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Preeclampsia and the Associated Risk Factors Among Pregnant Women in Indonesia: a Literature Review

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Abstract. Nationally, the maternal mortality rate in Indonesia has dropped from 305 deaths per 100,000 live births to 189 deaths for 100,000 living births. The top three causes of maternal death are preeclampsia. Preeclampsia in pregnancy is the leading cause of death of 37%. This study was conducted to determine factors associated with preeclampsia among pregnant women in Indonesia. This scoping review method has the following inclusion criteria: scientific journals published most recently from January 2023 to December 2023. The research found 15 studies to fulfil the inclusion criteria determined by the author and topic discussion. Risk factors for preeclampsia among pregnant women were identified: parity, distance between pregnancies, pregnancy age, history of abortion, education, income, knowledge, prior history of illness, contraceptive use, ANC visit, nutritional status, and Body Mass Index (BMI). This research can be used as a reference for health promotion related to preeclampsia risk factors for intervention to prevent preeclampsia in pregnant women who are at risk of developing the disease and putting the lives of the mother and the fetus she is carrying at risk.

Keywords: factors; preeclampsia; pregnant woman; Indonesia.

INTRODUCTION

The health of mothers and children is essential for governments, as set out in the Sustainable Development Goals (SDGs) in the third paragraph of ensuring healthy lives and supporting well-being for all ages [1]. A mother's health is vital in improving the child's well-being [2]. Infant deaths, especially neonatal, can be closely linked to pregnancy complications that occur at an early or too old age, births with low birth weight, and unsafe births [3, 4]. When a mother dies, her family becomes more vulnerable, and when there are babies in the household, they are more likely to die before reaching the age of two [5].

Preventing maternal death, especially during childbirth, has become a concern both globally and nationally. One of the goals of the SDGs is to reduce the maternal mortality rate to 70 deaths per 100,000 live births by 2030 [4]. Ensuring that all women have access to contraception, providing care for childbirth, as well as access to timely emergency care for pregnant mothers when they are going to give birth is considered to be the best effort in trying to achieve my goals [6]. Family planning involves attempts to avoid risky pregnancies because they are too early, too old, too many, or too close to pregnancy [4, 7]. Mother's health and family planning programs are essential to ensure "safe motherhood" and create a healthy new life [8].

Nationally, the maternal mortality rate in Indonesia has dropped from 305 deaths per 100,000 live births to 189 deaths for 100,000 living births [9]. The results show a significant decrease, even far below the target in 2022 of 205 deaths per

100,000 live births. That achievement must be pushed to be even better, to reach the target by 2024 of 183 deaths for 100,000 living births and > 70 deaths in 2030 [10]. According to the Maternal Perinatal Death Notification data on September 21, 2021, the top three causes of maternal death are preeclampsia (37.1%), bleeding (27.3%), infection (10.4%), with the highest place or location of death being in the hospital (84%) [11].

Mother's death is a problem in many parts of the world, including Indonesia. Preeclampsia in pregnancy is the leading cause of death at 37% [10]. Preeclampsia is a risk of pain and death for mothers and fetuses in the world. Preeclampsia is a health problem that occurs after more than 20 weeks of pregnancy, characterized by the onset of hypertension and proteinuria. Individuals can consider the possibility of preeclampsia if their weight increases by more than one kilogram in a week [12]. More than 830 women and 7700 newborns still die each day from pregnancy-related complications; an additional 7300 women experience a stillbirth, with approximately 16% occurring in pregnancies complicated by hypertension [13].

Preeclampsia (PE) occurs in 1.5% of pregnant women and occurs in 1% of the total pregnancy [14]. According to data from the World Health Organization, PE causes 76,000 maternal deaths each year in developing countries, which accounts for 16% of all mother deaths. The disease is also known as the most common cause of iatrogenic prematurity in developed countries [15]. Preeclampsia, which occurs in 10% of pregnant women, causes 76,000 maternal deaths and 500,000 infant deaths per year worldwide [16]. According to the 2019 National Institute for Health and Care Excellence (NICE) guidelines, women who have a history of hypertension in previous pregnancies or other maternal diseases, such as diabetes, high blood pressure, chronic kidney disease, autoimmune disease, and obesity, are at higher risk of developing preeclampsia. Pregnant mothers who are at the middle risk of 40 years of age, have a body mass index (BMI) of 35 kg/m2, have a family history of preeclampsia, recurring pregnancy, or pregnancies with intervals of more than ten years are also at higher risks of having preeclampsia [17, 18]. Because of the potential risk of severe complications in the mother and fetus and the unpredictable course of PE disease, effective prevention is crucial. Therefore, this study was conducted to determine factors associated with preeclampsia among pregnant women in Indonesia.

METHOD

This scoping review method will be conducted using the five stages, with recent advancements by [19]. The article selection process is presented (Figure 1).
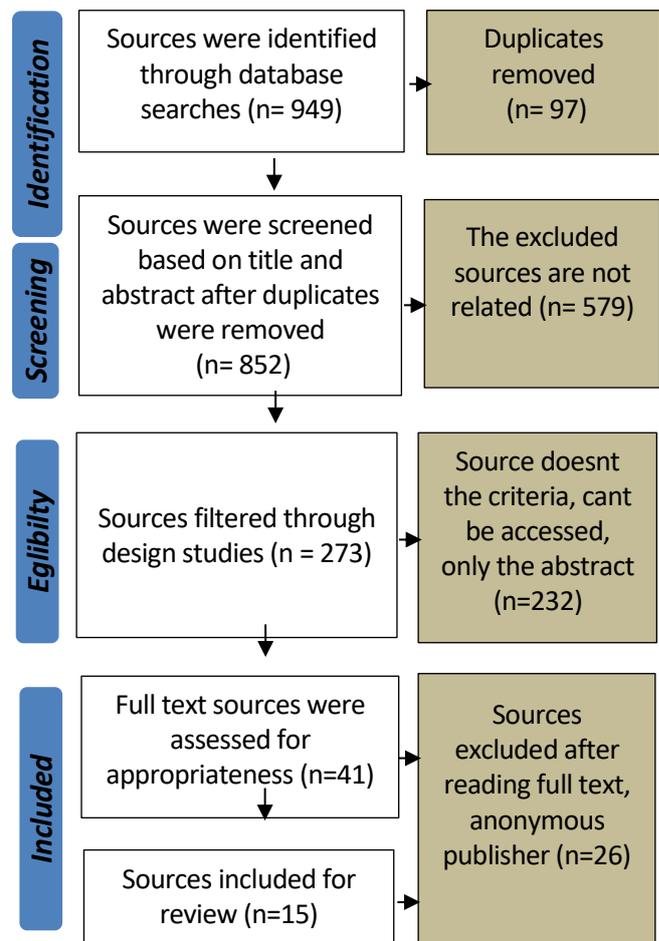
Figure 1 – Modified from PRISMA flow diagram for the article election process

Step 1: identifying the research question, to meet the study's objective, the researchers developed the following research question: "What are the factors associated with preeclampsia among pregnant women in Indonesia.?".

Step 2: Identify relevant studies; this research uses databases such as Google Scholar, Science Direct and Pubmed. Keywords and terms used in this research are English and Indonesian. In English, they are: factors, preeclampsia, pregnant woman, Indonesia and in Indonesia, they are: faktor, preeklampsia, ibu hamil, Indonesia.

Step 3: study selection; this study has the following inclusion criteria: scientific journals published most recently from January 2023 to December 2023, open access and complete text studies, the languages used are English and Indonesia, articles using cross-sectional, case-control, cohort, mix- method or longitudinal survey. Exclusion criteria: literature review journal, systematic review or univariate analysis, manuscript not available full text, PRISMA model used http://www.prismastatement.org/.

Step 4: Data extraction will include several variables: author, year of publication, research location, research design, research objectives, and published (Table 1).

Step 5: Collating, summarising and reporting the results. The research results are presented as a narrative of the topic studied.

RESULTS AND DISCUSSION

The well-being of mother and child is influenced by shared determinants such as health behaviour, health system, and family quality of life. Conditions of residence where a person lives, works, and is active are associated with various health risks. Furthermore, environmental and social factors such as access to health services, employment, economic opportunities, social assistance and the availability of resources to meet daily needs also affect health. The research found 15 studies to fulfil the criteria for inclusion determined by the author and by topic discussion about factors associated with preeclampsia among pregnant women in Indonesia. The results of the sampling technique can be seen in Table 1.

Table 1 − Characteristics of the studies

Author	Study Design	Sample, Results
[20]	Cross-sectional	In fifty-five respondents, there is a relationship between the history of hypertension (p=0.00), parity (p=0.00), and pregnancy distance (p=0.00) with the preeclampsia pregnant mothers in Puskesmas Kemu district of South Oku in 2023.
[21]	Case-control	One hundred ten respondents, pregnancy age (p=0.00), a history of abortion (p=0.04) and parity (p=0.03) were associated with preeclampsia in pregnant mothers.
[22]	Cross-sectional	One hundred thirty-two respondents, there was a correlation between age (p=0.00), a history of hypertension (p=0.00) and preeclampsia in pregnant mothers.
[23]	Cross-sectional	94 respondents, the results show a variable history of hypertension obtained (p= 0.00), obesity (p= 0.00), and mother's age (p= 0.00), there is a relationship of preeclampsia among pregnant women at home at Palembang Muhammadiyah Hospital in 2022.
[24]	Cross-sectional	Of the 53 respondents, there was a relationship between education (p=0.00), average income (p= 0.01), and knowledge (p=0.00) with preeclampsia in pregnant mothers.
[25]	Case-control	One hundred twelve respondents, there's a relationship between pregnancy age, mother's age, parity, and pregnancy complications history (p=<0.00) with preeclampsia in pregnant mothers.
[26]	Cross-sectional	In eighty-one respondents, there is a relationship between age (p=0.02), parity (p= 0.00), hypertension (p=0.00), and obesity (p=0.01) with preeclampsia incidence in pregnant mothers at the Mukomuko Hospital Pregnancy Police in 2022.
[27]	Case-control	In 105 respondents, there was a correlation between Body Mass Index (BMI) (p-value= 0.04) and the incidence of preeclampsia in pregnant mothers.
[28]	Cross-sectional	Ninety-three respondents, there is a relationship between age (p= 0.00), BMI (p= 0.00), and parity (p=0.003 with the incidence of preeclampsia in pregnant mothers in RSUD Pakuhaji district of Tangerang.

Author	Study Design	Sample, Results
[29]	Case-control	For one hundred fifty-two respondents, risk factors of preeclampsia are age (p=0.01), contraceptives (p=0.00), parity (p=0.00), and hypertension (p =0.00).
[30]	Cross-sectional	Of the seventy-seven respondents, there is a significant correlation between the parity of pregnant mothers (p=0.00) and preeclampsia in the Bagan Sinembah district of Rokan Hilir.
[31]	Cohort	1.357 respondents, there was a relationship between ANC service visits (p-value=0.00) and hypertension (p-value = 0.00) with incidence of preeclampsia.
[32]	Case-control	One hundred respondents found a correlation between the age of the mother (p=0.00) and contraceptives (p=0.01) with the incidence of preeclampsia.
[33]	Case-control	One hundred five respondents, there was a correlation of ANC visits (p=0.00), a history (p=0.02), nutritional status (p =0.00), obesity (p=0.02) of preeclampsia in pregnant mothers.
[34]	Case-control	For sixty respondents, the results showed that parity was at risk 6.5 times (OR=6.57. p=0.00), ANC visits were at risk 5.5 times (OR=5.5; p = 0.00), and the mother's work was at risk four times (OR=4.03. p=0.01) to events preeclampsia.

Parity. The parity is the number of living children or the amount of pregnancies that produce a fetus capable of living out of the womb. The best parity is ≤ 3 times and the worst is≥ 3 times [35]. A mother who gives birth too often doesn't get a chance to fix her own body because she needs enough energy to recover from the condition after giving birth to her child. The first parity is associated with the mother's lack of knowledge and experience in pregnancy care [36]. The safest parity is from 2 to 3, while the most risk is from 1 to 3. Mothers with a high parity (more than 4) have already experienced a decrease in reproductive function. Women with high parity are risk factors for pregnancy anaemia, diabetes mellitus (DM), hypertension, placenta previa, uterine rupture, low birth weight (BBLR), preeclampsia, premature infants can even cause child death; multiparity was significantly associated with a low risk of preeclampsia (adjusted odds ratio: 0.08; 95% confidence interval: 0.01–0.95) [37]. Preeclampsia occurs not only in primigravida in grand multipara but also has a risk of developing eclampsia — pregnancy and giving birth more than three times. Excessive uterine stretching causes excessive ischemia that can lead to preeclampsia. Parity of the mother < 2 or ≥ four times the risk of preeclampsia and parity between 2-3 times the non-risk of preeclampsia, mothers with a high parity (more than 4) have already experienced a decrease in reproductive function [38].

Distance between pregnancies. The determinant of preeclampsia incidence is birth spacing. The analysis revealed a strong link (p-value of 0.00)

between birth spacing and preeclampsia. This finding is consistent with prior studies indicating that if a mother has a birth spacing of less than two years after becoming pregnant, her pregnancies have not returned to normal [39]. Mothers with pregnancies between 3 and >5 years are at higher risk of preeclampsia compared to 3 to 5 years. Preeclampsia may occur as a result of birth spacing. This type of birth spacing is most suitable for pregnant parents, i.e., those between the ages of 2 and 5. It is a very safe way to end a woman's pregnancy. As a result, there are more responses in the appropriate range of 2 to 5 years compared to the less ideal range of <2 and > five years, which has a higher risk [40]. At the interval of pregnancy < 2 years, it can cause problems because the physical condition is still not ready for pregnancy and childbirth, so it can cause damage to the uterus or the reproductive organs of the mother that has not returned to its normal state and the mother's health ha While pregnancy period >5 years has a high risk of occurrence of preeclampsia, degenerative processes or weakening of the strength of the functions of the uterine muscles to the process of delivery when pregnant again not appropriately recovered [41, 42].

Age. According to the existing theories, preeclampsia is more commonly acquired in early and late reproductive age, i.e. adolescence or over 35 years of age. Pregnant women under 20 are more likely to have high blood pressure and have seizures faster [39]. Anaemia can occur in pregnancies of women under the age of 20 or over 35. This is because women under twenty

are biologically unprepared, their emotions tend to be unstable, and their mental maturity, so they are prone to failure, resulting in a lack of attention to the fulfilment of the necessary nutritional needs during pregnancy [43, 44]. However, in people over 35, it is associated with a decrease in body endurance and various chronic diseases that cause anaemia. In addition, people over the age of 35 are also at risk of developing preeclampsia, as ageing makes them more susceptible to an increased incidence of chronic hypertension and a greater risk of suffering from pregnancy [45]. Maternal subjects in this study range in age from 20 to 35. The results of this study indicated that preeclampsia incidence is significantly correlated with age (p<0.00); 20 to 35 years old is a long time to be vulnerable and of reproductive health. The majority of mothers who develop preeclampsia are over 30 years old (76.2%) [39]. By the time the mother of the 30-year-old started to raise the risk of preeclampsia. The risk of causing the death of more than 2-4 times as many healthy reproduction occurs if pregnancy happens below or above the healthy reproduction age of 20–30 years [46]. A mother bearing a fetus with trisomy 13 and a family history of preeclampsia are uncommon risk factors [47, 48].

History of abortion. Services for abortions have improved in the last few years. Specifically, women may be able to get an early abortion thanks to the advancement of medical abortion. However, complications from abortions continue to be a significant global cause of maternal death [49]. According to a study conducted in the US, there is a direct correlation between the likelihood of having a second abortion in a later pregnancy and the first abortion; pregnant women who had previously had an abortion were more likely than those who had never had one to experience preeclampsia, an early birth, and low birth weight in a subsequent pregnancy [50]. Pregnant women with only SAB (spontaneous abortion) history had a statistically significant higher risk of preeclampsia. In contrast, pregnant women with only IA (induced abortion) history had a statistically significant lower risk. These differences persisted and showed statistical differences following applying logistic regression analysis [51, 52].

Education, knowledge and income parents. The higher the level of education, the better the understanding and behaviour. The higher the education, the more information and knowledge are acquired. The higher a person's level of expertise, the more persistent their behaviour will be [53]. In other words, a mother who knows and understands the ideal number of children will behave according to what she knows. Thus, the lower the level of education a person has, the less rational it is to think that the ideal number of children is two [54].

Meanwhile, a job is a set of tasks or activities that someone must perform according to their respective office or profession [55]. Many assume that a person's high employment status can have many children capable of meeting the needs of everyday life. The high economic conditions of the family encourage mothers to have more children because the family feels capable of meeting the needs of life [56]. According to a [57] study, knowledge is an essential factor influencing behaviour. There are quite a few pregnant women who know about this condition, that is 68 people or 70 % of the total pregnant. Since preeclampsia and eclampsia cause almost 50% of maternal and fetal deaths, knowledge of this condition is essential for pregnant mothers. Formal education does not continually improve knowledge; however, non-formal education can also increase knowledge. Higher-educated pregnant mothers have a better understanding of preeclampsia than less-educated pregnancies.

Prior history of illness. An earlier history of illness is a record of the disease and treatment experienced by the patient in the past. It is information that can add to the description of the disease now and or that influences the management of the patient. Many factors cause an increased incidence of preeclampsia in pregnant women, including a history of chronic hypertension, diabetes mellitus or kidney disease [58]. Pregnancy-induced hypertension, like preeclampsia, is one of the primary causes of death. History of diabetes mellitus was also another independent predictor variable for preeclampsia. When compared to people without hypertension, these outcomes were somewhat more significant in those with chronic or gestational hypertension; nevertheless, the majority were not statistically significant [59]. More severe hypertension diseases were associated with a higher risk of using a newborn intensive care unit (OR:2.41 for preeclampsia, OR:4.87 for superimposed preeclampsia). The two factors most likely to predict the progression from gestational or chronic hypertension to preeclampsia or superimposed preeclampsia were obesity or overweight and a history of

preeclampsia during a previous pregnancy [58]. Obesity increases the risk of preeclampsia. Thus, the risks of severe and mild preeclampsia, as well as preeclampsia, occur in the early and late stages of pregnancy [60]. The incidence of preeclampsia increases in women with diabetes; preeclampsia is more likely to happen in women with three to four times the rate of diabetes [61, 62].

Contraceptive use. The study found that the use of IUDs reduces the risk of preeclampsia, particularly if the devices are removed within a year of conception. On the other hand, there was a correlation found between a higher risk of preeclampsia and recent usage of hormonal contraceptives. However, this was limited to female users of these contraceptives for over eight years. In a similar, women who took oral contraceptives as opposed to alternative hormonal contraceptives before getting pregnant were more likely to develop preeclampsia [63]. This study [64] showed that Chi^2 trials with a rate of acupuncture of 5% (α=0,05) obtained p =0,014 (p<0,05) until there was a correlation between patients who had previously used hormonal contraceptives and preeclampsia. The Odd Ratio (OR) value was 2,783, which means that patients who were pre-pregnancy using hormonal anticonceptives were 2.7 times more likely to have preeclampsia compared to patients without a history of hormone contraceptive use. Most of the hormonal contraceptives are hormone estrogens and progesterone, which are counted to almost the same level as the hormone content in the body. When used for long periods, it can cause detrimental health symptoms [32]. The hormones estrogen and progesterone can facilitate sodium retention in the secretion, which increases the activity of the plasma in the excretion of angiotensin, which can improve the natural pressure [65]. Hormonal contraceptives are not caused by endometrial dysfunction, but they cause increased homocysteine levels in the blood, abnormal fatty blood glands and excess weight gain. Some of these things contributed to an increase in the incidence of preeclampsia [66].

ANC visit. Antenatal care, or ANC, is a prenatal assessment that strives to maximize a mother's physical and mental well-being to give birth to a healthy baby and mother while receiving the best possible care [67]. Frequent antenatal care visits can help identify preeclampsia early in pregnancy, stop preeclampsia problems from developing, and expedite referrals, all of which can lower

pregnancy-related morbidity and mortality. ANC service provided to the expectant mother is still below the maximum. It has an impact on the incidence of preeclampsia. The use of ultrasound is one of the significant ANC exams. Because it is effective in pregnancy screening [68], it is essential to promote health and raise awareness of the significance of conducting antenatal visits regularly – that is, at least one visit in trimester I, one visit in trimester II, and two trips in trimester III – to enhance public compliance with carrying out antenatal care appointments. To lower the mother's chance of experiencing difficulties during her pregnancy or birth, health professionals should conduct average prenatal care visits and diagnosis as soon as possible if the woman exhibits symptoms of preeclampsia [69].

Nutritional status. Nutritional status is an expression of a state of equilibrium in the form of a particular variable or the existence of a nutriture for a specific variable. Suppose fetal growth is disrupted due to nutritional deficiencies, either directly or indirectly due to placental dysfunction. In that case, the competition between the mother, fetus, and placenta for nutrition will affect the placenta's and the foetus's growth, which involves the baby's birth weight and the placenta's [70]. According to the researchers, a person's nutritional status can lead to preeclampsia. The standard category is 23.5-25 cm, and the abnormal category is fat or obese above 25 cm. The health of the pregnant mother and the fetus is affected by adequate nutritional intake [71]. During pregnancy, malnutrition can cause problems for the mother and fetus. The risk factor associated with preeclampsia is not limited to gizi that is overweight or obese. In mothers who are overweight, preeclampsia may occur due to metabolic syndrome, hyperleptinemia, and inflammatory reactions [72].

Body Mass Index. Studies from developed countries show that high prepregnancy body mass index (BMI) increases the risk of preeclampsia. An increased prepregnancy body mass index was positively correlated with an increased risk of preeclampsia; this was indicated by an adjusted odds ratio of 1.8 between obese women with a BMI over 30 and average-weight women with a BMI between 20 and 24.9 [73]. The only maternal feature with a higher chances ratio among those in our research was age, with mothers over 35 showing the most significant difference in risks. Our results are consistent with earlier research on pregnant women's populations in af-

fluent nations. The highest correlation between preeclampsia and rising BMI was observed in cases associated with term birth; however, there was no statistically significant interaction between preeclampsia and gestational age at delivery [74]. These findings found a higher correlation between term preeclampsia and rising BMI than between preeclampsia and preterm. A correlation between preeclampsia and BMI was comparable to that of resource-rich nations in direction and amplitude [75]. Therefore, it is crucial that those who are disproportionately affected by preeclampsia and associated pregnancy problems worldwide in terms of maternal morbidity and mortality [38].

CONCLUSIONS

Based on the results and discussion in the scoping review, several risk factors for preeclampsia among pregnant women were identified: parity, distance between pregnancies, pregnancy age, history of abortion, education, income, knowledge, prior history of illness, contraceptive use, ANC visit, nutritional status, Body Mass Index (BMI). To prevent preeclampsia in pregnant women who are at risk of developing the disease and put the lives of the mother and the fetus she is carrying at risk. This research can be used as a reference for health promotion related to preeclampsia risk factors for intervention.

Author Contributions

The authors provide equal contributions to this study.

REFERENCES

1. Krannich, A.-L., & Reiser, D. (2021). The United Nations Sustainable Development Goals 2030. *Encyclopedia of Sustainable Management*, 1–5. doi: 10.1007/978-3-030-02006-4_178-1

2. Kurjak, A., Stanojević, M., & Dudenhausen, J. (2022). Why maternal mortality in the world remains tragedy in low-income countries and shame for high-income ones: will sustainable development goals (SDG) help? *Journal of Perinatal Medicine, 51*(2), 170–181. doi: 10.1515/jpm-2022-0061

3. Baraki, A. G., Akalu, T. Y., Wolde, H. F., Lakew, A. M., & Gonete, K. A. (2020). Factors affecting infant mortality in the general population: evidence from the 2016 Ethiopian demographic and health survey (EDHS); a multilevel analysis. *BMC Pregnancy and Childbirth, 20*(1). doi: 10.1186/s12884-020-03002-x

4. Kemenkes. (2022). *Profil Kesehatan Indonesia 2021* [Indonesia Health Profile 2021]. Retrieved from https://www.kemkes.go.id/app_asset/file_content_download/Profil-Kesehatan-Indonesia-2021.pdf (in Indonesian).

5. WHO. (2023, February 22). *Maternal Mortality*. Retrieved from https://www.who.int/news-room/fact-sheets/detail/maternal-mortality

6. Leal Filho, W. (2020). Viewpoint: accelerating the implementation of the SDGs. *International Journal of Sustainability in Higher Education, 21*(3), 507–511. doi: 10.1108/ijshe-01-2020-0011

7. WHO, & UNICEF. (2021). Indicators for Assessing Infant and Young Child Feeding Practices: Definition and Measurement Methods (Part 2). Retrieved from http://apps.who.int/iris/bitstream/handle/10665/44306/9789241599290_eng.pdf?sequence

8. WHO. (2020, September 8). *Children: Improving Survival and Well-being*. Retrieved from https://www.who.int/news-room/fact-sheets/detail/children-reducing-mortality

9. Humas. (2021). Hasil Sensus Penduduk 2020; BPS: Meski Lambat, Ada Pergeseran Penduduk Antarpulau [2020 Population Census Results; BPS: Although Slow, There is an Inter-island Population Shift]. Retrieved from https://setkab.go.id/hasil-sensus-penduduk-2020-bps-meski-lambat-ada-pergeseran-penduduk-antarpulau (in Indonesian).

10. Kemenkes. (2022). Laporan Akuntabilitas Kinerja Instansi Pemerintah (LAKIP) Direktorat Gizi dan Kesehatan Ibu dan Anak Tahun Anggaran 2022 [Government Agency Performance Accountability

Report (LAKIP) Directorate of Nutrition and Maternal and Child Health Fiscal Year 2022]. Retrieved from https://e-renggar.kemkes.go.id/file_performance/1-465909-02-4tahunan-954.pdf (in Indonesian).

10. Pandiangan, D. P., & Erlinda Muslim. (2022). Designing Strategy to Increase Intention to Use Maternal Perinatal Death Notification (MPDN) Technology in North Sumatra. *Jurnal Sistem Teknik Industri, 24*(1), 66–84. doi: 10.32734/jsti.v24i1.7519

11. Pandiangan, D. P., & Erlinda Muslim. (2022). Designing Strategy to Increase Intention to Use Maternal Perinatal Death Notification (MPDN) Technology in North Sumatra. *Jurnal Sistem Teknik Industri, 24*(1), 66–84. doi: 10.32734/jsti.v24i1.7519

12. Peratama, A., Kusumajaya, H., & Agustin, A. (2023). Faktor-faktor yang Berhubungan dengan Kejadian Preeklamsia pada Ibu Hamil [Factors Associated with the Incidence of Preeclampsia in Pregnant Women]. *Jurnal Penelitian Perawat Profesional, 5*(2), 617–626. doi: 10.37287/jppp.v5i2.1526 (in Indonesian).

13. Lawn, J. E., Blencowe, H., Waiswa, P., Amouzou, A., Mathers, C., Hogan, D., Flenady, V., Frøen, J. F., Qureshi, Z. U., Calderwood, C., Shiekh, S., Jassir, F. B., You, D., McClure, E. M., Mathai, M., Cousens, S., Flenady, V., Frøen, J. F., Kinney, M. V., … Draper, E. S. (2016). Stillbirths: rates, risk factors, and acceleration towards 2030. *The Lancet, 387*(10018), 587–603. doi: 10.1016/s0140-6736(15)00837-5

14. Nisly, G., Dillon, J. L., Darling, A., Myers, S., Al Shibli, N., Gatta, L. A., West-Honart, A., Wheeler, S., Grace, M. R., & Dotters-Katz, S. K. (2023). Risk Factors for Adverse Maternal Outcomes among Patients with Severe Preeclampsia Before 34 Weeks. *American Journal of Perinatology*. doi: 10.1055/a-2099-3912

15. Poniedziałek-Czajkowska, E., Mierzyński, R., & Leszczyńska-Gorzelak, B. (2023). Preeclampsia and Obesity—The Preventive Role of Exercise. *International Journal of Environmental Research and Public Health, 20*(2), 1267. doi: 10.3390/ijerph20021267

16. Ameen, R. A. E. H., Hany, A. M. M., & Ali, A. A. (2023). Prevalence rate and risk factors for preeclampsia and eclampsia among pregnant women attending Qena University Hospital During COVID-19 pandemic. *SVU-International Journal of Medical Sciences, 6*(1), 29–37. doi: 10.21608/svuijm.2022.147371.1330

17. Edrus, S., & Al-Mahmood, S. (2023). The prevalence of preeclampsia and eclampsia among pregnant women and its association with socio-demographic and anthropometric factors at hospital. *Al-Kitab Journal Of Medical Sciences, 1*(1), 23–31.

18. Zainiyah, H. (2023). Risk Factors Associated with Preeclampsia in Pregnant Women (Parity, Obesity, Multiple Preganancy, History of Hypertension and Age with the Prevalence of Preeclampsia at Syamrabu Bangkalan Hospital, Bangkalan in 2022. *Jurnal Ilmiah Obsgin, 15*(1), 3–8.

19. Djasri, H., Laras, S., & Utarini, A. (2019). Quality indicators for clinical care of patients with hypertension: scoping review protocol. *BMJ Open, 9*(7), e026167. doi: 10.1136/bmjopen-2018-026167

20. Putri, D. N., Setyawati, A., Saleha, S., & Situmorang, T. H. (2023). Faktor – Faktor Yang Berhubungan Dengan Kejadian Preeklampsia Pada Ibu Hamil Di Puskesmas Kemu Kabupaten Oku Selatan Tahun 2023 [Factors associated with the incidence of preeclampsia in pregnant women at the Kemu Health Centre, South Oku Regency, 2023]. *Innovative: Journal Of Social Science Research, 3*, 979–990 (in Indonesian).

21. Sitohang, Y. M. R., Ismansyah, I., & Siregar, N. (2023). Hubungan Usia Kehamilan, Riwayat Abortus Dan Paritas Terhadap Kejadian Preeklampsia Berat Di RSUD Abdoel Wahab Sjahranie Tahun 2022 [Relationship between gestational age, history of abortion and parity to the incidence of severe preeclampsia at Abdoel Wahab Sjahranie Hospital in 2022]. *Jurnal Skala Kesehatan, 14*(1), 57–65. doi: 10.31964/jsk.v14i1.379 (in Indonesian).

22. Silvana, R., Ramayanti, I., Kurniawan, & Dimar Ramadhina, A. (2023). Hubungan Antara Usia Ibu, Status Gravida, dan Riwayat Hipertensi dengan Terjadinya Preeklampsia [The Relationship Between Maternal Age, Gravida Status, and History of Hypertension with the Occurrence of Preeclampsia]. *Jurnal Ilmiah Multidisiplin, 2*(4), 1370–1375 (in Indonesian).

23. Ismarini, I., Ciselia, D., & Afrika, E. (2023). Hubungan Riwayat Hipertensi, Obesitas dan Usia Ibu dengan kejadian Preeklamsi di Rumah Sakit Muhammadiyah Palembang tahun 2022 [Associations of Hypertension, Obesity and Maternal Age with the incidence of Preeclampsia at Muhammadiyah Palembang Hospital in 2022]. *Jurnal Ilmiah Obsgin: Jurnal Ilmiah Ilmu Kebidanan & Kandungan*, *15*(4), 143–152 (in Indonesian).

24. Rahmadiani, Y., Azissah, D., Habibi, J., Kesehatan, F. I., & Bengkulu, U. D. (2023). Faktor yang Berhubungan Dengan Kejadian Pre-Eklampsia Pada Ibu Hamil Di RSUD Rupit [Associated Factors with the Incidence of Pre-Eclampsia in Pregnant Women at Rupit Hospital]. *Jurnal Kebidanan Manna, 2*(1), 23–34 (in Indonesian).

25. Pasaeono, N. P., Zainuddin, A., & Saimin, J. (2023). Faktor Risiko Terjadinya Preeklamsia di RSUD Kolonodale Kabupaten Morowali Utara [Risk Factors for Preeclampsia in Kolonodale Hospital, North Morowali Regency]. *Jurnal Ners, 7*(2), 1607–1622. doi: 10.31004/jn.v7i2.19635 (in Indonesian).

26. Therina, M., Samidah, I., & Handayani, T. S. (2023). Factors Associated with the Incidence of Preeclampsia in Pregnant Women at the Mukomuko Hospital Obstetrics Polyclinic in 2022. *Student Scientific Journal, 1*(1), 13–26.

27. Aini, F. N., Zuhriyatun, F., Poltekkes, W. H., & Semarang, K. (2023). Analisis Indeks Massa Tubuh (Imt) Dengan Kejadian Preeklampsia Pada Ibu Hamil [Analysis of Body Mass Index (BMI) with Preeclampsia in Pregnant Women]. *Jurnal Sains Kebidanan, 5*(1), 24–29.

28. Latipah, S., Afrilia, E. M., & An-nisa, C. (2023). Faktor Usia, Paritas dan IMT Ibu Hamil Berhubungan dengan Kejadian Preeklampsia di Tangerang [Age, Parity and BMI of Pregnant Women Associated with the Incidence of Preeclampsia in Tangerang]. *Jurnal Ilmiah Keperawatan Indonesia, 6*(2), 166. doi: 10.31000/jiki.v6i2.7635 (in Indonesian).

29. Suryadana, F. U., Aryawati, W., Amirus, K., Nuryani, D. D., & Muhani, N. (2023). Faktor Risiko Yang Mempengaruhi Kejadian Preeklampsia Pada Ibu Hamil Di RSUD Jendral Ahmad Yani Kota Metro Lampung Tahun 2022 [Risk Factors Affecting the Incidence of Preeclampsia in Pregnant Women at Jendral Ahmad Yani Hospital Metro Lampung City in 2022]. *Jurnal Pendidikan Dan Konseling, 4*, 1349–1358 (in Indonesian).

30. Lubis, D. S. (2023). Hubungan paritas ibu hamil dengan kejadian preeklampsia di rumah sakit ibunda kecamatan bagan sinembah kabupaten rokan hilir [The relationship between parity of pregnant women and the incidence of preeclampsia at ibunda hospital, bagan sinembah sub-district, rokan hilir district]. *Jurnal Ilmiah Ilmu Kesehatan, 1*(4), 298–308 (in Indonesian).

31. Daeli, I., Wardani, H. E., Tama, T. D., & Gayatri, R. W. (2023). Hubungan Kunjungan ANC terhadap Kejadian Preeklampsia pada Ibu Hamil di Puskesmas Wagir Tahun 2021-2022. *Sport Science and Health, 5*(7), 773–783. doi: 10.17977/um062v5i72023p773-783

32. Dewi Eka Maharani, & Ocvita, W. E. (2023). Hubungan Karakteristik Ibu dan Riwayat Pemakaian Kontrasepsi Hormonal dengan Kejadian Preeklampsia pada Ibu Hamil [Relationship between Maternal Characteristics and History of Hormonal Contraceptive Use with Preeclampsia in Pregnant Women]. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal, 13*(3), 737–750. doi: 10.32583/pskm.v13i3.969 (in Indonesian).

33. Irawati, C., Budiati, E., & Rahayu, D. (2023). Analisis Faktor Risiko Kejadian Preeklampsia Berat di Kabupaten Mesuji Tahun 2023. *MAHESA : Malahayati Health Student Journal, 3*(5), 1339–1354. doi: 10.33024/mahesa.v3i5.9858 (in Indonesian).

34. Yani, E. D., Maulina, N., & Rafsanjani, T. M. (2023). Berbagai Faktor Risiko Terhadap Kejadian Preeklampsia Pada Ibu Hamil di Wilayah Kerja Puskesmas Banda Raya Kota Banda Aceh [Various

Risk Factors for the Incidence of Preeclampsia in Pregnant Women in the Banda Raya Health Centre Working Area, Banda Aceh City]. *Jurnal Kesehatan Fakultas Kesehatan Universitas Dian Nuswantoro, 22*(1) (in Indonesian).

35. Fitriani, D., Apriani, W., & Sari, P. (2019). The Relationship between Distance of Pregnancy and Parity with The Incidence of Preeclampsia in RSUD dr. M. Yunus Bengkulu. *Jurnal Sains Kesehatan, 26*(3), 9–17. doi: 10.37638/jsk.26.3.9-17

36. Aziz, M. A., Wibowo, A., Almira, N. L., & Sutjighassani, T. (2022). Relationship of Age, Body Mass Index, Gravida, and Parity in Pregnant Women with the Incidence Preeclampsia. *Indonesian Journal of Obstetrics & Gynecology Science, 5*(2), 208–216. doi: 10.24198/obgynia/v5n2.389

37. Maeda, Y., Kaneko, K., Ogawa, K., Sago, H., & Murashima, A. (2020). The effect of parity, history of preeclampsia, and pregnancy care on the incidence of subsequent preeclampsia in multiparous women with SLE. *Modern Rheumatology, 31*(4), 843–848. doi: 10.1080/14397595.2020.1830466

38. Košir Pogačnik, R., Trojner Bregar, A., Lučovnik, M., Krajec, M., Verdenik, I., Blickstein, I., & Tul, N. (2018). The effect of interaction between parity, gestational diabetes, and pregravid obesity on the incidence of preeclampsia. *The Journal of Maternal-Fetal & Neonatal Medicine, 33*(6), 931–934. doi: 10.1080/14767058.2018.1509311

39. Kartikadewi, R., Theresia, E. M., & Meilani, N. (2019). Age, parity and birth spacing to the incidence of preeclampsia. *International Journal of Public Health Science, 8*(1), 45. doi: 10.11591/ijphs.v8i1.16646

40. Molitoris, J., Barclay, K., & Kolk, M. (2019). When and Where Birth Spacing Matters for Child Survival: An International Comparison Using the DHS. *Demography, 56*(4), 1349–1370. doi: 10.1007/s13524-019-00798-y

41. Hutcheon, J. A., Moskosky, S., Ananth, C. V., Basso, O., Briss, P. A., Ferré, C. D., Frederiksen, B. N., Harper, S., Hernández-Díaz, S., Hirai, A. H., Kirby, R. S., Klebanoff, M. A., Lindberg, L., Mumford, S. L., Nelson, H. D., Platt, R. W., Rossen, L. M., Stuebe, A. M., Thoma, M. E., … Ahrens, K. A. (2018). Good practices for the design, analysis, and interpretation of observational studies on birth spacing and perinatal health outcomes. *Paediatric and Perinatal Epidemiology, 33*(1). doi: 10.1111/ppe.12512

42. Regan, A. K., Gissler, M., Magnus, M. C., Haberg, S. E., Ball, S., Malacova, E., Nassar, N., Leonard, H., & Pereira, G. (2019). Association Between Interpregnancy Interval and Adverse Birth Outcomes in Women With a Previous Stillbirth: An International Cohort Study. *Obstetrical & Gynecological Survey, 74*(9), 507–508. doi: 10.1097/ogx.0000000000000722

43. Gupta, G. (2018). A case control study to evaluate correlation of anemia with severe preeclampsia. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 7*(7), 2773. doi: 10.18203/2320-1770.ijrcog20182879

44. Prasetya, P. A. C., Winardi, B., & Nuswantoro, D. (2020). Anemia in the first trimester is associated with anemia during pregnancy in Sidotopo Wetan Community Health Center, Surabaya. *Majalah Obstetri & Ginekologi, 28*(1), 16. doi: 10.20473/mog.v28i12020.16-19

45. Sari, A. R., Titisari, I., & Sendra, E. (2021). The Correlation of Maternal Age and the Incidence of Preeclampsia at Aura Syifa Hospital. *Jurnal Ners Dan Kebidanan (Journal of Ners and Midwifery), 8*(3), 368–372. doi: 10.26699/jnk.v8i3.art.p368-372

46. Farzaneh, F., Tavakolikia, Z., & Soleimanzadeh Mousavi, S. H. (2018). Assessment of occurrence of preeclampsia and some clinical and demographic risk factors in Zahedan city in 2017. *Clinical and Experimental Hypertension, 41*(6), 583–588. doi: 10.1080/10641963.2018.1523919

47. Sambas, E. K., & Nurliawati, E. (2020). Overview of Preeclampsia Risk Factors on Pregnant Women at Dr. Soekardjo Hospital, Tasikmalaya, Indonesia. *The Proceedings of the 2nd Bakti Tunas Husada-Health Science International Conference (BTH-HSIC 2019)*. doi: 10.2991/ahsr.k.200523.057

48. Rana, S., Lemoine, E., Granger, J. P., & Karumanchi, S. A. (2019). Preeclampsia. *Circulation Research, 124*(7), 1094–1112. doi: 10.1161/circresaha.118.313276

49. Harris, L. H., & Grossman, D. (2020). Complications of Unsafe and Self-Managed Abortion. *New England Journal of Medicine, 382*(11), 1029–1040. doi: 10.1056/nejmra1908412

50. Studnicki, J., Longbons, T., Reardon, D. C., Fisher, J. W., Harrison, D. J., Skop, I., Cirucci, C. A., Craver, C., Tsulukidze, M., & Ras, Z. (2022). The Enduring Association of a First Pregnancy Abortion with Subsequent Pregnancy Outcomes: A Longitudinal Cohort Study. *Health Services Research and Managerial Epidemiology, 9*, 233339282211309. doi: 10.1177/23333928221130942

51. Moustafa, A. Z., Araji, S., Clericuzio, N., Frieson, D., & Hendon, L. (2023). The Natural History of Fetal Triploidy in an Era of Limited Abortion Access: A Case Series [ID: 1380133]. Obstetrics & Gynecology, 141(5S), 82S-82S. doi: 10.1097/01.aog.0000930988.66530.d4

52. Sun, H., Mao, J., Su, X., & Du, Q. (2023). Impact of spontaneous abortion history and induced abortion history on perinatal outcomes of singleton pregnancies. *BMC Public Health, 23*(1). doi: 10.1186/s12889-023-17264-5

53. Haslan, H., & Trisutrisno, I. (2022). Dampak Kejadian Preeklamsia dalam Kehamilan Terhadap Pertumbuhan Janin Intrauterine [Impact of Preeclampsia in Pregnancy on Intrauterine Fetal Growth]. *Jurnal Ilmiah Kesehatan Sandi Husada*, 445–454. 10.35816/jiskh.v11i2.810 (in Indonesian).

