

QUALITY CONTROL CIRCLE (QCC) MANAGEMENT TO IMPROVE THE PROFESSIONAL COMPETENCY OF TEACHERS (CASE STUDY OF MTsN 1 AND MTsN 2 PALANGKA RAYA CITY)

ISTANTO

Universitas Islam Nusantara Bandung. Email: istanto@uninus.ac.id

HANAFIAH

Universitas Islam Nusantara Bandung. Email: hanafiah@uninus.ac.id

HENDI

Universitas Islam Nusantara Bandung. Email: hendi@uninus.ac.id

WASKA WARTA

Universitas Islam Nusantara Bandung. Email: waskawarta@uninus.ac.id

Abstrak

Problems in improving teacher professionalism include teachers' low motivation to improve their abilities due to age, inability to use information and lack of enthusiasm for competition. Teachers feel more comfortable without having to bother following efforts to increase professional competence. Under these conditions, efforts are needed to improve teacher competency through the management Quality Control Circle (QCC). This research aims to obtain an overview and analysis of management QCC to improve the professional competence of MTsN teachers through a qualitative research approach using the case study method. To discuss research findings using quality assurance system management theory using the PDCA (Plan, Do, Check Act) cycle. Spencer's Competency Theory is a characteristic that underlies a person and is related to the effectiveness of an individual's work in their work. Data sources were obtained through observations, documents and interviews with Madrasah Principals, Deputy Madrasah Principals, Teachers and School Committees and Supervisors at MTsN 1 and MTsN 2 in Palangka Raya City. The results of this research found that QCC planning had been carried out by pursuing ideal planning principles but was not yet optimal. The implementation of QCC pays little attention to quality management aspects. QCC evaluation does not pay enough attention to the success of teachers' professional competency measures. QCC follow-up is still faced with obstacles to the consistency and cohesiveness of the QCC team.

Keywords: Management, Quality Control Circle (QCC), Teacher Professional Competence

A. INTRODUCTION

Quality management is business management so that the quality of service products continues to improve, becoming better, controlled, and sustainable by consumer standards and expectations (Spratt, 2019). Quality management also oversees all activities and tasks necessary to maintain a desired level of quality (Sancar et al., 2021). Determining quality policy, creating and implementing planning, assurance, control, and quality improvement (Philipsen et al., 2019). Quality management is a way to determine whether the final product meets standards (Nguyen, 2019). In the world of educational services in Indonesia, quality management is a strategic choice and is in line to be implemented to achieve academic goals in Indonesia by the mandate of the National

Education and Education System Law Number 20 of 2003, article 1 paragraph 1, the implementation of which is regulated through the Minister of Education and Culture of the Republic of Indonesia Number 28 of 2016 concerning the Quality Assurance System for Primary and Secondary Education. Quality control management is an effort to realize quality governance of an institution, and it is necessary to have integrated quality control over all the quality of work in an institution (López et al., 2019). For this reason, a device is needed that can be used to measure existing quality management standards in an institution (Iskandar et al., 2023). Quality management standards are coordinated activities to direct, control, and blend so that the quality or performance standards of each individual in an institution can be measured and achieved (Cooc, 2019). This is to the key principles of quality control management described by (Imron et al., 2020) that is: 1) management commitment: planning (encouragement, guidance), implementation (dissemination, support, participation), inspection (inspection), and action (recognition, communication, revision), 2) employee empowerment: training, brainstorming, assessment and recognition, as well as a strong working group, 3) decision making based on facts: statistical process control, the seven statistical tools, 4) continuous improvement: systematic measurement and focus on costs of non-quality; resilient working groups; cross-functional process management; achieve, maintain, and improve standards, and 5) focus on consumers: relationships with suppliers, service relationships with internal consumers, quality without compromise, standards by consumers. Quality control management is divided into Total Quality Management (TQM) and Quality Control Circle (QCC). Integrated Quality Management is all basic efforts to be carried out by all institution members as a form of continuous and controlled accountability for managing the quality of products and services so that they comply with the standards and changes expected by consumers (Romero-García et al., 2020). According to (Suratman et al., 2020) Quality Control Circle (QCC) have been proven to produce positive technical results, such as higher productivity, lower costs, and improved product quality. (Bas-Sarmiento et al., 2019) said that the Quality Control Circle is a new concept to improve the quality and productivity of industrial or service work. The steps taken in the Quality Control Circle include planning, implementation, checking/evaluation, and follow-up. This is by the concept of Deming (Best, 2005), which became known as "The Deming Wheel" or PDCA cycle or the PDCA cycle, which is useful as a work pattern in improving a process or system PDCA stands for Plan, Do, Check, Act. Basic concepts and strategies for ensuring educational quality, according to (Murkatik et al., 2020), is important for educators and education personnel because they are the main component responsible for controlling and improving the quality of education. Quality assurance is carried out through standardization, certification, competency testing, performance assessment, and internal quality evaluation. Based on research results (MacPhail et al., 2019) find problems no matter how sophisticated the equipment and system technology in the organization is, ultimately the human factor also determines whether the organization is successful or not in achieving its targets. This is supported by the theory Maslow dan Herzberg (Pardee, 1990), that compensation and facilities do not guarantee that someone will be motivated to carry out their duties. Still, they also need appreciation for themselves

