.ac.id/upload/132304795/penelitian/Desain+Pembelajaran-pekerti.pdf
- 23) Suriansyah, A. (2014). Commitment And The State Elementary School Teachers. Cakrawala Pendidikan, 3, 358–367.
- 24) Suriansyah Ahmad. (2011). Landasan Pendidkan. Comdes.
- 25) Suyata. (1996). Mengembangkan Partisipasi Masyarakat Dalam Pelaksanaan Wajib Belajar Dikdas 9 Tahun (pp. 45–58).
- 26) Trisnantari, H. E., Mutohar, P. M., & Rindrayani, S. R. (2019). Manajemen Peningkatan Mutu Pendidikan Berbasis Karakter Bangsa Dengan Sistem Fds (Full Day School). *Jurnal Pendidikan Karakter*, *1*, 116–132. https://doi.org/10.21831/jpk.v0i1.21947
- 27) Wulandari, A. (2020). Implementation of the 2013 Curriculum Based on a Scientific Approach (Case Study at SD Cluster II Kintamani). *International Journal of Elementary Education*, *4*(3), 422. https://doi.org/10.23887/ijee.v4i3.28172



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