54. Luthfia, N., Hermawati, D., & Rizkia, M. (2021). Gambaran Pengetahuan, Sikap Dan Kepatuhan Antenatal Care (Anc) Terkait Dengan Deteksi Dini Preeklampsia Pada Ibu Hamil [Overview of knowledge, attitudes and adherence to antenatal care related to early detection of preeclampsia in pregnant women]. *Jurnal Ilmiah Mahasiswa Fakultas Keperawatan, 5*(1), 106–115 (in Indonesian).

55. Sulistiyanti, A., Hastuti, F. D., & Rochmawati, L. (2021). Tingkat pengetahuan dan sikap ibu hamil tentang preeklampsia di masa pandemi Covid-19 [Level of knowledge and attitudes of pregnant women about preeclampsia during the Covid-19 pandemic]. *Prosiding Seminar Informasi Kesehatan Nasional*, 127–133 (in Indonesian).

56. Garti, I., Gray, M., Bromley, A., & Tan, B. (Jing-Y. (2023). A socioecological description of the influencing factors to midwives' management of preeclampsia in a Ghanaian tertiary hospital. *PLOS ONE, 18*(9), e0291036. doi: 10.1371/journal.pone.0291036

57. Karlina, K., Budiana, N. G., Surya, G., & Manuaba, I. (2020). Tingkat pengetahuan ibu hamil tentang preeklampsia di puskesmas II Denpasar Selatan [The level of knowledge of pregnant women about preeclampsia in South Denpasar Community Health Centre II]. *Jurnal Medika Udayana, 9*(8), 59–64 (in Indonesian).

58. Bromfield, S. G., Ma, Q., DeVries, A., Inglis, T., & Gordon, A. S. (2023). The association between hypertensive disorders during pregnancy and maternal and neonatal outcomes: a retrospective claims analysis. *BMC Pregnancy and Childbirth, 23*(1). doi: 10.1186/s12884-023-05818-9

59. Dines, V., Suvakov, S., Kattah, A., Vermunt, J., Narang, K., Jayachandran, M., Abou Hassan, C., Norby, A. M., & Garovic, V. D. (2023). Preeclampsia and the Kidney: Pathophysiology and Clinical Implications. *Comprehensive Physiology*, 4231–4267. doi: 10.1002/cphy.c210051

60. He, X.-J., Dai, R., & Hu, C.-L. (2020). Maternal prepregnancy overweight and obesity and the risk of preeclampsia: A meta-analysis of cohort studies. *Obesity Research & Clinical Practice, 14*(1), 27–33. 10.1016/j.orcp.2020.01.004

61. Arafa, A., & Dong, J.-Y. (2020). Association between intrahepatic cholestasis of pregnancy and risk of gestational diabetes and preeclampsia: a systematic review and meta-analysis. *Hypertension in Pregnancy, 39*(3), 354–360. doi: 10.1080/10641955.2020.1758939

62. Olson, K. N., Redman, L. M., & Sones, J. L. (2019). Obesity "complements" preeclampsia. *Physiological Genomics, 51*(3), 73–76. doi: 10.1152/physiolgenomics.00102.2018

63. Asres, A. W., Tilahun, A. W., Teklu, S., & Addissie, A. (2023). Association Between Preeclampsia and Hormonal Contraceptive Use among Pregnant Women in Northwest Ethiopia: A Case-Control Study. *Journal of Womens Healthcare & Midwifery Research, 2*(3), 1–6.

64. Harmawan, W. R. (2022). Kontrasepsi hormonal, riwayat preeklampsia dan hipertensi kronik berhubungan dengan kejadian preeklampsia [Hormonal contraception, history of preeclampsia and chronic hypertension are associated with the incidence of preeclampsia]. *Jurnal Medika: Karya Ilmiah Kesehatan, 7*(1) (in Indonesian).

65. Schreuder, A., Mokadem, I., Smeets, N. J. L., Spaanderman, M. E. A., Roeleveld, N., Lupattelli, A., & van Gelder, M. M. H. J. (2023). Associations of periconceptional oral contraceptive use with pregnancy complications and adverse birth outcomes. *International Journal of Epidemiology, 52*(5), 1388–1399. doi: 10.1093/ije/dyad045

66. Asare, L., Asare, G. A., Owiredu, W. K. B. A., Obikorang, C., Appiah, E., Tashie, W., & Seidu, L. (2021). The Use of Hormonal Contraceptives and Preeclampsia among Ghanaian Pregnant Women. *Open Journal of Obstetrics and Gynecology, 11*(04), 419–433. doi: 10.4236/ojog.2021.114041

67. Hamzah, S. T. R., Aminuddin, Idris, I., & Rachmat, M. (2021). Antenatal care parameters that are the risk factors in the event of preeclampsia in primigravida. *Gaceta Sanitaria, 35*, S263–S267. doi: 10.1016/j.gaceta.2021.10.073

68. Tesfahun, E., Tadesse, S., Hailu, A., Minda, A., Ekubay, M., Tariku, B., & Dagnaw, A. (2023). Prevalence of Preeclampsia and Associated Factors among Antenatal Care Attending Mothers at Tirunesh Beijing General Hospital, Addis Ababa, Ethiopia. *Advances in Public Health, 2023*, 1–5. doi: 10.1155/2023/1132497

69. Ningsih, F. (2020). Kepatuhan Antenatal Care Dengan Kejadian Preeklampsia Pada Ibu Hamil Di Puskesmas Kayon Kota Palangkaraya [Antenatal care adherence and the incidence of preeclampsia among pregnant women at Kayon Health Centre, Palangkaraya City]. *Jurnal Surya Medika, 6*(1), 96–100. doi: 10.33084/jsm.v6i1.1624 (in Indonesian).

70. Nugroho, N., & Rustiana, E. R. (2019). The Analysis of Food Consumption and Nutritional Status of Pregnant Women Towards Preeclampsia in Dr. M. Ashari Hospital Pemalang 2018. *Public Health Perspective Journal, 4*(2), 104–108.

71. Ahmad, N., & Akbar B, T. (2022). Relationship Between Nutritional Status and Preeclampsia in West Bandung District. *KnE Medicine.* doi: 10.18502/kme.v2i2.11085

72. Astari, A. M., Evi, N., Choiriyah, M., Ariyani, P., & Fitriy, A. L. (2021). Analysis of Differences in Individual Characteristics, Lifestyle, Nutritional Status and Dieting Patterns in Pregnant Women with Preeclampsian History. *Journal of Nursing Science Update (JNSU), 9*(1), 87–94. doi: 10.21776/ub.jik.2021.009.01.11

73. Barber, E., Ram, M., Mor, L., Ganor Paz, Y., Shmueli, A., Bornstein, S., Barda, G., Schreiber, L., Weiner, E., & Levy, M. (2023). Pregnancy and placental outcomes according to maternal BMI in women with preeclampsia: a retrospective cohort study. *Archives of Gynecology and Obstetrics.* doi: 10.1007/s00404-023-07148-9

74. Jiang, L., Lin, J., Yan, J., Lin, X., Han, Q., & Zhang, H. (2020). Prepregnancy body mass indexes are associated with perinatal outcomes in females with preeclampsia. *Experimental and Therapeutic Medicine.* doi: 10.3892/etm.2020.8677

75. Premru-Srsen, T., Kocic, Z., Fabjan Vodusek, V., Geršak, K., & Verdenik, I. (2019). Total gestational weight gain and the risk of preeclampsia by prepregnancy body mass index categories: a population-based cohort study from 2013 to 2017. *Journal of Perinatal Medicine, 47*(6), 585–591. 10.1515/jpm-2019-0008

Virtual Reality Development for Ecotourism Learning Media

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Abstract. Adaptation to technological advancements plays a pivotal role in enhancing the quality of education. One endeavour to achieve high-quality learning is utilising virtual reality as a medium. This research aims to develop virtual reality-based learning media as a creative approach to ecotourism education. The study was designed using the 4D research and development model, consisting of four stages: define, design, develop, and disseminate. The research results indicate that the developed virtual reality learning media is suitable for use in education. This aligns with the validation of media and material experts, who provided favourable assessments on content, language, and presentation. Testing with a limited group also received a positive response. Students assessed that virtual reality media is an engaging and interactive medium.

Keywords: virtual reality, ecotourism, learning media.

INTRODUCTION

Ecotourism is a form of sustainable environmental management. Ecotourism is one of the strategies for preserving nature, promoting sustainability, and increasing ecological awareness [1]. As a strategy for sustainable development, implementing ecotourism aims to protect the environment and improve the community's economy [2]. Ecotourism provides dual benefits by emphasising environmental conservation and social empowerment. Communities actively manage tourism by considering ecological conservation and economic benefits [3]. In addition, implementing ecotourism also requires attention to the elements of education, protection, and active community supervision [4]. Communities play a crucial role in sustainable tourism management. Through ecotourism, communities activate their groups to engage in tourism management fully. Communities actively contribute to planning, organising, directing, and evaluating tourism development [5]. The full involvement of the community aims to achieve equity and reduce the dominance of the government and the private sector [6]. Educational institutions are essential to increase students' knowledge and comprehension of the value of environmental conservation in the context of ecotourism. Never-

theless, the discipline of ecotourism still uses a restricted number of learning methods that do not fully leverage technological improvements.

Ecotourism is one of the Geography Education Study Program courses at Samudra University. Ecotourism's course goals are to develop student's abilities to analyse the urgency of environmentally conscious development in tourism using spatial and ecological perspectives. Innovative learning media are needed to enhance students' knowledge and interest. Preliminary studies indicate that ecotourism learning in the Geography Education Study Program at Samudra University uses lecture methods, individual assignments, and group discussions. Towards the end of the course, the learning method involves team-based projects. So far, learning media have included textbooks, news, scientific journals, images, and audiovisual media. Despite the use of various media, virtual reality media has yet to be used in learning activities.

Virtual reality (VR) is an innovative medium that assists learning. According to [7], VR promises a new teaching and learning model that better meets the needs of 21st-century learners. Virtual reality media as a learning medium in the ecotourism course is unavailable. Therefore, developing virtual reality learning media is necessary

to support ecotourism learning activities. The development of VR as an innovative learning medium is expected to enhance the effectiveness of ecotourism learning and positively contribute to environmental conservation.

Implementing virtual reality (VR) learning media in education aims to enhance students' absorption of information [8]. Using VR technology in teaching media will make learning media more engaging and interactive [9]. Ariatma's study shows that virtual reality can increase student participation and critical thinking skills in online learning during the COVID-19 pandemic [10]. Virtual reality can also improve the understanding and learning interests of elementary school teacher education students at Makassar State University. The study [11] also indicates that using virtual reality to teach high school students mathematics can enhance motivation and learning outcomes. According to these study results, using Virtual reality learning media can result in quality learning. While virtual reality has been widely utilised in education, it has yet to be utilised as a learning medium in ecotourism courses. Therefore, developing virtual reality learning media is necessary to support more innovative learning activities. Consequently, developing VR as a learning medium in the ecotourism course is crucial. Through content development in VR, students can gain a profound learning experience and engage directly with the ecotourism environment virtually.

METHODS

The research method utilises research and development. New and more innovative learning aspects can be developed and applied through the research and development (R&D) approach. This study is designed as development research using the Four D Models, which consist of four stages: define, design, develop, and disseminate [12].

The first stage is determining the reference for media development based on needs analysis. The needs analysis aims to identify deficiencies in the learning process. The needs analysis includes analysing the materials, learning objectives, and assignments. Material analysis seeks to determine the parts of the material that will be studied. Specifications of learning objectives involve elaborating learning achievements into more specific indicators tailored to the material analysis re-

sults. Task analysis is developed based on ecotourism materials' essential competencies and achievement indicators. The results of the needs analysis serve as a reference in media design.

The development stage is producing the final media according to the desired specifications. At this stage, media and subject matter experts validate the designed press. Furthermore, the virtual reality media is tested on a limited basis with ten students. Validator corrections and user media assessments are used for media improvement. The product assessment questionnaire includes two assessment aspects, namely attractiveness and interactivity. The questionnaire contains four response options: strongly agree, agree, disagree, and strongly disagree. If respondents mostly choose to agree and strongly agree, this indicates a positive response, and the product is considered suitable for use in learning. The final stage is to disseminate the product to colleagues and students.

RESULTS AND DISCUSSION

Define. The define stage is the phase of determining the reference for instructional media development. The media development in this study is based on analysing deficiencies in the implemented learning process. Based on the interview results, it is known that the teaching methods used are lectures, discussions, and field observations. The most frequently used instructional media are textbooks, news, journals, images, and audiovisual media. The tasks given to the students are to review ecotourism through written and audiovisual press found in journals and social media platforms. Before the final exam, students are assigned to directly observe the ecotourism industry in groups, done on holidays, from a distance, and within a short period. These limitations result in the observation reports only achieving limited learning objectives and topics. Virtual reality instructional media can overcome the limitations of issues and learning achievements.

The developed virtual reality media refers to four topics in the ecotourism course. The first topic is the potential of natural tourism and job opportunities in ecotourism. The specific objectives of this topic are for students to analyse the potential of natural and ecotourism tourism, identify job opportunities in the ecotourism industry, and describe various ecotourism products that can be

developed and promoted. Students virtually observe through the Ujung Tamiang Ecotourism virtual reality media to achieve this goal. They are then tasked with preparing a report on the potential of natural tourism and ecotourism. The report includes a description of natural potential, job opportunities in the field of ecotourism, and an analysis of various ecotourism products that can be developed.

The second topic is ecosystems, biodiversity, and their utilisation in ecotourism. The specific objective of this topic is for students to identify ecosystems, vulnerabilities, and threats in ecotourism. Students virtually observe through the Ujung Tamiang Ecotourism virtual reality media to achieve this goal. They are tasked with creating a presentation on the potential and vulnerability of ecosystems and making recommendations for ecotourism utilisation patterns.

The third topic is the introduction to attractions and the development of ecotourism products. The specific objective of this topic is to identify and evaluate the potential development of ecotourism products. Students virtually observe through the Ujung Tamiang Ecotourism virtual reality media to achieve this goal. They are tasked with designing an ecotourism attraction development plan in the form of a project proposal.

The fourth topic is the evaluation of ecotourism products. The specific objective of this topic is to analyse the risks associated with ecotourism development and develop strategies to mitigate these risks. Students virtually observe through the Ujung Tamiang Ecotourism virtual reality media to achieve this goal. They are tasked with evaluating the strengths and weaknesses of ecotourism products and providing recommendations for enhancing visitor experience and their positive impact on the environment and local communities.

Design. The design stage is the stage of designing virtual reality media. At this stage, the researcher designs virtual reality content tailored to the needs of ecotourism learning. The design of virtual reality media uses the 3D Vista application, software that can process 360 photos and videos into virtual reality content. The virtual content presents four observation locations, namely: 1) Tuntong Laut Information House located in the residential area of Kuala Pusung Kapal Village; 2) sea transportation; 3) Ujung Tamiang Mangrove Educational Tourism; and 4) Pusung

Sium. Each displayed location also provides clickable buttons to access the provided information.

Table 1 – Virtual Reality Design

No.	Location	Appearance
1.	Information House	Tuntong Laut Information Conservation area model Educational activities
2.	Accessibility	River conditions River transportation Access to the Tuntong Laut habitat
3.	Ujung Tamiang Mangrove Educational Tourism	Tuntong Laut nests Release of Tuntong Laut Socialisation area Rest area
4	Pusung Sium Island	Sea Beach

Information House. The first location displays the Tuntong Laut information house, which consists of five areas: the front yard, the hall, the side room, the back room, and the dock. The front yard features a sand pool that serves as a place for Tuntong Laut egg incubation. The hall is the main room that displays Tuntong Laut posters, fossils, and a conservation area model. Additionally, the hall functions as a classroom or meeting room. Each object in the main room has buttons that display information in the form of posters, photos, and videos. The side room, located on the south side of the hall, functions as an incubator for young Tuntong Laut. This area provides buttons that display informational videos about tukik. Next is the back room, which serves as a storage area for conservation equipment. The next room is the dock, located behind the information house. Information and teleportation buttons are provided in each room, allowing users to obtain information and move from one room to another.

Accessibility. The visualisation of the second location presents the river conditions, the boat used, and the atmosphere while passing through the river channel. The river conditions are visualised in two river channels, the Tamiang River and the Alur Barom River. In both river channels, photo and video buttons present the journey atmosphere. Additionally, teleportation buttons are

provided that lead to the Information House, Ujung Tamiang, and Pusung Sium.

Ujung Tamiang Mangrove Educational Tourism. The third location is located at the mouth of the Ujung Tamiang River. This location is known as Ujung Tamiang Mangrove Educational Tourism. The visualisation of the third location displays the beach and a rest house. Ujung Tamiang Beach is a place for Tuntong Laut breeding and the Tuntong Laut release area. In addition to displaying beach visualisation, the beach virtual reality also provides photo album buttons and videos of Tuntong Laut egg survey activities and releases. The visualisation of the third location also shows the rest house and the socialisation area. The visualisation of the socialisation area embeds buttons that display socialisation activities.

Pusung Sium Island. Pusung Sium Island is a public tourist location and a Tuntong Laut breeding site. In this location, teleportation buttons allow users to move from one point to another, which is still in Pusung Sium.

Figure 1 – Virtual Reality Display Map

Develop. The development stage aims to produce the final media according to the desired specifications based on the assessment of media experts, subject matter experts, and student media users. Media experts and subject matter experts validate the designed media. Furthermore, virtual reality media was tested on a small group consisting of 10 students who were media users. Validator corrections and media user assessments are used for media improvement.

Table 2 – Validation from Media and Material Experts

No.	Validator	S	N	S, %	Criteria	Category
1.	Dr. Rima Meilita Sari, M. Pd.	85	90	93	Excellent	Eligible
2.	Ramdan Afrian, M. Pd.	122	130	94	Excellent	Eligible

Based on Table 3, the media expert validated the developed virtual reality product by giving a score of 93%. This score indicates that the developed media has high attractiveness and interactivity. This is based on the assessment of linguistic and display aspects. The linguistic aspect of the product is communicatively conveyed using short, concise, and clear sentences, making it easy to understand. The display assessment includes bright colour designs suitable for learning materials and easy-to-use navigation buttons. According to the media expert's assessment, the developed learning media is rated as "excellent" and considered "eligible" for use. Subject matter experts have also validated the virtual reality product. The material assessment aspects include content, language, and presentation. The subject matter expert gave an average score of 94% with an "excellent" rating and considered it "eligible". Based on this validation, the developed product is deemed suitable for use. This aligns with [13] opinion, stating that the developed media can be used if the trial reaches 81.00%-100.00%.

Furthermore, the product was tested on a limited group of 10 students. Based on the feasibility test, the students scored 96% for attractiveness and 95% for interactivity. These scores indicate that the developed media has high attractiveness and interactivity. This is based on assessing easily understandable language, bright design aspects, accurate room simulations, and components such as images and clear sensory sounds. Through virtual reality media, users can virtually see the Ujung Tamiang ecotourism location using 360-degree panoramic photos that allow users' perspectives to reach beyond one frame and encompass the entire space. This makes users feel as if they are at the location.

The learning process using virtual reality media makes the learning experience engaging and interactive. Users can obtain detailed information about the presented objects because corresponding data and information accompany each main object. For example, when users are in the hall

and want to know more details about the conservation area. Users can press the button on the conservation area model, which will display the map and video of the conservation area. Furthermore, users can choose whether to view the map or the video. This also applies to other objects. For example, if users want to see fossils or tukik, they can click on the desired object, which will display information in the form of descriptions in the form of posters, images, or videos on the screen. Interaction between students and virtual objects makes learning more engaging and interactive. Authors [14] argue that virtual reality in learning helps teachers create exciting new opportunities to support various types of interactive learning environments.

Disseminate. At this stage, virtual reality media is disseminated to colleagues and students. The developed learning media is based on the .exe application that can be installed on the Windows operating system.

CONCLUSIONS

Virtual reality is a learning medium capable of providing a digital learning experience that aligns with the development of information technology. Research findings indicate that the developed virtual reality learning media is suitable for use in education. This is achieved through validation from media experts and content experts and testing with a limited group, who responded positively and evaluated that the developed virtual reality is an engaging and interactive medium based on assessments of content, language, and presentation aspects.

Acknowledgements

REFERENCES

1. Dilwan, M. A., & Astina, I. K. (2019). Community Based Wakatobi Tourism Management Strategies. *Proceedings of the 1st International Conference on Social Knowledge Sciences and Education (ICSKSE 2018)*. doi: 10.2991/icskse-18.2019.9

2. Sutiarso, M. A. (2018). *Pengembangan Pariwisata Yang Berkelanjutan Melalui Ekowisata* [Sustainable Tourism Development through Ecotourism]. doi: 10.31219/osf.io/q43ny (in Indonesian).

3. Hijriati, E., & Mardiana, R. (2015). Pengaruh Ekowisata Berbasis Masyarakat Terhadap Perubahan Kondisi Ekologi, Sosial Dan Ekonomi Di Kampung Batusuhunan, Sukabumi [The Effect of Community-Based Ecotourism on Changes in Ecological, Social and Economic Conditions in Batusuhunan Village, Sukabumi]. *Sodality: Jurnal Sosiologi Pedesaan, 2*(3). doi: 10.22500/sodality.v2i3.9422 (in Indonesian).

4. Adharani, Y., Zamil, Y. S., Astriani, N., & Afifah, S. S. (2020). Penerapan Konsep Ekowisata Di Kecamatan Cihurip Kabupaten Garut Dalam Rangka Perlindungan Dan Pengelolaan Lingkungan [Application of the Ecotourism Concept in Cihurip District, Garut Regency in the Framework of Environmental Protection and Management]. *Prosiding Penelitian Dan Pengabdian Kepada Masyarakat, 7*(1), 179. doi: 10.24198/jppm.v7i1.25235 (in Indonesian).

5. Al Dilwan, M., Astina, I. K., & Bachri, S. (2019). Pariwisata Wakatobi dalam Perspektif Produksi Ruang [Wakatobi Tourism in the Perspective of Space Production]. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan, 4*(11), 1496. doi: 10.17977/jptpp.v4i11.13017 (in Indonesian).

6. Judiono, F. (2009). Partisipasi Masyarakat Dalam Pembangunan Prasarana Jalan: Studi Kasus Peningkatan Jalan di Desa Sambirejo, Kecamatan Tanjunganom, Kabupaten Nganjuk [Community Participation in Road Infrastructure Development: A Case Study of Road Improvement in Sambirejo Village, Tanjunganom Subdistrict, Nganjuk Regency]. *Jurnal Wacana, 12*(3) (in Indonesian).

7. Elmqaddem, N. (2019). Augmented Reality and Virtual Reality in Education. Myth or Reality? *International Journal of Emerging Technologies in Learning, 14*(03), 234. doi: 10.3991/ijet.v14i03.9289

8. Fardani, A. T. (2020). Penggunaan Teknologi Virtual Reality Untuk Sekolah Menengah Pertama Pada Tahun 2010-2020 [Use of Virtual Reality Technology for Junior High Schools in 2010-2020]. *E-Tech, 8*(1) (in Indonesian).

9. Wibowo, J. S., Februariyanti, H., & Utomo, M. S. (2022). Media Pembelajaran Pengenalan Gedung Bersejarah Spiegel Semarang Menggunakan Augmented Dan Virtual Reality [Learning Media for the Introduction of Spiegel Semarang Historical Building Using Augmented and Virtual Reality]. *Jurnal Dinamika Informatika, 13*(1), 55–62. doi: 10.35315/informatika.v13i1.8923 (in Indonesian).

10. Ariatama, S., Adha, M. M., Rohman, Hartinio, A. T., & Ulpa, E. P. (2021). *Penggunaan Teknologi Virtual Reality (VR) sebagai Upaya Eskalasi Minat dan Optimalisasi dalam Proses Pembelajaran Secara Online Dimasa Pandemik* [The Use of Virtual Reality (VR) Technology as an Effort to Escalate Interest and Optimise the Online Learning Process in Pandemic Times]. Retrieved from http://repository.lppm.unila.ac.id/32006/1/SONI%20ARIATAMA%20FULL%20PAPER.pdf (in Indonesian).

11. Tsaaqib, A., Buchori, A., & Endahwuri, D. (2022). Efektivitas Penggunaan Media Pembelajaran Virtual Reality (Vr) Pada Materi Trigonometri Terhadap Motivasi Dan Hasil Belajar Matematika Siswa Sma [The Effectiveness of the Use of Virtual Reality (Vr) Learning Media on Trigonometry Material on Motivation and Mathematics Learning Outcomes of Senior High School Students]. *JIPMat, 7*(1), 11–19. doi: 10.26877/jipmat.v7i1.9950 (in Indonesian).

12. Thiagarajan, S. (1974). *Instructional Development for Training Teachers of Exceptional Children: a Sourcebook*. Retrieved from https://eric.ed.gov/?id=ED090725

13. Abrar, A. (2021). *Pengembangan Perangkat Pembelajaran Matematika berbasis Strategi Kognitif* [Development of Cognitive Strategy-based Maths Learning Tools]. Pekalongan: Penerbit (in Indonesian).

14. Monita, F. A., & Ikhsan, J. (2020). Development Virtual Reality IPA (VR-IPA) learning media for science learning. *Journal of Physics: Conference Series, 1440*(1), 012103. doi: 10.1088/1742-6596/1440/1/012103

Implementation of Clinical Supervision by Primary School Supervisors in Narmada District, West Lombok Regency, Indonesia

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Abstract. This study aims to determine the implementation of clinical supervision by supervisors in cluster II, Narmada District, West Lombok Regency. This type of research is qualitative, and data was collected using data triangulation techniques sourced from interviews, observation, and documentation. The data analysis technique uses the Miles & Huberman model: data collection, reduction, presentation, and conclusion. The research results show that the implementation of clinical supervision by elementary school supervisors in Cluster II Narmada District goes through three stages: pre-observation stage, implementation of observations and post-observation. The conclusion is that the implementation of clinical supervision by elementary school supervisors in Cluster II, Narmada District, West Lombok Regency, in 2022 is going quite well.

Keywords: Supervision; Clinical; Supervisor.

INTRODUCTION

The central vision of educational supervision is to provide services to teachers to develop the quality of education [1]. Supervision is part of the duties that must be carried out by school supervisors and school principals [2]. The supervision program implemented can be categorised as successful if the supervisor has the abilities, skills, and efficient methods of collaborating with teachers [3].

Clinical supervision is part of academic supervision that aims to improve teaching and learning [4]. Clinical supervision is a guidance process that aims to help develop teachers' professionalism in teaching performance based on observation and data analysis to guide behaviour change [5].

Supervision activities put the teacher's primary attention, and the supervisor's ability to help teachers is reflected in his ability to assist teachers. So that there will be changes in students' academic behaviour, improving the quality of their learning outcomes. Supervision is necessary when carrying out tasks. The purpose of supervision here is so that educators know the purpose of their work in education and what they want to achieve from the implementation of education. They also understand the function of the work that educators do. This helps educators focus more on the goals to be achieved in education and avoid implementing education irrelevant to educational goals.

Clinical supervision is vital to improving teacher professionalism [1]. The results of clinical supervision are used as guidance by supervisors in their efforts to develop teachers [6]. In this way, the quality of learning will increase and impact the student's absorption of the material they are studying. However, the reality in the field is that clinical supervision cannot be implemented optimally.

There is a gap in the number of supervisors and the number of assisted schools. It is known that the number of elementary schools in West Lombok Regency consists of 366 schools. According to the West Lombok Regency supervisory coordinator, the current number of elementary school supervisors is 18, so the ratio is one supervisor overseeing approximately 20 schools. Meanwhile, ideally, one supervisor supervises ten school principals, class teachers, and subject teachers in the educational unit. So, there is a gap of 18 supervisors (50%). This also happens in

Narmada District; out of 51 elementary schools, there are three school supervisors, so there is a gap of 2 supervisors (40%).

According to information from three school principals, clinical supervision in 2021 has never been implemented. Due to the ongoing COVID-19 pandemic, learning activities are conducted online and offline. Apart from that, supervision is carried out by having the school principal complete the supervision instrument himself. As a result, the goal of supervision, which should be to improve learning quality, is still far from expectations. The provision of supervision is generally based on the needs/desires of the supervisors; therefore, teachers do not feel the benefits. When providing feedback, there are often briefing meetings, which do not allow teachers to analyse themselves and do not provide solutions to improve themselves.

In the 2022/2023 academic year in West Lombok Regency, 18 elementary schools will implement the driving school program (info GTK Lobar). In Narmada District, four schools implement the Driving School Program; one is a Cluster II member. This driving school program is a new policy established by the Ministry of Education, Culture, Research and Technology. The Driving School Program implementers, principals, and teachers need school supervisors' assistance. Therefore, the role of supervisors is significant in guiding teachers during the teaching and learning process in implementing the independent curriculum.

Based on the description above, the unresolved problem is how elementary school supervisors carry out clinical supervision targeting elementary school teachers in Narmada District, West Lombok Regency, as one of the six competencies that school supervisors must have.

METHOD

This research uses a qualitative approach, while the research method used is a multiple case study because the researcher carried out investigative activities in eight schools in cluster II, making it possible to obtain more information to gain a deeper understanding through a more robust description of the implementation. Clinical supervision, monitoring, and evaluation in the implementation of clinical supervision, as well as efforts to overcome obstacles to clinical supervision in Narmada District, West Lombok Regency.

The primary and secondary data explored in this research are primary and secondary. Primary data is obtained directly from the first data source or source in the field (research object). This research obtained primary data through observation and interviews with data sources, namely supervisors, school principals and teachers in Cluster II, Narmada District, West Lombok Regency. The following is a table of the distribution of informants in Cluster II. Secondary data is a source that does not directly provide data to data collectors, for example, through other people or documents. Secondary data was obtained from documents/documentation such as school supervisor work programs, supervisor supervision reports, school guest books, principal supervision books, teacher supervision books, photos of supervision activities, technical guidelines for implementing clinical supervision, and other vital records. The data sources in this research are school supervisors, school principals, and teachers, as well as documents/documentation belonging to target schools in cluster II, Narmada District, West Lombok Regency.

The data collection techniques used in this research are observation, interviews, and document/documentation studies. In this research, the data analysis technique used is the interactive qualitative descriptive data analysis technique "Miles & Huberman," which consists of four stages: data collection, data reduction, data display, and conclusion (conclusion drawing/verification).

RESULTS AND DISCUSSION

Clinical supervision in cluster II Narmada District aims to improve teachers' professional abilities and enhance learning outcomes by assisting, mainly through professional services to teachers. The procedure for implementing clinical supervision consists of three stages: 1) pre-observation; 2) implementation of observations, 3) post-observation meeting.

Pre-observation stage. The supervisor holds a pre-observation meeting with the teacher, who will supervise the session. No stage is more critical than this initial meeting stage. This initial meeting aims to develop jointly between supervisors and educators a framework for classroom observations to be carried out. This initial meeting resulted in a working agreement between supervisors and educators.

The supervisor creates a friendly atmosphere with educators. Before discussing everything needed, the supervisor must create a conducive work climate to warm and peaceful the atmosphere. In this way, it is hoped that supervisors and educators will have a close relationship. A relationship like this aims to develop harmonious cooperation between supervisors and educators.

The research findings that researchers obtained from indicators of the supervisor's ability to create a friendly atmosphere with educators are the results of the author's interviews with school supervisors. The following is an interview with the Cluster II supervisor:

"When I come to a target school, I usually go to the teacher's room first to greet the teachers. I do this to get closer to the target teachers because I know that even my smile will make a special impression on the teacher. "Activities before carrying out clinical supervision, of course, I created a supervision program targeting all target schools in Narmada District after I invited school principals to meet in the cluster to carry out socialisation and make agreements on schedules and other matters regarding the implementation of clinical supervision".

This data is supported by the results of an interview with one of the school principals in cluster II as follows:

"When I come to my school, the supervisor usually stops by the teacher's room first and then meets me. "Before the supervisor carries out class supervision, she first gives me information about the time by meeting in the cluster with the other principals, but sometimes she suddenly comes without warning if urgent information needs to be conveyed immediately".

Several teachers in cluster II also made the same statement: when supervisors visit schools, they usually greet the teachers first before entering the principal's office. The results of field observations strengthen this data. When the researchers arrived, a meeting was taking place at SDN 1 Gerimak Indah, which the school principal attended, and the teachers conveyed information about the supervision activities that the guidance supervisor would carry out. Researchers obtained meeting attendance lists, meeting minutes and photos of ongoing meeting activities at SDN 1 Gerimak Indah.

From the results of interviews, observations and document searches, the author concludes that it is straightforward for supervisors to create a friendly atmosphere with educators so that there is good communication between supervisors and teachers. The supervisor conveys information regarding the supervision schedule to the school principal, not the teacher.

The supervisor and the educator discuss the learning plan created by the educator to agree on which aspects will be the focus of supervision attention.

A learning plan is a process of goals and how to achieve them. The supervisor discusses the learning plan by reviewing the RPP that the educator has made. Then, the supervisor asks what the educator has not mastered in applying the RPP to classroom learning. Learning planning is nothing more than an educator's projection regarding the activities students must carry out during the learning process. In these activities, it must be apparent where the student will be taken, what must be learned, how he will understand it, and how the supervisor will know that the student has achieved it.

Discussing learning plans is to guide educators in carrying out teaching practices or actions. Based on an interview with the supervisor, he said:

"As usual, I discuss the learning plan that will be clinically supervised at the beginning of the learning year. Then the educator provides what subjects will be clinically supervised, then I provide directions and lists of what will be clinically supervised, then the educator prepares these materials".

The SDN 1 Gerimak Indah teacher stated, "Clinical supervision is scheduled at the beginning of the new school year. Usually, the supervisor gives directions in advance and a list of what the supervisor has made. The rest we are the educators who prepare." The teacher also said this at SDN 1 Dasan Tereng, "clinical supervision takes place at the beginning of the learning year; educators meet supervisors to discuss or discuss what will be supervised".

From the interview results, the author concluded that the supervisor discussed the learning plans under clinical supervision in cluster II using educators providing learning materials under clinical supervision at the beginning of the learning year. Then, the supervisor gives directions and discusses them with the educator. This method is an efficient process because it can help educators maximise their learning in the classroom.

Supervisors create clinical supervision instruments. The primary purpose of clinical supervision instruments is to obtain information that will later be used to exchange ideas with educators after the observation ends so that educators can analyse the activities carried out in class. This is where the importance of observation techniques and instruments that are usually used to observe educators in managing learning. To develop clinical supervision instruments based on interviews with supervisors, he said:

"I compiled the instrument, but before carrying out clinical supervision, I gave the instrument I created to the educators who will be supervised so that they are ready with what they must prepare before teaching and what they must do when observing in class later".

The results of field observations and document searches supported the interview results. Researchers found that there was indeed a clinical supervision instrument created by supervisors in cluster II.

The interviews, observations, and document searches show that the supervisor created the clinical supervision instrument in cluster II independently without discussion with the teacher. After the instrument was made, it was explained to the teacher, who would be clinically supervised.

The supervisor determines the technique for carrying out observations. The teaching observation stage is systematic and objective. The attention of this observation is directed at educators in their actions and classroom activities as a result of educators' actions. When holding the initial meeting stage, the time and place of teaching observations are by mutual agreement between the supervisor and educators.

Two aspects must be decided and implemented by the supervisor before teaching observations, namely determining the elements that will be observed and how to observe them. Based on an interview with the cluster II supervisor, he said:

"To carry out the observation technique, I chose to use an individual technique, namely by making class visits and then taking notes, paying attention to the teacher who was teaching in the class, without disturbing the teaching and learning activities carried out by the teacher in the class".

According to the head of SDN 1, Dasan Tereng, "If the supervisor uses various observation techniques, the supervisor only pays attention to the

way the teacher conveys the material in class, nothing more than that." One of the teachers at SDN 1, Dasan Tereng, also said that the technique for carrying out clinical supervision observations is that supervisors only carry out class visits and take notes on observation sheets.

From the interview results, the author concluded that supervisors determine clinical supervision observation techniques in cluster II. Supervisors use individual techniques by making class visits and then taking notes or filling in the instrument list that has been made.

The results of the document study conducted by the researcher obtained data that the supervisor could not show the work program created because the laptop was damaged and the files were all on the computer.

The head of SDN 1 Sembung said something different:

"The supervisor has visited my school twice, but this semester, the supervisor has never been in the classroom to supervise directly. He asked me about the performance of the teachers at this school." Sometimes, when the supervisor meets the teacher, he chats and asks about things outside of learning".

Likewise, the information that the author got from one of the teachers from SDN 1 Sembung:

"When the supervisor goes to school, she only meets the principal; she never goes into the classroom to supervise us. But sometimes we are also gathered in the teacher's room to be given guidance; maybe this happens because we never complain to the supervisor".

Based on the information above, the supervisors did not thoroughly conduct clinical supervision activities in cluster II even though the program had been scheduled. The confirmation results with the supervisors revealed that clinical supervision was not carried out in every school because it was incidental. Another reason was the number of target schools, which is quite a lot, namely 21; besides those in Cluster II, supervisors also supervise schools in Cluster IV and Lingsar District.

Observation/observation implementation stage. In clinical focus activities aimed at teachers, there are three possible focus areas of attention: teacher, students, or teacher interaction with students. Teachers will dominate the class in the teaching and learning process, and students will be more active.

Supervisors are flexible. The supervisor's attitude in observing teachers in the classroom is also critical to pay attention to. Researchers discovered that the supervisor first greeted the students in class before starting learning observation activities. This is intended so students feel comfortable and can participate in learning as usual. This data is supported by the results of interviews with teachers at SDN 1 Gerimak Indah as follows:

"As soon as I entered my class, the supervisor greeted my students first and asked how they were doing. The supervisor also invited the students to clap together with the children. After that, the supervisor explained her arrival to my students; then she sat at the back of the children".

From the teacher's statement, it can be concluded that the supervisor is flexible. Researchers can assess this from his attitude of being able to mingle with the children and position himself when observing learning in the classroom.

Supervisors do not interfere with the learning process. The implementation of supervision is arranged in such a way that the supervisor does not disturb the students' concentration while receiving lessons. In this observation, the supervisor's focus is how the teacher applies the learning model that has been designed and utilises learning media that is appropriate to the material being taught. The cluster II supervisor explained this:

"When supervising in class, I do not observe all the learning activities carried out by the teacher but focus on several points of learning activities as agreed from the start with the class teacher. I did this to focus on the problems faced by teachers. I sit at the back in class so students are not disturbed by my presence".

The head of SDN 1, Dasan Tereng, said the same thing:

"I saw from outside the classroom that the super, supervising the class 4 teacher, was sitting at the back of the class. Just like I did when supervising my teacher, he only observed the teaching and learning activities carried out by my class teacher".

This is in line with what was conveyed by one of the teachers at SDN 1, Dasan Tereng:

"In yesterday's preparatory activities, we agreed with the supervisor that the things that will be observed during clinical supervision activities are my plans to implement the discovery learning model and what media I use in learning".