and opportunities to realize themselves. Therefore, employees who are members of the quality control group are involved or involve themselves fully in togetherness to solve problems determined together and solved jointly by the group participants themselves (Listiningrum et al., 2020). Based on the opinion of Spencer and Spencer (1993), stating competence is *“an underlying characteristic’s of an individual which is causally related to criterion referenced effective and or superior performance in a job or situation”*. Teacher ability is the first factor influencing learning success (Lee et al., 2019). Teachers who have high abilities will be creative and innovative and apply various learning models and new discoveries for classroom learning (Kuivila et al., 2020) (Muna et al., 2017). One assumption is that increasing teacher abilities and the quality of learning in schools can be achieved through improving the quality of human resources (teachers and education staff) although it is acknowledged that other components also contribute (Komalasari et al., 2020). Based on the observations made directly at several MTsN in Central Kalimantan regarding implementing QCC management, there are still problems, namely the need for more support for increasing teacher professional competence. Various issues indicate this in improving teacher professionalism, including low teacher motivation to enhance their abilities due to age, inability to use IT, and lack of enthusiasm for competition. Teachers feel more comfortable with the salaries and allowances provided without considering keeping up with educational developments, especially in efforts to increase professional competence. There are still teachers who teach outside their area of expertise. Teachers need to know that QCC in madrasas is managed in the form of committees or teams authorized by the head of the madrasa. So, the implementation of MTsN QCC is still not optimal. Based on the previously explained problems, this research aims to determine how managing QCC's planning, implementation, evaluation, and follow-up improves the professional competence of MTsN 1 and MTsN 2 teachers in Palangkaraya City. The results of this research can be used as a basis for supervisors to guide QCC management to improve the professional competence of teachers at MTsN 1 and MTsN 2, Palangka Raya City.

B. RESEARCH METHODS

The research method used in this research is case studies, which are empirical investigations investigating contemporary phenomena in real-life contexts. (Klassen et al., 2020) create the meaning of a case study for architectural research by turning it into an empirical investigation that investigates a phenomenon or setting. Quality Control Circle (QCC) management is concerned about improving the professional competence of teachers at MTsN 1 and 2 Palangka Raya City. The research uses the case study method to describe or explain something, which is then classified so that a conclusion can be drawn about the management of the QCC to improve the professional competence of MTsN teachers. according to (Hoque et al., 2020) Case studies are empirical research that examines phenomena in a background that is not visible. Yin added that the typical style of the case study method is that it can relate to various forms of data, including interviews, observations, documents, and equipment. This research was conducted on natural objects, namely MTsN 1 and 2, Palangka Raya City, as Key Informants are the

Madrasah Committee, School Supervisors, Madrasah Principals, and Teachers' Councils. Data collection techniques through observation, interviews, and documentation. The research instrument is the researcher himself. Qualitative data analysis techniques use models Miles and Huberman (Asipi et al., 2022).

1. Data collection technique

There are several techniques used by researchers in collecting data, namely:

a. Interview

Data collection through interview techniques was carried out by taking several informants along with the matters to be explored to complete the research data:

- 1) Committee Madrasah MTsN 1 and MTsN 2 Palangka Raya City
- 2) School Supervisor at MTs Level, Ministry of Religion, Palangka Raya City Regency
- 3) Head of MTsN 1 and MTsN 2 Palangka Raya City
- 4) Deputy Head of MTsN 1 and 2 Palangka Raya City
- 5) MTsN 1 and MTsN 2 Teachers' Council of Palangka Raya City

The selection of research subjects above is deemed to understand and be able to provide information to reveal data and analyze related to QCC management to improve teacher professional competence through planning, implementation, evaluation, and follow-up activities at MTsN 1 and MTsN 2, Palangka Raya City.

b. observation

Observation activities require researchers to record various information encountered systematically. An important aim of conducting observations is to provide researchers with a realistic picture of a behavior or event related to the activities of the research object. The objects of observation or observations in this research are:

- The condition of the madrasah.
- The availability of infrastructure.
- Various forms of things can be observed.

Observations made during MTsN QCC activities, carrying out active actions in the madrasah environment, and conducting direct observations.

c. Documentation

Documentation techniques are used to obtain data that cannot be obtained using interview or observation techniques. The results obtained from documentation techniques are in the form of media used to improve learning, documents about QCC management, lesson plans, educational administration, photos, drawings, charts, structures, and notes obtained from research subjects.

2. Data Collection Instrument

An overview of research data collection is described through a grid and data collection instruments from this research are presented in the table below:

No	Research purposes	Research Indicators	Data source	Research Techniques		
				W	O	SD
1	Plan	a. QCC Planning Goals b. QCC madrasa program: 1) Improvement 2) Empowerment 3) Teacher self-development through education and professional training Human resources involved in QCC planning c. QCC planning time	a. Committee of MTsN 1 and MTsN 2 Palangka Raya City b. Madrasah Supervisor, Ministry of Religion, Palangka Raya City c. Head of MTsN 1 and MTsN 2 Palangka Raya City d. Teachers Council of MTsN 1 and MTsN 2 Palangka Raya City	√	-	√
2	Do	Organization Management of the QCC Madrasah program	a. Committee of MTsN 1 and MTsN 2 Palangka Raya City Madrasah Supervisor b. Head of Madrasah c. Teachers' Council	√	-	√
3	Check	a. Constraints and solutions to QCC problems b. Measuring the success of QCC planning and implementation	a. Committee of MTsN 1 and MTsN 2 Palangka Raya City b. Madrasah Supervisor, Ministry of Religion, Palangka Raya City c. Head of MTsN 1 and MTsN 2 Palangka Raya City d. Teachers Council of MTsN 1 and MTsN 2 Palangka Raya City	√	√	√
4	Act	a. QCC replanning b. QCC Madrasah advanced program	a. Committee of MTsN 1 and MTsN 2 Palangka Raya City b. Madrasah Supervisor, Ministry of Religion, Palangka Raya City c. Head of MTsN 1 and MTsN 2 Palangka Raya City d. Teachers Council of MTsN 1 and MTsN 2 Palangka Raya City	√	√	√

Note: (W) Interview, (O) Observation, (SD) Documentation Study

C. RESULTS AND DISCUSSION

1. Management Quality Control Circle (QCC) in Improving Teacher Professional Competence at MTsN 1 and 2 Palangka Raya City

a. Planning

The results of the interviews found that management Quality Control Circle (QCC) management in improving the professional competence of teachers at MTsN 1 and MTsN 2 Palangkaraya City by making plans in QCC was designed to be able to clarify the achievement of madrasah goals as signs for QCC so that they do not deviate from their duties and become indicators that QCC can work and provide effective and efficient results. QCC was formed by madrasahs as the spearhead of managing activities to produce satisfactory and quality services. The Implementing Committee, Team, and Task Force often began at MTsN and embodies the Quality Control Group. The QCC is part of the madrasah, which carries out activity programs to achieve the goals of a quality madrasah. The formation of QCC is an initial plan for madrasahs where it is appropriate for organizations to start implementing programs preceded by planning.