Supervisors record things that happen in the learning process. The supervisor does not interfere with the teaching and learning process when conducting classroom observations. This is shown by the supervisor's sitting position at the back of the students. According to the supervisor's statement, he only observed while recording things found and occasionally took documentation of teachers' teaching. The researcher's observations supported the interview results, which found that the supervisor carried out the classroom observation stages according to the appropriate stages.

Based on the information above, the supervisor's observation activities focus on teacher activities during the teaching and learning process. Before starting teaching and learning activities, the supervisor conveys his purpose for coming to the students. This shows that the supervisor tries to create a friendly atmosphere for students and teachers. Meanwhile, the supervisor sits behind the students in class to avoid disturbing the learning process. Supervisors only observe the teaching and learning process and record things found during observations using previously agreed instruments. This instrument has previously been agreed upon with the target teacher for supervision.

School supervisors' implementation of clinical supervision in cluster II shows supervisors can listen and empathise with teachers' complaints. This is proven by the implementation of clinical supervision carried out by supervisors in assisted schools in cluster II. The teachers in cluster II did not feel afraid of being supervised because the supervisors succeeded in providing an understanding of the importance of clinical supervision. It's just that not all schools receive clinical supervision services because only a few teachers are willing to express problems in learning. Clinical supervision is more incidental, so not all schools are targeted.

Evidence of the supervision format supervisors use during clinical supervision can be found based on document studies conducted by researchers. Still, the components in the supervision format supervisors use are the same as those in the academic supervision format. Meanwhile, researchers found other documents, such as the teacher's supervision book and the principal's particular supervisory guidance guest

book. Researchers also obtained photos of supervision activities carried out by supervisors from several schools in cluster II.

Post-Observation Stage. After observations in the classroom, the supervisor meets with the teacher to discuss the observation results. This meeting is beneficial for both parties, both teachers and supervisors. The discussion revolves around the results of observations that focus on previously agreed components. As the results of the researcher's interview with the cluster II supervisor:

"After the classroom observation activities were completed, I invited the teacher to meet to discuss the results of my observations in class. I started by asking the teacher concerned to convey a reflection on the learning that had been implemented. This reflection contained the teacher's successes and shortcomings in implementing the learning plan that had been made. Then, I gave praise for the teacher's success. Then I expressed my findings during classroom observations and provided input on the teacher's deficiencies in preparing teaching plans for practical activities".

From the interview results, it can be seen that the supervisor's activity after observing in class is to meet with the teacher being supervised to discuss the components that were agreed upon before the observation (pre-observation). These components relate to planning and preparation for teaching, the approach applied in learning, considering various situational factors in the class when observed, and recognition of the personality of the teacher who was observed.

A similar thing was conveyed by a teacher at SDN 1, Dasan Tereng:

"After finishing the teaching and learning activities, the supervisor asked me to sit down to discuss the results of class observations in my class. I was asked what I had succeeded in achieving from the plans I made and what I had not been able to achieve. The supervisor also praised me because I could master the class. "Furthermore, the supervisor gave input on my learning media".

From the results of observations and document searches carried out by researchers, documentary evidence was obtained in the form of notes on observations made by supervisors. Based on the results of interviews and document studies, it can be concluded that in post-observation activities, supervisors do 1) conduct dialogue with the teacher regarding what has been practised in the classroom. Supervisors ask teachers about learning strengths and weaknesses; 2) supervisors provide rewards for teacher success; 3) the supervisor conveys the findings during the observation; 4) supervisors offer input and guidance on findings that they feel are not by the teaching plan made by the teacher.

Using the clinical supervision model, educational supervision is an effort to monitor and improve teacher performance, carried out by supervisors to increase student and teacher achievement [7]. Clinical supervision prioritises a direct (directive) approach that directly provides direction to problems. So, if there is a problem, the supervisor can immediately offer a solution [8]. In general, clinical supervision assists in developing better teaching and learning situations through efforts to improve teaching pedagogy and professionalism, assessing teachers' abilities as educators and instructors in their respective fields to help teachers make improvements and, if necessary, point out deficiencies to be corrected by yourself.

Clinical supervision also coordinates, stimulates, and directs teachers' growth. Coordinating all school efforts, completing the principal's leadership duties, broadening teachers' experience, stimulating creative efforts, providing facilities and continuous assessment, analysing teaching and learning situations, and giving teachers skills. Integrates educational objectives and helps improve teacher capabilities. The implementation of clinical supervision in Cluster II Narmada sub-district consists of three stages, namely the pre-observation stage, the observation implementation stage, and the post-observation stage.

At the initial meeting, the supervisor could carry out his role well. These activities include:

a) The supervisor held a conducive meeting; the supervisor tried to establish a friendly meeting with the teacher. This allows teachers to openly convey the problems they face without feeling afraid. Supervisors and teachers must be open in expressing opinions based on mutual respect and synergistically try to improve the quality of learning. In a pleasant atmosphere, the teacher does not feel afraid or pressured, so the teacher is willing to express needs and problems in class [9]. If the teacher does not dare to express the learning problems he is facing, then the supervisor is expected to be able to provoke the teacher's conversation with good questions.

b) Review the learning plan. At the initial meeting, the supervisor and the teacher review the learning plan the teacher will use in learning activities. At the initial meeting, the supervisor must review the learning plan that the teacher has made so that the aspects that are the focus of observation do not leave the learning corridor.

c) Assess the components of teaching skills that will be observed. The supervisor invites the teacher who will be supervised to deepen the teaching skills, which will be the focus of the observation during the observation.

d) Selection of observation instruments. At the initial meeting, the supervisor can work with the teacher who will be supervised to equate perceptions about the observation instruments that will be used so that the teacher understands what indicators of teaching skills must be displayed in the learning process.

Learning observation is one of the actions in implementing clinical supervision. Based on observations, the supervisor has carried out observation activities well. The indicators are:

a) The supervisor has behaved and tried maintaining a typical classroom situation during learning activities. The supervisor takes a seat behind the student's seat so that he is not the centre of attention for the student. Supervisors must be able to carry themselves as well as possible when carrying out supervision in the classroom. This must be done so that the classroom atmosphere or students remain normal [10]. This needs to be done by the supervisor so that the presence of the supervisor does not distract the attention of students taking part in learning activities.

b) The activity carried out by the supervisor while conducting observations in the classroom is to find, record, and describe the teacher's strengths and weaknesses using the mutually agreed focus of observation. Teachers' shortcomings are sought to find solutions, while their strengths are used as motivation to be conveyed at the return meeting.

The feedback meeting is a follow-up after the learning observation activities occur. The supervisor will conduct a preliminary analysis of previous observation records in this activity. The data is processed, studied objectively, and then interpreted cooperatively by the teacher regarding what occurred during the lesson. Supervisors do this after conducting classroom observations: a) Conduct dialogue with the teacher regarding what has been practised in the classroom. Supervisors ask teachers about learning strengths and weaknesses; b) Supervisors provide rewards for teacher success; c) The supervisor conveys the findings during the observation; d) The supervisor includes input and guidance on findings that are felt to be not by the teaching plan made by the teacher.

CONCLUSIONS

Based on the findings and discussion of research data regarding the implementation of clinical supervision by elementary school supervisors in Gugus II, Narmada District, West Lombok Regency, it can be concluded that the stages of clinical supervision carried out by supervisors consist of three stages, namely, the pre-observation stage carried out by supervisors by a) Carrying out conducive meetings; b) Review the learning plan; c) Assess the components of teaching skills that will be observed; d) Selection of observation instruments.

The supervisor carries out the observation stage by a) The supervisor behaves and tries to maintain a typical classroom situation during learning activities by sitting behind the students; b) Finding, recording, and describing the teacher's strengths and weaknesses by the mutually agreed focus of observation.

The post-observation stage is carried out by the supervisor by a) Carrying out a dialogue with the teacher regarding what has been practised in the classroom; b) Providing rewards for teacher success; c) supervisor conveying the findings during the observation; d) supervisor providing input and guidance on findings that are felt to be not by the teaching plan made by the teacher.

REFERENCES

1. Novianti, H. (2015). Pelaksanaan Supervisi Akademik Kepala Sekolah Dalam Meningkatkan Kinerja Guru [Implementation of Principal Academic Supervision in Improving Teacher Performance]. *Manajer Pendidikan, 9*(2), 350–358 (in Indonesian).

2. Rahman, A. (2021). Supervisi dan Pengawasan Pendidikan [Educational Supervision and Monitoring]. *JURNAL PILAR: Jurnal Kajian Islam Kontemporer, 12*(2), 50–65 (in Indonesian).

3. Herly. (2014). Upaya Kepala Sekolah Meningkatan Pelaksanaan Supervisi di Sekolah Dasar 015 Kempas [Principal's Efforts to Improve the Implementation of Supervision in Primary School 015 Kempas]. *Jurnal Administrasi Pendidikan, 2*(1), 312–314 (in Indonesian).

4. Firdaus, F. (2019). Supervisi Klinis Dengan Teknik Demonstrasi Mengajar Untuk Meningkatkan Kinerja Guru [Clinical Supervision with Demonstration Teaching Techniques to Improve Teacher Performance]. *Pedagogos, 1*(2), 70–84. doi: 10.33627/gg.v1i2.162 (in Indonesian).

5. Wahyudin, A. (2021). Penerapan Supervisi Klinis Dalam Meningkatkan Kompetensi Pedagogik Dan Profesionalitas Guru [Implementation of Clinical Supervision in Improving Teachers' Pedagogical Competence and Professionalism]. *Tamaddun, 22*(1), 30. doi: 10.30587/tamaddun.v22i1.2290 (in Indonesian).

6. Lapu, A. (2019). Upaya Kepala Sekolah Dalam Meningkatkan Kinerja Guru Melalui Supervisi Klinis Di Sdn 07 Wanggarasi [Principal's Efforts in Improving Teacher Performance through Clinical Supervision at Sdn 07 Wanggarasi]. *Ideas: Jurnal Pendidikan, Sosial Dan Budaya, 6*(2), 117. doi: 10.32884/ideas.v6i2.187 (in Indonesian).

7. Febriyanti. (2017). Peran Kepala Sekolah Sebagai Supervisor Dalam Meningkatkan Kualitas Pembelajaran di MA Patra Mandiri Plaju Palembang [The Role of the Principal as a Supervisor in Improving the Quality of Learning at MA Patra Mandiri Plaju Palembang]. *El-Idare: Jurnal Manajemen Pendidikan Islam, 3*(1), 58–75 (in Indonesian).

8. Rahmananda, D. (2019). *Meningkatkan Mutu Dan Profesionalisme Guru* [Improving Teacher Quality and Professionalism]. doi: 10.31227/osf.io/myx2h (in Indonesian).

9. Nurfatah, N., & Rahmad, N. (2018). Pelaksanaan Supervisi Oleh Kepala Sekolah Dan Pengawas Sekolah [Implementation of Supervision by School Principals and School Supervisors]. *Jurnal Manajemen, Kepemimpinan, Dan Supervisi Pendidikan, 3*(1). doi: 10.31851/jmksp.v3i1.1585 (in Indonesian).

10. Kartiwa, W. (2020). Implementasi Program Kerja Pengawas Dalam Meningkatkan Kinerja Guru Madrasah Tsanawiyah [Implementation of the Supervisory Work Programme in Improving the Performance of Madrasah Tsanawiyah Teachers]. *Jurnal Administrasi Pendidikan, 27*(1), 146–156. doi: 10.17509/jap.v27i1.24828 (in Indonesian).

Response of Teachers and Managers of the Muslim Intended Generation Foundation to the Results of the Computer-Based National Assessment

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Abstract. This research aims to analyze the responses of teachers and administrators of the Muslim Scholar Generation Foundation (YGMC) to the results of the computer-based national assessment (ANBK). This research uses a qualitative approach with a case study method. The research sample comprised 62 people, 56 teachers, two deputy school principals and two school committee members. Data was collected using interviews, observation, questionnaires, documentation methods, and primary and secondary data sources. Data analysis techniques include data reduction, data presentation, concluding (verification) and checking the validity of the data using triangulation. The research results show that: 1) Most YGMC teachers responded positively and negatively to the Computer-Based National Assessment (ANBK); 2) Planning to improve the quality of YGMC education is carried out by data-based planning analysis, which determines the vision, mission, goals, SNP, and curriculum; 3) YGMC's implementation of quality management consists of implementing standards for learning activities and curriculum, improving the qualifications and competencies of educators and education staff, quality of graduates, education management, community involvement in education implementation; 4) Evaluation of the quality of YGMC education is carried out by evaluating performance, evaluating the learning process, preparing self-evaluations, and developing priority scales for activities and programs.

Keywords: Quality of Education; ANBK; education management; YGMC.

INTRODUCTION

The United Nations (UN) has set a main agenda until 2030: Sustainable Development (SDGs). SDGs is a development agreement that encourages change towards sustainable development. In 2045, Indonesia will experience a demographic bonus which will bring significant changes when it reaches the age of 100 years. According to BAPPENAS in the Draft National Long Term Development Plan, human resources are expected to become a generation that is productive, innovative, has integrity, is healthy and has culture.

The agenda of the National Long-Term Development Plan is closely related to the critical role of human resources. According to data from the United Nations Development Program (UNDP) in 2018, Indonesia is currently ranked 114th out of 191 countries in the Human Development Index (HDI). HDI measures aspects such as health, a decent standard of living, and education. Therefore, this research focuses on the education sector, where educational institutions are central to creating quality and superior human resources to achieve national goals. In this context, it is essential to holistically consider input, process, output and educational outcomes to achieve the desired quality improvement.

In the 2022 world education rankings compiled by the Program International Student Assessment (PISA), Indonesia's ranking in PISA 2022 rose to 5-6 positions compared to 2018. According to the Databook 2018, the results are still dis-

appointing because the PISA score is still below that of neighbouring countries (ASEAN) such as Singapore. These results are very frustrating, forcing the state to pay more attention to educational institutions to make improvements. This will improve Indonesia's education quality ranking and encourage the nation's progress in the future.

In this era of globalization, the demands of the world of education encourage educational institutions to compete competitively. One way to face this competition is to improve and develop quality in service, product quality, and educational effectiveness and efficiency to achieve the desired academic goals. Quality is an important aspect that shows educational products' superiority over others. Improving quality is an effort that all educational institutions must make, whether they produce goods or services.

The author [1] states that quality is at the top of many institutions' priorities, and improving quality is perhaps the most critical task any institution faces. Despite its importance, many consider quality a complicated concept, challenging to define, and difficult to measure. Initially, quality management systems were mainly implemented in companies that produced goods or services because of intense consumer competition. However, as consumers became more selective in choosing products or services, educational institutions also began implementing quality management systems. Quality objectives involve continuously developing a stable system, measuring quality attributes across the institution, and constantly improving various systems to reduce deviations and meet customer needs.

Educational institutions or schools then adopted the concept of quality improvement. They realize that they also have to produce the best output to benefit society and the country in the future, not just to satisfy customers. If an educational institution can produce quality output, then society will be more interested in choosing it over one that is not of good quality. In this regard, to ensure a quality education system in Indonesia, the government has provided a solution: replacing the National Examination with a computer-based National Assessment.

The Computer-Based National Assessment is an educational assessment focusing on three instruments: the Minimum Competency Assessment (AKM), the Character Survey (SK), and the Learning Environment Survey. The primary purpose of the National Assessment is to provide a source of information to map and evaluate the quality of the education system. (Permendikbud circular). In line with that, to back up ANBK data or measurement results, the Minister of Education launched an education report card platform. An education report card describes the quality of education in an area based on assessments developed from input, process and output models regarding the performance or effectiveness of educational units. Apart from that, education report cards are the primary reference for analysis, planning and follow-up to improve the quality of education in each education unit.

In this regard, education report cards are handy for each region, including NTB. The latest data in 2023, the results of the 2022 national assessment, show that a total of 9,611 educational units in NTB already have report cards. The number of those who have logged into the platform has only reached 2,580 or 26.84 % of the total educational units, while those who have explored and downloaded the report cards education respectively 20 or 0.21 % and 2,319 or 24.13 % of total schools. Next, the NTB education report card for two years shows that less than 50 % of students have reached the minimum competency limit in reading literacy and numeracy for all levels of elementary, middle and high school education units and equivalent in all districts and cities in NTB. Meanwhile, the researchers focused on ANBK achievements at the elementary and middle school levels in Central Lombok.

For two years, the elementary and middle school education report cards in Central Lombok were as follows:

1) Literacy and numeracy skills are less than 50% of students who have reached the minimum competency limit.

2). The learning process carried out by the teacher is directed, where learning leads to quality improvement as indicated by the classroom atmosphere becoming conducive and the presence of affective support and cognitive activation; however, the learning quality development activities carried out are not yet structured, and the teacher is not consistent in reflecting on learning, exploring references, new teaching, and spark innovations.

Apart from that, instructional leadership has not referred to the school's vision and mission, has not encouraged planning, practice and learning

assessments that are oriented towards improving student learning outcomes and has not developed programs, incentive systems and resources that support teachers in reflecting and enhancing learning.

The data above shows that the input, output and process achievements are still unexpected. In connection with the low results of education report cards, the Indonesian Ministry of Education and Culture launched the PMM application to fix the root of the problem in education report cards. However, the latest data from August 3, 2023, in Central Lombok Regency, where there are 689 educational units at the elementary and middle school levels, shows that less than 50% have completed the topics in IKM training on the Independent Learning Platform. Therefore, researchers conducted a unique study on the low ANBK results at SDIT and SMPIT. Data obtained from informants in printouts of education reports shows that ANBK results are still low. Field observations show that the facilities and infrastructure are available and adequate. In line with that, the author specifically chose to conduct research at the Muslim Scholar Generation Foundation.

The Muslim Scholar Generation Foundation is an educational institution that shows its existence in society. The foundation has five levels: kindergarten, elementary, middle school, MA, and vocational school. In line with this, the researcher focused on the achievements of the National Computer-Based Assessment at the elementary and middle school levels, where the last two ANBK results have not improved or are still in the medium category. The description of the ANBK results at SDIT YGMC in the previous two years is as follows:

1) The participation of 30 students who showed literacy skills was below the minimum.

2) The students' learning process quality is still passive; teachers use the same methods repeatedly.

3) Instructional leadership is still limited because it does not refer to the school's vision and mission, so it does not encourage the development of programs based on the achievements of computer-based national assessments.

4) The educational unit climate shows that it is still pioneering and developing, which means that it is necessary to create a security climate from psychological aspects, bullying and drug abuse. In line with the above ANBK achievement index, the average ANBK score is 1-2.5 or the low - medium category.

METHOD

This research uses a qualitative approach with a case study method. The research sample comprised 62 people, comprising 56 teachers, 2 school principals, 2 deputy school principals, and two school committee members. Data was collected using interviews, observation, questionnaires, documentation methods, and primary and secondary data sources. Data analysis techniques include data reduction, presentation, and conclusion (verification).

RESULTS AND DISCUSSION

YGMC Teacher Response. The researcher will discuss research findings in this chapter, which contain three aspects: teacher responses to standard operational procedures for administering ANBK, teacher responses to literacy, numeracy, student character and teacher reactions to the learning environment survey achievements.

1. Teacher Responses to Standard Operating Procedures for Implementing ANBK. Based on the questionnaire results, 33% of teachers responded positively, and 67% responded less to the standard operational procedures for administering ANBK. In connection with the lack of teacher response to POS ANBK, the researcher will describe the question points in POS ANBK as follows: Regulation of the Head of the Educational Standards, Curriculum and Assessment Agency Number 015/H/KP/2023 concerning Standard Operational Procedures for Implementing National Assessments in 2023, where the ANBK instrument or what is often called the National Assessment is carried out using three instruments, namely the Minimum Competency Assessment (AKM) Literacy and Numeracy, Character Survey and Learning Environment Survey. ANBK aims to improve the quality of education by photographing the input, process and output of learning in all educational units. The form of National Assessment questions consists of 1) Objective question form (Multiple Choice, Complex Multiple Choice, Matching, and Short Fill) and non-objective question form (Description); 2) AKM components consist of content, cognitive level, and context.

2. Teacher Responses to Student Achievements of Literacy, Numeracy, and Character. At this point, the questionnaire submitted by the researcher is the result of literacy, numeracy and character achievements obtained from the 2022 AN results. 81% of teachers responded positively, and 19% did not respond positively to students' literacy, numeracy, and character achievements. Reading literacy is the ability to understand, use, evaluate, and reflect on various types of texts to solve problems and develop individual capacity as Indonesian citizens and global citizens so they can contribute productively to society. Numeracy is the ability to think using concepts, procedures, facts, and mathematical tools to solve everyday problems in various contexts relevant to individuals as citizens of Indonesia and the world.

3. Response Teacher Responses to the Results of the Learning Environment Survey. Next, 47% of teachers responded positively, and 53% reacted poorly to the learning environment survey results. The information from the learning environment survey is the Education Unit index for security climate, inclusiveness and diversity index, and learning quality index. The Learning Environment Survey is a measuring tool used to evaluate and map supporting aspects of learning quality in the educational unit environment. The results of the information obtained from the learning environment survey are about factors from the input and learning process aspects that have the potential to influence student learning outcomes.

An education unit can be said to be good if the education unit can facilitate student learning through the following things: a) quality learning process; b) teachers who consistently reflect and improve their teaching practices; c) the head of the educational unit who implements a vision, policy and program that focuses on the quality of learning, and d) an educational unit climate that is safe, respects diversity and is inclusive.

YGMC Management Response. In this sub-chapter, we will discuss the response of YGMC SDIT and SMPIT managers to the ANBK results, in which the researchers conducted interviews with teachers, school principals, deputy school principals and YGMC SDIT and SMPIT Foundation Trustees.

YGMC education quality planning. Quality planning is the initial activity of the Muslim Intellectual Generation Foundation to create quality education by adapting to the needs and expectations of students to continue their studies at the state junior secondary and senior secondary levels.

a. Data Planning Analysis. Based on the researchers' findings, the Muslim Scholar Generation Foundation Trustees encouraged attention to ANBK. Next, the school principal follows up by analyzing planning data to see the results obtained by students after ANBK. PBD analysis is carried out through education quality reports, which all YGMC SDIT and SMPIT teachers can access.

b. Determine the vision, mission and goals. YGMC's vision: wants to become an educational institution capable of producing a generation of Muslims who believe and are devoted to Allah SWT, have an insight into Pancasila Nationalism, are intelligent scholars, are skilled in various fields of life, can speak foreign languages (Arabic, English, Japanese and Chinese) and are physically and spiritually healthy. YGMC has five learning strategies to achieve this vision: 1) Strategy for strengthening competency and nationalism based on curricular and Pancasila; 2) Strengthening Islamic character based on Islam, namely based on the Qur'an and Sunnah, which is strictly monitored in daily behaviour; 3) Natural learning in the context of strengthening monotheism, entrepreneurial insight and agribusiness practices; 4) Strengthening foreign languages such as English, Arabic, Japanese and Chinese in the era of globalization; 5) Developing interests and talents and creating a healthy living culture for students.

c. Determine SNP and curriculum. The Muslim Intellectual Generation Foundation is committed to implementing a quality management system, organizing schools with SNP standards and an accreditation system. Commitment to the quality management system at YGMC in organizing educational institutions, namely SNP standards, the Independent Learning curriculum and skills model programs, is a form of quality assurance. There is a need for foundation quality assurance, referring to the analysis results of previous quality targets (quality needs).

d. Student Services. YGMC Educational Institutions in the service process from madrasas to students feel comfortable carrying out better learning. The head of the madrasah has advantages and authority (influence), needs analysis, planning, implementation, evaluation, performance, development, work relationships, and

proportional remuneration because teachers can understand the condition of their students, school members feel safe and comfortable at work, the educational output is a collective result, not an individual result.

e. Student Quality Input. At the GMC Educational Institution, the focus is more on the quality management system inputs, processes and outputs that are implemented, including 1) the preparation of the teaching and learning process must truly embody the complete figure of quality and satisfaction expected from students; 2) the process of providing education is directed towards the targets of international scale universities; 3) process quality such as input quality; 4) become accustomed to students' attitudes; 5) this process will have a good impact on quality culture.

f. Quality policy reference. Quality policy requires planning in an educational context that is oriented towards high achievement and requires an essential reference for management concepts. This discussion uses Integrated Quality Management in Education. The human resources and facilities prepared and utilized for the scientific development process of students at YGMC are pretty representative and optimal. This can be seen from the positive impact on academic achievement and supporting skills (live skills). As an Islamic-based educational institution, it shows its quality in competing with other institutions. The achievement of quality cannot be separated from planning competence and the consistent implementation of quality management by top leaders. Competence, determination and expertise of the initial and foremost key leaders in synergizing all the potential in the institution in realizing academic and non-academic achievements. One of the most essential elements in management is leadership.

g. Quality planning. In the management review, YGMC quality planning shows that the design for developing GMC student achievement focuses on strengthening cognitive (absorbing pure knowledge) and life skills. This framework and orientation ensure that the output has basic knowledge and life skills that help face life's realities. It is an Islamic-based educational institution that can prepare and enable its students to participate in society with the weight of knowledge, life skills, social purity, and robust, credible and acceptable spiritual values. This fact is what is expected in Islam to create quality Muslim peo-

ple who can benefit themselves, their families, their religion, their nation and their country.

h. Quality improvement. Improving the quality of education plays a vital role in economic change and social development in a society. At YGMC, continuing to make various efforts to improve the quality of inputs, including human resources and sustainable programs, can produce achievements.

Implementation of Quality Management. YGMC Educational Institutions are run by the direction of YGMC's educational vision; however, the implementation of quality management at YGMC educational institutions is influenced by elements of qualifications, leadership style, vision, and mission at each level. These two elements will affect the management of educational institutions that are healthy, dynamic and accountable. These elements are a strategic sequence towards realizing fair management of academic institutions. This situation continues and develops to become an outstanding madrasa/school. The status of an exceptional madrasah is a distinction that it has a positive reputation for stakeholders. YGMC as an educational institution cannot be separated from government intervention in its hierarchy as the party that directly oversees it.

a. Standards of learning activities and curriculum. Teaching and learning activities cannot be separated from the standard learning activities and curriculum implemented in the madrasa or educational unit. Likewise, the YGMC curriculum is created by considering the social needs of society, cultural conditions, students, and learning needs and is based on integration between Islam and the general public.

b. Qualifications and Competencies of Educators and Education Personnel. Educators and educational staff are personnel in madrasas or academic institutions. These personnel are human resources who will manage educational institutions or madrasas. As MC prepares teaching staff with adequate competence and qualifications, both in terms of teaching competency standards and academic qualifications, they must be by the field being taught, increasing the activities of the Subject Teachers' Conference (MGMP). Educational staff develop human resources by participating in training based on their primary duties and functions.

c. Quality goals. The quality of education is the main target of management. In a madrasah, if the institution's quality is good, it can attract the community to recruit students. However, if the quality of education is low, then people will not be interested in entering YGMC. YGMC for student quality focuses on input quality targets (requirements, selection mechanisms, etc.), processes (curriculum, PBM, supervision and assessment) are directed at aligning the curriculum with the curriculum to be selected and making an MoU with the institution whose curriculum has been implemented adopted, the output (graduation, continuing) is directed at the invitation route; for the test route, many are successful. The outcome (search for graduates and distribution of graduates) is quite well organized.

d. quality of graduates. Output in a madrasah is one of the factors that manages the quality of graduates. The quality of YGMC graduates is the quality of graduates in each subject with a 100% pass level and equipped with skills. Apart from that, students are equipped with Al-Quran reading skills, where final-year students at elementary and middle school levels take a public test to memorize the Al-Quran as one of the prerequisites for graduating from school. YGMC's efforts to prepare alums to continue their studies at primary and secondary levels by encouraging each level and designing extracurricular activities in skill development. This program aims to provide provisions for prospective alums to live independently and even be ready to compete in madrasas/institutions at the first level.

e. Education management. Educational institutions need to carry out madrasa management intensively and optimally to achieve the institution's quality. Likewise, YGMC, in implementing a quality management system, manages Islamic educational institutions professionally: 1) transparently in developing madrasa programs; 2) division of tasks based on performance quality; 3) carry out the 6 Ks, namely: involvement, discipline, security, kinship, beauty and cleanliness.

f. Community and committee participation. Educational units in community relations with madrasas/schools must be carried out to maintain good relations between the community and the foundation. YGMC involves the community in providing education, divided into two groups: 1) involvement in the learning process and 2) involvement in the school or madrasa management process. Involvement in teaching and learning activities involving madrasah leadership components (madrasah management components), teachers, students, the community and alums do not touch the substance of quality targets.

Evaluating quality management. Educational institutions at the Muslim Scholar Generation Foundation in 2023, where an evaluation of the quality of education is carried out to ensure the realization or achievement of quality education in schools or madrasas as educational institutions.

a. Evaluation of Performance. The YGMC Educational Institution evaluates the quality of education to create an outstanding educational institution using, namely, the ranks of madrasa heads, monitoring and evaluation teams from related agencies and between individual school members whose implementation can be clinical, technical and non-technical, both every month, at the end of the semester and the end of the year – years to be able to find out about program implementation, obstacles and how to overcome them.

b. Evaluation of the Learning Process. The Muslim Intellectual Generation Foundation evaluates and supervises the learning process at each stage of planning, implementation and learning outcomes. First, the Madrasah Head prepares a supervision and evaluation program for the learning process. Second, the Madrasah Head conducts comprehensive supervision and evaluation of learning, including learning planning, implementation and learning outcomes. Third, the Madrasah Head supervises all educators.

c. Compiling a Self-Evaluation. YGMC Self Evaluation to analyze management process data to evaluate the quality of the two educational institutions. Based on school self-evaluations, both academic institutions carry out self-evaluations of institutional performance on an ongoing basis to determine their impact on improving learning outcomes, including: first, both institutions carry out self-evaluations of madrasah performance; second, both institutions carry out evaluations of the learning process at the end of each semester, third, both institutions carry out annual work program evaluations or RKAS at the end of each year, fourth, both institutions prepare reports on the results of school self-evaluations, fifth, both institutions prepare a priority scale for activities and follow-up programs to the EDS results.

d. Develop a priority scale for activities and programs. Follow-up As is done by the school principal, he carries out quality evaluations by reporting all activities that have been carried out so that with this report, there will be an evaluation related to the program being carried out. For this reason, based on observations at SDIT and SMPIT YGMC, institutional management is carried out professionally by evaluating accountability, transparency and efficiency. Each line of work at YGMC has its quality targets.

CONCLUSIONS

Based on the results of research and research discussions at the Muslim Scholar Generation Foundation (YGMC), it can be concluded:

Most YGMC teachers responded positively to the results of the Computer-Based National Assessment (ANBK); Most YGMC teachers reacted negatively to the standard operational procedures for administering ANBK; Most YGMC teachers responded positively to students' literacy, numeracy and character achievements; and the majority of YGMC teachers reacted negatively to the results of the learning environment survey.

Planning to improve the quality of YGMC education is carried out by data-based planning analysis, determining vision, mission and goals, determining SNP and curriculum, student services, student quality input, quality policy references and quality planning.

YGMC's implementation of quality management consists of implementing standards for learning activities and curriculum, improving the qualifications and competencies of educators and education staff, improving the quality of graduates, implementing education management, and promoting community involvement in education implementation.

The quality of YGMC education is evaluated by evaluating performance, assessing the learning process, preparing self-evaluations, and developing priority scales for activities and programs.

REFERENCES

1. Kristiawan, M. (2014). A Model for Upgrading Teachers' Competence on Operating Computer as Assistant of Instruction. *Global Journal of Human-Social Science Research, 14*(5), 1–11.

2. Abdul Azeez, A. T. (2016). Analysis of Management Practices in Lagos State Tertiary Institutions through Total Quality Management Structural Framework. *Journal of Education and Practice, 7*(8), 6–26.

3. Hanjani, A., Mashari, A., Nureva., Tohir, A. (2023). Analisis Strategi Belajar Siswa Dalam Menghadapi Asesmen Nasional Berbasis Komputer (ANBK) di Kelas V SD Negeri 3 Rajabasa Kota Bandar Lampung [Analysis of Students' Learning Strategies in Facing Computer-Based National Assessment (ANBK) in Class V of SD Negeri 3 Rajabasa, Bandar Lampung City]. *Jurnal Pendidikan Tunas Bangsa, 1*(1), 2–5 (in Indonesian).

4. Sjaifulloh, A. (2022). *Manajemen Full Day School Dalam Meningkatkan Kualitas Pendidikan Karakter di MI Ma'arif Al Falah Joyokusumo Banjarnegara* [Full Day School Management in Improving the Quality of Character Education at MI Ma'arif Al Fa-lah Joyokusumo Banjarnegara] (thesis). Retrieved from https://eprints.iainu-kebumen.ac.id/id/eprint/565 (in Indonesian).

5. Ambarwati. (2020). *Prilaku dan Teori Organisasi* [Organisational Behaviour and Theory]. Malang: Media Nusa Creative (in Indonesian).

6. Nisoh, A. (2022). Manajemen Peningkatan Mutu Madrasah (Studi Komparasi Lembaga Pendidikan Di Indonesia Madrasah Pembangunan UIN Jakarta) dan Thailand (Ma'had Al-Ulum Adiniyah Pohontanjong Ruso Narathiwat) [Madrasah Quality Improvement Management (Comparative Study of Educational Institutions in Indonesia Madrasah Pembangunan UIN Jakarta) and Thailand (Ma'had Al-Ulum Adiniyah Pohontanjong Ruso Narathiwat)]. *Jurnal TAHDZIBI, 4*(2), 110–115 (in Indonesian).

7. Alfionita, I. L. (2019). Pengaruh Kemampuan Manajerial Kepala Sekolah dan Kinerja Guru terhadap Mutu Pembelajaran PAUD Se-Gugus 3 Kecamatan Gerung [The Influence of Principal Managerial Ability and Teacher Performance on Learning Quality of PAUD Se-Gugus 3 Gerung District]

(thesis). Retrieved from
http://eprints.unram.ac.id/view/creators/STA_LAORIA=3AALFIONITA=3A=3A.html
(in Indonesian).

8. Athoillah, A. (2017). Dasar-dasar Manajemen [Management Basics]. Bandung: Pustaka Setia Menengah (in Indonesian).

Analysis of Factors Supporting the Improvement of Physical Education Learning Outcomes in Students at SD Negeri 1 Babahrot, Indonesia

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Abstract. Physical Education, Sports, and Health (Penjasorkes) is an educational process that utilizes physical activities, systematically planned, intending to develop and enhance various organic, neuromuscular, perceptual, cognitive, and emotional aspects of individuals, all of which are integrated within the framework of the national education system. Through Penjasorkes, individuals can engage directly in various learning experiences through selected and systematically conducted physical, sports, and health activities. Thus, the role of Penjasorkes in the educational context is crucial, not only for physical aspects but also for the overall development of individuals in various dimensions of life. The purpose of this research is to determine the relationship between physical fitness and learning outcomes, the relationship between nutritional status and learning outcomes, the relationship between learning motivation and learning outcomes, and the combined relationship between physical fitness, nutritional status, learning motivation, and learning outcomes among students at SD Negeri 1 Babahrot. The research sample consisted of 79 students from SD Negeri 1 Babahrot. Instruments used to collect data include 1) the Indonesian Physical Fitness Test (IPFT), consisting of a 40-meter sprint, bent-arm hang (30 seconds), sit and reach (30 seconds), standing long jump, and 600-meter run; 2) nutritional status assessment through height and weight measurements; 3) learning motivation assessed through a Likert scale questionnaire. The research results can be summarized as follows: there is a significant relationship between physical fitness and learning outcomes, a significant relationship between nutritional status and learning outcomes, a significant relationship between learning motivation and learning outcomes, and a combined relationship between fluctuating learning outcomes with physical fitness, nutritional status, and learning motivation.

Keywords: Physical Fitness; Nutritional Status; Learning Motivation; Learning Outcomes.

INTRODUCTION

Physical fitness is a primary concern, especially in the context of continuous learning for students. Besides physical fitness, a balanced nutritional intake supports the learning process. Parents are responsible for ensuring that students receive adequate nutrition before they depart for school. Maintaining balance in the nutritional intake should be considered, considering that poor nutritional status will affect children's academic performance. Learning motivation also plays a significant role in achieving optimal learning outcomes. High-motivation students tend to be more focused, resilient, and diligent in their studies. Strong motivation can increase students' engagement in learning, strengthen their efforts to achieve learning goals and help them overcome obstacles during the learning process.

The initial observations at Elementary School Negeri 1 Babahrot indicate low academic achievement among students, attributed to several factors such as insufficient learning motivation and limited facilities and infrastructure, which lead to decreased enthusiasm for sports education. Other factors, such as parental economic and educational support, physical fitness,

and nutritional status, influence students' academic outcomes. Observations were conducted on students in grades 4 and 5, and some received grades below the minimum standards set by the school. These factors are believed to contribute to the low academic performance in physical education, sports, and health among students.

According to [1], students' health, especially their physical and psychological health, affects their learning outcomes. Good physical condition, including physical fitness and mental health, prepares students to learn effectively. Psychological factors such as intelligence, talent, interest in learning, motivation, and mental health also impact students' academic achievement.

Author [2] asserts that factors influencing learning outcomes can be divided into three types: internal factors (originating from within students), such as their physical and mental conditions; external factors (stemming from outside students), such as their surrounding environment; and learning approach factors, which encompass the strategies and methods of learning utilized by students.

According to [3], internal factors influencing students' learning outcomes can be grouped into three categories: physical factors, psychological factors, and fatigue factors. Physical factors refer to students' health and bodily condition that can affect their learning process. Psychological factors include intelligence, attention, interest, talent, motivation, maturity, responsibility, and readiness. Meanwhile, fatigue factors are divided into two types: physical fatigue and psychological fatigue.

Based on the above facts, many factors are suspected to influence students' physical education learning outcomes, such as physical fitness, self-confidence, learning motivation, study concentration, nutritional status, parental attention, and student discipline at Elementary School Negeri 1 Babahrot. Building upon these factors, the author aims to investigate in-depth whether students' low physical education learning outcomes are influenced by learning motivation and physical fitness, as well as the nutritional status of students.

METHOD

This research employs a quantitative method using simple correlation. According to [4], quantitative data-based research is an approach based on positivistic principles, where the data used are concrete data measured using statistical tools. This research aims to find correlations or relationships between one variable and another, with data measured in numerical form. Statistical techniques are used to analyze the data to draw desired conclusions regarding the research problem under investigation.

According to [4], research instruments are tools used to measure observed phenomena in the natural or social realm, often called research variables. The primary function of these instruments is to gather relevant data related to the variables under investigation. This study's instrument consists of test items designed to measure or assess understanding, knowledge, or specific abilities related to the studied variables. These test items assist researchers in gathering the necessary information to achieve research goals and draw accurate conclusions.

Data collection techniques are methods to obtain the necessary information in a research study. This includes the guidelines for conducting measurements used to gather data. This research uses testing and measurement techniques to collect the required data. First, physical fitness tests include a 40-meter Sprint, Bent-Arm Hang Test, Sit and Reach for 30 Seconds, Standing Long Jump, and 600-meter Run. Second, nutritional status tests involve measuring height and weight. Third, learning motivation tests use a Likert scale questionnaire. Fifth, learning outcome data is sourced from students' physical education grades in their report cards.

To determine the extent of the relationship between physical fitness, nutritional status, and learning motivation on the learning outcomes of students at SD Negeri 1 Babahrot, after obtaining data from field measurements, the next step is to analyze the data using statistical formulas.

RESULTS AND DISCUSSION

Description of Physical Fitness. The results of the physical fitness test for 79 students of SD Negeri 1 Babahrot indicate four fitness categories: "good", "fair", "poor", and "very poor" (Table 1).

Only 1% of students fall into the "very poor" category with a fitness score of 8. 59% fall into the "poor" category, with scores ranging from 10 to 13.

Table 1 – Frequency Distribution of Physical Fitness Among Students of SD Negeri 1 Babahrot

No	Class length	Frequency	%	Class
1	5-9	1	1	Very Poor
2	10-13	47	59	Poor
3	14-17	30	38	Fair
4	18-21	1	1	Good
5	22-25	0	0	Very Good
Total		79	100	

Table 3 – Frequency Distribution of Learning Motivation Among Students of SD Negeri 1 Babahrot

No	Interval, %	Frequency	%	Class
1	0-49	0	0	Very Poor
2	50-59	0	0	Poor
3	60-69	0	0	Fair
4	70-79	12	15	Good
5	80-100	67	85	Very Good
Total		79	100	

Meanwhile, 38% of students fall into the "fair" category, with scores ranging from 14 to 17, and only 1% fall into the "good" category. Thus, more than half of the students at SD Negeri Babahrot have low levels of physical fitness.