In terms of increasing teacher capacity, QCC activity planning is programmed to grow and develop professional teacher competence. QCC runs a simultaneous program in the form of activities involving teachers as group members who are deemed capable of managing activities to improve teachers' personal, social, and pedagogical competencies. QCC is programmed for sudden and urgent incidental activities. Daily, weekly, monthly, quarterly, semester, and even annual routine activities. From a personnel perspective, the QCC program at MTsN 1 and 2 Palangka Raya City is divided into QCC, whose members remain yearly and can accommodate teachers and staff with capacities in their respective fields. The existence of a QCC whose members alternate every year will also increase the ability of teachers to implement madrasah work programs jointly. In managing its activities, the QCC program involves teachers who are deemed capable of carrying out the activity stages. However, due to limited capacity, there are also those who are given to teachers or non-teaching staff willing to help voluntarily. The QCC program is a madrasah program where all teachers can be accommodated in each QCC according to their respective capacities. The more quality programs there are in the QCC, the more they require attendance and provide a place for teachers to increase their power.

Quality Control Circle (QCC) planning is generally carried out at the beginning of the fiscal year as a cost allocation agreed upon by all stakeholders and according to the madrasah's funding capabilities at the curriculum development meeting. In contrast, specific planning for each QCC is carried out by each group after the meeting. Usually, QCC planning is carried out when the supervisor attends a meeting where the planning will be programmed, for example, during a curriculum development team meeting, accompanied by the madrasah committee, teachers, parent representatives, and student representatives. Or at the beginning of the fiscal year. At meetings at the beginning of the school year, the beginning of the semester, and the beginning of activities. Usually, when preparing the madrasah QCC program at the beginning of the fiscal year, the committee

is asked to attend. And asked to convey to parents at the committee members' meeting what assistance or grants the committee can provide to madrasahs so that the QCC program to create quality madrasahs can be supported and run adequately.

b. Do

In terms of directing people in implementing Quality Control Circle (QCC), this research found that in achieving madrasah goals, the madrasah head provided direction on important things that should be the quality targets for each group member. Rules can be in the form of orders or instructions on what cluster members must carry out by established quality standards to show cluster members the right path, a good relationship between the leadership and cluster members, and education for cluster members. Directions were carried out during the meeting by the Kamad to all activity committees. Order in the implementation of the QCC is carried out by the head of the district and staff to competent people in each QCC program activity. At least 1-2 weeks before the implementation time.

Management of QCC implementation is an action taken by QCC members to realize plans that have been finalized and agreed upon as a madrasah quality program. The method is tested by carrying it out in stages, considering all changes that occur. The organizing committee always coordinates with the kamad and collaborates with the committee. Manage cohesiveness within the team and coordinate with each other in working together between groups (committees) with Kamad control. The appointed committee usually always coordinates with Kamad so activities can run smoothly. The management in implementing QCC at MTsN 1 and 2 Palangka Raya City is handed over to the respective QCC members. Implementation is carried out in stages according to planning and coordination, and communication between members is carried out.

c. Evaluation

The obstacles faced in QCC management can be identified through the QCC implementation process by paying attention to changes that occur in detail by comparing the level of conformity between plans and expectations. If the programs implemented do not match the expected results, obstacles or problems will arise. The barrier that is found and must be faced is how careful the group members are in capturing and concluding whether it concerns People, Facilities, Infrastructure, or Costs. Miscommunication often occurs between committee members and they feel they are not responsible, as well as a lack of cohesion within the team, lack of communication and lack of initiative that can emerge within a team/committee. There is no simultaneous program to hold activities to improve teacher professional competence, apart from providing opportunities for teachers independently so that only teachers who have high motivation want to take part. The obstacles faced by senior teachers who are technologically clueless are more than wanting to learn and hoping for help from other teachers. Most teachers are invited to work reluctantly. Lack of awareness of committee members in carrying out their duties so they are only focused on the committee chairman. The obstacles faced in QCC management are miscommunication and overlapping duties between members so that it

is often found that only part of the QCC members work. Sometimes there are also unexpected problems that are not planned. And when there are obstacles from outside the madrasah, the committee must be involved as an intermediary to mediate the resolution of the problem.