Description of Nutritional Status. The results of the Body Mass Index (BMI) testing for SD Negeri 1 Babahrot students indicate that most students, totalling 57 individuals (72%), have a good or average nutritional status (Table 2).

Table 2 – Frequency Distribution of Nutritional Status Among Students of SD Negeri 1 Babahrot

No	Class length	Frequency	%	Class
1	<14	17	22	Underweight
2	14-19	57	72	Normal
3	20-21	4	5	Overweight Risk
4	21>	1	1	Overweight
Total:		79	100	

However, 17 students (21%) have BMI values below 14, indicating that they may be malnourished or classified as underweight. Additionally, 4 students (5%) are at risk of being overweight, and 1 student (1%) is classified as overweight.

Description of Learning Motivation. The results of the student learning motivation test at SD Negeri Babahrot indicate that the majority of students have a good level of motivation, with 67 students (85%) falling into the "very good" category and 12 students (15%) falling into the "good" category (Table 3).

From this data, the students' interest in learning at the school is relatively high, as the average learning motivation of students exceeds 70% of the total 79 students sampled in this study.

Description of Learning Outcomes. The student report data from SD Negeri Babahrot indicates that the scores for Physical Education tend to be low, with the average score of students only reaching a passing grade or barely surpassing the minimum passing score (71) (Table 4).

Table 4 – Frequency Distribution of Student Learning Outcomes at SD Negeri 1 Babahrot

No	Class length	Frequency	%	Class
1	<-70	24	30	Poor
2	71-81	54	68	sufficient
3	82-92	1	1	Good
4	93-100	0	9	Very Good
Total:		79	100	

From the data, 54 students (68%) received a "Pass" grade (71-81), while another 24 students (30%) did not meet the minimum passing score or scored below 71, categorized as insufficient. Only one student obtained a passing grade out of the 79 students sampled in this study.

Prerequisite Tests. Normality Test. Table 5 shows that the asymp. sig values for all variables are more significant than 0.05, indicating that the hypothesis that the sample is drawn from a normally distributed population is accepted. Based on this information, the data variables in this study can be analyzed using a parametric statistical approach.

Table 5 – Results of Normality Test Calculate

No	Variable	Asymp.Sig	Conclusion
1	Learning Outcome	0,061	Normal
2	Physical Fitness	0,200	Normal
3	Nutritional Status	0,062	Normal
4	Learning Motivation	0,200	Normal

Linearity Test. Table 6 shows that the asymp. sig values for all variables are more significant than 0.05, so the hypothesis that the sample is based on a normally distributed population is accepted. Based on this information, the variable data in this study can be analyzed using a parametric statistical approach.

Table 6 − Results of Linearity Test Calculation

Variable	Significance	Conclusion
Physical Fitness-Learning Outcomes	0,488	Linear
Nutritional Status-Learning Outcomes	0,442	Linear
Learning Motivation-Learning Outcomes	0,553	Linear

Hypothesis Testing. To determine whether there is a relationship between physical fitness, nutritional status, and learning motivation on student's academic performance at SD Negeri 1 Babahrot, hypothesis testing for the first through third hypotheses will be conducted using correlation analysis techniques. In contrast, hypothesis testing for the fourth hypothesis will utilize multiple regression analysis techniques.

Testing the first hypothesis. The first hypothesis states that physical fitness is related to students' academic performance at SD Negeri Babahrot. Hypothesis testing for this hypothesis employs simple regression analysis techniques, the results of which can be seen in Table 7.

Table 7 − Summary of the Relationship between Physical Fitness and Student Learning Outcomes at SD Negeri 1 Babahrot

Type of Correlation	Value of r		Description
	Calculated	Table (n-2=77, α=5%)	
X1 - Y	0,712	0,2213	Significance

The correlation coefficient obtained is 0.712, more significant than the critical value of r-table = 0.2213. This indicates that physical fitness significantly contributes to the academic performance of students at SD Negeri 1 Babarot.

Testing the second hypothesis. Hypothesis two states that there is a relationship between nutritional status and the academic performance of students at SD Negeri Babahrot. Hypothesis two is tested using simple correlation analysis, as seen in Table 8.

Table 8 − Summary of the Relationship between Nutritional Status and Academic Performance of Students at SD Negeri 1 Babahrot

Type of Correlation	Value of r		Description
	Calculated	Table (n-2=77, α=5%)	
X2 - Y	0,243	0,2213	Significance

The correlation coefficient is 0.243, more significant than the critical value (r-table = 0.2213). This indicates nutritional status significantly contributes to students' academic performance at SD Negeri Babahrot.

Testing the third hypothesis. Hypothesis three states that there is a relationship between learning motivation and the academic performance of students at SD Negeri Babahrot. Hypothesis testing is conducted using simple correlation analysis; the results can be seen in the following table.

Table 9 − Summary of the Relationship between Learning Motivation and Academic Performance of Students at SD Negeri 1 Babahrot

Type of Correlation	Value of r		Description
	Calculated	Table (n-2=77, α=5%)	
X3 - Y	0,372	0,2213	Significance

The correlation coefficient obtained is 0.372, more significant than the critical value of 0.2213. This indicates that nutritional status significantly contributes to students' academic performance at SD Negeri Babahrot.

Hypothesis testing fourth. The significance of multiple regression was determined using the F-value.

Table 10 − Summary of Multiple Regression Significance Test Results

Ry	R²	Value of F		Description
		Calculated	Table	
0,728	0,530	28,969	2,73	Significance

From the analysis of various correlations, an F-value of 28.969 was obtained. This was then consulted with the critical F-value at a significance level of 5%, resulting in a crucial F-value of 2.73.

Therefore, the results of the multiple regression testing indicate significant findings. It is concluded that there is a substantial contribution between physical fitness, nutritional status, and learning motivation to students' learning outcomes at SD Negeri 1 Babahrot. The multiple correlation analysis is accompanied by the coefficient of determination (R^2). The obtained coefficient of determination is 0.530, meaning that (0.530 x 100%) = 53% of the variation in learning outcomes at SD Negeri 1 Babahrot is jointly determined by physical fitness, nutritional status, and learning motivation.

The research investigated the relationship between physical fitness, nutritional status, and learning motivation on students' learning outcomes at SD Negeri 1 Babahrot. The research findings indicate a significant relationship between the independent variables (X1, X2, and X3) and the dependent variable (Y). Multiple regression analysis reveals a significant relationship between physical fitness, nutritional status, and learning motivation on students' learning outcomes at SD Negeri 1 Babahrot. The coefficient of determination obtained is 0.530, meaning that (0.530 x 100%) = 53% of the variance in students' learning outcomes at SD Negeri 1 Babahrot is collectively determined by physical fitness, nutritional status, and learning motivation.

The physical fitness test results for the 79 students of SD Negeri Babahrot depict a somewhat varied picture. Only 1% of students scored "very poor", with a score range of 8, indicating that generally, most students have a better fitness level. However, special attention needs to be given to the 59% of students categorized as "poor" with a score range of 10 to 13. This indicates potential health and fitness issues that need to be addressed. There are 38% of students in the "fair" category with a score range of 14 to 17, although there is still room for improvement. The lone student who scored "good" demonstrates individual success worth emulating. However, the fact that only 1% of students reached this category indicates the need to further encourage and support students in improving their physical fitness. With more than half of the students falling into the "poor" and "very poor" categories, intervention measures need to be taken to in-

crease awareness of the importance of physical activity and healthy lifestyles among students, whether through additional fitness programs, coaching, or education on balanced diets. Thus, collaborative efforts from the school, parents, and students themselves can contribute to improving health and physical fitness at SD Negeri Babahrot.

Based on the results of the Body Mass Index (BMI) testing conducted on students of SD Negeri 1 Babahrot, it can be concluded that most students exhibit good or average nutritional status, comprising 72% or 57 students. However, 17 students (22%) had BMI values below 14, indicating malnutrition or inadequate nutrition within this group. The presence of 5% of students (4 individuals) classified as at risk of being overweight and one student (1%) classified as overweight indicates variation in the BMI categories that require attention. This raises concerns regarding nutritional imbalances among these students, which can affect their growth and development. Therefore, prevention measures and education on the importance of healthy eating and active lifestyles among students are necessary, involving cooperation between schools, parents, and healthcare providers. Consequently, improvements in the nutritional status of students at SD Negeri 1 Babahrot can be expected, enabling them to grow and develop optimally while minimizing the risk of health problems associated with nutrition.

Based on the results of the learning motivation testing of students at SD Negeri Babahrot, it can be concluded that most students exhibit a high level of learning motivation. Most students, comprising 85% or 67 individuals, fall into the "very good" category regarding learning motivation, while 15% of students, or 12 others, are classified as "good." This data reflects a high level of interest in learning among students at SD Negeri Babahrot, with the average learning motivation exceeding 70% of the total 79 students sampled in this study. The dominance of the "very good" category indicates that most students have high spirits and enthusiasm for learning. This is a positive factor in improving students' learning outcomes and overall achievements. However, it is essential to remember that evaluating factors supporting this learning motivation is also crucial, including teaching approaches, environmental support, and adequate educational resources. By understanding and leveraging students' high learning motivation, schools can design more ef-

fective learning strategies and support the development of students' potential at SD Negeri Babahrot.

Based on the report card data of students at SD Negeri 1 Babahrot regarding Physical Education subject scores, there is a tendency towards relatively low grades. The average student scores indicate they can only achieve a "satisfactory" level or fail to meet the Minimum Passing Grade (MPG) set at 71. In this regard, 68% of students, or 54 individuals, received a "satisfactory" rating ranging from 71 to 81. Meanwhile, approximately 30% of students, or 24 individuals, failed to reach the MPG, receiving a "not satisfactory" rating, with scores below 71. Only one student out of the total 79 students sampled in this study managed to achieve a "satisfactory" score. These results indicate challenges in achieving learning outcomes in the Physical Education subject at SD Negeri 1 Babahrot. An in-depth evaluation is required to identify the factors causing this low performance, including teaching approaches that may need adjustment or improvement in supporting resources.

Efforts to improve teaching methods, emphasis on more interactive physical activities, and additional support for students in need can help enhance learning outcomes in the subject. Consequently, Physical Education learning at SD Negeri 1 Babahrot can become more effective and aligned with the established competency standards.

The research results show that physical fitness, nutritional status, and learning motivation significantly correlate with student learning outcomes at SD Negeri 1 Babahrot. Students must also have good physical fitness, nutritional status, and learning motivation to achieve good learning outcomes. This indicates that physical fitness, nutritional status, and learning motivation are crucial in supporting students to achieve optimal learning outcomes.

Physical fitness is crucial for students who are undergoing their education in school. This is supported by research explaining that physical fitness can enhance physical activity and thinking performance. Good physical fitness supports brain function, making individuals more efficient in thinking and learning. Additionally, low levels of physical fitness can lead to easy fatigue, which can hinder brain function and thinking [5]. Authors [6] state that if students have good physical fitness, it will contribute positively to the learning outcomes of Physical Education and Health (PJOK). This means that students with higher levels of physical fitness tend to achieve better learning outcomes in PJOK subjects. Physical fitness is an essential factor that students need to maintain to achieve good learning outcomes.

Nutritional status significantly influences students' cumulative academic achievements. Statistically, the impact of nutritional status on overall learning achievement is more significant than the performance in individual subjects. The nutritional status theory by UNICEF emphasizes that nutrition intake and disease-free conditions directly affect nutritional status. Although the research participants come from schools with a middle to upper-middle economic level, attention should be paid to eating habits, including consumption of unhealthy foods such as junk food [7]. Nutritional status is crucial in education because it can enhance intelligence and support physical and mental growth. The influence of nutrient intake on children is vital to prevent developmental disorders through maintaining optimal nutritional status. Insufficient dietary status can have serious consequences, leading to brain damage, illnesses, and stunted physical growth. These conditions collectively contribute to intellectual developmental disorders characterized by delayed nerve cell maturation, impaired motor skills, cognitive deficiencies, and slow social responses [8].

Learning motivation plays a central role in determining the effectiveness of learning. In learning activities, motivation is defined as the driving force within students that initiates, sustains, and directs the learning process. Motivation ensures the continuity of learning activities and serves as a guide to achieving the learners' desired goals. Students with solid motivation will bring positive energy to implement learning activities [9]. Motivation encourages students to learn and achieve objectives because they believe and are aware of the benefits and significance of learning. For students, motivation is crucial as it can steer student behaviour towards positivity.

CONCLUSIONS

Based on the research findings, there is a significant relationship between physical fitness and learning outcomes. There is also an essential relationship between nutritional status and learning outcomes. Finally, there is an important rela-

tionship between learning motivation and learning outcomes. Thus, a meaningful relationship exists between physical fitness, nutritional status, learning motivation, and students' learning outcomes at SD Negeri 1 Babahrot.

The relationship between physical fitness, nutritional status, and learning motivation can significantly impact students' learning outcomes. Good physical fitness can enhance students' physical and mental health, creating optimal conditions for understanding and retaining information. Conversely, lack of physical fitness can lead to fatigue and lack of focus, hindering the learning process. Adequate nutritional status is essential because sufficient nutrition supports brain function and the energy needed to tackle learning tasks. Students with suboptimal nutrition may need help to concentrate and perform. Learning motivation, influenced by internal and external factors, is vital in motivating students to achieve their academic goals. Good physical fitness and nutritional status can positively contribute to learning motivation, creating a positive cycle where students feel physically fit, have the energy to learn, and achieve academic success. Therefore, supporting the holistic relationship between physical fitness, nutritional status, and learning motivation is essential in creating an optimal learning environment for students' development.

Physical Education teachers should better understand the factors influencing students' learning outcomes in school.

Students should be more motivated to participate in physical activities at school to maintain or improve their current level of physical fitness.

Future researchers should conduct studies relevant to different methods, samples, timeframes, and locations.

REFERENCES

1. Wirda, Y., Ulumudin, I., Widiputera, F., Listiawati, N., & Fujianita, S. (2020). *Faktor-faktor determinan hasil belajar siswa* [Factors determining student learning outcomes]. Jakarta: Pusat Penelitian Kebijakan (in Indonesian).

2. Syah, M. (2017). *Psikologi Belajar* [Psychology of Learning]. Depok : Rajawali Persada (in Indonesian).

3. Slameto. (2010). *Belajar Dan Faktor-Faktor Yang Mempengaruhinya* [Learning and its influencing factors]. Jakarta: Rineka Cipta (in Indonesian).

4. Sugiyono. (2018). *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D* [Education Research Methods: Quantitative, Qualitative, and R&D Approaches]. Bandung: Alfabeta (in Indonesian).

5. Abduh, I., Humaedi, H., & Agusman, M. (2020). Analisis Hubungan Tingkat Kesegaran Jasmani terhadap Hasil Belajar Siswa [Analysis of the Relationship between Physical Fitness Level and Student Learning Outcomes]. *JOSSAE : Journal of Sport Science and Education, 5*(2), 75. doi: 10.26740/jossae.v5n2.p75-82 (in Indonesian).

6. Destriana, D., Elrosa, D., & Syamsuramel, S. (2022). Kebugaran Jasmani Dan Hasil Belajar Siswa [Physical Fitness and Student Learning Outcomes]. *Jambura Health and Sport Journal, 4*(2), 69-77 (in Indonesian).

7. Sahid, M. H., Adisasmita, A. C., & Djuwita, R. (2022). Hubungan Status Gizi Dengan Prestasi Belajar Siswa Kelas 1-3 Sekolah Dasar [The Relationship between Nutritional Status and Learning Achievement of Students in Grades 1-3 of Elementary School]. *Jurnal Epidemiologi Kesehatan Indonesia, 5*(2). doi: 10.7454/epidkes.v5i2.2411 (in Indonesian).

8. Cahyanto, E. B., Mulyani, S., Nugraheni, A., Sukamto, I. S., & Musfiroh, M. (2021). Hubungan Status Gizi dan Prestasi Belajar [Relationship between Nutritional Status and Learning Achievement]. *PLACENTUM: Jurnal Ilmiah Kesehatan Dan Aplikasinya, 9*(1), 124. doi: 10.20961/placentum.v9i1.45151 (in Indonesian).

9. Afryansih, N. (2016). Hubungan motivasi belajar dengan hasil belajar siswa geografi SMAN 5 Padang [The relationship between learning motivation and geography student learning outcomes SMAN

5 Padang]. *Jurnal Spasial: Penelitian, Terapan Ilmu Geografi, dan Pendidikan Geografi, 3*(1) (in Indonesian).

Moderation of Social Support as a Balancing of Job Stress for Functional Officers of Goods / Service Procurement of the Ministry of Education, Culture and Technology, Indonesia

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Abstract. This research analyses the moderation of social support as a counterweight to the influence of workload on work stress for functional officials in procuring goods/services at the Ministry of Education and Culture, Research and Technology. The population involved all functional officials for procurement of goods/services of the Ministry of Education and Culture using probability sampling to determine the sample. Data was obtained through questionnaires distributed using Google Forms and interviews without using guidelines. Regression analysis with moderating variables is used to determine the role of moderating variables in strengthening or weakening the relationship between the independent and dependent variables. The research results show that the direct influence of workload on work stress is 5.539. The value of the direct effect of social support on work stress is -5.449, and the value of the moderating effect of social support on the influence of workload on work stress is -4.221. Thus, workload has a significant positive effect on work stress, and social support negatively mediates the impact of workload on work stress. The heavier the workload, the higher the work stress experienced, so functional officials feel good about social support for procuring goods/services at the Ministry of Education and Culture because it can reduce stress due to workload.

Keywords: Workload; Work stress; Social support.

INTRODUCTION

Stress is an important aspect that cannot be avoided in the world of work and continues to increase because the number of incidents of work stress is increasingly worrying [1]. The negative impact of work stress is generally related to reduced productivity and performance. In 2016, the International Labor Organization revealed work stress as a global issue that is always experienced by various professions, both in developed and developing countries. Various cases occurred in England, including as many as 385,000 cases and 11,000 cases to 26,000 cases in Wales [2]. Apart from that, in 2018, the International Labor Organization (ILO) also found that around 2.78 million employees died in work accidents due to fatigue and work pressure every year.

Workers with exceptional skills in carrying out their daily tasks are very vulnerable to experiencing boredom caused by routine activities carried out repeatedly and continuously [3]. Boredom is a negative physiological arousal such as decreased enthusiasm and thoughts of not moving forward due to the perception that they do not have the opportunity to demonstrate their knowledge and skills. This opinion is in line with [4] regarding tension that can occur due to routine work, especially when employees are involved in repetitive activities and continues. So, workload is a factor that causes increased stress in work with special skills, which is also experienced by functional officials for procurement of goods/services of the Ministry of Education and Culture in carrying out their duties and functions.

Workload is the margin of physical and cognitive effort required to carry out a role and use re-

sources in the task, meaning that load refers to the accumulation of time and resource requirements to complete tasks at work [5]. The workload is a stressor if the load is excessive or small and monotonous [6, 7, 8]. Besides that, [9, 10] shows a solid and consistent link between excessive workload and psychological reactions such as stress and fatigue.

Balancing social support can weaken or strengthen the influence of workload on work stress. Social support is an essential resource for individuals and can be obtained through psychological support, including feedback, assistance, and motivation [11, 12]. Assistance in the form of social support can be obtained from family, coworkers, and superiors in the organisation [13].

Judging from functional officials' positions, duties, functions and authority for procurement of goods/services, from procurement planning to contract management, it often causes work stress. The workload with relatively high risks, previous work experience in procuring goods/services, and habits carried out for years in the old work unit are triggers for work stress. On the other hand, the emergence of the policy of equalising structural officials into functional positions has felt the changes starting from carrying out duties, being away from family and colleagues, to adjusting the work environment to the position as an element of implementing duties in regions with work areas between districts/cities, provinces and even list as an island.

Everyone has social support, but according to their respective situations and conditions. Social support is expected to be able to relieve work stress due to the burdens carried. Family support from parents, wives, and children is essential in providing support. Being away from family, friends and long-standing communities is a heavy burden. Mingling with a new atmosphere and coworkers takes quite a long time. Apart from that, teamwork with various backgrounds and knowledge is one of the obstacles that often causes conflicts of opinion and implementation of work processes. For this reason, the role and support of management is also vital in organising and accommodating them in carrying out their authority, duties and responsibilities as managers of procurement of goods/services so that the procurement objectives themselves can be fulfilled by applicable expectations and regulations.

LITERATURE REVIEW

Work Stress. Stress is generally a mental burden experienced by a person, which can affect concentration and focus in activities, especially when working. The author [14] states that stress is a tense condition that can affect everyone's emotions, thought processes and condition. A different opinion regarding work stress was also conveyed by [3], namely that stress is an adaptive response to something that can physically and psychologically challenge or threaten people's health. According to [1], work stress is an adaptive reaction to external situations with implications for an organisation's physical, psychological or behavioural deviations. The author [2] stated that work stress is the influence of internal conditions due to physical demands, the environment, and social situations, and it can be detrimental and uncontrollable. The author's [4] opinion regarding work stress is defined as internal and external conditions that cause stress, and the symptoms are experienced by every person who is stressed. Furthermore, the author [5] stated that employees who experience work stress are caused by too heavy a workload, limited time demands, an unhealthy work atmosphere, quality of supervision, conflict, work authority over the responsibilities they carry out, and feelings of work frustration as a result of differences in values between employees and leader.

Burden Work. Burden Work is an aspect that needs attention in an organisation, considering that workload significantly influences the organisation's performance. Optimising the needs and limitations of the workload carried out by each individual should be adjusted and balanced with the physical and cognitive abilities of the recipient of the load. The author [8] believes that workload is the difference between the capacity and abilities of workers or employees and the work demands they face. A higher load, of course, requires more energy, which causes overstress, and conversely, a load that is too low will cause boredom and boredom or understress. Furthermore, according to [9], workload is defined as the average frequency of activities for each job at a particular time. The burden involves physical and mental burdens. Too heavy a workload with weak physical abilities has an impact on disorders and illnesses due to workload. The point is that workload is an element that needs to be considered by each person to achieve harmony in higher work productivity apart from the additional workload from the work environment and

work capacity. According to regulation number 12 of 2008, workload is the amount of work carried out by a position in the organisation. It is the multiplication of the volume of work by the time norm. So, workload can be interpreted as a process by one person or group of positions to complete several tasks generally at a particular time.

Support Social. Social support describes the role and influence provided by people around you, including family, relatives, friends and coworkers [10]. In facing the COVID-19 pandemic, social support from family, friends, relatives, and coworkers is also essential in mental support. Social support is also the verbal and non-verbal delivery of genuine assistance or actions given to others in the social environment, which causes emotional and behavioural effects on the recipient. Furthermore, the author [13] defines social support as comfort, care, appreciation and/or assistance for individuals obtained from a person or a group. Social support theory [15] explains that social support buffers individuals' stress, which can improve their well-being. Social support is a buffer between high job demands and adverse outcomes. It is considered a buffer for stressors that must be faced to reduce the effect of fatigue. Social support is needed by anyone, such as people who are depressed, have weak social ties, and have ties for survival because humans are social creatures. Humans, as social creatures, really need the help of other people. Helping each other is an immense kindness. Helping is not just providing material assistance to others; supporting people is no different from the act of helping.

METHOD

This research design examines the influence of each variable with a causal quantitative research design to determine the cause-and-effect relationship of each selected variable. All functional officials for procurement of goods/services of the Ministry of Education and Culture were used as the next population using the Taro Yamane formula to determine the sample in this study. Data was collected using the interview method without a guide and a questionnaire using a Likert scale of 1-5 from strongly disagree to agree with questions distributed via Google Forms storms. The research facilities or instruments are measuring tools used to find and collect research data to obtain output or conclusions from an observed study. Data analysis uses moderating variables

by testing research hypotheses using a Structural Equation Model (SEM) approach based on Partial Least Square (PLS). PLS is a component or variant-based structural equation model (SEM). Structural Equation Model (SEM) is a field of statistical study that can test a series of relationships that are relatively difficult to measure simultaneously. SEM is a multivariate technique combining factor analysis and regression (correlation) analysis. It aims to test the relationship between variables in a model, whether between indicators and their constructs or the relationship between constructs.

RESULTS AND DISCUSSION

Validity and reliability tests were carried out to obtain data certainty on the instruments used in this research. As seen in Figure 1, the Smart PLS output for loading factors shows that all loading factor indicators have values greater than 0.5, so the indicators in the research are said to be valid.
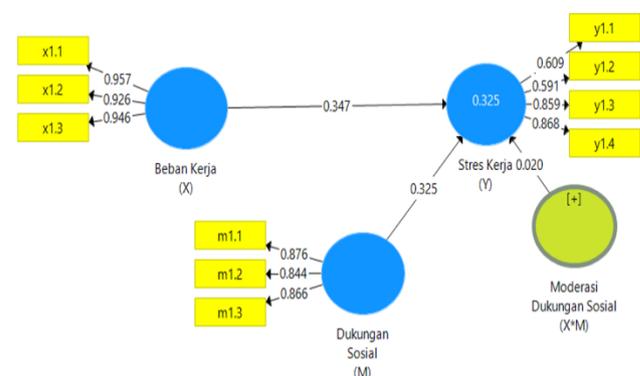
Figure 1 – Research Outer Loading

Reliability is measured from Cronbach's Alpha and Composite Reliability values. Cronbach's Alpha is the lower limit of a construct, and Composite Reliability is the actual value of a construct [16]. The rule of thumb is Cronbach's Alpha/Composite Reliability value is more significant than 0.7. If the result is close to 0.7 (for example, 0.6), then in an exploratory study, this can still be tolerated or accepted [17].

Table 1 shows that each construct has a Cronbach's Alpha and Composite Reliability value greater than 0.70, so this research measure is declared reliable. The results of data analysis show that workload has a positive effect on work stress, and it was also found that social support hurts work stress for functional officials in the

procurement of goods/services at the Ministry of Education and Culture, as in Figure 2.

Table 1 – Cronbach's Alpha and Composite Reliability Research

Construct	Cronbach's Alpha	Composite Reliability	AVE
Workload_(X)	0.937	0.938	0.960
Social Support_(M)	0.828	0.834	0.897
Job Stress_(Y)	0.727	0.792	0.827

In Figure 2, workload (X) on work stress (Y) obtained a value of 5.539, with a direct effect of social support (M) on work stress (Y) of -5.449 and a moderating effect of social support (M) on the influence of workload (X) on work stress (Y) of -4.221.

Figure 2 – Moderation Analysis

Hypothesis testing and the significance value of each variable's influence are shown in Table 2 below.

Table 2 – Effect of Research Variables

Information	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-Statistics (|O/STDEV|)	P-Values
(X) -> (Y)	0.347	0.347	0.063	5,539	0,000
(M) -> (Y)	-0.325	-0.324	0.060	-5,449	0,000
(X*M) -> (Y)	-0.220	-0.212	0.052	-4,221	0.003

The direct effect of workload (X) on work stress (Y) with a coefficient value of 0.347 t-calculation of 5.539 and a significance value of 0.000 <0.05. This means that workload has a significant positive effect on work stress; in other words, the higher the workload, the higher the anxiety felt by the Ministry of Education and Culture's goods/services procurement functional officials.

Hypothesis testing of the moderating effect of social support on the influence of workload on work stress obtained a coefficient value of -0.220 with a t-count value of -4.221 and a significance value of 0.003 <0.05. Social support moderates the influence of workload on work stress because the better the support received, the lower the stress experienced by functional officials procuring goods/services at the Ministry of Education and Culture due to workload.

It was also found that the social support variable (M) significantly negatively influenced functional officials' work stress (Y) in procuring goods/services at the Ministry of Education and Culture, Research and Technology. The coefficient of social support on work stress obtained a value of -0.325, the t-count obtained -5.449 and a significance value of 0.000 <0.05, meaning that social support hurts work stress and can reduce work stress directly. Social support is classified as quasi-moderation (pseudo-moderation) because it is a moderating variable between the predictor variable and the dependent variable, where the pseudo-moderation variable interacts with the predictor variable and becomes a predictor variable.

The Effect of Workload on Work Stress. The higher the workload experienced, the higher the stress felt. This indicates that the excessive workload affects the stress level of the Ministry of Education and Culture's goods/services procurement functional officials. The burden of duties and responsibilities carried out by functional officials for procurement of goods/services at the Ministry of Education and Culture and Research and Technology is relatively high, and some come from civil servants who have yet to gain experience in procurement. Of course, it requires adjustments and guidance from seniors who have experience other than the institution in improving the capabilities and skills of human resources managing goods/services. Technical and admin-

istrative capabilities support the smooth and correct implementation of procurement activities. The dynamic changes in systems and regulations for procurement of goods/services also demand the competence of human resources managing goods/services. The demands of the work that must be carried out are balanced with the increase in the latest knowledge, which is increasingly triggering the stress experienced by the Ministry of Education and Culture's goods/services procurement functional officials.

The duties of functional officials for procurement of goods/services at the Ministry of Education and Culture, from planning, are to review each item of procurement packaging during the preparation of the Ministry/Agency Budget Work Plan (RKAKL) until the establishment of the General Procurement Plan (RUP) for the implementation of the provider selection process according to the type and method of procurement, and management contract. Apart from that, the Ministry of Education and Culture's goods/services procurement functional officials serve as Procurement Officers (PP) in several work units to process procurement directly. The large variety of jobs and the level of difficulty and targets of the work carried out create quite a heavy pressure and burden on functional officials for procuring goods/services at the Ministry of Education and Culture. Complicated procurement processes and strict regulations often have strict time limits, which creates pressure to complete tasks, especially as the dynamics of changes in procurement policies always require every human resource to update their knowledge. Accuracy and transparency are needed in the procurement process for goods/services.

This research is like previous research [18]. It is stated that workload has a positive effect on work stress. Excessive workload can cause work stress, impacting work quality [19, 20]. Workload analysis is needed so that the work assigned is not burdensome and can be carried out optimally [21]. A workload that is felt to be excessive will cause stress and impact individual performance so that it can reduce the performance of an organisation as a whole [21, 22].

Moderation of Social Support on the Effect of Workload on Job Stress. This research found that social support could moderate the influence of workload on work stress for functional officials in procuring goods/services at the Ministry of Education and Culture, Research and Technology.

Social support as a balance can reduce stress due to workload levels. Support in the form of concern and empathy, support in work, as well as support in the form of suggestions from colleagues, superiors and family are instrumental in offsetting the stress felt by functional officials in the procurement of goods/services at the Ministry of Education and Culture, Research and Technology. This proves the vital role of social support in a person's life when experiencing problems that trigger stress.

Functional officials procuring goods/services often experience psychological pressure due to the high demands of their work. Colleagues, superiors, and colleagues need emotional support to reduce feelings of isolation and become a forum for expressing their pressures. Emotionally supported officials will experience changes in psychological well-being, which ultimately contributes to reducing stress levels.

The procurement process often involves complex and stringent tasks and requirements. Instrumental support, in the form of assistance with data analysis, preparation of reports, and concrete actions, helps the Ministry of Education and Culture's goods/services procurement functional officials overcome problems efficiently. Collaborating with a team, sharing responsibilities, and assisting with specific tasks are very helpful in reducing individual workload, which results in work stress.

Regarding the procurement context of goods/services, applicable regulations and requirements often change. Informational support is expected to help functional officials procure goods/services at the Ministry of Education and Culture obtain the latest information regarding regulations, procedures, and other important information relevant to implementing their duties. With access to appropriate information, functional officials for procurement of goods/services at the Ministry of Education and Culture will feel more confident in making task decisions. Thus, indirectly, it will reduce the uncertainty and work stress experienced.

This research [15] states that social support can reduce work stress for workers so they can focus more on completing quite complex jobs. Increasing self-confidence with social support can improve workers' performance with special skills [23]. It is possible to provide social support to reduce stress, which reduces the performance faced by workers [24, 25].

CONCLUSIONS

Based on the research results, it was concluded that workload significantly positively influences work stress in functional officials for procurement of goods/services of the Ministry of Education and Culture. The heavier the burden felt, the higher the work stress experienced. This study found that social support negatively mediated the effect of workload on work stress. This social support is felt well by the functional officials for procurement of goods/services at the Ministry of Education and Culture because it can balance and reduce work stress experienced due to the workload they bear. Suggest strategies to help manage the stress of functional officials procuring goods/services at the Ministry of Education and Culture, such as prioritising the most urgent and vital work and immediate tasks to avoid work piling up. The division of functions is carried out so that the workload and responsibilities are evenly distributed, and work stress is minimised. Communication between colleagues, superiors, and other related parties can help overcome work difficulties. Social support in the form of training for procurement officials to develop competence, career and self-confidence, which can reduce stress. Intensive meetings between colleagues and superiors are regularly conducted as a forum for formal and informal discussions. Family gatherings establish closeness and solidarity among officials procuring goods/services at the Ministry of Education and Culture to relieve the stress they are experiencing.

REFERENCES

1. Makhbul, Z., Abdullah, N., & Hashim, N. (2013). Stres di Tempat Kerja: Isu Global dalam Melestarikan Organisasi [Stress in the Workplace: Global Issues in Preserving Organisations]. *E-BANGI, 8*(1), 041–059 (in Indonesian).

2. Health and Safety Executive. (2013). *Stress and Psychological Disorders in Great Britain 2013*. Retrieved from https://static.guim.co.uk/ni/1412687972727/stress-1.pdf

3. Kokoroko, E., & Sanda, M. A. (2019). Effect of Workload on Job Stress of Ghanaian OPD Nurses: The Role of Coworker Support. *Safety and Health at Work, 10*(3), 341–346. doi: 10.1016/j.shaw.2019.04.002

4. Dipboye, R. L. (2018). *The Emerald Review of Industrial and Organizational Psychology*. doi: 10.1108/9781787437852

5. Nataria, O., Dedi, S., & Sabarofek, M. S. (2019). Pengaruh Stres Kerja Dan Beban Kerja Terhadap Kinerja Pegawai Disperindagkop Dan Umkm Manokwari [The Influence of Work Stress and Workload on the Performance of Manokwari Disperindagkop and Umkm Employees]. *Cakrawala Management Business Journal, 1*(1), 67. doi: 10.30862/cm-bj.v1i1.5 (in Indonesian).

6. Gökler DanIşman, I., Yıldız, N., & Yiğit, İ. (2017). Development of a coping with stress scale for a non-western population of children and adolescents. *Anxiety, Stress, & Coping, 30*(6), 687–701. doi: 10.1080/10615806.2017.1330951

7. Abang, R., Nursiani, N. P., & Fanggidae, R. (2019). Pengaruh Beban Kerja Terhadap Kinerja Tenaga Kependidikan Pada Kantor Rektorat Universitas Nusa Cendana Kupang [The Effect of Workload on the Performance of Educational Personnel at the Rectorate Office of Nusa Cendana University Kupang]. *Journal of Management: Small and Medium Enterprises (SMEs), 7*(2), 225-246 (in Indonesian).

8. Tarwaka., &Solichul, I. (2016). Ergonomi untuk Keselamatan, Kesehatan Kerja dan Produktivitas [Ergonomics for Occupational Safety, Health and Productivity]. Retrieved from https://ftp.idu.ac.id/wp-content/uploads/ebook/ip/BUKU%20ERGONOMI/Buku-Ergonomi.pdf (in Indonesian).

9. Mulyaningsih, S. A., & Tanuwijaya, J. (2023). Pengaruh Job Stress, Perceived Organisational Support, Work Family Conflict Terhadap Turnover Intention Pada PT XYZ. *Jesya, 6*(2), 1546–1561. 10.36778/jesya.v6i2.1066

10. Sidhu, A. K., Singh, H., Virdi, S. S., & Kumar, R. (2020). Job stress and its impact on health of employees: a study among officers and supervisors. *Journal of Management Development, 39*(2), 125–144. doi: 10.1108/jmd-01-2019-0004

11. Jong, J. (2018). The role of social support in the relationship between job demands and employee attitudes in the public sector. *International Journal of Public Sector Management, 31*(6), 672–688. doi: 10.1108/ijpsm-09-2017-0244

12. Lambert, E. G., Minor, K. I., Wells, J. B., & Hogan, N. L. (2016). Social support's relationship to correctional staff job stress, job involvement, job satisfaction, and organisational commitment. *The Social Science Journal, 53*(1), 22–32. doi: 10.1016/j.soscij.2015.10.001

13. Armstrong, G. S., Atkin-Plunk, C. A., & Wells, J. (2015). The Relationship Between Work–Family Conflict, Correctional Officer Job Stress, and Job Satisfaction. *Criminal Justice and Behavior, 42*(10), 1066–1082. doi: 10.1177/0093854815582221

14. Cooper, D, & Schindler, P. S. (2006). *Metode Riset Bisnis* [Business Research Methods]. Jakarta: Media Global Edukasi (in Indonesian).

15. Ariani, D. D. (2020). Efek Moderasi Dukungan Sosial Dalam Hubungan Konflik Pekerjaan Keluarga Dengan Stres Kerja Dosen Wanita Di Fakultas Ekonomi Undiksha [The Moderating Effect of Social Support in the Relationship between Family Work Conflict and Job Stress of Female Lecturers at the Faculty of Economics Undiksha]. *Bisma: Jurnal Manajemen, 6*(1), 1. doi: 10.23887/bjm.v6i1.24398 (in Indonesian).

16. Chin, W. W. (1998). *The partial least squares approach to structural equation modelling*. Retrieved from https://www.researchgate.net/publication/311766005_The_Partial_Least_Squares_Approach_to_Structural_Equation_Modeling

17. Hair, J. F. (2011). Multivariate Data Analysis: An Overview. *International Encyclopedia of Statistical Science,* 904–907. doi: 10.1007/978-3-642-04898-2_395

18. Ramadhani, S., Ramli, A., & Akbar, A. (2022). Pengaruh Beban Kerja Terhadap Stres Kerja Dan Kinerja Karyawan Pt. Putra Mahalona [The Effect of Workload on Work Stress and Employee Performance Pt. Putra Mahalona]. *Jurnal Bisnis Kolega, 8*(2), 58–67 (in Indonesian).

19. Abdullah, W. (2008). Pengaruh Beban Kerja Dan Lingkungan Kerja Terhadap Stres Kerja Karyawan Pada Pt Pln (Persero) Wilayah Sulawesi Selatan Tenggara Dan Barat Sektor Pembangkitan Bakaru Pusat Listrik Bakaru [The Effect of Workload and Work Environment on Employee Work Stress at Pt Pln (Persero) South Sulawesi Southeast and West Region Bakaru Generating Sector Bakaru Electricity Centre]. *Bisnis Islam UIN Makasar, 1*(2), 282 (in Indonesian).

20. Raharja, K., & Heryanda, K. K. (2021). Pengaruh Beban Kerja Terhadap Stres Kerja Pegawai BPBD Kabupaten Buleleng Dengan Lingkungan Kerja Sebagai Variabel Moderasi [The Effect of Workload on Work Stress of BPBD Employees in Buleleng Regency with Work Environment as a Moderating Variable]. *Bisma: Jurnal Manajemen, 7*(2), 201. doi: 10.23887/bjm.v7i2.31936

21. Rohman, M. A., & Ichsan, R. M. (2021). Pengaruh Beban Kerja Dan Stres Kerja Terhadap Kinerja Karyawan Pt Honda Daya Anugrah Mandiri Cabang Sukabumi Malik [The Effect of Workload and Job Stress on Employee Performance Pt Honda Daya Anugrah Man-diri Sukabumi Malik Branch]. *Jurnal Mahasiswa Manajemen, 2*(1), 1–22 (in Indonesian).

22. Chandra, riny. (2017). Pengaruh Beban Kerja dan Stres Kerja terhadap Kinerja Karyawan pada PT. Mega Auto Central Finance Cabang di Langsa [The Effect of Workload and Job Stress on Employee Performance at PT Mega Auto Central Fi-nance Branch in Langsa]. *Jurnal Manajemen Dan Keuangan Unsam, 6*(1), 670–678 (in Indonesian).

23. Cahyani, W., & Frianto, A. (2019). Peran Dukungan Sosial terhadap Stres Kerja sebagai Peningkatan Kinerja Karyawan [The Role of Social Support on Job Stress as Employee Performance Improvement]. *Jurnal Ilmu Manajemen, 7*(3), 868–876 (in Indonesian).

24. Hamzah, R. N., Prahiawan, W., & Damarwulan, L. M. (2023). Pengaruh Moderasi Dukungan Sosial terhadap Stress Kerja dan Kinerja Karyawan Perbankan [The Moderating Effect of Social Support on Job Stress and Banking Employee Performance]. *Journal of Economic, Management and Accounting, 6*(1), 43. doi: 10.35914/jemma.v6i1.1679

25. Wulandari, M. T. (2018). Pengaruh Beban Kerja Terhadap Stress Kerja Melalui Dukungan Sosial Sebagai Variabel Intervening [The Effect of Workload on Job Stress Through Social Support as an Intervening Variable]. *Jurnal Ekobis Dewantara, 1*(7), 181–194 (in Indonesian).

The Relationship of Job Satisfaction and Organisational Commitment with Turnover Intentions in PNS Employees in Mataram City Hospital, Indonesia

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Abstract. This research aims to determine the relationship between job satisfaction, organisational commitment, and turnover intentions among Mataram City Regional Hospital civil servant employees. This research was conducted at the Mataram City Hospital with 78 respondents. Respondents in this study used a random sampling method. Data collection was carried out by distributing questionnaires using a Likert scale. The data analysis technique used is a multiple linear regression analysis technique. The results of this test are that the job satisfaction variable is in the quite satisfied category, the organisational commitment variable is quite moderate, and the turnover intention variable is relatively mild. Thus, it is concluded that there is a significant influence between job satisfaction and turnover intentions, and organisational commitment significantly influences employee turnover intentions.

Keywords: Job satisfaction; organizational commitment; turnover intentions.

INTRODUCTION

Changes in society today greatly influence the quality of hospital services, including changes in demographics, socio-economics, science and technology, market competition, and human resources. Hospitals also need to analyse weaknesses, strengths, opportunities, and challenges in the future to develop strategies for coping with these changes [1].

Likewise, to face current developments, hospitals must have quality human resources. Human resources in an organisation are a crucial aspect that determines the effectiveness of the organisation [2]. Therefore, organisations must invest in human resource management functions, from recruitment and selection to retaining human resources. Turnover refers to the final reality an organisation faces in the number of employees who leave the organisation in a certain period. In contrast, turnover intention relates to the results of an individual's evaluation regarding the continuation of the relationship with the organisa-

tion, which has yet to be implemented in a definite action to leave the organisation [3, 4].

Based on the pre-survey results, job satisfaction is the main factor influencing turnover intention among civil servant employees at the Mataram City Regional General Hospital. Robbins states that satisfaction is a general attitude toward one's work, indicating the difference between the reward workers receive and the amount they believe they should receive. According to Robbins and Judge, indicators of job satisfaction include satisfaction with salary, satisfaction with the job itself, satisfaction with superiors, satisfaction with coworkers, and satisfaction with promotions.

Based on the pre-survey results, organisational commitment has the second most significant influence on turnover intention among medical employees at the Mataram City Regional General Hospital. Luthans stated that organisational commitment is an attitude that shows employee loyalty and is a continuous process of how members of an organisation express their concern for the success and good of their organisation. Or-

ganisational commitment is an effort to involve oneself in the company, and there is no desire to leave it. Commitment indicators include organisational identification, work involvement and loyalty [4, 5].

Turnover intention is an attitude tendency or the level at which an employee can leave the organisation or voluntarily resign from his job [6]. Job satisfaction is a pleasant or unpleasant emotional state in which employees view their work [7–9]. Organisational commitment requires an active relationship with the organisation such that people are willing to contribute to the success of the organisation [8].

Based on the background and problems above, this research aims to determine the relationship between job satisfaction, organisational commitment, and turnover intentions among civil servant employees at the Mataram City Regional Hospital.

METHOD

This type of research is quantitative and is viewed from a causal research objective, which aims to determine the influence/causal relationship pattern between the independent variables, job satisfaction, organisational commitment and the dependent variable, Turnover Intentions [10]. Based on theory and further research, a conceptual framework can be presented as follows:
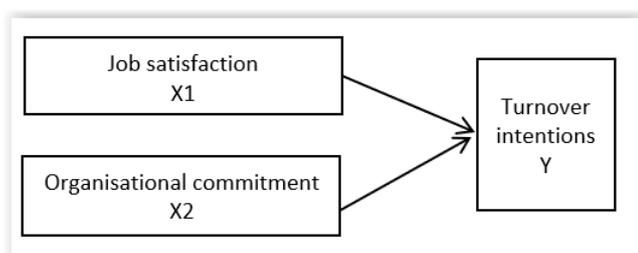
Figure 1 – Conceptual framework

Based on the chart above, researchers try to conclude temporarily through hypotheses: 1) There is a relationship between job satisfaction and turnover intention; 2) There is a relationship between organisational commitment and turnover intentions. In this study, the dependent variable is turnover intentions (y), while the independent variables are job satisfaction (x1) and organisational commitment (x2).

The population in this study were 345 civil servant employees at Mataram City Regional Hospital. Sampling in this research was carried out using a stratified proportional random sampling technique. This sampling design is characteristic of dividing the population into several classes, categories, or groups. The sample size was determined using the Slovin formula, which had an accuracy level of 0.1. Based on the sampling technique, the number of samples was 78 people. A random sampling model was used to determine the sampling distribution in this study.

Each variable studied is measured using a Likert scale, which measures the attitudes, opinions and perceptions of a person or group of people about social phenomena. The analysis technique used in this research is a multiple linear regression analysis technique. Multiple linear regression tests, namely, find out how much of the independent variables being tested can influence the shift in the value of the dependent variable. In this study, the independent variables are job satisfaction and organisational commitment, while the dependent variable is the turnover Intentions of civil servants at Mataram City Regional Hospital.

RESULTS AND DISCUSSION

The questionnaire results are described by providing a clear interpretation of the data. Analysis of the findings of this research uses SPSS Version 23.00 tools. To produce data interpretation. In this research, the number of samples used was 78 respondents who were civil servants at the Mataram City Regional Hospital.

Characteristics of Respondents Based on Age. The respondent profile description describes the identity of the respondents used as research samples. Regarding age, the questionnaire distributed to 78 respondents shows that the existing civil servants at the Mataram City Regional Hospital are dominated by those aged between 30 and 40.

Characteristics of Respondents Based on Gender. The characteristics of respondents based on gender in this study show that women dominate civil servants at Mataram City Regional Hospital.

Characteristics of Respondents Based on Years of Work. Another characteristic is length of service, while the respondents' data is based on length of service, namely 11-20 years at most.

Descriptive Analysis of Job Satisfaction Variables. Descriptive data displays identification regarding respondents' answers to the statements contained in the questionnaire. In this research, job satisfaction reflects what civil servants feel about their work at the Mataram City Regional Hospital.

Table 1 – Descriptive analysis results of Job Satisfaction

		Frequency	%
Valid	Satisfied	15	19.2
	Enough	61	78.2
	Not satisfied	2	2.6
	Total	78	100.0

Civil servant job satisfaction at Mataram City Regional Hospital is generally considered unsatisfactory. This is shown by the total number of respondents who answered satisfactorily, 61 people or 78.2%.

Descriptive Analysis of Organisational Commitment Variables. The following data displays the identification of civil servants' answers to the statements contained in the respondents. The research results can be seen from the respondents' answers by looking at the value of the respondents' answers.

In general, the organisational commitment of civil servants at the Mataram City Hospital is categorised as a medium, shown by the answer value of respondents in the medium category, namely 54 people (69.2%).

Table 2 – Descriptive analysis results of Organizational Commitment

		Frequency	%
Valid	Tall	8	10.3
	Currently	54	69.2
	Low	16	20.5
	Total	78	100.0

Descriptive Analysis of Turnover Intentions Variables. The following data shows the identification of civil servants' answers to the statements contained in the questionnaire. The research results can be seen from the respondents' answers by looking at the total score.

In general, turnover intentions or the desire to move/leave civil servants from the Mataram City Regional Hospital is categorised as moderate, indicated by a moderate score of 44 people or 56.4 %.

Table 3 – Results of Descriptive Turnover Intentions Analysis

		Frequency	%
Valid	Tall	31	39.7
	Currently	44	56.4
	Low	3	3.8
	Total	78	100.0

Multiple linear regression test results (Tables 4, 5).

Table 4 – Multiple linear regression test results

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	9,940	2,819		3,526	,001		
Job Satisfaction	,200	,097	,257	2,073	,042	,638	1,568
Organisational Commitment	,279	.109	,317	2,559	.013	,638	1,568

Notes: a) Dependent Variable: Totaly

Table 4 above shows that the Coefficients column model 1 has a sig value of 0.001. If the sig value is smaller than the probability value of 0.05 or 0.001<0.05, then H1 is accepted and Hor rejected. The sig value of job satisfaction is 0.042 <0.05, the significance value is smaller than the probability value of 0.05 or α <0.05, then H1 is accepted, and H0 is rejected. The sig value of or-

ganisational commitment is 0.013 <0.05 or α <0.05. If the significance value is smaller than the probability value 0.05, then H1 is accepted, and H0 is rejected. Through the table above, a function can be formulated from the results of multiple linear regression testing, so an equation can be drawn as follows:

Y = 9.940+ 0.200X1+0.279X2+e   (1)

where Constant – 9.940; Y – Turnover Intentions; b_1 = 0.200; X_1 – Job Satisfaction; b_2 – 0.279; X_2 – Organizational Commitment.

The regression equation above shows the partial relationship between the independent and dependent variables. From this equation, it can be concluded that A constant value of 9.940 means that if each independent variable, namely job satisfaction and organisational commitment, has a value of 0, then Turnover Intentions in civil servants in Mataram City Hospital has a positive value of 9,940. This means that civil servant turnover Intentions will remain positive without any changes/improvements in the job satisfaction and organisational commitment variables. This value is relatively high, so it can be concluded that the desire/intention among civil servants at

the Mataram City Regional Hospital to leave the organisation is currently relatively high. The regression coefficient for job satisfaction (b_1), which is 0.200, means that if the job satisfaction variable (X_1) is added to the linear regression model, turnover intentions will increase by 0.200. The regression coefficient of organisational commitment (b_2) is 0.279, meaning that if the organisational commitment variable (X_2) is added to the linear regression model, turnover intentions will increase by 0.279.

Determination Coefficient Test (R^2). Determination analysis in multiple linear regression is used to determine the percentage contribution of the influence of the independent variable (X_1, X_2) job satisfaction, organisational commitment and promotion simultaneously on the dependent variable (Y) turnover intentions.

Table 5 – ResultsCoefficient of Determination Test

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R^2 Change	F Change	df1	df2	Sig. F Change	
1	.515a	,265	,245	1,544	,265	13,508	2	75	,000	1,888

Notes: a) Predictors: (Constant), Organisational Commitment, Job Satisfaction; b) Dependent Variable: Totally

Based on the table above, the coefficient of determination (R^2) value of 0.265 shows that job satisfaction and organisational commitment can explain the turnover intentions variable for civil servants at Mataram City Regional Hospital by 26.5%. Meanwhile, the remaining 73.5% was influenced by other factors not discussed in this research.

Simultaneous Test Analysis (F-Test). Simultaneous testing to determine whether the independent variables of job satisfaction and organisational commitment significantly affect the dependent variable turnover intentions in civil servants at the Mataram City Regional Hospital.

The calculated F value is 13.508 > F table 3.12 with a significant value of F 0.000 < 0.05, which means that simultaneously, the variables of job satisfaction and organisational commitment significantly affect the turnover intentions of civil servants in the Mataram City Regional Hospital. This means that the ratio of civil servants who want to leave/move from Mataram City Regional Hospital can be minimised by increasing job sat-

isfaction and strengthening civil servants' organisational commitment to the organisation.

Table 6– Anova Test Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64,399	2	32,200	13,508	,000b
	Residual	178,780	75	2,384		
	Total	243,179	77			

Notes: Dependent Variable: Totally; Predictors: (Constant), Organisational Commitment, Job Satisfaction

The analysis results show that job satisfaction significantly influences the turnover intentions of civil servants at Mataram City Regional Hospital. This means there is an influence or relationship between job satisfaction and the turnover intention of civil servants in the Mataram City Regional Hospital. If employees feel satisfied with their work, their desire to move or leave the company or workplace is less likely.

The research hypothesis on the influence of job satisfaction variables on turnover intentions can be proven true. The proof of this hypothesis is in line with the research results conducted by [11], which state that job satisfaction has a negative and significant effect on turnover intentions. This conclusion also supports the results of empirical studies in research [12], which concluded that job satisfaction has a close influence on turnover intentions.

KJob satisfaction is individual, and each individual has a different level of satisfaction. The higher the assessment of activities according to the individual's desires, the higher the satisfaction with those activities. Thus, job satisfaction is an evaluation that describes a person's feelings of being happy or unhappy, satisfied or dissatisfied at work [3].

The analysis results show that organisational commitment significantly affects the turnover intentions of civil servants at Mataram City Regional Hospital. This means organisational commitment can influence turnover intention among Mataram City Regional Hospital civil servants. This can also be interpreted as the higher desire to move from the organisation for civil servants who lack strong commitment. If employees have high organisational commitment, then the possibility of their willingness to move or leave work will be lower.

In this way, the second hypothesis in this research can be proven true. These results are relevant to the theory stated by [4] that employees with high organisational commitment will be more motivated to be present and try to achieve organisational goals. Research conducted by [13] explains a significant negative influence between organisational commitment and intention to leave or turnover intentions.

CONCLUSIONS

From the results of the research and discussion above, it is concluded that job satisfaction has a significant influence or relationship with the occurrence of civil servant turnover intentions in the Mataram City Regional Hospital, meaning that if employees have a sense of satisfaction with their work, there is a slight or low possibility of wanting to leave or move from their place of work. Organisational commitment significantly affects the intentions of civil servants at Mataram City Regional Hospital regarding turnover. The linear regression test analysis results prove this: the p-sign value is $0.013 < 0.05$, so H0 is rejected, and H1 is accepted. So, the second hypothesis can be accepted. So it can be concluded that organisational commitment has a significant influence or relationship on the occurrence of turnover intentions for civil servants in the Mataram City Regional Hospital, meaning that the lower the organisational commitment, the higher the turnover among employees.

REFERENCES

1. Kasim, N., Adolfina, A., & Tawas, H. (2017). Analisis Pelatihan, Penempatam Kerja Dan Mutasi Karyawan Serta Pengaruhnya Terhadap Kepuasan Kerja Karyawan Pada Karyawan Non Medis Di Rsup Prof Dr. R. D Kandou Manado [Analysis of Training, Job Placement and Employee Mutation and Their Effect on Employee Job Satisfaction in Non-Medical Employees at Rsup Prof Dr R. D Kandou Manado]. *Jurnal EMBA, 5*(2), 725–733 (in Indonesian).

2. Nurhalim, A. D., & Puspita, S. (2021). Pentingnya Analisis Kebutuhan Pelatihan Untuk Pengembangan Sumber Daya Manusia Dalam Organisasi [The Importance of Training Needs Analysis for Human Resource Development in Organisations]. *Jurnal Ilmu Komputer Dan Bisnis, 12*(2a), 104–110. doi: 10.47927/jikb.v12i2a.202 (in Indonesian).

3. Taki, R., Paramata, Moh. R., & Suyanto, Moh. A. (2023). The Influence of Competence, Motivation, Work Environment, and Job Satisfaction on Employee Performance in the Department of Public Works and Spatial Planning of Gorontalo City. *International Journal Of Education, Social Studies, And Management (IJESSM), 3*(2), 24–34. doi: 10.52121/ijessm.v3i2.151 (in Indonesian).

4. Saputra, S., & Andani, K. W. (2021). Faktor-Faktor Yang Mempengaruhi Kepuasan Kerja Karyawan Pada PT CITRA CROCOTAMA INTERNATIONAL Di Jakarta [Factors Affecting Employee Job Satisfaction at PT CITRA CROCOTAMA INTERNATIONAL in Jakarta]. *Jurnal Manajerial Dan Kewirausahaan, 3*(1), 98. doi: 10.24912/jmk.v3i1.11292 (in Indonesian).

5. Nashihuddin, W., & Aulianto, D. R. (2017). Pengelolaan E-Conference dengan Aplikasi Open Conference System: Upaya Pengembangan Penerbitan Prosiding Online di Indonesia [E-Conference Management with Open Conference System Application: Efforts to Develop Online Proceedings Publishing in Indonesia]. *Khizanah Al-Hikmah: Jurnal Ilmu Perpustakaan, Informasi, Dan Kearsipan, 5*(1), 29–49. doi: 10.24252/kah.v5i1a3 (in Indonesian).

6. Candra, V. A., & Kusmaningtyas, A. (2020). Pengaruh Kepuasan Kerja Karyawan Terhadap Turnover Intention Pt Prodia Widyahusada Tbk, Wilayah Vi Divisi Pelayanan [The Effect of Employee Job Satisfaction on Turnover Intention Pt Prodia Widyahusada Tbk, Region Vi Service Division]. *JEM17: Jurnal Ekonomi Manajemen, 5*(1). doi: 10.30996/jem17.v5i1.3623 (in Indonesian).

7. Hamidi, H., Jufri, A. W., & Karta, I. W. (2021). Teacher Performance: The effect on Teacher Satisfaction in Public Senior High Schools. *ALEXANDRIA (Journal of Economics, Business, & Entrepreneurship), 2*(2), 47–52. doi: 10.29303/alexandria.v2i2.74

8. Inayatullah. (2011). *Kontribusi Faktor-Faktor Internal Dan Eksternal Terhadap Peningkatan Kinerja Profesional Guru*. Retrieved from https://onesearch.id/Record/IOS1780.article-366/Details

9. Hamidi, H., Jufri, A. W., & Karta, W. (2019). The Effect Of Quality Of Work Life On Teacher Job Satisfaction. *Erudio Journal of Educational Innovation, 6*(1), 19–29. doi: 10.18551/erudio.6-1.3

10. Sugiyono. (2012). *Metode Penelitian Kuantitatif Kualitatif Dan R&D* [Quantitative Qualitative and R&D Research Methods]. Bandung: Alfabeta (in Indonesian).

11. Fitri, N. (2018). Pengaruh Kepuasan Kerja Dan Komitmen Organisasi Terhadap Turnover Intention Karyawan Hotel Bintang 3 Di Yogyakarta [The Effect of Job Satisfaction and Organisational Commitment on Turnover Intention of 3-Star Hotel Employees in Yogyakarta]. *Jurnal Manajemen Bisnis Indonesia, 4*(1), 426 (in Indonesian).

12. Sari, N. R. (2015). Pengaruh Kepuasan Kerja Terhadap Turnover Intention (Studi pada AJB Bumiputera 1912 Kantor Wilayah Jatim II/Malang) [The Effect of Job Satisfaction on Turnover Intention (Study at AJB Bumiputera 1912 East Java Regional Office II / Malang)]. *Jurnal Administrasi Bisnis, 27*(1), 1–8 (in Indonesian).

13. Ratnaningsih, D. S. (2021). Pengaruh Kepuasan Kerja, Stres Kerja, dan Komitmen Organisasional terhadap Turnover Intention [The Effect of Job Satisfaction, Job Stress, and Organisational Commitment on Turnover Intention]. *Jurnal Ilmu Manajemen, 9*(3), 1267–1278. doi: 10.26740/jim.v9n3.p1267-1278

Digital Service Management at the NTB Provincial Library and Archives Service

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Abstract. This research aims to describe the management of the NTB Provincial Library and Archives Service to maintain digital services. A qualitative approach with a descriptive research design was used as the research method. Observation, interview and documentation techniques were used as data collection tools. Data analysis was done through data collection, reduction, presentation, and conclusions drawing. Checking the validity of the data is carried out using credibility, transferability, dependability and confirmability tests. The results of the data analysis show that the NTB Regional Library has attempted to improve its services through careful and measurable program planning. The results of this research also show that 1) The management of the NTB Provincial Library and Archives Service, starting from planning, organising, implementing and evaluating, is excellent, but it is constrained by the budget to meet the renewal of book collections and adequate infrastructure to facilitate library users; 2) The quality of digital services available at the NTB library service is relatively assured, marked by excellent services provided by the library. The library provided an e-lib application to allow the public to access library resources anywhere and anytime. However, adding more infrastructure must improve the quality of existing services.

Keywords: Management; Library Digital Services; Education.

INTRODUCTION

Libraries offer many sources of information and knowledge, such as computers, internet access, and educational programs. These resources are especially beneficial for individuals needing access to such tools at home. Some libraries also have special collections of rare or historic books and manuscripts that can be used for research. Learning about libraries can involve learning about their history, such as how they organise and manage the different types of materials and services offered. This also includes studying the impact of libraries on society, such as the role of libraries in promoting literacy and providing access to information for people of different ages and backgrounds. Overall, libraries play a crucial role in fostering community and providing a safe and inclusive space for individuals to engage in lifelong learning. Generally, libraries host various educational and cultural events, such as author

talks, book clubs, and art exhibitions, further enriching the community's intellectual and social fabric. Understanding the multifaceted nature of libraries allows us to appreciate their significance beyond just being repositories of books and resources.

Libraries are the gateway for local communities to acquire knowledge, providing primary conditions for lifelong learning, independent decision making and the cultural development of individuals and social groups. The existence of libraries in society is maintained because libraries have functions related to the interests of society. The function of the library is as a means of storing human written works, a means of providing information, a means of communication, a means of non-formal and informal education, a means of cultural education and a means of developing an appreciation of people's culture [1]. In the same regard, the author [2] explained that libraries are sources of information, education and research that

function as media and bridges that connect information and knowledge, as well as healthy, cheap and helpful recreation areas. Libraries also improve community communication to understand the history and past thoughts for future change and development. In this way, libraries can act as a benchmark for society's progress because when society develops, libraries also develop. Indirectly, a functioning library that has been utilised as well as possible can play a role in reducing and preventing juvenile delinquency and improving the quality of education. The author [3] gives the example of public libraries as crucial social infrastructure and emphasises the importance of investment because they are open public spaces that guarantee free access.

As explained above, a library is more than just a place to read and borrow books. It is also a hub of knowledge and resources, offering various services such as access to online databases, research assistance, and educational programs. Libraries often serve as community gathering spaces, hosting events and workshops that promote learning and engagement among individuals of all ages. From the perspective of residents and users, libraries are cultural and learning facilities that satisfy intellectual curiosity and cultural needs. The library is a space where communication and the exchange of information between people take place. In particular, libraries are social infrastructure that contributes to guaranteed access to information and knowledge and serves as a means of bridging gaps in disadvantaged communities, such as the elderly, disabled, and low-income communities. They provide various resources, including books, magazines, and digital materials, that cater to their users' diverse interests and needs. Additionally, libraries often offer multiple programs and services, such as workshops, lectures, and community events, fostering a sense of community and promoting lifelong learning.

Theoretically, the author [4] describes the role of modern public libraries as follows: 1) community and social centre; 2) play space; 3) learning space; 4) economic asset for the community; 5) lifelong learning centre; 6) museum; 7) cultural centre; 8) window to the world; 9) energy place; and 10) marketing research centre. The author said that knowledge-based public libraries can be essential for traditional and modern communities. Public libraries are in the 'third place' as advocated [5]. He said home is the first place, and work or school is the second place. The third place is an informal public space between the first and second place.

Third, places contribute to meetings and communication, promote information exchange, and build social communities. All these mean that public libraries are not just a physical space for books but also a hub for social interaction and community building. They serve as a centre for knowledge and learning, providing access to information and resources that benefit traditional and modern communities.

Additionally, public libraries can act as a window to the world, offering opportunities for cultural exploration and global awareness. They can also be an energy place where individuals can find inspiration and motivation to pursue their interests and passions. Lastly, public libraries can function as a marketing research centre, providing valuable insights and data to help businesses and organisations make informed decisions.

Even though the function of libraries is so essential and ideal, currently, the use of libraries in the city of Mataram for studying and accessing information still needs to be more popular. There are several possible reasons why Indonesian people do not widely access libraries. First, the availability of libraries for the community currently needs to be improved [6]. For example, in Mataram City, the number of libraries is limited. This is even worsened in rural or remote areas. A lack of resources even intensifies this situation. Libraries in Indonesia may need more resources to offer a wide range of books and other resources, or they may need more resources to promote their services to the public. These deficiencies can make it difficult for people to access library resources.

Even though the function of libraries is so essential and ideal, the use of libraries in the city of Mataram for studying and accessing information still needs to be more popular. There are several reasons why Indonesians refrain from using libraries. First, the availability of libraries for the community still needs to be improved [6]. For example, the number of libraries in Mataram City is limited, especially in rural or remote areas. More resources are needed to make this situation better. Libraries in Indonesia may require more resources to offer a wide range of books and other resources, or they may need more resources to promote their services to the public. These deficiencies can make it difficult for people to access library resources.

Additionally, the need for greater awareness and appreciation of libraries' benefits in Indonesian society contributes to their infrequent use.

Without a strong culture of reading and utilising library services, people may not prioritise visiting libraries for personal or educational enrichment. Therefore, efforts to improve library accessibility and resources and promote the value of libraries in Indonesian communities are crucial to encouraging more frequent use.

Since many people in Indonesia are not aware of the benefits of using libraries, they do not consider this to be a problem for them. Traditionally, cultural factors in some parts of Indonesia may discourage people from using libraries. For example, in several areas of NTB, more people learn through oral traditions than by reading books [7]. This is supported by data from visitors to the NTB provincial library and archives service, namely 6,799. Meanwhile, compared with other countries, such as Korea, a developed country with a smaller population, the number of book borrowers in 2019 in one of its libraries was 12,858. Thus, to increase access to libraries, the benefits must be promoted to the community, and library managers must encourage people to want to learn and expand their knowledge through the library [8]. They can invest their learning in library resources and facilities and increase their awareness of the importance of reading and education.

Managing a library can be a complex and challenging task for librarians. A familiar problem librarians face in managing libraries is limited funding and human resources. In many cases, libraries need more staff and physical space, so library management becomes less effective. Library management also has a limited budget for acquiring new library materials. Another problem is weak cataloguing and classification. To overcome this problem, library management must keep up with the latest technological developments. Libraries must keep up with technological advances, such as digital collections and online databases, to remain relevant and meet the needs of their customers [9]. Many libraries are turning to digital resources and electronic databases. This is, of course, a challenge in itself. With the increasing use of digital resources, library managers must introduce new technology into their operational activities. This includes managing digital collections, providing access to e-books and databases, and maintaining online catalogues.

In short, library management must understand four fundamental aspects: planning, organising, implementing and monitoring/evaluating. The function of planning is to guide the implementation of an activity to achieve specific goals. The second aspect is organising, which is defined as an effort to regulate the work roles of each individual in working together to reach common goals. The third aspect is actuating, namely carrying out activities determined together at the planning and organising stages. The final element is controlling and evaluating. This activity is intended to monitor activities that have been implemented and make sure that there are no deviations or discrepancies between plans and implementation [10]. The present study employed Kwak's theory [11], which has seven indicators: data search services, information services, collaborative services, reading support services, support services for vulnerable people, services in disadvantaged areas, and services related to library operations.

According to [12], library management is a series of processes in which library staff strive to achieve maximum effect through scientific and rational cooperative actions based on relevant theory and technology to achieve given library goals. Management, in general, is a systematic activity of carrying out library tasks to accomplish the objectives of an organisation. Library management is a systematic activity based on the four elements of management mentioned, namely planning, organising, implementing and supervising to achieve library goals. Libraries also have the general characteristics of economic entities that utilise resources to achieve goals. Therefore, the application of general management principles also applies to library management. With all these in mind, the present study aims 1) to describe the management process of digital services in NTB Provincial Library and Archives Service and 2) to assess the quality of digital services.

METHOD

This study used a qualitative approach with a descriptive research design. A qualitative approach was chosen because the nature of qualitative research concentrates more on the process than on the results [13]. As the topic of this research is the process of digital service management for users, the descriptive method was chosen because the characteristics of this method are that it systematically describes the facts that exist in the objects and subjects studied. This method is also helpful in obtaining various problems related to human behaviour [14]. Data sources in this research were obtained through observations, interviews,

documents, photos, drawings and informal interactions regarding digital service management for users [13]. All this was obtained during the data collection process at the West Nusa Tenggara Regional Library and Archives Service.

After collecting data, the next stage is the data analysis procedure. This stage followed the data analysis procedure developed by [15], which involves organising, coding, and categorising the collected data. This procedure includes identifying data patterns, themes, and relationships to draw meaningful conclusions and make informed decisions. The final procedure is to re-verify the data and draw conclusions relevant to the research focus. This qualitative data analysis approach allows for a deeper understanding of the data and provides valuable insights into the research question or problem. By systematically analysing the data, researchers can uncover hidden patterns and trends that may not be immediately apparent. Furthermore, this analysis process helps to ensure the validity and reliability of the findings, as it involves rigorous examination and interpretation of the data.

The final stage is checking the validity of the data. This involves verifying that the data is accurate, consistent, and reliable. It also includes cross-referencing the data with other sources or conducting further analysis to ensure its integrity. Additionally, this stage may involve identifying and checking the trustworthiness of the data [16]. The process of checking the validity of the data is crucial to ensuring its quality and reliability. This step is essential in maintaining the integrity of the data and making informed decisions based on accurate information, such as identifying any outliers or anomalies that may indicate errors or inconsistencies in the data. By thoroughly checking the validity of the data, the researcher can have confidence in its quality and make informed decisions based on accurate information. The researcher also checked the credibility of the data, which involves evaluating the source of the data and determining if it is reliable and trustworthy. This includes verifying the credentials and expertise of the data provider, as well as assessing any potential biases or conflicts of interest that may impact the accuracy of the data. By ensuring validity and credibility, the researcher can comprehensively understand the data's quality and confidently use it to drive her decision-making. Finally, the research checked the dependability of the data, which means assessing the consistency and accuracy of the data over time. This involves examining if the data has been consistently collected and recorded, as well as verifying if there are any inconsistencies or errors within the dataset.

RESULTS AND DISCUSSION

The results of the data analysis show that the NTB Regional Library has attempted to improve the quality of its services through careful and measurable program planning. Library program planning was designed by considering principles that had been proven effective in the context of library services. This research shows that the library used various instruments and analysed the library user needs and interests. With a deep understanding of their audience, the library was able to design more appropriate and relevant programs. After identifying user needs and interests, the next step was to develop program goals and strategies. The library made details of specific goals, including what was hoped to achieve with the program and how its success was measured.

Furthermore, the implementation strategy was designed considering logistical aspects, available resources, and potential partnerships with external parties. Lastly, the library management communicated its programs effectively to all staff and stakeholders. This involves developing a promotional strategy that includes social media and other communication channels so that information can reach the target audience. By involving all stakeholders, the library ensured that its programs met expectations and continued to evolve according to the emerging needs of the communities served. The research results show that the NTB Provincial Library and Archives Service provided a plan that suited existing problems and provided the best solution for developing digital services.

This research shows that the NTB Provincial Library and Archives Service organised its program by involving all parties in their responsibilities to make assignments easy. This method of organising the program is in line with the management concept proposed by [17], namely 1) determining the resources and activities needed to achieve goals, 2) designing and developing work groups that will direct subordinates to cooperate and work effectively to achieve goals [18]. By carrying out their duties and knowledge, librarians can work more effectively and efficiently. Organising is carried out to make it easier for librarians to

carry out their duties, whereas, in this case, librarians are more focused on carrying out their respective responsibilities accompanied by collaborating.

Regarding program implementation, the research results show that the NTB Regional Library has used digital services to implement work programs. These digital services have helped streamline administrative tasks and improve accessibility to library resources. Additionally, implementing digital services has allowed the NTB Regional Library to reach a wider audience and offer virtual programs and events. To run the office jobs, the management team involved all parties within the institution, from department heads to staff, as facilitators for implementing library service management. In this case, the head of the library plays a vital role as the party who is given the authority to lead the provision of services to stakeholders. The library had strived for maximum service to meet users' information needs. This includes providing diverse resources, such as books, journals, and online databases, to cater to users' interests and research needs. The library also regularly conducts surveys and seeks feedback from its users to continuously improve its services and ensure that it remains relevant in meeting their evolving information need

The research results show that digital services at the NTB Provincial Library and Archives Service continue to carry out excellent processes to attract public attention so that people can use the digital world well. These processes include offering various online resources, such as e-books, digital archives, and virtual exhibitions. Additionally, the library promotes these services through social media campaigns and collaborations with local educational institutions to ensure maximum outreach and engagement. This finding aligns with the concept of digital library services presented by several previous researchers, such as [11, 19, 20], who emphasise the importance of providing accessible and user-friendly platforms for individuals to access and utilise digital resources. Furthermore, these researchers highlight the need for continuous innovation and improvement in digital library services to meet users' evolving needs and preferences in an increasingly digital age.

Regarding the evaluation of program implementation, the regional library carried out regular assessments by collecting and observing various types of evidence to analyse obstacles and find solutions. These library services were evaluated to

monitor service conditions and take problem-solving actions. From the data analysis, many needs must be met to implement digital service libraries, such as facilities, infrastructure, and creative human resources, as well as knowledge of the digital world of libraries and skills in the digital service libraries. This evaluation aims to ensure the availability of digital collections that meet library needs. By evaluating the program implementation, it can be seen whether the collection material is complete or incomplete. The present evaluation method was carried out by reviewing existing digital collections and the facilities and equipment needed. With all of the descriptions, digital services in the NTB regional library emphasise information services in digital form with appropriate and maximum collections that make it easier for users to access at any time. The results obtained so far for digital services proved optimal because of the constant services provided by the library. Improved digital library services made it comfortable for users to access digital books and collections anytime and anywhere.

Regarding service quality, the researcher used 7 digital service indicators commonly used to measure the quality of digital services [11]. These seven indicators are shown in Table 1.

Table 1 – Digital Services Available at the NTB Library Service

No	Digital Service Indicator	Category	Library Prov. NTB
1	Data Search Service	Integrated search system	○
2	Information Services	Digital data services	○
		Real text DB service	X
		Local data service	X
		Gut k h data services	X
		ICT based services	○
		Providing local information	○
3	Collaborative Services	Service n one card	X
		FAQ and Q&A reference service	○
		School library support services	○

No	Digital Service Indicator	Category	Library Prov. NTB
		Small library support service	○
4	Reading support service	Reading program	○
		Lifelong learning program	X
		Cultural activities program	○
		Book delivery service	X
5	Services for vulnerable people	Disability support services	○
		Multicultural support services	○
		Free book delivery service	X
6	Services in disadvantaged areas	Mobile library services	○
7	Service related to library operations	Mobile application operation	○
		Online exhibition hall operations	X
		Reservation loan	X

Notes: ○ means available; X - means unavailable.

The research findings about library service quality, as depicted in Table 1, show that the NTB Library has utilised an Integrated Search System (ISS). The ISS, integrating various library functions such as catalogue search, resource discovery, and circulation management into a unified system, significantly enhanced the efficiency and convenience of accessing information resources. The research indicated a notable increase in user satisfaction, with patrons expressing a higher level of contentment regarding search accuracy, speed, and overall user interface. Additionally, the ISS facilitated a seamless navigation experience, contributing to improved user engagement and utilisation of library resources. The findings underscore the positive impact of ISS on service quality, highlighting the importance of integrated systems in modern library settings to meet library users' evolving needs effectively. The data show that NTB Library has provided Digital data services to service users. This had a significant positive impact on user engagement and satisfaction. It was discovered that digital transformation initiatives, including integrating user-friendly online catalogues, e-learning platforms, and enhanced social media presence, have substantially contributed to increased accessibility and user interaction. The findings also highlight the success of the library's efforts in digitising collections, making historical archives more widely available, and fostering a sense of inclusivity through various accessibility features. These research insights underscore the effectiveness of NTB Library's information services in meeting the evolving needs of its diverse user base, positioning it as a forward-thinking institution in the realm of library services.

The research findings on collaborative services utilised by NTB Library reveal a significant impact on enhancing user engagement and satisfaction. The implementation of cooperative services, including FAQ and Q&A reference services, has streamlined information retrieval processes, offering quick and accessible solutions to user queries. Furthermore, the findings underscore the success of collaborative initiatives in supporting school library services. NTB Library has been pivotal in fostering a conducive learning environment by extending resources and expertise to school libraries. Additionally, providing small library support services has effectively empowered local libraries with limited resources. The collaborative approach has facilitated knowledge-sharing, resource pooling, and mutual assistance among libraries, contributing to the overall enrichment of library services in the region. The research findings emphasise the efficacy of collaborative services as a catalyst for community-driven library support and underscore the importance of sustained cooperation for the continuous improvement of library services in the NTB region. The research findings significantly reveal a positive correlation between implementing a comprehensive digital support service, incorporating both a structured Reading Program and Cultural Activities Program, and enhanced reading proficiency among participants. The Reading Program, characterised by tailored interventions and skill-building exercises, exhibited measurable improvements in participants' reading comprehension, fluency, and vocabulary acquisition.

Additionally, integrating the Cultural Activities Program into the reading support service demonstrated a synergistic effect, fostering a love for reading by connecting literature to diverse cultural experiences. The incorporation of cultural elements not only heightened engagement but also contributed to a more holistic approach to literacy development. The findings underscore the significance of a multifaceted reading support

service that combines structured reading programs with culturally enriching activities to foster a well-rounded and proficient reading experience among participants.

The research findings importantly shed light on the critical role of tailored services for vulnerable populations, mainly focusing on disability support and multicultural support services. The study revealed that access to specialised disability support services significantly enhances the well-being and inclusivity of individuals with disabilities, addressing their unique needs and fostering a sense of autonomy. Moreover, the research emphasised the importance of culturally sensitive approaches in multicultural support services, highlighting that customised programs considering linguistic, cultural, and social nuances are pivotal in ensuring the effective integration and support of diverse communities. The findings underscore the necessity of holistic, person-centred services that acknowledge and respond to the specific challenges faced by vulnerable individuals, promoting a more inclusive and equitable society.

Other research findings reveal a compelling impact of mobile library services in disadvantaged areas, showcasing a transformative potential for enhancing access to educational resources and cultural enrichment. The study demonstrates that implementing mobile libraries has significantly narrowed the gap in library services between urban and disadvantaged rural communities. Mobile libraries have proven to be instrumental in delivering various services, from book lending and literacy programs to digital resources and community engagement initiatives. The findings underscore the crucial role of mobile library services in fostering a culture of continuous learning and information accessibility, thereby contributing to the empowerment and development of communities facing socio-economic challenges. The success of these services in disadvantaged areas highlights the importance of innovative outreach strategies in ensuring equitable access to knowledge and educational opportunities.

The study results show that the NTB Provincial Library has developed efforts to improve its digital services. This was reflected by a commitment to adapting to the changing landscape of information dissemination. By investing in technology, digitising collections, enhancing user experience, and fostering inclusivity, the library has positioned itself as a leading institution in the region. As this institution continues on this transformative journey, it preserves its rich cultural heritage and ensures that knowledge is accessible, adaptable, and impactful in the digital age.

CONCLUSIONS

The study shows that the management of the NTB Provincial Library and Archives Service conducted its management through stages of action, i.e. starting from planning, organising, and implementing to evaluating. The evaluation indicates excellent results, but the limited budget constrains it to meet the provision of more adequate infrastructure that facilitates users. Despite its significant progress, the quality of digital services in the NTB provincial library services needs some improvements. Several programs and infrastructure need upgrading to provide better digital services. These improvements include upgrading the library's website to make it more user-friendly and accessible and investing in new technologies and software to enhance the digital reading experience.

Additionally, providing training and support for staff members to utilise these digital resources effectively will further improve the quality of digital services offered by the NTB Provincial Library and Archives Service. This study concludes that by addressing these areas of improvement, the provincial library services will be able to meet the growing demand for digital resources and provide a more efficient and user-friendly experience for patrons. Furthermore, these enhancements will help bridge the digital divide and ensure all community members have equal access to information and educational resources..

REFERENCES

1. Sulistyo-Basuki. (1991). *Pengantar Ilmu Perpustakaan* [Introduction to library science]. Jakarta: Gramedia Pustaka Utama (in Indonesian).

2. Sutarno. (2006). *Perpustakaan dan Masyarakat* [Libraries and Society]. Jakarta: Sagung Seto (in Indonesian).

3. Klinenberg, E. (2018). Palaces *for the People*. New York: Crown Publishing Group.

4. Simon, M. (2002). Will the public library survive the Internet? What patrons value in public libraries. *Public Libraries, 41*(2), 104–106.

5. Oldenburg, R. (1999). *The Great Good Place*. Cambridge: Da Capo Press.

6. Ariyani, L. P. S., & Wirawan, I. G. M. A. S. (2017). Peran Perpustakaan Umum Bagi Masyarakat : Studi Kasus Perpustakaan Umum di Bali [The Role of Public Libraries in Society: A Case Study of Public Libraries in Bali]. *Acarya Pustaka, 3*(2), 55. doi: 10.23887/ap.v3i2.13059 (in Indonesian).