d. Act

In replanning, which is carried out as a form of follow-up to the QCC after carrying out activities according to plan, automatically, some things are not satisfactory for the cluster members, both from the implementation process and the results obtained, so that after joint evaluation by all cluster members, improvements are needed by making reductions. Or additional treatment outlined through planning changes. After evaluation, many deficiencies will be found for activities/programs that are repeated in the following year, which should be corrected at each stage so that they can be implemented in the coming year. Carry out reflections on previous activities as part of the follow-up and form a solid committee, has character and can carry out the results of the thinking for subsequent actions. Evaluate from the previous committee what obstacles there were at that time so that the following activities can run well and smoothly. If the activity results are not optimal, an evaluation is carried out until the main problem and possible solutions are found. Replanning can be made as a form of follow-up. From program implementation reports by the QCC to the committee, it is often found that there are things that cannot be implemented, so the management makes necessary improvements to previous planning and follows up with implementation so that obstacles can be overcome even though the results have not met optimal achievements.

D. DISCUSSION

1. Plan

As one of the stages in a series of processes, planning is a systematic way of carrying out work. Planning contains various interrelated activities to achieve a goal. Thus, planning must also be prepared based on these relationships and objectives. In its implementation, the Head of the Madrasah can carry out the planning objectives and can plan and control the quality of education from when students enter. They are educated at school until they become school graduates. Clear, complete, and integrated planning is needed so that leaders such as madrasa heads, deputy madrasa heads, heads of administration, and other unit leaders can carry out and control activities well. In addition, control requires a clear structure, meaning who is responsible for deviations, what corrective actions need to be taken, and by whom those actions are carried out. Quality control activities include general methods such as accurately examining data obtained and processing using established standard procedures.

2. Do

Implementing plans and countermeasures can be described in the direction and management of implementing QCC. The directing (actuating) function is part of implementing an organization's planning. Some people will show direction in their

functions; this will be related to the managerial structure that forms a hierarchy. As a result, there will be levels of management that correspond to administrative ranks and will refer to administrative direction. Direction is the most important thing in the composition of QCC management and decision-making in a company or organization. This is because direction is an effort to make all members or human resources work optimally and according to their functions.

3. Check

In every QCC activity currently being carried out, evaluation is very important. So, evaluate the identification process in assessing or measuring certain programs/activities, whether they meet expectations or objectives. The purpose of this evaluation is also to ensure that what is currently being implemented is the target to be achieved. Evaluation is not only limited to technical problems but also to other non-technical problems. Evaluation is a systematic and planned activity to measure, assess, and classify program implementation and success. In an organization, using evaluation is very important to assess organizational accountability. Evaluation is an assessment process. This assessment can be neutral, positive, negative, or a combination of both. When something is evaluated, usually the person considering it makes a decision about its value or benefits.

4. Act

A follow-up plan is a process of systematically preparing activities that will be carried out to achieve certain goals. A follow-up plan is also a calculation and determination of what will be carried out in order to achieve a certain object, where, when, by whom and how. Follow-up plans are designed from the results of activity evaluations which include process evaluations and results evaluations. The results of the analysis must be followed up by developing the next program as a continuation of the program, developing service networks so that QCC program achievements can be achieved more optimally, developing new commitments, orientation policies and implementing further QCC services.