7. Waluyo, U., Soepriyanti, H., Wilian, S., Kurniawan, R. (2019). *Revitalisasi Nilai-nilai Kearifan Lokal yang Dikandung dalam Cerita Rakyat Sumbawa sebagai Pembelajaran Bilingual Sumber Pendidikan Karakter* [Revitalising Local Wisdom Values Contained in Sumbawa Folktales as Bilingual Learning Source of Character Education]. Retrieved from https://www.scribd.com/document/644222362/REVITAL55915063-en-id-pdf?language_settings_changed=English (in Indonesian).

8. Anwar, S., Maskur, S., & Jailani, M. (2019). *Manajemen Perpustakaan* [Library Management]. N. d. (in Indonesian).

9. Prabowo, T. T. (2013). Mengenal Perpustakaan Digital [Getting to know the Digital Library]. *FIHRIS, 3*(1), 108–120 (in Indonesian).

10. Terry, G. R. (2008). *Prinsip-prinsip manajemen* [Principles of management]. N. d.: BUMI AKSARA (in Indonesian).

11. Kwak, Seung-Jin, Youngji Shin, Jeong-Taek Kim, Younghee Noh, & Sanghee Oh. (2020). A Study on the Establishment of Basic Policy for the Operation of Sejong City Library. *Journal of Korean Library and Information Science Society*, *51*(4), 157–183. doi: 10.16981/KLISS.51.4.202012.157

12. Park, H.-S., & Jeong, D.-Y. (2008). A Study on the Developing of Evaluation Indicators of Special Libraries. *Journal of the Korean Society for Library and Information Science, 42*(3), 11–43. doi: 10.4275/kslis.2008.42.3.011

13. Emzir. (2012). *Metodologi Penelitian Kualitatif. Analisis Data* [Qualitative Research Methodology. Data Analysis]. Jakarta: Raja Grafindo Persada (in Indonesian).

14. Sukardi. (2008). *Metodologi Penelitian Pendidikan. Kompetensi dan Praktiknya* [Educational Research Methodology. Competencies and Practices]. Jakarta: Bumi Aksara (in Indonesian).

15. Miles, M. B., & Huberman, M. (2014). *Qualitative Data Analysis. A Methods Sourcebook*. London: SAGE Publications.

16. Satori, D. (2013). *Metode penelitian kualitatif* [Qualitative Research Methodology]. Bandung: Alfabeta (in Indonesian).

17. Handoko, T. H. (2014). *Manajemen* [Management] (2nd ed.). Yogyakarta: BPFE (in Indonesian).

18. Rijali, A. (2019). Analisis Data Kualitatif [Qualitative Data Analysis]. *Alhadharah: Jurnal Ilmu Dakwah, 17*(33), 81. doi: 10.18592/alhadharah.v17i33.2374 (in Indonesian).

19. Lee, Y. J., & Kim, K. D. (2014). A Study on Trends of Library Management Research in Korea: Focused on Academic Papers 2004~2013. *Journal of the Korean Society for Library and Information Science, 48*(4), 25–50. doi: 10.4275/kslis.2014.48.4.025

20. Yoon, H.-Y. (2005). A Study on the Improving Personnel System of Librarianship in Korea. *Journal of the Korean Society for Library and Information Science, 39*(3), 45–73. doi: 10.4275/kslis.2005.39.3.045

Implementation of Preschool Program Management in West Lombok PAUD Institutions, Indonesia

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Abstract. The research aims to describe the implementation of PAUD program management in West Lombok. Then, prepare the design and steps for research, such as planning, organising, implementing, and evaluating/controlling all PAUD programs. The research approach used in this research is qualitative research, and data was collected using interview, observation, and documentation techniques. Qualitative data from research results are analysed descriptively and qualitatively. In qualitative research, the stages of data analysis include the following: 1) Data Reduction, 2) Data Presentation, and 3) Conclusion drawing. In addition, data validity tests such as transferability and confirmability were carried out. The research results show that PAUD program management in West Lombok PAUD institutions has gone quite well, marked by the implementation of 4 management functions: planning, organising, implementing and supervising existing programs in PAUD institutions.

Keywords: Implementation; Early Childhood Program; Management.

INTRODUCTION

The community has implemented the PAUD program management in managing PAUD institutions in Indonesia for several decades. However, the implementation of PAUD still needs to improve, which causes limited reach, different types of services, and gaps in children's essential needs, among others: 1) Services have yet to be integrated into each institution. 2) The quality of management could be better than that of a professional. 3) Inadequate service facilities. 4) Services do not meet all aspects of children's needs. 5) Understanding of the importance of the PAUD program from stakeholders (both policymakers, organisers, the community, and parents still needs to be improved) [1].

Good management certainly requires mature processes and readiness to create quality PAUD institutions in West Lombok. The research was carried out with the hope of successfully improving the management of PAUD program management concepts. Based on the description above, a comprehensive study is needed to create an overview of how to implement PAUD program management and how to solve the problems faced to develop a concept for solving problems.

The specific objectives are first to describe the understanding of PAUD program management at West Lombok PAUD institutions, second to describe PAUD program management planning at West Lombok PAUD institutions, third to explain the implementation of organising PAUD program management at West Lombok PAUD institutions, fourth to describe the implementation of PAUD program management in West Lombok PAUD institution and finally describing the implementation of PAUD program management supervision at the West Lombok PAUD institution.

METHOD

This research approach uses a descriptive qualitative research approach. Authors [2], explains that descriptive qualitative research uses questions starting from general ones, then tapering off and becoming detailed. This research provides the broadest possible opportunity for participants to express their thoughts and opinions without any restrictions by the researcher. The researcher then details the information obtained so that it is centralised.

This is due to emphasising participants as the primary data source. The final results of qualitative research are expressed as a written report.

Meanwhile, the method used is a case study. The author [3] states that the case study method is research carried out on a case that has high specificity and uniqueness. This research focuses on the activity or problem deeply tied to its locus (site case). The data obtained is data that can be a representation of similar events or facts. This research is intended to photograph and explain the characteristics of those studied. The type of data collected is qualitative data consisting of primary data and secondary data regarding the implementation of PAUD program management, namely planning, implementation and evaluation at PAUD institutions in West Lombok. This research was carried out from April 2022 to the end of November 2022 at a PAUD institution unit in West Lombok.

The subjects of this research are PAUD institutions consisting of school principals, PAUD institution managers, and teaching and education staff at West Lombok PAUD institutions for the 2021/2022 academic year. The data analysis technique used is the data collection stage, namely, 1) Data Reduction, 2) Data Presentation, and 3) Drawing Conclusions.

RESULTS AND DISCUSSION

After researching to collect relevant data regarding the research topic, research findings were obtained that answered the problem formulation. The findings include understanding PAUD program management in West Lombok PAUD institutions and organising or distributing tasks to each existing teacher and/or teaching staff. Implementation of the planned programs starts from the time students enter school until the semester ends. The implementation of these programs is always maximised by the school so that students receive optimal and good service. After implementation, remember to carry out direct supervision and evaluation by the school principal regarding all existing aspects. This is done so that daily improvements can be made and existing deficiencies or obstacles can be minimised.

PAUD program management planning at West Lombok PAUD institutions. The planned programs include religious literacy activities, Hajj rituals, outing classes, cooperation, gymnastics, field trips and additional programs such as SDIDTKA (Stimulation, Detection, Early Intervention in Child Growth and Development) and Posyandu. Among these programs, some are the school's primary program and additional programs that collaborate with outside parties. The main programs and additional programs are as follows: The school's main program is divided into weekly and annual programs. Some of the programs included in the weekly program are religious literacy, gymnastics, and cooperation.

Meanwhile, monthly or annual programs include outing classes, field trips, and Hajj rituals. Planning for the main programs at PAUD schools in West Lombok is carried out at the start of the new semester. Furthermore, there are additional programs. Additional programs in collaboration with external parties are SDIDTKA and Posyandu in partnership with the community health centre. The planning process for this additional program is not carried out by the school but is carried out by the community health centre. The school is waiting for information from the community health centre regarding the program's implementation.

Organising PAUD program management at West Lombok PAUD institutions. Organising is carried out directly by the school principal. However, in some programs, the group head in office shares implementation with other schools. To distribute tasks to each class, the teachers at the school take turns. The duties and authority of each teacher, apart from being involved in the program planning process, is that they are trusted directly to manage their respective classes without being taught what they should be like. The principal, as a coach, guides, directs and monitors. The school principal's authority in the programs implemented is to correct deficiencies in the activities carried out, such as lack of teacher readiness and monotonous learning. The principal also accompanies the teacher in the classroom. For additional programs, teachers accompany the community health centre to carry out examinations and provide vitamins and worm medicine to all students.

Implementation of PAUD program management at West Lombok PAUD institutions. Implementation of the planned programs is carried out in accordance with the schedule stated in the existing semester planning and program. The religious literacy program is

carried out every Tuesday, Wednesday, Thursday and Friday. From Tuesday to Thursday, the activity consists of reading a short surah before starting the main activities in class. Meanwhile, on Friday, imtaq activities are carried out. Gymnastics and cooperation activities are carried out every Saturday to clean the school area where the activity starts with group exercise and then cooperation. The outing class program is carried out according to needs and is adjusted to the student's current learning theme. Outing classes can be held inside or outside the school environment.

For example, at TKN 3 Gerung school, they conduct outing classes within the school environment by planting and harvesting nuts in the school area. Meanwhile, implementation outside of school can invite children to go to the community health centre or police station close to the school to do an outing class about careers; Pertiwi Gerung Kindergarten does this. The field trip program is held once a year. This program is usually carried out by visiting places that can provide direct learning to children. As was done at TKN Pembina Gerung, a field trip was carried out by visiting a pottery-making place in Banyumulek in February 2022. This activity involves all students, parents, teachers, and the principal. The community health centre carries out the SDIDTKA and Posyandu programs by checking the child's weight, head circumference, and height and administering vitamins and worm medicine. This program is carried out twice a year involving a team of doctors and the nutrition department at the community health centre, which teachers at each school accompany. Not only do they carry out examinations and administer vitamins and worm medicine, but the community health centre also takes follow-up action for students whose conditions require further care or attention.

Supervise PAUD program management at West Lombok PAUD institutions. Supervision of existing programs is carried out directly by the school principal. Supervision is carried out in stages as activities are completed. Things that are evaluated are related to obstacles when holding the program, such as how the parents respond when holding the program whether they agree or disagree. Each evaluation result is communicated back to the student's parents, including taking in input from the student's parents. Then, the evaluation results will be used to consider further planning.

Understanding of PAUD Program Management at West Lombok PAUD Institutions. Something that still needs to be improved in management understanding for school stakeholders in West Lombok PAUD institutions is the importance of documenting all management processes that have been implemented. The intended documentation includes attendance lists, evaluation results, and minutes of meetings that have been held. Meeting results and other documentation are unnecessary because stakeholders can remember the meetings or evaluation results carried out previously. However, documentation is necessary as physical evidence of what has been done and as a guide in making future actions or decisions. Seeing these problems, further action is needed, such as training or workshops for school stakeholders to understand management better.

PAUD Program Management Planning at the West Lombok PAUD Institution. Preparing plans is an activity that is carried out first time in the management process. Planning concerns prepare matters regarding future trends and determine the appropriate efforts to implement targets and objectives. Success planning is closely related to the overall success of management activities. Therefore, planning must be done carefully and to the best of its ability in planning existing programs at PAUD institutions. The author [3] states that planning education is a whole process of estimating and thoroughly determining what will be done in education to achieve future educational goals. The program planning stages at the West Lombok PAUD institution are carried out by holding meetings and deliberations with schools in the same cluster. The group head chaired the meeting and discussed what programs would be implemented in one year. All teachers from each school attended the meeting in the same cluster. The planned programs include weekly programs and annual programs. The weekly program consists of religious literacy activities, gymnastics and cooperation, which are carried out in each school. Meanwhile, the yearly programs are outing classes, field trips, posyandu, and SDIDTKA in collaboration with the community health centre.

Organising PAUD Program Management at the West Lombok PAUD Institution. Organising is intended so all parties know their duties, authority, and responsibilities. With a clear, professional division of tasks and proportional means, officers can understand their duties and

foster cooperative relationships. The school principal carries out the organising process with the existing teachers. The principal and the teacher agree on each teacher's duties and authority in the school. Which teacher is responsible for which class, and what is the authority of each teacher? A teacher responsible for a class is tasked with providing learning materials to students and implementing existing weekly programs. Programs implemented in each class, such as the religious literacy program, are usually carried out every Tuesday through Thursday. If the program is implemented collectively with all students at the school, it will be the responsibility of all stakeholders at the school.

Implementation of PAUD Program Management at West Lombok PAUD Institutions. The program has been planned to be carried out from the first day of school. Program implementation begins by involving all school stakeholders. Teachers carry out their duties and authority as determined in the previous organising process. Likewise, the type of program implemented follows previously planned programs. The programs implemented include a religious literacy program. This program is divided into 2, namely imtaq and memorising short verses. This program is held every Tuesday through Thursday to memorise short verses and to carry out imtaq every Friday. Next is the exercise and cooperation program, which is held every Saturday. Gymnastics and cooperation are held. This activity is carried out to train children's motor skills.

The implementation is preceded by the morning exercise first; then once it is finished, it is continued with cooperation in collecting rubbish in the school environment. Next, the outing class program is held every time an outing class discusses a theme. This activity can be done inside the school environment or outside the school environment. Implementation within the school environment is carried out by utilising what is around the school environment. Field trip program This program aims to introduce children to new things and train their motor skills. This activity is usually carried out once a year. Field trips are usually carried out in educational tourism places that are safe for children, and the last one is the SDIDTKA and Posyandu Program. This program is carried out in collaboration with the local health centre. This implementation is carried out twice a year. This activity involves measuring height and head circumference, weighing, and administering vitamins and deworming medication.

Supervision of PAUD Program Management at West Lombok PAUD Institutions. Each school principal supervises existing programs at West Lombok PAUD institutions. The principal periodically monitors each teacher and existing programs so that implementation runs according to plan. It is not uncommon for school principals to be directly involved in implementation if obstacles or things need improvement. Evaluation is carried out at the end and periodically, especially regarding the challenges teachers or students face in implementing existing programs.

CONCLUSIONS

The implementation of PAUD program management at the West Lombok PAUD institution has been going quite well, as marked by the implementation of 4 management functions, namely planning, organising, implementing, and supervising the programs at the institution.

REFERENCES

1. Bappenas. (2009). *Pedoman umum : pengembangan anak usia dini holistik – integratif* [General guidelines: holistic-integrative early childhood development]. Jakarta: Kementerian Negara perencanaan pembangunan nasional (in Indonesian).

2. Arikunto, S., & Safrudin, C. (2010). *Evaluasi Program Pendidikan* [Education Programme Evaluation]. Jakarta: Bumi Aksara (in Indonesian).

3. Sugiyono. (2008). *Metode Penelitian Kuantitatif Kualitatif dan R&D* [Quantitative Qualitative and R&D Research Methods]. Yogyakarta: Alfabeta (in Indonesian).

4. Akbar, R. A. (2018). Evaluasi Program Pengembangan Anak Usia Dini Holistik Integratif Pada Satuan PAUD [Evaluation of Holistic Integrative Early Childhood Development Programmes in Units of]. *AWLADY, 4*(2), 137. doi: 10.24235/awlady.v4i2.2703 (in Indonesian).

5. Alfonso-Benlliure, V., Meléndez, J. C., & García-Ballesteros, M. (2013). Evaluation of a creativity intervention program for preschoolers. *Thinking Skills and Creativity, 10*, 112–120. doi: 10.1016/j.tsc.2013.07.005

6. Costello, E. J. (2016). Early Detection and Prevention of Mental Health Problems: Developmental Epidemiology and Systems of Support. *Journal of Clinical Child & Adolescent Psychology, 45*(6), 710–717. doi: 10.1080/15374416.2016.1236728

Educational Financing Management at the Darul Yatama Wal Masakin (DAYAMA) Jerowaru Islamic Boarding School

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Abstract. This research aims to determine the management of raising educational funds, the use of educational funds, and the challenges in managing educational funds at the Darul Yatama Wal Masakin (DAYAMA) Jerowaru Islamic boarding school. This research uses a qualitative approach, collecting data using interviews, observation, and documentation techniques. Data analysis techniques include data collection, presentation, reduction, and conclusion drawing. Checking the validity of the data uses credibility, transferability, dependability and confirmability. The results of the research show that: 1) The source of fundraising is obtained from businesses managed by the foundation in the form of businesses in the fields of agriculture, fisheries, animal husbandry, gas station management, cottage cooperatives, as well as funds sourced from the community such as community self-help funds, and funds sourced from government funds such as BOS and DAK funds. 2) Meanwhile, management includes a) planning, carried out every year involving Islamic boarding school administrators, teacher councils, school committees and representatives of Islamic boarding school guardians; b) organising, carried out by designing programs and appointing competent human resources in their field; c) implementation, carried out by determining sources of income and allocating funds; d) Supervision is carried out by requiring each institution under the foundation to prepare a financial accountability report. 3) Financial management management challenges include the development of information technology, developing community businesses, establishing many Islamic boarding schools, and competition between Islamic boarding schools.

Keywords: Financing management; Education financing; Islamic boarding schools.

INTRODUCTION

Pesantren is a typical and oldest Islamic educational institution in Indonesia. This institution is a unique phenomenon not found in other parts of the world. Meanwhile, Islamic boarding schools are Islamic educational institutions that teach Islamic sciences. They are led by a Kai, the leader or owner of the Islamic boarding school, and assisted by Ustaz or teachers who teach Islamic sciences to the students using unique methods and techniques. Islamic boarding schools, the oldest Islamic educational institutions in Indonesia, have grown and developed since Islamic broadcasting and have played many roles in people's lives.

However, the existence of Islamic boarding schools as educational institutions faces challenges and obstacles. It is essential to realise that Law No. 20 of 2003 cannot regulate all academic activities. The national education law can only provide direction and basic principles for moving in that direction and controlling procedures in general. The officers, namely teachers, school principals, and other educational staff, will largely determine the reality of implementing education in the field at the front of the line. Our education faces four big problems, namely problems of quality, equity, motivation, and limited educational resources and funding sources.

They are based on PMA (Regulation of the Minister of Religion) No 13 2014 concerning Islamic religious education and PMA No 18 2014 concerning mudalam units at Islamic boarding schools. Based on temporary data, the total No of these institutions is 112, with 2,240 religious teachers and 49,913 Santri. Regarding budget implementation, in 2015, data from the APBN for the education budget was found to be 20% or worth 408.09 T, but this budget is for formal educational institutions. This has implications for facilities, infrastructure, and teaching staff in non-formal education services, such as kai and ustad at Islamic boarding schools. Hence, these stands still need a functional allowance budget allocation.

Management is a typical process of organisational managers planning, organising, implementing, monitoring and evaluating to achieve common goals by empowering human and other resources [1]. Meanwhile, according to [2], "management" is a process with distinctive characteristics that includes all actions of planning, directing, organising, and controlling to determine and achieve predetermined targets through various sources, including human resources and other sources.

Finance and financing are some of the resources that directly support the effectiveness and efficiency of education management. Finance and funding for education provision are very determining potential and are inseparable parts of the study of educational management. The financial and financing components of a school or Islamic boarding school are production components that determine the implementation of teaching and learning activities together with other elements in a school or Islamic boarding school. In other words, every activity carried out by schools or Islamic boarding schools requires costs, whether they realise it or not. This financial and financing component needs to be managed as well as possible. So that existing funds can be utilised optimally to support the achievement of educational goals.

Fund management is an essential element in an educational institution, or, in this case, an Islamic boarding school, so that it becomes an independent academic institution. As expressed by Qomar in Saihudin, two things cause great attention to finances. First, finance is a crucial determinant of sustainability and progress in an educational institution. So, educational reform or development programs will only succeed if adequate finances support them. Second, obtaining large amounts of finance is generally tricky, especially for newly established private educational institutions.

Islamic boarding schools own various funding sources from the government, private sector or other parties. The other parties referred to can be sourced from the community at large. The law has explained finances sourced from the community regarding community participation in implementing education. Community participation in the implementation of education has been mandated in law No 20 of 2003, article 8, which states that "the community has the right to participate in planning, implementing, monitoring and evaluating educational programs", and article 9, which states "the community is obliged to provide resource support in the implementation of education".

When these funds flow in, a professional financial management system must be prepared to manage well and create independence for Islamic boarding schools. The reality in the field to date is that Islamic boarding school financial problems have always been an obstacle in carrying out activities related to budgets, accounting, administrative arrangements, allocations, and the need to develop Islamic boarding schools in their daily activities. Not a few Islamic boarding schools have both human and natural resources that are not neatly arranged, and the education process is slow due to errors in management arrangements or management of existing funds.

In contrast, the Jerowaru Darul Yatama wal Masakin (DAYAMA) Islamic boarding school has experienced quite good development despite its relatively old age. The characteristics of this development can be seen in the number of students, which continues to increase every year, as well as the number of businesses or assets managed by the Islamic boarding school. Which is managed, among others, from the agricultural, livestock, plantation, Pertamina, cooperative and MSME sectors, as well as drilled water and educational funding sources, which are different from several Islamic boarding schools in general in the NTB area. The independence of educational financing by these Islamic boarding schools is becoming an attraction for researchers researching education financing management. Moreover, DAYAMA Jerowaru is an old Islamic

boarding school in the southern area of Lombok Island. It is the oldest Islamic boarding school in the Jerowaru sub-district. However, its existence in managing education has never waned and is considered increasingly successful, as proven by the many formal and non-formal institutions. The foundation formally manages it, and the public's trust in the foundation is very high.

DAYAMA is an Islamic boarding school first inaugurated by its founder Tgh. Muhamad Mutawalli on 6 March 1971 AD, previously this Islamic Boarding School was founded by its founder under the name Nahdatul Lay but only existed for a few years, namely from 1954 to 1958, then with the enthusiasm of the community who were very enthusiastic about education and the founder's desire to establish a boarding school permanently so that the Darul Aitam Islamic boarding school and Madrasah Tsanawiyah were formed to become the first formal institutions to be established, of course in the process of managing the Darul Aitam Jerowaru Islamic Boarding School has obstacles and challenges both in terms of education management and education financing management, however, the Darul Aitam Islamic boarding school always exists until now and during the leadership era of Tgh's eldest son. Muhamad Mutawalli namely Tgh. Muhamad Sibawaihi Darul Aitam Islamic boarding school founded many formal and non-formal institutions apart from Tsanawiyah madrasas, such as Ibtida'yah/MI madrasas up to Aliyah/MA Madrasas.

Until now, under the management of Tgh's sons. Muhamad Sibawaihi, the DAYAMA Jerowaru Islamic boarding school foundation continues to grow, and the trust of parents in sending their children to this Islamic boarding school is increasing, so that finally, the most recent foundation is building higher formal education with the name Sibawaihi Tarbiyah High School (STIT). Mutawalli Jerowaru. And several other formal institutions, such as the Ma'had program. So, with so many formal and non-formal educational institutions managed by institutions, there are challenges and obstacles in education management and education financing. It is difficult for a foundation to manage many institutions, especially in finance or education financing. This is undoubtedly not a coincidence, but it is through the management implemented by the Islamic boarding school. The management in question is financial management, namely

management related to all financial needs of Islamic boarding schools, which is expected to have implications for process components in the form of teacher welfare, completeness of learning infrastructure and sound environmental management, as well as the impact on learning outcomes in the form of student's academic and non-academic achievements and the acceptance of students in the eyes of the stakeholders of the DAYAMA Jerowaru Islamic boarding school. Therefore, this research was conducted at the DAYAMA Jerowaru Islamic boarding school for the following empirical reasons; firstly, DAYAMA Islamic boarding school is an old Islamic boarding school whose existence still exists today and is one of the Islamic boarding schools that can attract the attention of students so that This Islamic boarding school has the most students or santri in Jerowaru sub-district.

Second, based on the results of an interview conducted with one of the school principals, it was revealed that in its old age, the DAYAMA Islamic boarding school, starting from its construction of this Islamic boarding school until now, community participation has been very high, both in entrusting their children to board at the DAYAMA Islamic boarding school and involvement in the form of community financial donations. He further revealed that the DAYAMA Islamic boarding school is financially capable of financing its operations without being utterly dependent on the government. This is supported by various businesses managed by Islamic boarding schools and collaboration with multiple agencies that can help develop Islamic boarding schools, both private and government institutions.

METHOD

This research will be carried out at the Darul Yatama Wal Masakin Islamic Boarding School Foundation (DAYAMA), one of the oldest Islamic boarding schools located in the south of the island of Lombok. This Islamic boarding school is in Jerowaru village, Jerowaru subdistrict, East Lombok regency. This type of research uses qualitative research, which aims to understand the phenomena experienced by the subjects that form qualitative descriptive study.

The data sources in this research are namely 1) the foundation's board of trustees, 2) the foundation's treasurer, 3) the chairman of the

foundation's asset inventory, 4) the foundation's supervisory board, 5) the principal of each institution, and 6) the foundation's committee.

In this research, researchers obtained information using data collection procedures proposed by [3]: interviews, observation, documentation, and triangulation. Data analysis was done using data reduction, data display (data presentation), and conclusion drawing/verification. The data was collected through observation, interviews, documentation, and triangulation.

RESULTS AND DISCUSSION

Management of educational funds at the DAYAMA Jerowaru Islamic boarding school

The management of the DAYAMA Jerowaru Islamic boarding school is quite good. This can be seen from its management capabilities in various components of Islamic boarding school development in terms of infrastructure, student competency, and the No of students, which continues to increase yearly. This Islamic boarding school also has a source of income, business, and business developed as a source of income and used to finance the management of the Islamic boarding school. The running of good Islamic boarding school management cannot be separated from several activities.

The Darul Yatama Wal Masakin Foundation has yet to escape adjustments to the demands of several regulations regarding foundations. Therefore, according to existing statutory provisions, the Darul Yatama Wal Masakin Foundation is currently carrying out activities in the Religious, Social and Humanitarian fields, which consist of 1) Management of MajlisTa'lim, 2) Education Management, Formal and Non-formal, 3) Orphanage, 4) Business Management Productive Economics. For the smooth running of all activities in the institutions that have been built under the auspices of Islamic boarding schools, each of these activities cannot be separated from the following matters:

Planning. Islamic boarding schools are a place for cooperation, an institution used to express Islamic teachings, to maintain the existence of Islamic boarding schools as an Islamic institution, and to play an essential role in building the future of the nation's children. Therefore, they

will only be separated from planning in some fields, including budgeting or funding.

Financial planning or budgeting at the Darul Yatama Wal Masakin Islamic boarding school is carried out twice a year involving all administrators, teachers and caregivers as well as representatives of the student guardians to discuss the budget needed and where the funding will be allocated for one year. As stated by the board of trustees that:

"... planning is carried out annually by bringing together all Islamic boarding school administrators, teacher councils, school committees, and representatives of Islamic boarding school guardians to jointly discuss budget sources and plans for using the budget for each year concerned. This annual meeting is to re-evaluate the long-term plan activities that have been prepared for five years..." (interview with the Board of Trustees, 25.09.2023).

Financial and development planning is carried out every 1 year. This activity is combined with an economic evaluation for the one year that it has been running, and planning activities are carried out by analysing the sources of income for Islamic boarding schools and plans for their use in the development and construction of Islamic boarding schools, as stated by the foundation's board of trustees :

"...Planning activities are a series of annual activities carried out simultaneously with the annual evaluation of Islamic boarding schools. We plan to involve teachers, school committees and representatives of Santri guardians. The planning carried out includes analysis of the Islamic boarding school's sources of income from both internal and external sources, the use of learning operational budgets both at school and the boarding school, and maintenance and development of Islamic boarding school business resources and infrastructure..." (interview with Board of Trustees, 25.09.2023).

The involvement of the santri guardians in planning, who are represented by several people who are deemed to have the ability to communicate with other santri guardians, is carried out as a form of openness of the Islamic boarding school towards the santri guardians because every result of the planning carried out will be informed by the foundation management or representatives of the santri guardians as

stated by Ahmad Muhsan, one of the santri guardians:

"...Our involvement as santri guardians in planning the development of Islamic boarding schools is as representatives of us who can convey in the WhatsApp group the friendship of santri guardians..." (interview with Ahmad Muhsan, santri guardian, 02.10.2023)

Saeful Gani, on the school committee, also said the same thing:

"...the school committee remains involved in the planning carried out every year to support the implementation of each activity that has been planned by communicating with the guardians of the students or religious and community figures involved in it..." (interview with Saeful Gani, 02.10.2023)

Planning activities carried out by Islamic boarding schools involving administrators, teacher councils, representatives of student guardians, and school committees have been going on for a long time; this can be seen from the documentation of the attendance list for planning activities that have been carried out as well as the main points discussed in the planning. Based on the attendance list of minutes of Islamic boarding school financial management planning activities, the people involved are "Islamic boarding school administrators, teacher council, representatives of Islamic boarding school guardians and the School Committee".

Of course, the person most responsible for planning is the Islamic boarding school leader, whose task is to collect information from all the elements studied and developed as a reference in preparing plans. Planning is carried out by seeking information from policymakers.

Evaluation and planning activities, especially financial planning, are carried out yearly to continue improving things that become obstacles.

Organising. Some management experts place the organising function after the planning function. A plan that is carefully prepared and determined based on specific calculations does not bring the organisation closer to the goals it wants to achieve. To realise a plan towards the goal, arrangements are needed concerning the forum in which the activity is carried out and the rules of the game that everyone must obey to achieve the organisation's goals. Organising is the determination, grouping and arranging of various activities needed to achieve objectives, the placement (of staff) in these activities, the provision of physical factors suitable for the environment or work needs and appoint delegated authority relations to each person connected with its implementation of each expected activity. Islamic boarding schools are generally developed by grouping various programs into several groups that become references for each activity.

Foundation administrators manage the various business resources developed as listed above, and a board of teachers is deemed able to grow each business. Each manager's abilities are seen not only from their educational qualifications but also by the skills of the teachers or foundation administrators.

The organisation is carried out by grouping the sources of income for Islamic boarding schools, either from student fees or from the results of Islamic boarding school business development, then teacher/cleric salaries, development plans and completeness of infrastructure and operational costs for schools and Islamic boarding schools. As stated by the administrator of the DAYAMA Jerowaru Islamic boarding school, as follows:

"...We carry out our organisation by doing the following things.

1) Analysing and classifying the primary sources of income for Islamic boarding schools, such as student fees, School Operational Assistance, and the results of Islamic boarding school business development.

2) Analyse and group the forms and types of Islamic boarding school activities and the budgets needed, such as operational costs for schools and Islamic boarding schools, teacher salaries, commemoration of Islamic holidays, training for teachers or ustad and so on,

3) Analyse and group the needs and existing infrastructure and the budget needed so we can group which infrastructure and facilities will be completed quickly with our budget" (interview with one of the boarding school administrators, 22.09.2023).

Apart from organising sources of income, activities, and infrastructure, as explained above, organising is also carried out by grouping people who can manage finances so that Islamic

boarding school income can grow and be used to advance Islamic boarding schools. One of the foundation administrators explained the following:

"... Organising is carried out by grouping sources of income, activities and infrastructure supporting these activities. In addition, competent people will be selected to manage each Islamic boarding school business unit, such as cooperatives, fish farming, rental cars, convection, and radio. This is done to facilitate the management of the Islamic boarding school business, as well as in making expenses; people are appointed who can manage financial expenses well so that they can spend money as efficiently as possible with maximum results in every activity..." (interview with one one boarding school administrator, 22.09.2023).

As explained above, grouping or organising is a series of activities that cannot be separated from planning activities. As one of the administrators stated, this planning directly carries out groupings of activities and budget sources.

"...In planning activities, we indirectly organise by grouping or sorting everything related to the management of Islamic boarding schools, such as sources of income, internal and external, activities to be carried out, and the infrastructure needed to support all boarding school activities. Islamic boarding school and selecting people who are competent in managing all these areas..." (interview with one of the boarding school administrators, 22.09.2023).

From the various data above, it can be understood that the system for organising the DAYAMA Jerowaru Islamic boarding school is carried out by grouping sources of income, Islamic boarding school activities and infrastructure or needs needed to realise these activities.

Implementation. Financial implementation can generally be grouped into two activities, namely receipts and expenditures. In general, the sources of income and expenditure for the Islamic boarding school have been described in the planning. For an explanation of the sources of income, the researcher has explained the research findings in point A, namely regarding the sources of fundraising for the foundation. In this section, the researcher explains the expenditure at the foundation.

As an educational institution that continues to improve various aspects, including infrastructure, Islamic boarding school programs, education in schools and other activities that support the production of students with high competence and skills in general science and religious knowledge as a provision for returning to the public. The types of Islamic boarding school financial expenses are as follows:

- Salaries of teachers/clerics and education staff;

- School and Islamic boarding school operational costs;

- Fees for land acquisition for Islamic boarding schools;

- Costs for development and maintenance of Islamic boarding school facilities and infrastructure;

- Islamic boarding school business development costs;

- Student meal costs;

- Costs for commemorating Islamic holidays;

Delivery fees Students take part in Olympic activities and competitions;

- Costs of HR quality improvement activities.

The monthly budget must be spent on teacher salaries, student food, and educational operational costs. In contrast, other activities are budgeted based on the results of the analysis, looking at the urgent needs to be budgeted. Expenditures in the school environment indeed cannot be separated from school operational costs, teacher salaries, student enrichment, and the development of school facilities and infrastructure, as stated by the school treasurer and foundation treasurer.

"...In general, the expenditure in schools includes school operational costs, teacher salaries, procurement and maintenance of infrastructure, purchasing textbooks and worksheets, enrichment for students who will participate in competitions..." (interview with Islamic Boarding School Treasurer, 22.09.2023).

The school committee also explained as follows:

"...In general, what we know about expenses in Islamic boarding schools are the costs of building madrasas, the cost of feeding students, the costs of student dormitories, teacher salaries, business development costs, celebrating Islamic holidays, routine recitations, and other unexpected costs such as the presence of guests honour from both

the general management and government guests..." (interview with Saeful Gani, 02.10.2023).

From the results of the analysis of several data sources above, it can be understood that several types of expenditure at the DAYAMA Jerowaru Islamic boarding school, in general, are as follows: Islamic boarding school expenses include operational costs for school activities, salaries of Ustazah and Mudabbir, building construction costs, Islamic holiday celebration activities, and other activities coordinated by the Islamic boarding school.

Expenditures in business units, namely capital financing in business fields such as cooperatives, fish cultivation, transportation and radio rentals, and other activities related to developing Islamic boarding school business units. School expenses are all expenses related to schools, such as school operational costs, teacher salaries, purchasing textbooks, enriching outstanding students, and other activities related to school programs.

Supervision. To monitor and measure the success of the DAYAMA Islamic boarding school, supervision is carried out by the foundation management as a form of control over every activity carried out. These activities are routinely carried out annually as a reference for preparing programs and budget planning for the following years so that the programs prepared touch on problems in the Islamic boarding school environment and the surrounding community. The supervision system was explained by the head of Madrasah Aliyah as follows:

"...Supervision activities are carried out by requiring every institution under the auspices of the foundation, be it Islamic boarding schools, schools and business units that have been developed, to report finances using various budgets used during one year. We report it as a report on activities or use of funds and the achievements achieved during one year" (results of interview with the Head of Madrasah Aliyah, 20.09.2023).

The school committee also explained the same thing as representatives of the santri guardians said:

"...The involvement of school committees and santri guardians in financial supervision is minimal because we cannot always monitor it. However, our involvement in supervision is in terms of the construction and activities of Islamic

boarding schools, as well as monitoring the annual report, which is submitted to the administrators and teachers and guardians of students in annual evaluation activities..." (interview with Saeful Gani Ponpes, 22.09.2023).

Supervision activities are proven by financial reports from each institution and unit under the auspices of the Islamic boarding school. The form of the report varies depending on the activity being reported. Activity reports are written with background, objectives, achievements, and targets. Meanwhile, building construction is reported with expenditure records proven by payment receipts; likewise, with schools, expenditure reports are proven by receipts or receipts according to the activity carried out.

By monitoring and evaluation, as explained above, each institution and business unit will be more careful in using finance to obtain effective results with an efficient budget.

Management of Education Funds at the Darul Yatama Wal Masakin Islamic Boarding School Jerowaru

As previously explained, the various local uniqueness developed and the rapid progress cannot be separated from good and transparent financial management through good planning, organisation, implementation, and supervision. Financial management at the DAYAMA Jeroaru Islamic Boarding School has generally implemented various components of economic management, as mentioned above.

Planning. Authors [4] stated that planning is essential before implementing all other management aspects. According to [5], planning is how we determine what to do and how to do it. Meanwhile, according to [6], planning is the process of finalising management priorities, plans, and activities to achieve organisational goals.

Planning in financial management is the activity of planning sources of funds to support educational activities and achieving academic goals in an educational institution; according to [7], financial management can be interpreted as arrangements, receipts and expenditures to meet financial needs in supporting the activities carried out so that they can achieving the stated goals, it is also said that costs, also known as education expenditure budgets, consist of two components, 1) income, income and receipts on a party's behalf and 2) expenses or spending, so

budgeting can be interpreted as a plan prepared systematically which includes activities, and is expressed in one financial unit and is valid for a certain period.

By the planning definition above, the DAYAMA Jerowaru Islamic boarding school must be kept from planning regarding sources of income, management and utilisation of its funds. Budget or funding planning at the Jerowaru Darul Yatama Wal Masakin Islamic boarding school is carried out every year by involving all administrators, teachers and caregivers as well as representatives of the santri guardians to discuss the budget needed and where the funding will be allocated for one year, to make it easier Exit access, budget plans for Islamic boarding school development are often discussed and submitted to the government and people who are considered to have the potential to help realise Islamic boarding school development.

The findings above are relevant to the research results conducted by [8], namely that the planning process involves all school components and begins with meetings to create activity plans and budgets for the Islamic boarding school and refers to the Islamic boarding school itself boarding school.

Organising. Organising is establishing effective behavioural relationships between people so that they can work together efficiently and obtain personal satisfaction in carrying out specific tasks in certain environmental conditions to achieve certain goals or targets.

In general, the organisation of Islamic boarding schools is carried out by grouping various programs into several groups, which become references in each activity as stated in the book at a glance at the DAYAMA Jerowaru Islamic boarding school that the program that is the activity of the Islamic boarding school is to complete the infrastructure, improve the quality of caregivers and teachers, increasing the quantity and quality of santri, establishing formal schools and supporting institutions for Islamic boarding schools, improving the quality of santri development, including santri in various competitions and competitions, carrying out Islamic holidays, to increase the income of Islamic boarding schools for to make it easier to carry out each program that has been prepared, these businesses were formed in the form of Islamic Boarding School Cooperatives

(KONPOTREN), fish cultivation, animal husbandry, agriculture, and so on.

After organising the program selected according to the agreement, the next person with the competence/ability to be responsible for the activity is selected.

Implementation. Implementing the use of funds is one element of financing management. In other words, this financing system manages and provides financial educational resources. In management, strategy implementation tends more towards strategy implementation, which is putting strategies and policies into action through developing programs, budgets, and procedures. According to [9], financial implementation can generally be grouped into two activities: receipts and expenditures.

Judging from the income aspect, the DAYAMA Jerowaru Islamic boarding school has many sources of income, as explained in the data findings. This shows that the creativity in managing this Islamic boarding school is quite good, so it doesn't just sit idly by and depend on others. Transparency of Islamic boarding school income from various sources of income is carried out by preparing financial reports for each unit, which are submitted to the Islamic boarding school's home director. Likewise, no matter how small the expenditure made from any unit, it is recorded and reported to the Mudir and certain agencies that require such reports.

One of the problems that often arises in implementing financial management is the frequent issuance of unexpected budgets, where the homeowner builds something outside the plan. Hence, one way is to borrow another budget and replace it later. This often causes budget shortfalls in specific units whose budget has been determined. This shows that planning consistency is less effective, sometimes becoming a problem in the middle. The planned budget should be implemented, and if there is any leftover, it can be used for other things. According to [10], several expenditure classifications are used in educational institutions, including development and routine funds. Development funds are used to build and improve the physical facilities of institutions, and the allocation is adjusted to the needs and No of teachers and students in an institution.

Based on the statement above, the routine budget should be prioritised, including

operational costs and teacher allowances. If developments that have yet to be planned are prioritised, then the routine budget may not work according to plan.

Supervision. According to [10], monitoring consists of three activities: monitoring, assessing and reporting. This evaluation process aims to ensure that activities related to financial management run effectively and efficiently and that there are no irregularities.

Financial supervision within the DAYAMA Jerowaru Islamic boarding school has been carried out well; receipts must prove all shopping and financial expenses. Several forms of supervision have been developed, namely as follows:

- a receipt must prove every expenditure and purchase of goods or services;

- each unit is required to make a monthly report, which is submitted to the Mudir every year;

- the BOS budget is reported every time it is disbursed to the Education Office;

- the Education Department carries out financial audits within a certain period;

- financial audits relate to the effectiveness and efficiency of every activity and business carried out and developed within the Islamic boarding school environment.

From the explanation above, it can be understood that supervision is carried out internally and externally. Internal supervision is carried out by the foundation management, where each unit reports every activity or development and use of other budgets to the Islamic boarding school's home director. Meanwhile, external supervision is carried out by the Education Service or the Ministry of Religion to monitor every religious development activity in the Islamic boarding school environment. So, Islamic boarding schools must make reports on the demands of related departments regarding using the budget they have received.

CONCLUSIONS

Financial management at the DAYAMA Jerowaru Islamic boarding school includes the following matters:

1. Planning is carried out annually involving all Islamic boarding school administrators, teacher councils, school committees, and representatives of Islamic boarding school guardians to evaluate performance achievements for one year and plan Islamic boarding school programs for the following year. These planning activities are carried out by analysing the sources of income for Islamic boarding schools and plans for their use in the development and construction of Islamic boarding schools. Apart from that, planning is often carried out by seeking various information from policy stakeholders, in this case, the regional government, maritime service, DPR, education service, social service, cooperative service, livestock and fisheries service, industry service and so on to find out what programs are being implemented. Various agencies own it so Islamic boarding schools can establish mutually beneficial cooperation.

2. Organising. Organising is done by grouping the types of programs planned and the types of businesses being developed in the Islamic boarding school environment and then selecting people with the competence/ability to be responsible for each of these activities. The foundation's leadership gives the mandate responsibility by considering their skills and experience.

3. Implementation is carried out by implementing or implementing everything planned.

4. Supervision requires each unit to record or report all activities and budgets used by the foundation's head and the agency that needs it.

REFERENCES

1. Mulyono. (2010). *Konsep Pembiayaan Pendidikan* [Concept of Education Financing]. Yogyakarta: Ar-Ruzz Media Mustaqim (in Indonesian).

2. Mustari, M. (2011). *Peranan Pesantren dalam Pembangunan Pendidikan Masyarakat Desa* [The Role of Islamic Boarding Schools in the Educational Development of Village Communities]. Yogyakarta: Multipress (in Indonesian).

3. Mustari, M., & Rahman, M. (2012). *Ekonomi Pesantren: Manajemen Pesantren dalam Pembangunan Masyarakat Desa* [Pesantren Economics: Pesantren Management in Village Community Development]. Retrieved from https://digilib.uinsgd.ac.id/16544/1/Ekonomi%20Pesantren.pdf (in Indonesian).

4. Hikmah, R. L., Ramdani, A., & Asrin, A. (2021). Manajemen Program E-Rapor di SMA Negeri 7 Mataram [Management of the E-Report Programme at SMA Negeri 7 Mataram]. *Jurnal Ilmiah Mandala Education, 7*(3), 567–571 (in Indonesian).

5. Fattah, N. (2016). *Standar Biaya Pendidikan* [Education Cost Standard]. Bandung: Remaja Rosdakarya (in Indonesian).

6. Riadi, S., Sukardi, M. H., & Hakim, M. (2020). Pelaksanaan Manajemen Sumber Daya Manusia di Sekolah Menengah Kejuruan Negeri 4 Mataram [Implementation of Human Resource Management at State Vocational High School 4 Mataram]. *Jurnal: Praktisi Administrasi Pendidikan, 4*(1), 11–14.

7. Suwardi, S., Sudirman, S., & Fahruddin, F. (2022). Management of School Operational Assistance Funds at SMKN 2 Kuripan, Lombok Regency, Indonesia: Reviewing From Planning Aspects. *Path of Science, 8*(10), 5028–5032. doi: 10.22178/pos.86-14

8. Widyatmoko, S., & Suyatmini, S. (2017). Pengelolaan Dana Bantuan Operasional Sekolah di SD N Kemasan I Surakarta [Management of School Operational Assistance Funds at SD N Kemasan I Surakarta]. *Manajemen Pendidikan, 12*(3), 153–160. doi: 10.23917/jmp.v12i3.5528 (in Indonesian).

9. Mulyasa, E. (2017). *Manajemen Berbasis Sekolah: Konsep, Strategi dan Implementasi* [School-Based Management: Concepts, Strategies and Implementation]. Bandung: Remaja Rosdakarya (in Indonesian).

10. Mustari, M., & Maolani, D. Y. (2018). Manajemen Pesantren dalam Pembangunan Desa [Pesantren Management in Village Development]. TEMALI: *Jurnal Pembangunan Sosial, 1*(2), 167–192 (in Indonesian).

Management of the Principal of Cakranegara State Kindergarten in the Implementation of the Preschool to Elementary School Transition Program

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Abstract. This research aims to reveal the efforts of the Head of TK N Pembina Cakranegara in implementing the PAUD to SD Transition Program. The method used is descriptive qualitative. Based on the results of this research, it is known that the efforts of the Head of Kindergarten N Pembina Cakranegara are in building children's literacy, numeracy and foundation skills by building teacher understanding regarding these abilities, then preparing activity plans, introducing Litnum stimulation techniques and appropriate foundation abilities to parents of students, implementing the program by teachers and Kindergarten Heads, and monitoring by School Heads. The strategy of the Head of Kindergarten N Pembina Cakranegara in maintaining the harmony of PAUD and early elementary school learning by involving the Mataram City Education Office when conducting outreach to nearby PAUD, visiting SDN Model Mataram and SDN 48 Cakranegara which aims to introduce the environment and atmosphere of learning in elementary schools to students, as well as uploading documentation of activities via the Mataram City Elementary School PAUD Communication Forum Whatsapp Group media.

Keywords: Early Childhood; Kindergarten Principal Management; PAUD to Elementary School Transition.

INTRODUCTION

According to NAEYC (National Association for Education for Young Children), early childhood is children aged 0 to 8. NAEYC is a significant non-profit association in the United States representing childhood education teachers, educators, centre directors, coaches, college educators, early childhood families, policymakers, and advocates. NAEYC was founded in 1926, aiming to improve children's welfare with a primary focus on the quality of educational and developmental services for children from birth to 8 years of age. Based on the definition of AUD, when compared with the level of academic services, children who undergo education from PAUD to early elementary school (grades 1 and 2) are included in early childhood. This age is also known as the Golden Age or the Golden Age of Children [1], the most strategic age for forming the primary basis for developing children's attitudes, creativity and intelligence.

Improving the quality of PAUD services is directed by paying attention to the principles of the child's world, namely the world of play. This mandates that educational practitioners should be able to carry out all learning stimuli in PAUD to early elementary school using a play approach, using concrete objects, being fun, and involving all of the child's sensory motor skills.

Data obtained from BPS sources in 2020 revealed that there were around 32.96 million children in the early childhood category in Indonesia (12.19% of the total population of Indonesia, number 270.20 million people). Of this number, the percentage of young children attending PAUD reached 27.68% (ratio of around 1:4). This percentage is a positive number that is expected to provide the potential for the complete and comprehensive improvement of early childhood services. Meanwhile, at the elementary school level, based on statistical data from the Ministry of Education and Culture [2], nationally, there are

still 5,759 students who repeat classes distributed from class I to class VI. From this data, 227 students repeated in the NTB region (205 boys and 22 girls) or around 3.49% of the number of students who repeated nationally. Some possible causes for this number to still appear are the lack of children's literacy skills, independence, physical and psychological factors that children are not ready for, the learning environment, and many more.

It is considered necessary for children to take pre-primary services at least one year before elementary school to reduce the number of repetitions at the elementary school level and simultaneously support improving the quality of educational services. This aligns with the objectives of preschool education in Government Regulation Number 27 of 1990 Preschool Education, which aims to help lay the foundation for developing attitudes, knowledge, skills and creativity students need to adapt to their environment and further growth and development. Furthermore, in Article 1 of Law No 20 of 2003 concerning the National Education System, early childhood education is carried out before the basic education level.

Based on the results of the Preliminary Study in 2020 on a sample of four PAUD institutions in Mataram City, field facts were obtained that there are still drilling practices that are not by the early childhood learning approach in teaching literacy and numeracy, especially reading, writing and arithmetic for children who have entered the large age group/ready to enter elementary school [3]. This practice is caused by several factors, including educators' lack of understanding and ability to manage learning in PAUD. There are still listing ability tests for children who will enter elementary school, so many parents force education providers in PAUD to focus on preparing listing ability during their children's school years. Apart from that, differences were also found in learning strategies in the implementation of education in PAUD-SD education units. Several misconceptions are still widespread in society, including that the abilities built-in children in PAUD are very focused on listing. Besides, listing ability is considered the only proof of learning success and can be built instantly.

One of the government's efforts to restore the essence of play for early childhood while eliminating the gaps that occur during the transition period from PAUD to SD is through the Technical Guidance (Bimtek) Implementation of the School Readiness Program which the Directorate of Early Childhood Education has organised since 2020 (currently called with the PAUD to SD Transition program). This technical guidance is implemented to assist district/city education offices in implementing the School Readiness Program Implementation program with the Technical Implementation Unit (UPT) of the Ministry of Education and Culture PP/BP PAUD and DIKMAS (currently BGP/BBGP) in all provinces in Indonesia. One of the regional government agencies in NTB Province that received support for implementing this program is the Mataram City Education Office in 2021. To make its implementation successful in the Mataram City area, the Head of the Mataram City Education and Culture Office has formed a forum called the City PAUD-SD Communication Forum Mataram. This forum has members consisting of elements from the Mataram City Education Office, educators and/or managers of several PAUDs, educators and/or managers of several elementary schools, kindergarten supervisors, elementary school supervisors, and committee members from each PAUD and SD involved (in the Decree Establishment of the Mataram City PAUD-SD Communication Forum 2020-2025. 2021).

In 2022, this program will undergo improvements by the PAUD Directorate and SD Directorate, known as the "PAUD to SD Transition Program". This program is a form of the government's seriousness in implementing Article 69 § 5 Government Regulation Number 17 of 2010 concerning Management and Implementation of Education, that "Admission of students in class one of SD/MI or other equivalent forms is not based on the results of reading, writing and arithmetic ability tests, or other forms of tests."

Considering the above, the author finds it necessary to describe the various efforts or strategies carried out by members of the PAUD-SD communication forum to make the PAUD to SD transition program a success in one of the Mataram City education units. Furthermore, the author chose one element from the forum members to be researched: the head of the Pembina Cakranegara State Kindergarten in Mataram City to obtain more focused and in-depth data and information. This was decided because it is believed that an essential element of

the successful implementation of the PAUD in elementary school programs starts from PAUD. Apart from that, the Pembina State Kindergarten has the authority to guide surrounding PAUD institutions so that it becomes a strategic forum for disseminating a program. Based on initial information obtained from the head of Kindergarten N Pembina Cakranegara, this institution has collaborated with local elementary schools to prepare its graduate students to enter elementary school since at least 2019. In the 2022-2023 academic year, several students will be ready to continue to elementary school 35 children. Armed with this initial data, the researcher will further explore the process and output of implementing the PAUD to SD transition program.

METHOD

This will be done by the Pembina Cakranegara State Kindergarten located at Jalan Neuningan Number 42 Lendang Lekong, Mandalika Village, District. Sandubaya, Mataram City.The qualitative descriptive research method is based on postpositivism philosophy to determine the natural condition of the object being studied where the researcher is the critical instrument [4]. The data sources in this research are 1) principal, 2) teachers, 3) children/students, and 4) parents of students.

In this research, to obtain information, researchers used data collection procedures as stated [4]: observation, interviews, and documentation. Data analysis is done by data editing, data presentation, and verification or conclusion. Data is collected through observation, interviews, documentation, data display, reduction, and conclusion drawing/verification.

RESULTS AND DISCUSSION

Several efforts have been made by the Head of Kindergarten N Pembina Cakranegara to develop a foundation of abilities in children, starting from planning, implementation, and supervision to reporting results. In the planning process, the principal, as the unit manager, ensures that teachers always include the development of 6 aspects of development (social-emotional aspects, religious and moral values, cognitive, physical motor, language and arts) in the

learning plans made, and when paired with This aspect of the Independent Curriculum program is in line with aspects in the foundation phase, namely religious values and character, social and language skills, emotional maturity, the meaning of positive learning attitudes, motor skills and self-care, and cognitive maturity. As stated during the following interview:

"Based on the activity plan prepared as an annual, weekly, and daily program, stimulation must be provided for six aspects of children's development: moral, social, emotional, cognitive, language, physical motoric, and artistic religious values. What is implemented must be adjusted to the plan (RPP). I control the contents of routine lesson plans every week."

This statement shows that teachers were previously accustomed to preparing activity plans that included six aspects of child development. In this era of independent curriculum, teachers' understanding is strengthened again by the Head of Kindergarten regarding the foundation phase when introducing the PAUD to the Elementary School Transition Program. It is known from the teacher's understanding of the foundation phase as follows:

"Yes, so the foundational abilities are related to 6 aspects of development related to independence, courage, discipline, and self-confidence. We have trained some children from the start to cry when their mother leaves them. We build attachment, and children become comfortable and brave at school over time."

Apart from that, parents consider it necessary to stimulate foundational abilities from an early age:

"Very important. Children need to be taught about good attitudes in addition to general knowledge. It is equally important and must be taught to children together. Because children need to know how to socialise, be independent, and have good manners besides being able to read and count."

The next step is to look at the role of the kindergarten head in implementing foundational skills development. The teacher carries out this foundational ability development as the Kindergarten Head. The mentoring role is carried out in the following matters:

"We apply it daily as a habitual activity to develop children's character. There are cases of children

with special needs, children who have difficulty controlling their emotions. He received special treatment with assistance from an exceptional teacher. Parents are involved in continuing appropriate treatment at home, and if necessary, this is accompanied by treatment by a therapist or paediatrician".

Which is carried out by the principal and is also in line with what the teacher implements in the classroom to cultivate a positive attitude:

"By introducing time to children. When is class, meal, play, and study time in class? We tell stories to children; for example, if a child is sick, we visit him. If a child has fallen, we help him, and so on."

The school principal controls children's development of literacy and numeracy skills and foundational abilities.

"The development of foundational abilities in children is seen and monitored through the behaviour shown by the children. "Apart from that, during supervision activities, we also see how appropriate the implementation of stimulating children's development is with the planning written in the RPP."

When researchers conducted interviews with teachers, information was also obtained that the principal, of course, routinely supervises the learning plans prepared by the teacher:

"The principal routinely goes into the classes weekly on Mondays to check the lesson plans.

In addition to supervision, every time the children come home from school, the teachers and KS discuss problems in the class."

The efforts by the teachers and principals above are believed to impact children's development positively. This can be seen in their development at school and home.

"Thank God, we can see that the development of children's abilities in 6 aspects of their development continues to increase after being facilitated. Children become independent, confident, and responsible and can worship daily.

"It could be said that around 80% of these children are ready to continue to elementary school level. It's just that we still expect the role of parents to continue guiding children at home. Because some children are still not precise in writing numbers or letters.

Alhamdulillah, the development of children's literacy and numeracy in this class is good because the parents at home also support me by buying story books. So, the average child here already knows letters, reads pictures, and writes names. However, there are some children whose development is still slow.

Because learning is never forced and always by playing, my child is happy, and now he has good reading and writing development."

The final stage is reporting development results to the child. Notes on children's progress are regularly submitted to parents under the supervision of the kindergarten head. Daily reporting is carried out directly to the child's parents or via WAG (Whatsapp Group), and periodic reporting is carried out every semester via Report Cards.

"We report it through report cards. Apart from that, it is not uncommon for me to convey individual child development to their parents via personal WA or WAG so that parents know their child's progress directly."

With visits to the child's home when the child is sick or has problems. Sometimes, we also involve psychologists if needed.

"There is also a cooking class activity where we involve parents to help, while we use that time to convey information about children at school."

Several informants' statements revealed that parents often support their children's school activities. Teachers use this time to exchange information regarding children's development at school and at home.

Some of the efforts made by the Head of Kindergarten N Pembina Cakranegara in developing foundational abilities in children look the same as what was done in the previous aspect above. Literacy and numeracy skills and children's foundational abilities are introduced daily. It starts with planning, implementation, and monitoring and ends with reporting results.

In the planning process, the school principal first shares the perception regarding the importance of foundational abilities for children with parents at the start of the new school year/term introduction school environment. Furthermore, as unit manager, he also ensures that teachers always include the development of the six aspects development (social-emotional aspects, religious and moral values, cognitive, physical motor, language and arts) in the learning plans when paired with the Independent Curriculum

program, these aspects are in line with aspects in the foundation phase, namely religious values and character, social and language skills, emotional maturity, the meaning of positive learning attitudes, motor skills and self-care, and cognitive maturity.

The role of the kindergarten head in implementing foundational skills development carried out by teachers is to assist, especially when children need special treatment.

The school principal controls activities to develop children's literacy, numeracy, and foundational abilities. The principal regularly monitors and evaluates learning planning documents prepared by teachers, learning practices, and caring for children. Apart from that, controlling is also carried out periodically through class supervision activities. Teachers use the involvement of parents in supporting several children's activities at school to exchange information related to children's development at school and home. This also includes monitoring efforts to maintain the quality of teacher guidance.

CONCLUSIONS

The kindergarten head carries out the management of developing children's foundational abilities to the teachers. In this case, the head of the Kindergarten only emphasised the foundational skills, which are the essential components that must be implemented generally in PAUD. Like developing Literacy and Numeracy skills, building these foundational skills also goes through the stages of planning, implementation and regular monitoring by the Head of Kindergarten through supervision activities and daily discussions.

REFERENCES

1. Suryana, D., Mayar, F., & Sari, R. E. (2021). Pengaruh Metode Sumbang Kurenah terhadap Perkembangan Karakter Anak Taman Kanak-kanak Kecamatan Rao [The Effect of the Sumbang Kurenah Method on the Character Development of Children in Rao District Kindergarten]. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini, 6*(1), 341–352. doi: 10.31004/obsesi.v6i1.1296 (in Indonesian).

2. Dinas Pendidikan Kota Mataram. (2021). *Surat Keputusan Pembentukan Forum Komunikasi PAUD-SD Kota Mataram Tahun 2020-2025* [Decree on the Establishment of PAUD-SD Communication Forum of Mataram City Year 2020-2025]. Mataram: Dinas Pendidikan Kota Mataram (in Indonesian).

3. Hanggastuti, N. P., & Soraya, D. (2020). *Model Aksi Anak dalam Aksara* [Child Action Model in Literacy]. Mataram: Balai Pengembangan Pendidikan Anak Usia Dini dan Pendidikan Masyarakat (in Indonesian).

4. Sugiyono. (2018). *Metode Penelitian Pendidikan* [Educational Research Methods]. Bandung. Penerbit Alfabeta (in Indonesian).

5. National Assosiation Education For Young Children. (1993). *A Conceptual Framework for Early Childhood Professional Development.* Retrieved from https://www.naeyc.org/sites/default/files/globally-shared/downloads/PDFs/resources/position-statements/PSCONF98.PDF

6. National Institute for Child Health and Human Development. (2002). Early child care and children's development prior to school entry: Results from the NICHD Study of Early Child Care. *American Educational Research Journal, 39*, 133–164. doi: 10.3102/00028312039001133

7. Sudirman., & Fahruddin. (2021). *Pedoman Penulisan Tesis* [Thesis Writing Guidelines]. Mataram. Penerbit Arga Puji Mataram (in Indonesian).

Implementation of Principal Supervision at SMP Negeri 4 Gerung, West Lombok District, Indonesia

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Abstract. This research describes the implementation and constraints of principal supervision at SMP Negeri 4 Gerung, West Lombok Regency. This qualitative research has respondents from school principals, deputies, curriculum areas, and several teachers and administrative staff. The place of this research is SMP Negeri 4 Gerung, West Lombok Regency. Data collection techniques include observation, interviews, and document study. Test the validity of the data using a credibility test with triangulation of data sources and data collection techniques, as well as a confirmability test. Data analysis using Miles, Huberman. The research results show that learning supervision is implemented through the planning, implementation, evaluation, and follow-up stages every semester. Overall, the implementation of supervision by the Head of SMP Negeri 4 Gerung is exemplary. There are several technical and non-technical obstacles to implementing supervision.

Keywords: Implementation of Supervision; Supervision of Learning; Education.

INTRODUCTION

Teachers play a vital role in improving the quality of education. According to Law No. 14 of 2005, article 1, paragraph 1, teachers are professional educators with the main task of educating, teaching, guiding, directing, training, assessing and evaluating students in early childhood education through formal, primary, and secondary education. Because the teacher's position is essential, it must be accompanied by appropriate competencies. Paragraph 10 states that competency is a set of knowledge, skills and behaviours teachers must possess, internalise and master in carrying out their professional duties [1]. One of the competencies that teachers must have is pedagogical competence.

However, in reality, in the field, many problems are found in the learning process, one of which is that some teachers experience problems implementing learning strategies. This causes the teacher to be less able to carry out learning effectively and efficiently, so it has an impact on the less-than-optimal learning process that takes place in school. In learning, a teacher is required to be able to develop the various competencies

he has. So it will create a more exciting learning atmosphere [2]. Teachers must be able to apply varied learning methods so that students do not get bored and can enjoy learning.

The success of the learning process depends on the teacher's teaching ability. Therefore, the principal must monitor, coach, supervise, and evaluate. As a manager and leader, the school principal supervises and oversees the teachers he leads [3]. One of the supervision carried out by the principal is learning supervision.

The learning supervision carried out aims to control and supervise the learning process that occurs. Learning supervision focuses on improving teachers' learning abilities, especially pedagogical competence, which seeks to improve the quality of the teaching and learning process and improve student learning outcomes. In supervision activities, the school principal acts as a supervisor. As an internal supervisor, the principal must monitor, supervise, evaluate, and coach and help provide solutions to problems and obstacles encountered during the learning process. Learning supervision must be carried out regularly and on a schedule so that as early as

possible, there are no lasting problems and continuous improvements are made.

The principal, as a supervisor, apart from knowing the types and techniques of supervision and supervisory techniques from a managerial aspect, must also be responsible for improving and increasing the school's academic quality. Academic supervision is a school strategy for developing teachers to enhance the quality of the learning process [4].

SMP Negeri 4 Gerung is one of the favourite schools in West Lombok Regency. Based on information from the interview results, it is stated that SMP Negeri 4 Gerung has advantages in terms of strategic location, adequate infrastructure, a large number of students and diversity in terms of culture and religion, with the competence of teaching staff and educational staff, most of whom are instructor, and received many awards and achievements.

METHOD

This was conducted at SMP Negeri 4 Gerung in the West Lombok Regency area. The research was conducted on State Junior High School (SMP) 4 Gerung, West Lombok Regency teachers. This type of research uses qualitative research, which aims to understand the phenomena experienced by the subjects and forms a qualitative descriptive study. The data sources in this research are: 1) The Principal is a very valid data source because he is the head and manager of the school who is also a supervisor; 2) Deputy Principal for Curriculum; 3) School Supervisor; 4) Deputy Principal Curriculum Field.

In this research, to obtain information, researchers used data collection procedures proposed by [5], namely interviews, observation and documentation. Data analysis was done by data reduction, presentation, and conclusion. Data collected through observation, interviews, and documentation will then be collected in data reduction steps, presenting data and drawing conclusions.

RESULTS AND DISCUSSION

Implementation of Learning Supervision

Implementing the Learning Supervision program leads to the planned Learning Supervision program, which, in this case, is related to

Learning Supervision services and other Learning Supervision supporting activities.

Implementation of Learning Supervision is called a service if the activity is carried out through direct contact with the target, in this case, students. It is directly related to student problems or interests as felt by the students. Various types of services need to be provided as a concrete form of implementing Learning Supervision for the service targets, namely students.

In the interviews with the supervising teacher coordinator, he said he had implemented Learning Supervision services. This is illustrated in the following narrative:

"The implementation of Learning Supervision follows the service unit program that we have compiled in the planning. There are two ways of implementing it, namely classical and individual. In classical, we must go to class every 2 hours per week. The difference between supervising teachers and teachers in other subjects is the number of students served. In classical, we carry out learning supervision by entering the class. While individually, we conduct individual/personal counselling services, such as interviews with students who fight, smoke, don't want to study, play truant, smoke and are naughty, etc."

Similar expressions were also conveyed by other supervising teachers as follows:

"Learning Supervision has determined the time allocation: two hours per class weekly. Learning supervision is also carried out indoors, such as group and individual guidance. We also collaborate with external parties such as the Police and Community Health Centers. "The implementation of Learning Supervision is by the planned program even though it is not optimal."

Implementation of Learning Supervision at SMP Negeri 4 Gerung

The implementation of learning supervision carried out by the principal at SMP Negeri 4 Gerung is carried out in 4 stages, namely.

Learning Supervision Planning. Academic supervision planning activities are the process of determining the achievement of the direction and objectives of the planned program by academic objectives by referring to problem identification activities, namely identifying

aspects that need to be supervised. Identification is carried out by analysing the advantages, disadvantages, opportunities and obstacles of learning activities teachers carry out so that supervision is more effective and on target. The steps taken in planning supervision are

1) Head analysing the results of last year's supervision;
2) Developing programs, schedules and instruments;
3) Conducting outreach to teachers;
4) Carrying out managerial and academic supervision;
5) Carry out follow-up (reflection, guidance and preparation of reports);
6) Preparation is carried out at the beginning of the new academic year. This is intended because at the start of the semester, in the second month of learning, supervision will or must be used;
7) Analysing the results of last year's implementation;
8) Hold a meeting with the teacher to discuss;
9) Prepare a program or plan;
10) The head asks the teacher about the aspects or materials needing supervision.

This learning includes managerial aspects, namely class administration and education, and academic aspects, namely planning, implementation and learning assessment. In addition, the head must create a friendly and collegial atmosphere with teachers. With the expected conditions, teachers can carry out the learning process comfortably without feeling watched. From the planning aspect, there are several stages of planning for learning supervision. It can be seen that the head has a vital role in planning academic supervision, namely, from planning, implementation schedule, and discussing with teachers regarding the contents of the instruments that will be used during carrying out learning supervision so that teachers can carry out their duties without feeling anxious supervised during the implementation of supervision.

The research data processing results show that the principal's academic supervision planning has been implemented well. Therefore, the learning supervision planning prepared by the Head of SMP Negeri 4 Gerung, West Lombok Regency, is very appropriate because access to increasing teacher abilities in learning is open and gets attention — a good learning supervision plan if it contains the steps and timing for implementing supervision.

Thus, at SMP Negeri 4 Gerung, West Lombok Regency, the learning supervision plan was prepared based on procedures, techniques, and implementation schedules. The learning supervision procedure is a series of supervision activities that provide assistance and guidance to teachers to motivate them to make necessary improvements in the academic field by choosing appropriate supervision approaches, methods, and techniques according to the goals to be achieved. The procedure for implementing learning supervision consists of 1) the Preparation stage, including a) preparing instruments and b) preparing a joint schedule; 2) the Implementation stage, namely carrying out supervision observations both directly and indirectly; 3) the Reporting stage, including a) identify the results of observations during the observation, b) analyse the results of supervision, c) jointly evaluate the supervisor with the school principal and teacher, d) make notes on the results of supervision which are documented as a report, 4) Follow-up Stage, including a) discussing and creating solutions together, b) communicating the results of the implementation of learning supervision, and c) communicating the results of the implementation of learning supervision between the principal and teachers.

Based on the description above, it can be explained that the Head of SMP Negeri 4 Gerung, West Lombok Regency, in planning learning supervision by determining the components and steps for learning supervision that will be taken accompanied by an implementation schedule is appropriate so that teacher development services can run well.

Implementation of Learning Supervision. Implementation activities are actual activities carried out to improve or enhance teacher abilities. Implementation activities assist supervisors and teachers so that the implementation of supervision can be effective by establishing plans. Supervision does not stop after providing assistance and implementing supervision techniques. Still, there is follow-up to see the success of the process and results of implementing supervision, so evaluation activities need to be carried out. Implementation is an activity to turn plans into concrete actions to achieve goals effectively and efficiently. The plans that have been prepared will have value if they are implemented effectively and efficiently. In an implementation, every organisation must have strong and convincing strengths because

the desired educational process will be complicated if it is not strong.

The implementation of the principal's learning supervision regarding learning at SMP Negeri 4 Gerung, West Lombok Regency is 1) preparing an implementation schedule, 2) coordinating an agreement with the teacher, 3) carrying out supervision according to schedule, 4) analysing the results of supervision, 5) preparing a report, 6) hold an initial meeting with the teacher, 7) submit instruments for approval, 8) monitor learning documents or class administration, 9) carry out learning observations, and 10) provide feedback to reflect.

The implementation of learning supervision at SMP Negeri 4 Gerung, West Lombok Regency, is carried out in three stages: Pre-, Observation and Post-Observation. All subject teachers implement learning supervision at SMP Negeri 4 Gerung, West Lombok Regency. During the implementation of learning supervision, it was found that there were several teachers whose administration was incomplete, so it was necessary to carry out follow-up actions to be able to improve the completeness of the equipment used as a reference for the learning process so that additional facilities and infrastructure were needed, as well as a follow-up supervision process for the teachers concerned. Meanwhile, during the implementation of mathematics teacher learning supervision, it was discovered that learning went well using teaching aids and learning media so that some students felt active and enthusiastic in enjoyable learning that did not make them bored.

Implementing learning supervision by the school principal provides many benefits for improving learning and increasing teacher competency. The school principal already understands the functions, objectives, principles, and techniques and the supervision approach used in school supervision. Learning supervision aims to provide services and assistance to improve the learning process and increase teacher competence. Through these supervision activities, it is hoped that the teaching and learning process involving teachers and students will be good through a series of actions, guidance and direction. The teaching and learning process will be achieved well, among other things, by increasing the professional abilities of teachers. It is hoped that this will contribute to improving the quality of education.

The role of the educational supervisor, as carried out by the principal, in carrying out learning supervision must avoid instructive or condescending actions. Still, it should be carried out with a partnership approach by supporting, assisting, and distributing tasks and work to all educational components. Imam Wahyudi (2012) put forward eight principles that can be used in carrying out supervision actions. These principles include systematic, objective, realistic, anticipatory, constructive, creative, cooperative and family. Systematic means that supervision is developed with careful planning per the desired targets. Objective, meaning that supervision provides input according to the aspects contained in the instrument. Realistic means that supervision is based on actual reality, namely on conditions or things that school staff have understood and implemented. Anticipatory means that supervision is directed at dealing with difficulties that may occur. Constructive means that supervision provides suggestions for improvement to those supervised to continue developing according to applicable provisions or rules. Creative, meaning that supervision develops teacher creativity and initiative in developing the learning process. Cooperative means that supervision develops a feeling of togetherness to create and develop a good learning situation. Kinship means supervision, which considers mutual nurturing and compassion between school members, often known as Tutwuri Handayani.

Supervision carried out traditionally tends to be unpleasant, so interactions between teachers and supervisors tend to be avoided and reduced. The head's ability to carry out his duties as an educational supervisor is also reflected in the determination of supervision materials, which consist of program planning, including supervision programs/materials related/related to teacher administration, namely: annual program, semester program, syllabus, Learning Implementation Plan (RPP), educational calendar, face-to-face schedule, daily agenda, list of grades, maximum completion criteria (KKM), and student attendance. The material regarding teaching and learning implementation material is directed at class management material, starting from opening activities, core activities, and learning evaluation. Meanwhile, follow-up material for supervision activities is directed at improving the quality of learning outcomes.

Apart from that, the implementation of learning supervision by school principals is also quite varied. This shows that the school principal has the knowledge and skills to implement supervision patterns so that their supervision activities can attract attention and are not dull for teachers. As stated, starting from the stages of supervision activities, the time chosen for supervision activities, the media or tools used in carrying out supervision, and the evaluation of supervision activities are carried out in various ways.

The aspects supervised by the head are planning, implementation of teaching and learning activities, and follow-up activities. Aspects of learning planning, namely supervision programs/materials /related to teacher administration, include the annual program, semester program, syllabus, RPP, KKM, educational calendar, face-to-face schedule, daily agenda, list of grades, and student attendance. Supervision activities in the learning implementation component are directed at the teacher's ability to manage the class, starting from preliminary, core, and closing activities. At this stage, the teacher teaches in class guided by the instruments that have been mutually agreed upon. Several things that need to be considered are:

1) The principal waits for the teacher to teach until the end,

2) The principal carries out learning supervision according to the agreed schedule,

3) The principal in carrying out learning supervision must always use learning supervision instruments,

4) The principal making notes (fieldnotes),

5) The principal pays close attention when the teacher delivers lesson material,

6) The principal carries out learning supervision, not just carrying out administrative functions,

7) The principal, in carrying out learning supervision, observes the teacher in using tools,

8) In carrying out learning supervision, the principal observes the assessment carried out by the teacher,

9) In carrying out learning supervision, the school principal has a sense of self-confidence.

Observation notes must be detailed and complete, if necessary, using recordings. There are several stages of implementing learning supervision. It can be seen that the principal is obliged to follow the learning process carried out by the teacher from start to finish by observing the activities while the teacher is carrying out his duties. The principal also makes notes while supervising teachers so that they can help during evaluation and serve as input for supervised teachers.

Based on the results of research and discussions on aspects of implementing learning supervision, the principal of SMP Negeri 4 Gerung has carried out supervision well because he has implemented it according to the schedule formulated at the beginning and end of each semester and by the principles of learning supervision, oriented to the problems and needs of teachers, to improve learning abilities and quality approach according to goals and concerns. This is done using various techniques such as class visits, personal meetings, and group meetings, as well as by utilising information from other teachers, students, and parents.

The head applies or carries out supervision activities using quite varied techniques. School principal supervision activity techniques that can be identified include group discussion or supervision meeting techniques, individual meeting techniques, and class/field visit techniques. This situation shows that the head has quite good skills in carrying out his duties as a supervisor to improve the teacher's ability to manage learning to enhance the quality of the learning process and outcomes.

The efforts made by the Head of SMP Negeri 4 Gerung to carry out learning supervision can run well and smoothly thanks to the head's ability to always foster or build good communication with the teachers. This always gets a good response from the teachers because this is communicated with the teacher. Teachers are always welcome and ready when supervised by the school principal. Teachers always show a friendly attitude and feel that the principal's presence in class helps their duties and activities. This is all due to good communication. They always respond positively because they have the same perception regarding the program and schedule for implementing learning supervision. More frequent visits by the principal can help teachers more through coaching, monitoring, assessment, mentoring, and training activities.

Based on the research results, the follow-up learning supervision by the Head of SMP Negeri 4 Gerung, West Lombok Regency, has gone well. This can be seen from the activities of the elementary school principal in implementing his

pre-class visit program. Pre-class visit activities are carried out by interviewing and examining the learning tools used by the teacher.

Evaluation of Learning Supervision. Evaluation activities are activities to review the success of the process and results of implementing supervision. Evaluation is carried out comprehensively. The targets of supervision evaluation are aimed at everyone involved in the supervision implementation process. The results of the supervision evaluation will be used as guidelines for preparing the next planning program. The evaluation results will then be analysed and reflect on the teacher being supervised to determine the teacher's strengths and weaknesses and identify the problems faced. After the principal conducts class visits and observes the learning process, the supervisor can determine whether the ongoing learning process has been achieved according to the expected goals or not based on the RPP. Supervisors can also discover obstacles and barriers if goals are not achieved and provide solutions on how efforts will be made to overcome these obstacles so that the quality of learning can improve.

Follow-up Learning Supervision. Supervising follow-up activities is directed at mentoring and professional assessment of teachers, and efforts are made to improve the quality of education by overseeing the administration of learning assessments by mentoring teachers as reflection and feedback on performance assessment results. The results of the analysis of supervisors' notes can be used to develop teachers' ability to implement learning and to improve teachers' pedagogical competence.

The follow-up to the learning supervision of the principal of SMP Negeri 4 Gerung, West Lombok Regency, is to provide feedback to the teacher both in instrument notes and direct or indirect guidance to the teacher, as well as guidance through school meetings and reflection. Follow-up on the implementation of the principal's learning supervision is carried out to complete the deficiencies in the supervision that has been carried out previously. The follow-up process is carried out in learning supervision at SMP Negeri 4 Gerung, West Lombok Regency, by holding training/workshops for supervised teachers. The principal provides direction to supervised teachers at the end of each semester or the end of the month, which improves the teacher's abilities

in implementing the teaching and learning activities.

Thus, based on research and theoretical studies, the follow-up aspect of learning supervision carried out by the Head of SMP Negeri 4 Gerung, West Lombok Regency, is perfect.

Obstacles in Implementing Learning Supervision at SMP Negeri 4 Gerung

In every activity implementation, there are undoubtedly inhibiting factors/obstacles faced, including in the learning supervision activities carried out by the Head of SMP Negeri 4 Gerung, West Lombok Regency. Principals cannot be separated from internal and external obstacles in their educational supervisor functions. Internally, obstacles to supervision activities can be identified as technical-related and non-technical. Technically, the Headmaster's obstacles in carrying out supervision activities relate to his ability or skills as a supervisor. In contrast, non-technical obstacles include the principal being sick/unavailable while the other teachers are less responsive and the schedule of supervision activities will be disrupted.

One of the most challenging obstacles in implementing Learning Supervision at SMP Negeri 4 Gerung, West Lombok Regency, is the lack of motivation from the teachers themselves regarding the importance of supervision. This minimal motivation is also caused by the assumption that supervision is only about finding teacher mistakes. Even though sometimes the implementation of supervision has been notified in advance to the school or the teacher who will be supervised, the teacher who will be supervised still has not prepared themselves thoroughly.

As a professional activity to help teachers become better at implementing learning supervision, school principals face various problems when implementing the supervision work program. Supporting factors include the maximum performance of teachers, employees, and experts in their fields and some of these obstacles are not considered too severe. Based on what the author found, the problems faced in implementing learning supervision in West Lombok Regency, especially the problem of available time, media, or adequate facilities and infrastructure, are that teachers who are the head will supervise are not necessarily ready,

and vice versa. The supervisor has insufficient time for supervision. Based on the schedule, class visits are held twice a semester.

Meanwhile, it is only implemented once a semester. There are even some teachers who have never had a class visit. Learning supervision will be successful if it is carried out regularly, namely at the beginning and end of the semester. However, this has not been seen in the supervision carried out at SMP Negeri 4 Gerung, West Lombok Regency, which supervises class visits only once in the semester.

The intensity of the implementation of learning supervision carried out by the head of teachers at SMP Negeri 4 Gerung, West Lombok Regency, will significantly influence the increase in professional and pedagogical competence of teachers and improve the quality of learning. The higher the intensity of learning supervision carried out by the principal, the greater the likelihood that his competence will increase, and vice versa.

The Learning Implementation Plan (RPP) is a program prepared as a guide for implementing learning for each learning process activity. Ideally, the implementation of learning must be by the RPP that has been prepared because, in the RPP, the entire series of activities in the implementation of the learning that will be carried out are listed. However, in reality, in schools, many teachers use lesson plans only as administrative material that must be made and collected by the school principal, not as a guide for the learning process so that the preparation process is not severe/copy-pasted.

CONCLUSIONS

Based on the research results, it was concluded that the implementation of Principal Supervision at SMP Negeri 4 Gerung was carried out through planning, implementation, evaluation and follow-up. Planning for Supervision Activities at SMP Negeri 4 Gerung is made at the beginning of the school year through a meeting and included in the principal's annual program, RKAS, and curriculum work program, the formation of a Supervision Implementation Team (a Supervision SK) which is equipped with an implementation schedule and instrument preparation. Furthermore, supervision is carried out every semester (2 times a year) with pre-observation, observation and post-observation stages, and uses collaborative techniques with individual and group approaches. Next, the principal evaluates the supervision results to assess the teacher's learning activities. The principal makes a follow-up plan, which the teachers implement. The obstacles faced during the implementation of supervision at SMP Negeri 4 Gerung are due to technical and non-technical factors, including the implementation of supervision not according to the schedule for other reasons, the presence of teachers who do not have complete learning tools, the supervisor/teacher's abilities are lacking due to not appropriate to the background, inappropriate technicalities used, lack of variety in learning carried out, and lack of learning media used by teachers when teaching.