E. CONCLUSION

In general, this research can conclude that Management Quality Control Group (QCC) to improve the professional competence of MTsN teachers has been implemented with principles in the PDCA cycle but has yet to touch on efforts to improve teacher professional competence. Meanwhile, the specific conclusions of this research consist of (1) Plan of QCC has been carried out by striving for ideal planning principles, with various analyses of QCC resources, namely teachers, but in reality, planning has not had an optimal impact on increasing capacity, empowerment and continuing professional assessment of teachers as a benchmark for the success of the QCC work program. (2) Do of QCC management to improve the professional competence of teachers at MTsN through resource direction and management activities, but with less attention to the actual quality management aspects by Sallis' opinion and Deming's cycle. (3) Check of QCC

management to improve the professional competence of teachers at MTsN is carried out normatively, including summative and formative assessments. Evaluation of QCC management and measures of its success has received little attention, and evaluation of teachers' professional competence has yet to be fully carried out to analyze the measures of success in its achievements. (4) Act of QCC management's follow-up to improve teacher professional competence, which is carried out by re-planning teacher resources, is still faced with obstacles to consistency and cohesiveness of the QCC team at MTsN.

References

- 1) Asipi, L. S., Rosalina, U., & Nopiyadi, D. (2022). The Analysis of Reading Habits Using Miles and Huberman Interactive Model to Empower Students' Literacy at IPB Cirebon. *International Journal of Education and Humanities*, 2(3), Article 3. <https://doi.org/10.58557/ijeh.v2i3.98>
- 2) Bas-Sarmiento, P., Fernández-Gutiérrez, M., Díaz-Rodríguez, M., Carnicer-Fuentes, C., Castro-Yuste, C., García-Cabanillas, M. J., Gavira-Fernández, C., Martelo-Baro, M. de los Á., Paloma-Castro, O., Paublete-Herrera, M. del C., Rodríguez-Cornejo, M. J., & Moreno-Corral, L. (2019). Teaching empathy to nursing students: A randomised controlled trial. *Nurse Education Today*, 80, 40–51. <https://doi.org/10.1016/j.nedt.2019.06.002>
- 3) Best, M. (2005). W Edwards Deming: Father of quality management, patient and composer. *Quality and Safety in Health Care*, 14(4), 310–312. <https://doi.org/10.1136/qshc.2005.015289>
- 4) Cooc, N. (2019). Teaching students with special needs: International trends in school capacity and the need for teacher professional development. *Teaching and Teacher Education*, 83, 27–41. <https://doi.org/10.1016/j.tate.2019.03.021>
- 5) Hoque, K. E., Bt Kenayathulla, H. B., D/O Subramaniam, M. V., & Islam, R. (2020). Relationships between Supervision and Teachers' Performance and Attitude in Secondary Schools in Malaysia. *SAGE Open*, 10(2), 215824402092550. <https://doi.org/10.1177/2158244020925501>
- 6) Imron, A., Wiyono, B. B., Hadi, S., Gunawan, I., Abbas, A., Saputra, B. R., & Perdana, D. B. (2020). *Teacher Professional Development to Increase Teacher Commitment in the Era of the Asean Economic Community*. 339–343. <https://doi.org/10.2991/assehr.k.201112.059>
- 7) Iskandar, Y., Ardhiyansyah, A., Heliani, & Jaman, U. B. (2023). The Impact of the Principal's Leadership Style and the Organizational Culture of the School on Teacher Performance in SMAN 1 Cicalengka in Bandung City, West Java. In P. Hartanto & J. Suprapmanto (Eds.), *Proceedings of the International Conference on Education, Humanities, Social Science (ICEHoS 2022)* (Vol. 763, pp. 453–459). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-088-6_49
- 8) Klassen, R. M., Kim, L. E., Rushby, J. V., & Bardach, L. (2020). Can we improve how we screen applicants for initial teacher education? *Teaching and Teacher Education*, 87, 102949. <https://doi.org/10.1016/j.tate.2019.102949>
- 9) Komalasari, K., Arafat, Y., & Mulyadi, M. (2020). Principal's Management Competencies in Improving the Quality of Education. *Journal of Social Work and Science Education*, 1(2), Article 2. <https://doi.org/10.52690/jswse.v1i2.47>
- 10) Kuivila, H.-M., Mikkonen, K., Sjögren, T., Koivula, M., Koskimäki, M., Männistö, M., Lukkarila, P., & Kääriäinen, M. (2020). Health science student teachers' perceptions of teacher competence: A qualitative study. *Nurse Education Today*, 84, 104210. <https://doi.org/10.1016/j.nedt.2019.104210>
- 11) Lee, M.-H., Chai, C. S., & Hong, H.-Y. (2019). STEM Education in Asia Pacific: Challenges and Development. *The Asia-Pacific Education Researcher*, 28(1), 1–4. <https://doi.org/10.1007/s40299-018-0424-z>

- 12) Listiningrum, H. D., Wisetsri, W., & Boussanlegue, T. (2020). Principal's Entrepreneurship Competence in Improving Teacher's Entrepreneurial Skill in High Schools. *Journal of Social Work and Science Education*, 1(1), Article 1. <https://doi.org/10.52690/jswse.v1i1.20>
- 13) López, Á. R., Souto, J. E., & Noblejas, M. L. A. (2019). Improving teaching capacity to increase student achievement: The key role of communication competences in Higher Education. *Studies in Educational Evaluation*, 60, 205–213. <https://doi.org/10.1016/j.stueduc.2018.10.002>
- 14) MacPhail, A., Ulvik, M., Guberman, A., Czerniawski, G., Oolbekkink-Marchand, H., & Bain, Y. (2019). The professional development of higher education-based teacher educators: Needs and realities. *Professional Development in Education*, 45(5), 848–861. <https://doi.org/10.1080/19415257.2018.1529610>
- 15) Muna, K., Sanjaya, R. E., Syahmani, & Bakti, I. (2017). *Metacognitive skills and students' motivation toward chemical equilibrium problem solving ability: A correlational study on students of XI IPA SMAN 2 Banjarmasin*. 020008. <https://doi.org/10.1063/1.5016001>
- 16) Murkatik, K., Harapan, E., & Wardiah, D. (2020). The Influence of Professional and Pedagogic Competence on Teacher's Performance. *Journal of Social Work and Science Education*, 1(1), Article 1. <https://doi.org/10.52690/jswse.v1i1.10>
- 17) Nguyen, H. C. (2019). An investigation of professional development among educational policy-makers, institutional leaders and teachers. *Management in Education*, 33(1), 32–36. <https://doi.org/10.1177/0892020618781678>
- 18) Pardee, R. L. (1990). *Motivation Theories of Maslow, Herzberg, McGregor & McClelland. A Literature Review of Selected Theories Dealing with Job Satisfaction and Motivation*. <https://eric.ed.gov/?id=ed316767>
- 19) Philipsen, B., Tondeur, J., Pareja Roblin, N., Vanslambrouck, S., & Zhu, C. (2019). Improving teacher professional development for online and blended learning: A systematic meta-aggregative review. *Educational Technology Research and Development*, 67(5), 1145–1174. <https://doi.org/10.1007/s11423-019-09645-8>
- 20) Romero-García, C., Buzón-García, O., & de Paz-Lugo, P. (2020). Improving Future Teachers' Digital Competence Using Active Methodologies. *Sustainability*, 12(18), Article 18. <https://doi.org/10.3390/su12187798>
- 21) Sancar, R., Atal, D., & Deryakulu, D. (2021). A new framework for teachers' professional development. *Teaching and Teacher Education*, 101, 103305. <https://doi.org/10.1016/j.tate.2021.103305>
- 22) Sprott, R. A. (2019). Factors that foster and deter advanced teachers' professional development. *Teaching and Teacher Education*, 77, 321–331. <https://doi.org/10.1016/j.tate.2018.11.001>
- 23) Suratman, S., Arafat, Y., & Eddy, S. (2020). The Influence of Principal's Leadership and Teacher's Competence toward Teacher's Performance in Indonesia. *Journal of Social Work and Science Education*, 1(2), Article 2. <https://doi.org/10.52690/jswse.v1i2.32>