REFERENCES

1. Zain, Moh. I., Sudirman, S., & Jaelani, A. K. (2021). Pelatihan Peningkatan Kompetensi Supervisi Kepala Sekolah Dan Guru Pamong Dalam Pendampingan Ppl Mahasiswa Pgsd Fkip Universitas Mataram Di Gugus 2 Kota Mataram [Training to Improve the Supervision Competence of School Principals and Pamong Teachers in Accompanying Ppl Students of Pgsd Fkip Mataram University in Gugus 2 Mataram City]. *Jurnal Interaktif: Warta Pengabdian Pendidikan, 1*(1), 26–29. doi: 10.29303/interaktif.v1i1.5 (in Indonesian).

2. Yayuk, Y., Ramdani, A., & Syafruddin, S. (2020). Pengaruh Supervisi Akademik Kepala Sekolah Terhadap Kinerja Guru SMA Negeri Di Kota Mataram [The Effect of Academic Supervision of Principals on the Performance of Public High School Teachers in Mataram City]. Jurnal Ilmu Sosial Dan Pendidikan, 4(4). doi: 10.58258/jisip.v4i4.1564 (in Indonesian).

3. Pemenuhan Beban Kerja Guru, Kepala Sekolah, Dan Pengawas Sekolah [Fulfilment of the Workload of Teachers, Principals, and School Supervisors] (Indonesian). Retrieved from https://peraturan.bpk.go.id/Download/129374/Permendikbud%20No%2015%20Tahun%202018.pdf (in Indonesian).

4. Mustari, M. (2022). Supervisi Kepala Sekolah dalam Meningkatkan Kompetensi Pedagogi di Masa Pandemi Covid 19 [Principal Supervision in Improving Pedagogical Competence during the Covid 19 Pandemic]. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 6*(3), 2296–2303. doi: 10.31004/obsesi.v6i3.1963 (in Indonesian).

5. Moleong, L. J. (2007). *Metodologi Penelitian Kualitatif* [Qualitative Research Methodology]. Bandung: Remaja Roa Karya (in Indonesian).

6. Sulisworo, D., Putut, H., & Choirul, H. (2017). *Analisis Hasil Supervisi Akademik Guru Sekolah Menengah Pertama Di purworejo, Jawa Tengah* [Outcome Analysis of Academic Supervision of Junior High School Teachers in Purworejo, Central Java]. Retrieved from https://www.scribd.com/document/545139833/analisis-supervisi-guru?language_settings_changed=English (in Indonesian).

7. Suprihatiningrum, J. (2012). *Guru profesional, pedoman kinerja, kualifikasi, dan kompetensi guru* [Professional teachers, guidelines for teacher performance, qualifications and competencies]. Yogyakarta: Ar-Ruzz Media (in Indonesian).

8. Sutopo, H. (1982). *Kepemimpinan dan Supervisi Pendidikan* [Educational Leadership and Supervision]. Jakarta: Bina Aksara (in Indonesian).

European Charter of Local Self-Government and its Implementation in Azerbaijan: Assessing Legal Compliance and Institutional Adaptation

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Abstract. The European Charter of Local Self-Government (ECLSG) is a cornerstone for local governance, emphasising principles such as autonomy, financial independence, and democratic processes. This article assessed the implementation of the ECLSG in Azerbaijan, focusing on legal compliance and institutional adaptation. This study aimed to assess Azerbaijan's level of compliance with the principles established in the ECLSG and to evaluate the extent to which its institutions have been modified to align with the charter's benchmarks. A qualitative research methodology relying on document analysis, legal reviews, and expert interviews was employed in the study. The analysis included a review of pertinent legal documents, reports, and scholarly articles to evaluate the degree of legal adherence and institutional flexibility in Azerbaijan. The finding's indicated Azerbaijan has shown advancements in implementing the ECLSG, especially in decentralisation and forming local self-governing entities. However, there are still obstacles to guaranteeing complete legal adherence, including issues related to the autonomy of local governments, boundary protection, and financial resources. The European Charter of Local Self-Government is vital in promoting local democracy and self-government in Europe. It emphasises the autonomy of local authorities and democratic processes at the local level. In Azerbaijan, implementing the ECLSG has led to significant institutional changes, including establishing municipal councils and executive bodies. However, challenges remain, such as limited autonomy, inadequate funding, and shortcomings in the electoral process. Addressing these challenges is crucial for Azerbaijan to comply with the charter and improve local governance fully. The findings suggest that while Azerbaijan has taken steps to align its legal framework with the ECLSG, further reforms are needed to enhance local self-government. Addressing challenges such as central government interference, boundary adjustments, and budget limitations will be essential in achieving complete adherence to the charter and strengthening local governance in Azerbaijan.

Keywords: European Charter of Local Self-Government; local autonomy; Azerbaijan; institutional adaptation; local governance.

INTRODUCTION

The European Charter of Local Self-Government is the crucial instrument in shaping the governance landscape in Europe, emphasising the importance of decentralised decision-making and local autonomy. As countries strive to align with the principles outlined in this charter, assessing compliance with legislation and institutional adaptation in individual countries becomes imperative. This article focused on Azerbaijan, exploring its adherence to the European Charter of Local Self-Government and delving into the complex

dynamics of legal frameworks and institutional structures. In a broader context, this research centres on implementing the European Charter of Local Self-Government in Azerbaijan. This charter's key components are governance decentralisation, local autonomy, and the expansion of local authority powers. Analysing Azerbaijan's commitment to these principles plays a crucial role in the country's advancement towards democracy, effectiveness in governance, and safeguarding local interests. The interaction between the overarching issue and crucial scientific or practical tasks underscored the need to analyse Azerbaijan's local self-government approach critically. This study delved deeper than just analysing legislative frameworks, exploring the practical implications and hurdles in translating these principles into real-world outcomes. Using recent research and publications is essential for understanding the current discussion on local self-government in Azerbaijan [14]. Previous research provided a foundation for understanding issues, successes, and areas that require further investigation. By exploring these scholarly contributions, this article aimed to identify the gaps in existing knowledge, nuances in the implementation process, and differing perspectives that complicate the issue [13]. Despite the progress in understanding the implementation of the European Charter of Local Self-Government [7], some questions remain unanswered, particularly regarding Azerbaijan's unique socio-political context [5]. The unresolved issues may include the effectiveness of legislative provisions, challenges faced by local authorities, and the adaptability of institutions to decentralisation principles.

The main goal of this research was a comprehensive assessment of legal compliance and institutional adaptation in Azerbaijan regarding the European Charter of Local Self-Government. This study aimed to shed light on implementation nuances, identify potential areas for improvement, and contribute to the broader discourse on local governance within European frameworks.

RESULTS AND DISCUSSION

The European Charter of Local Self-Government (ECLSG) is a treaty adopted by the Council of Europe in 1985 and entered into force in 1988 [1]. It aims to protect the rights of local authorities and promote local self-government as a fundamental aspect of democracy. The charter sets out several principles and guidelines for the organi-

sation and functioning of local government. One of the basic principles of the charter is the concept of local self-government, which emphasises the right of local authorities to manage their affairs and exercise their powers. This encompasses the freedom to create their systems and governance procedures and the autonomy to oversee their financial matters and assets [17]. The charter also emphasises the principle of subsidiarity, which states that decisions should be taken at the most local level possible, closest to the citizens affected by those decisions [2]. This principle is intended to ensure that decisions are made as close to the people as possible and that local authorities have the autonomy to respond to the needs and priorities of their communities.

Another critical aspect of the charter is the principle of local democracy, which emphasises the importance of democratic processes and procedures at the regional level [3]. This includes the right of the citizens to participate in local decision-making processes and the importance of transparency and accountability in local government [10]. The charter also sets out several specific rights and responsibilities for local authorities [18], including the right to be consulted on matters that affect them, the right to participate in the formulation of policies that affect them, as well as the right to have access to sufficient resources that allow them to fulfil their duties [19] efficiently.

The ECLSG is crucial for promoting and protecting local democracy and self-government in Europe [16]. It sets out the fundamental principles and guidelines to govern and operate local government and serves as a basis for promoting good governance and democratic practices at the regional level.

The European Charter of Local Self-Government, ratified by Azerbaijan in 2002, serves as a local governance and decentralisation framework. Its implementation in Azerbaijan involved significant institutional adaptation to align with the charter's principles and requirements [13]. One key aspect of institutional adaptation was the development of legal frameworks and structures to support local self-government. Azerbaijan's Constitution and laws have been revised to align with the charter's values, including empowering local governments, ensuring financial autonomy, and guaranteeing citizens' right to be involved in governmental decisions.

Establishing municipal councils and executive bodies at the local level is another crucial adaptation [6]. These bodies are responsible for local governance, including decision-making, service provision, and development planning. The number of council members and their election procedures are designed to reflect the local needs and to ensure democratic representation. Financial decentralisation has been a focus of institutional adaptation. Azerbaijan has ensured local governments have adequate financial resources to perform their functions [14]. This includes providing municipalities with a share of national revenues and the ability to raise local taxes and fees. Institutional adaptation has also involved capacity building for local government officials. Training programs and technical assistance have been provided to help local governments effectively manage their responsibilities and engage with citizens [12]. Despite the visible progress, challenges remain in implementing the ECLSG in Azerbaijan. These include promoting the complete autonomy of local governments, improving financial transparency, and bolstering local democracy.

Local self-government in Azerbaijan was established by adopting the new Constitution in November 1995 (Azerbaijan's Constitution). The country is divided into two tiers of territorial-administrative units, but self-government functions are primarily at the lower level. Legislation governing local self-government was enacted in 1999, coinciding with the first local elections [4]. Subsequent amendments were made to the bill, with the latest in 2020.

Local self-government in Azerbaijan is limited to municipalities. In Azerbaijani law, the term "municipality" encompasses the territorial unit and the local council, known as the local executive committee. However, the Congress of Local and Regional Authorities has noted that municipalities are not considered a part of the overall public administration but a particular form of citizen social activity, albeit involved in some state affairs.

The local executive is considered a part of the state administration, while the elected council of the municipality has limited competencies. The size of the commission varies based on the number of inhabitants, ranging from five members (in municipalities with up to 500 inhabitants) to 19 (in cities with up to 300,000 inhabitants). Candidates for council membership must be Azerbaijani nationals over 21 years old, excluding civil servants, members of parliament, judges, and priests [5].

For local elections to be considered legitimate, a turnout of at least 25% is required. The term of office for self-government bodies is five years, with council sessions held monthly, requiring the presence of at least half of its members to be valid. Unlike Georgia and Armenia, the executive body (the head of the municipality) is not directly elected but chosen by the majority of council members. The council has the authority to remove the head of the city.

This setup establishes a "strong council - weak mayor" model, but both self-government institutions have minimal political influence. This is because even at the municipal level, the majority of executive power is in the hands of Presidential representatives. According to the Constitution, the President of Azerbaijan establishes local executive organs to exercise executive power. The heads of these local executive authorities are appointed and removed by the President, who also determines their competencies. In practice, this results in the marginalisation of self-government units in local policy [5].

Researchers realised the importance of implementing a structured methodology, leveraging learnings from international best practices, and promoting the exchange of knowledge [8]. Identifying and assessing municipalities' potential resources and effective leverage of local human capital are paramount. Researchers differentiate local self-government from central government:

1. Subordination. Local self-government, while an equivalent public power level, is subordinate and lacks the legislative capacity for self-reform.

2. "Framework" Independence. The state sets boundaries for local self-government activities. While municipalities act independently within legislated local issues, they coexist with state administration.

3. Economic Focus. Primarily an economic authority, local self-government aims to enhance local living conditions through managing municipal property and addressing local needs, albeit with a political emphasis.

4. Responsibility. Local self-government bodies and officials are responsible for the state, municipality's residents, individuals, and legal entities.

5. People's Representation. The representation's fullness is evident in local self-government, where representative bodies express the municipality's will, act on its behalf, and benefit.

6. Independent Local Budget. Municipalities independently manage local budgets but receive financial support, such as subventions, from the state budget for specific expenditures.

There are two different ways to understand local self-government:

1. The first approach views it as a blend of state and public principles, where the state derives power from the people. This approach emphasises the participation of local self-government bodies and officials in state policy implementation, alongside the fullness of people's representation.

2. The second approach sees local self-government as a cornerstone of civil society and democracy, aligning its tasks with those of civil society to realise individual and group interests, thereby enhancing civil society and local self-government stability [8].

It is crucial to consider a fundamental principle outlined in the European Charter on Local Self-Government, emphasising that local governments, within the boundaries set by law, possess full autonomy to initiate actions on any matter not excluded from their jurisdiction and not within the jurisdiction of another authority. This principle establishes exclusive competence, granting local governments a distinct sphere of independent authority [9]. Therefore, two fundamental principles of local self-government bodies and self-government are election and a defined set of rights. Local self-government bodies must have clear rights and opportunities within their designated authority.

Municipalities are constantly monitored to ensure effective management and prevent negative situations. The assessment of legal compliance includes two key aspects. First, according to Article 144 (II) of the Constitution, state authorities can delegate powers to municipalities, noting that the relevant state authorities must monitor the implementation of these powers (administrative supervision) [4]. This article also includes provisions for transferring essential resources alongside delegated powers, highlighting the importance of financial oversight to accompany administrative supervision when financial resources are involved. Secondly, according to the European Charter of Local Self-Government [4],

national legislation ratified by Azerbaijan obliges municipalities, municipal bodies, and officials to comply with the country's Constitution and laws. The state has the right to monitor this compliance, which the Ministry of Justice carries out through the Center for Work with Municipalities. Annually, this body submits a report on its activities to the Milli Majlis. Despite their independence in the performance of powers, municipalities remain responsible to the territorial community.

As a result of the 2009 constitutional reforms, Article 146 of the Constitution now requires municipalities to submit reports on their activities to the Milli Mejlis of Azerbaijan as required by law [4]. As a result, a draft of the Law of the Republic of Azerbaijan, "On Municipal Reporting", was developed to simplify reporting processes and enhance transparency and oversight for municipalities. The draft Law defines provisions aimed at increasing the efficiency and responsibility of municipalities. It specifies the procedures for conducting investigations into violations of legislation arising from municipal activities, preparation and submission of municipal reports to the Milli Majlis, and application of responsible provisions in case of violations of legislation [4]. According to the draft law, the municipality's report is submitted to the Milli Majlis, covering the activities of the city and the results of investigations into law violations conducted by the requirements of the law. The main objectives of the municipality report include ensuring transparency in the activities of the local self-government body, increasing public trust in municipalities and controlling municipal budget expenditures related to delegated powers. In addition, the draft law emphasises that in case of violation of the legislation by the city, the relevant Committee of the Milli Majlis must conduct a special investigation [13]. Upon completion of the investigation, the committee may request a report from the municipality. Despite attempts at reforms, specific difficulties can be identified in fulfilling the requirements of the Charter in Azerbaijan.

For example, as in another county, implementing the European Charter on Local Self-Government in Azerbaijan faces several challenges (Table 1).

These challenges require attention and measures from the government and local authorities to ensure the effective functioning of the local self-government system in line with the charter's standards.

Table 1 – Challenges of the implementation of ECLSG [11, 15, 20]

Challenge	Description
Limited Autonomy	The national-level authority in Azerbaijan continues to exert significant influence over local governments and their decisions despite commitments to uphold the standards of local self-government as outlined in the charter.
Financing	Local self-government bodies often face challenges due to insufficient funding, which hinders their ability to effectively carry out their duties and deliver high-quality services to residents.
Electoral Process	The electoral process at the local level may not be sufficiently transparent and democratic, which violates the charter's principles regarding the democratic election of local government representatives.
Bureaucratic Barriers	There are cases where bureaucratic barriers complicate the work of local self-government bodies and limit their decision-making abilities.
Low Community Participation	Community participation in decision-making processes at the local level often falls short, contradicting the principles of self-government and openness.
Uneven Development	There is a risk of uneven development of local self-government in different regions of the country, leading to inequality in access to services and decisions.

Source: [11; 15; 20].

CONCLUSIONS

The ECLSG is crucial for promoting and protecting local democracy and self-government in Europe. It establishes fundamental principles and guidelines for local government organisation and functioning, emphasising local authorities' autonomy and the importance of democratic processes at the local level. The charter also sets out specific rights and responsibilities for local authorities, ensuring their participation in decision-making and access to adequate resources. Azerbaijan has made significant institutional adaptations, such as amending the Constitution and laws, to implement the ECLSG to align with the charter's principles. Establishing municipal councils and executive bodies at the local level has further enhanced local governance and decision-making processes. Financial decentralisation efforts have also ensured local governments have the resources to fulfil their functions effectively. Despite these efforts, there are still obstacles to fully implementing the ECLSG in Azerbaijan. These include guaranteeing the complete autonomy of local governments, enhancing financial transparency, and strengthening local democracy. Addressing these challenges will be crucial for Azerbaijan to fully comply with the charter's principles and improve local governance in the country.

Based on the analysis of the implementation of the European Charter of Local Self-Government (ECLSG) in Azerbaijan, several key conclusions can be drawn. Despite efforts to decentralise power, the influence of the national-level authority on local governments in Azerbaijan remains significant. This undermines the principle of local autonomy, as outlined in the ECLSG. Inadequate funding for local self-government bodies hinders their ability to fulfil their responsibilities and provide quality services. Ensuring adequate financial resources for local governments is essential for successfully implementing the ECLSG. The electoral process at the local level in Azerbaijan needs improvement to ensure transparency and democracy. Enhancing the democratic election of local government representatives is essential for upholding the principles of the ECLSG. Strengthening local autonomy, improving financing for local governments, enhancing the electoral process, reducing bureaucratic barriers, increasing community participation, and promoting equitable development is crucial for ensuring full compliance with the ECLSG and improving local governance in Azerbaijan.

REFERENCES

1. Brezovnik, B., Hoffman, I., & Kostrubiec, J. (Eds.). (2021). Local Self-Government in Europe. *Institute for Local Self-Government Maribor*. doi: 10.4335/978-961-7124-00-2

2. Bury, A., & Bury, P. (2008). Local Finance In Poland In View Of The European Charter Of Local Self-Government. *Economics & Sociology, 1*(1), 15–15. doi: 10.14254/2071-789x.2008/1-1/11

3. Chichinadze, B. (2020). Characteristics of local self-government development in Georgia. *Food Industry Economics, 12*(3). doi: 10.15673/fie.v12i3.1820

4. The Constitution of the Republic of Azerbaijan (Azerbaijan), 27.11.1995. Retrieved January 1, 2024, from https://president.az/en/pages/view/azerbaijan/constitution

5. Czachor, R. (2022). The Europeanisation of the Local Self-Government in the South Caucasus. *Polish Political Science Yearbook, 51*, 1–18. doi: 10.15804/ppsy202218

6. Erlingsson, G. Ó., Ödalen, J., & Wångmar, E. (2020). How Coerced Municipal Amalgamations Thwart the Values of Local Self-Government. *Urban Affairs Review, 57*(5), 1226–1251. doi: 10.1177/1078087420921458

7. Himsworth, C. M. G. (2015). Charter Interpretation and Application. *The European Charter of Local Self-Government*. doi: 10.3366/edinburgh/9781474403337.003.0005

8. Huseynov, S. (2023). Organisation of local self-government in the Republic of Azerbaijan. *Futurity Economics & Law*, 239–254. doi: 10.57125/fel.2023.12.25.15

9. Hörcher, D., De Borger, B., & Graham, D. J. (2023). Subsidised transport services in a fiscal federation: Why local governments may be against decentralised service provision. *Economics of Transportation, 34*, 100312. doi: 10.1016/j.ecotra.2023.100312

10. Krüger, D., Mohamad-Klotzbach, C., & Pfeilschifter, R. (2022). Local Self-Governance in Antiquity and in the Global South: An Introduction. *Local Self-Governance in Antiquity and in the Global South*, 1–6. doi: 10.1515/9783110798098-001

11. Perezhniak, B., Hryshchuk, A., Menso, I., Strukova, K., & Nazarko, A. (2021). Local self-government in public and private law: latest experience. *Revista Amazonia Investiga, 10*(41), 211–223. doi: 10.34069/ai/2021.41.05.21

12. Lyons, D. (1986). Constitutional Interpretation and Original Meaning. *Social Philosophy and Policy, 4*(1), 75–101. doi: 10.1017/s0265052500000443

13. Qaracayev, C. Ja. (2022). Local Self-Government In The Republic Of Azerbaijan: Problems Of The Administrative Supervision. *International Humanitarian University Herald. Jurisprudence, 57*, 24–27. doi: 10.32841/2307-1745.2022.57.5

14. Qaracayev, C. Ya. (2022). Axiological function of the Constitutional Court of the Republic of Azerbaijan. *Juris Europensis Scientia, 3*, 135–138. doi: 10.32782/chern.v3.2022.25

15. Radvan, M. (2017). Article 9 of the European Charter of Local Self-Government in the Czech Republic. *Financial Law Review, 2*(4), 7–21. doi: 10.4467/22996834flr.17.011.9039

16. Papcunová, V., Hudáková, J., Štubňová, M., & Urbaníková, M. (2020). Revenues of Municipalities as a Tool of Local Self-Government Development (Comparative Study). *Administrative Sciences, 10*(4), 101. doi: 10.3390/admsci10040101

17. Fluit, M., Bortolotti, T., Broekhuis, M., & van Teerns, M. (2023). Segmenting citizens according to their self-sufficiency: A tool for local government. *Social Science & Medicine, 335*, 116246. doi: 10.1016/j.socscimed.2023.116246

18. Sayed, R. (2023). Exploring Cultural Influences on Project Management Approaches in Global Business Development. *Futurity of Social Sciences*, 38–60. doi: 10.57125/fs.2023.12.20.02

19. Sepbayeva, A. (2022). Tactics of managing children-patients with post-coagulopathy cardiac surgery interventions. *Futurity Medicine*, 34–43. doi: 10.57125/fem.2022.12.30.04

20. Yatsenko, N. (2022). The philosophical content of the definition of the national mentality. *Futurity Philosophy*, 41–56. doi: 10.57125/fp.2022.03.30.04

The Role of the Regional Supervisory Assembly in Enforcing the Law on the Position of Notaries in East Lombok District, Indonesia

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Abstract. This research aims to analyse the role of the Regional Supervisory Council in enforcing the Law on Notary Positions in East Lombok Regency, the form of supervision carried out by the Regional Supervisory Council (MPD) on Notaries in the East Lombok area. This research is empirical juridical legal research, namely legal research regarding the application and implementation of legal provisions that apply to the conditions in society. The results of the study show that the supervision carried out by the MPD for notaries in East Lombok Regency is providing seminars on notarialism, holding meetings once a month, which the MPD and notaries attend to evaluate the performance of fellow notaries in East Lombok district and make visits at least once a year to check notary protocols. The law on the Position of Notaries (UUJN) is a guideline for notaries in carrying out their duties and responsibilities. If a notary commits a violation, the MPD will report it to the MPW (Regional Supervisory Council) and be given sanctions.

Keywords: Notary; Regional Supervisory Council; Authority; Supervision.

INTRODUCTION

The Notary profession in Indonesia has a reasonably old history. Notaries have existed in Indonesia since the 17th century, or more precisely, since August 27 1620 Melchior Kerchem served as the first Notary in Indonesia. At that time, Notaries did not have the same freedom as they do now because they were employees of Oost Indie, which is different from the current situation where the Notary is an independent public official. A notary is a job with unique skills that requires extensive knowledge and heavy responsibility to serve the public interest. The core task of a Notary is to regulate in writing and authentically the legal relationship between the parties who have agreed to request the services of a Notary [1].

To achieve legal objectives, one of which is legal certainty, for every engagement carried out by the public, a public Notary official is required whose role is to create authentic deeds as regulated in Law No 2 of 2014 concerning Amendments to Law No 30 of 2004 concerning the Position of Notary (which will from now on be referred to as UUJN). This legal certainty is necessary for investment guarantees, namely providing certainty of engagement in fulfilling the rights and obligations of the parties in economic collaboration or other things deemed essential and valuable [2].

Notaries are no longer government employees but relatively independent public officials who have the authority to make authentic deeds as long as other officials are not excluded from making these deeds. In line with the importance of Notaries in people's lives, especially in making authentic deeds used as evidence, Notaries have a position as public officials who have the authority to make authentic deeds and are also an extension of the government. Along with the Notary's accountability to the community carrying out its duties, it must be guaranteed by continuous supervision and guidance by other parties so that the Notary's duties and authority are always by the legal rules that underlie his jurisdiction and can avoid abuse of the authority or trust given by the government and the public.

A notary based on Law No 2 of 2014 concerning Amendments to Law No 30 of 2004 concerning Notary Positions(UUJN) is a public official with

the authority to make authentic deeds and has other authorities as intended in this law or based on other Laws. From the article above, it can be understood that a notary is a public official expressly given the authority by law to produce authentic evidence.

The existence of an institution or state agency must, of course, be based on statutory regulations or determined by the law itself. Likewise, the existence of a notary institution must be based on applicable laws and regulations [3]. Notary supervision aims to fulfil the requirements and carry out their duties by the provisions of the applicable laws and regulations to safeguard the interests of the general public, while the main task of Notary supervision is to ensure that all rights, authorities and obligations given to the Notary in carrying out their duties as provided by the relevant basic regulations, it is always carried out on predetermined routes, not only legal channels but also based on professional morals and ethics to guarantee legal protection and certainty for the community.

In NTB, it is known that seven regional administrators of the Indonesian Notary Association (Pengda INI) have been formed, including the Pengda City of Mataram, Pengda North Lombok Regency (KLU), Pengda West Lombok (Lobar), Pengda Central Lombok (Loteng), Pengda East Lombok (Lotim), while on Sumbawa Island it only consists of two Pengda, namely Pengda Sumbawa-KSB and Pengda Dompu-City and Regency of Bima. Based on direct observation in the NTB region, especially East Lombok Regency, there appears to be a high growth of notaries. Some Notary offices, for example, are very close to each other. Not to mention the shophouses on the opposite side of the same road, we can also find the Notary's office. This can, of course, give rise to unhealthy competition, which is not impossible, causing individual notaries to carry out their duties and authority in ways that do not comply with applicable regulations.

Several cases of notaries being involved in violations of professional ethics that lead to criminal law violations have surfaced several times. A notary in the East Lombok working area was suspected of committing fraud against his client. This certainly shows that in carrying out their duties and positions, a notary can be involved in legal problems, even though the performance of a notary should prioritise professional ethics by the 2014 UUJN and the applicable code of ethics.

Apart from that, there is a need for better supervision of Notaries carried out by institutional elements regulated according to the relevant law.

According to Article 1 No 6 UUJN 2014, the supervisory regulations for notaries read The Notary Supervisory Council, which, from now on referred to as the Supervisory Council, is a body with the authority and obligation to provide guidance and supervision. In Article 69 of the 2014 UUNJN, elements of Notary supervision up to the regional level are also listed, namely carried out by the Regional Supervisory Council (MPD). No further changes have been made to the description of the MPD's authority based on the 2014 UUJN, so the reference provisions are by Law No 30 of 2004 concerning the Position of Notaries (from now on referred to as the 2004 UUJN). Article 70 UUJN 2004 emphasised the authority of the MPD in providing guidance and supervision to Notaries at the regional level. Thus, Notaries need to receive attention in terms of enforcing the code of ethics carried out by the Notary Supervisory Council, especially at the Regency/City level, namely the Regional Supervisory Council (MPD), in the context of building trust in the community in making authentic deeds.

METHOD

This type of research is a research method that, in this case, combines normative legal elements, which are then supported by the addition of data or empirical elements. This normative-empirical research method examines the application of statutory regulations using legal concepts and theories as a basis, focusing on directly observing the reality in the field.

The approach used is to use a statutory approach (Statute Approach), a conceptual approach (Conceptual Approach), and a sociological approach (Sociological Approach). According to the Notary Position Law in East Lombok Regency, the statutory approach is used to analyse various laws and regulations relating to the Role of Notaries in Carrying Out Their Official Duties. In contrast, according to the Notary Position Law in East Lombok Regency, the conceptual approach is used to comprehensively analyse and examine the concept of the Notary's Role in Carrying Out The position's duties. A sociological approach is used to analyse the responsibilities of the Regional Supervisory Council in supervising notaries and preventing violations of the Notary Posi-

tion Law by notaries in the East Lombok Regency.

Technique: The legal materials and data used in this research were collected through library and field data collection methods. The library data in question was collected using document study techniques by examining literature books, statutory regulations, official documents and other literature sources related to the research object under study. Meanwhile, field data was collected using structured interview techniques, namely interviews carried out in a planned and guided manner. This field data was obtained directly from informants and respondents in the field.

The analysis used in this research uses qualitative analysis. AnalysisThis involves selecting and evaluating data that has been collected, both in the form of interviews and data originating from library sources, which are then used as primary sources in preparing this thesis. This data will be organised systematically and analysed in depth to produce valid findings and conclusions.

RESULTS AND DISCUSSION

The Role of the Regional Supervisory Council in Enforcement of the Law on Notary Positions in East Lombok. A Notary's duties as a public official are to record in writing and authentically the legal relations between the parties who have agreed to request assistance from a Notary's services [4]. As far as possible, the Notary must try to ensure that the identities and statements of the parties are true. The Notary can obtain these statements from people he knows and trusts or can see proof of the identity of the parties. However, suppose it turns out that all the information provided by the parties is not accurate. In that case, this is not the responsibility of the Notary because the Notary is only responsible for the formal truth that the parties have provided. Based on this, the Notary's responsibility for the deed he makes must be supported by a responsible moral intention.

An authentic deed made by a Notary means that the authentic deed is perfect evidence of what is made therein. In a trial, the judge needs evidence to decide and resolve the case definitively according to the law based on the evidence presented. With evidence, it is hoped that the truth can be achieved according to the law and that the rights of the parties involved in a lawsuit can be guaranteed balanced.

An event that gives rise to a right must be proven by the person claiming it, while an event that eliminates a right must be proven by the party who denies it. Naturally, if no evidence is presented or insufficient evidence is presented at trial, the claim for rights or lawsuit will be rejected or not granted.

So, the role of a notary, in this case, is to provide services to the community, to create authentic evidence that has perfect evidentiary power, to free or make members of the public aware of fraud or evil intentions from certain people and to guarantee the rights and obligations of the parties involved Interested. Thus, notaries and parties requiring notary services must have high integrity and morality to achieve legal protection and certainty. In a civil case process, one of the judge's duties is to investigate whether the legal relationship that is the basis of the lawsuit actually exists or not. This legal relationship must be proven if the plaintiff wants to win.

As is known, notaries are supervised by the Notary Supervisory Council [5]. In Article 66 § 1 of the Notary Position Law, it is stated that for the judicial process, investigators, public prosecutors and judges, with the approval of the Regional Supervisory Council, have the authority to:

1) Take a photocopy of the Deed Minutes and/or Letters attached to the Deed Minutes or Notary Protocol in the Notary's custody;

2) Summon the Notary to attend an examination relating to the deed he or she has made or the Notarial Protocol in the Notary's custody. In connection with the summoning of a notary as a witness before a trial in both civil and criminal cases, especially in connection with the deed he made, can the Notary, in this case, demand the implementation of the provisions referred to in Article 50 of the Criminal Code, which stipulates that anyone who commits an act to implement the provisions Law, not punishable.

This means that anyone who cannot or should not be punished because of implementing a statutory regulation. This problem depends on whether the right of denial given to him by law is only a right or an obligation and whether there is a higher interest in this case.

According to the statement from Notary Hapsan on August 23 2023, if a client makes a letter of agreement, then the Notary is obliged to explain the causes and consequences that will occur in the future, both positive and negative impacts, so

if it is considered detrimental to one of the parties, then it could be an authentic deed made void before a notary."

If a notary does an authentic deed and includes something in the deed that is not as ordered by the parties, then this action is based on Article 1365 of the Civil Code. The Notary can be said to have committed an unlawful act, and if the result of his action has caused a loss to another person. or his client, the Notary is obliged to pay compensation for the losses incurred.

Furthermore, Notary Hapsan states that all legal regulations are created to balance various parties in their respective interests. In carrying out their duties and positions, Notaries are not free from mistakes because humans do not have perfect characteristics. Therefore, notaries must prioritise the element of caution to minimise the possibility of making mistakes because their deeds will be held accountable until the end of their lives. "Even deceased Notaries are responsible for authentic Deeds made using protocols passed down."

Generally, Notary engagement relationships are regulated in Article 1320 of the Civil Code. For an agreement to be valid, 4 (four) legal conditions are required, namely: 1) Those who bind themselves agree; 2) Ability to create an engagement; 3) A particular thing; 4) A legitimate cause.

Implementing the Position Law is necessary for Notaries because they are bound by their oath and position as bearers of the legal profession. The legal profession guidelines are a reference for notaries when carrying out their duties and positions in daily life; the aim is to be by the Notary Position formulated based on existing laws and regulations and also the Notary organisation, which is the professional organisation where the Notary is affiliated. These guidelines are always a reference for notaries when carrying out their duties. Several Notaries in East Lombok Regency conveyed the same: Notaries must remain firm in their principles and be guided by the law on the Position of Notaries in carrying out their professional duties.

Based on an interview, Johan said on August 9 2022, that in carrying out his authority, the Notary has implemented the Law on Notary Positions (UUJN) optimally, even though the problem that often occurs is when dealing with clients where expressing the wishes of the parties in the deed usually does not comply with the rules has exist-ed. However, when dealing with this client, Johan still tried to explain that this could not be done and would be problematic in the future, as well as violating existing regulations because it violated applicable rules and laws, especially the Notary Position Law (UUJN).

As in the case of violation of office committed by JN Notary of East Lombok Regency on Friday, April 16 2021, which was based on the Kompas news page "Unscrupulous Notary in Lotim Suspected of Fraud Against His Client".According to HR, the No and losses victims suffer will likely increase. This is because the methods used by the perpetrators while acting were varied. One of the methods was luring the victim to complete the certificate application until it was completed within a short period. Still, the Notary took away the money he handed the victim.

"Not only that, another method used by the perpetrator was by offering to sell the object to be certified and admitted that he had many acquaintances with BPN officials and said that the money that had been handed over had been distributed to the official acquaintances," said the perpetrator when interviewed. However, after the victim handed over the money, it was used for personal needs.

Thus, the violations committed by the Notary concerned have violated the provisions of the Notary's official obligations. Notary's obligations are regulated in Article 16 of the Law on the Position of Notaries concerning Amendments to Law No 30 of 2004 concerning the Position of Notaries.

Article 16 § 1 reads: In carrying out his office, a Notary is obliged to:

1) act trustworthy, honest, thorough, independent, impartial, and safeguard the interests of parties involved in legal actions;

2) make a Deed in the form of Deed Minutes and save it as part of the Notary Protocol;

3) attach letters and documents as well as the person's fingerprints to the Deed Minutes;

4) issue Grosse Deed, Copy of Deed, or Quote of Deed based on Minutes of Deed;

5) provide services by the provisions of this law unless there are reasons to refuse;

6) keep confidential everything regarding the deed they make and all information obtained to

make the deed by the oath/promise of office unless the law stipulates otherwise;

7) bind the Deeds he makes within one month into a book containing no more than 50 Deeds, and if the number of Deeds can be included in one book, the Deeds can be bound into more than one book, and record the No of Minutes of Deeds, month and year of publication on the cover of each book;

8) make a list of deeds of protest against non-payment or non-receipt of securities;

9) make a list of Deeds relating to wills in order of when the Deeds were made each month;

10) send the list of Deeds as referred to in letter i or the nil list relating to wills to the centre for the will register at the ministry that handles government affairs in the field of law within five days of the first week of each following month;

11) record in the repertory the date of delivery of the register of wills at the end of each month;

12) has a seal or seal containing the state symbol of the Republic of Indonesia, and in the space surrounding it is written the name, position and place of the relevant position;

13) read the deed in front of the presenter in the presence of at least two witnesses or four special witnesses for making the Deed of Will privately and signed at that time by the presenter, witness and Notary;

14) accepting apprentice Notary candidates.

Based on the results of the author's opinion, in this case, the Notary has violated the provisions of Article 16 § 1 letter a, which states that in carrying out the duties of the Notary, the Notary must be honest, trustworthy, careful and so on, without causing harm to the party (client). The obligations and responsibilities inherent in a notary are burdensome and related to the honour and dignity of a public official entrusted by the public with the authority he has obtained.

Responsibilities of the Regional Supervisory Council in Supervising Notaries in Preventing Violations of the Notary Position Law by Notaries in East Lombok Regency. The Notary Supervisory Council is a body that has the authority and obligation to supervise and guide notaries. By the provisions of Article 67 of Law No 30 of 2004 concerning the Position of Notaries as amended by Law No 30 of 2014 concerning amendments to Law No

30 of 2004 concerning the Position of Notaries which states that the Minister carries out supervision of notaries by forming a Council Supervisors consisting of the Regional Supervisory Council, Regional Supervisory Council and Central Supervisory Council.

Supervision of notaries is the implementation of the task of coaching and supervising the implementation of the position and behaviour of Notaries. The Notary Supervisory Council performs this task as an extension of the Minister of Law and Human Rights.

To improve the work and role of the Notary Supervisory Board as a means of disseminating information and knowledge, it is deemed necessary to create guidelines for the Notary Supervisory Board with the hope that they can be used as guidelines for the Notary Supervisory Council carries out measurable, transparent, effective and efficient supervision to create a shared understanding for the Notary Supervisory Council in carrying out its duties and authority.

As Supervisor and Supervisor of Notaries, the Supervisory Board has the authority to:

1. Carry out supervision in the form of monitoring and evaluation regarding the implementation of the duties and functions of notaries in their work area.

2. Provide guidance related to the administration of notarial duties.

3. Authority of the Notary Supervisory Board.

4. Authority of the Regional Supervisory Council.

The administrative authority of the Regional Supervisory Council, which does not require approval from the Regional Supervisory Council meeting, includes:

1) Grant permission for Notary leave for a period of up to 6 months;

2) Determine a replacement notary by taking into account the recommendation of the Notary concerned;

3) Receive reports from the public regarding alleged violations of the Notary's code of ethics or violations of provisions in the law;

4) Keep the contents of the deed and inspection results confidential;

5) Receive certified copies of the register of deeds and other registers from the Notary and keep them confidential;

6) Make a note in the register book, which is part of the Notary's protocol by stating the date of inspection, the No of deeds and the No of letters under the hand that have been legalised and made since the date of the last inspection;

7) Make and submit reports to the Regional Supervisory Council.

Johan, as a member of the East Lombok Regency Regional Supervisory Council, explained that the aim of preventive supervision carried out by the Notary Supervisory Council in carrying out its supervisory duties over Notaries in carrying out their office is to prevent violations of authority by Notaries. The forms of implementation are, first, holding seminars on notarial matters to increase knowledge and provide information about the world of Notaries and holding joint meetings once a month, which are attended by the Regional Supervisory Council, which aims to provide direction so that Notaries implement UUJN and the Notary Code of Ethics, and the Regional Supervisory Council visits the Notary's office to check the writing of Notary protocols at least once a year (Results of interviews with Johan, Member of the East Lombok Regency Notary Supervisory Council)

The imposition of sanctions is also adjusted to the severity of the violation. If a notary violates the code of ethics or UUJN and does not materially harm the public, the Notary is given a warning and provides guidance first. The Notary Honorary Council or the Notary Supervisory Council notifies that the Notary concerned has committed a violation as regulated in statutory regulations or the code of ethics and is given an appropriate explanation and solution so that he does not commit a breach in the future.

The preventive supervision carried out by the Notary Supervisory Council to prevent violations of the Notary Position Law is carried out by reflecting on the Notary Code of Ethics position to provide material related to implementing the Notary Position holding seminars. The Supervisory Council visits the Notary's office at least once a month to check the protocol. Notary Public. Johan also said that the form of preventive supervision was passive, meaning that the supervision was carried out based on reports from the public accompanied by various evidence.

Notary Fanniyah, as a Notary and member of the Notary's Honorary Council, stated that the preventive supervision carried out by the Notary Supervisory Council to prevent violations of the Notary's Position Law is only by increasing knowledge about notarial duties, holding seminars, visiting the Notary's office at least once a year to check the protocol. Carried out by the MPD, joint meetings are held monthly to harmonise the notary position's performance. The supervision carried out on notaries aims to ensure that as many notaries as possible fulfil their requirements. The requirements are not only based on law or statute but also on the trust placed by the client in the Notary. The purpose of this supervision is not only aimed at structuring the Notary's Code of Ethics but also for a broader purpose, namely so that Notaries, in carrying out their official duties, fulfil the requirements set by law to safeguard the interests of the community they serve.

Based on the description above, it can be observed that the Notary Supervisory Board carries out several supervision methods to prevent violations of the Notary's position. These include holding seminars on notarial duties and meetings once a month, which the Regional Supervisory Council attends to provide direction for implementing UUJN. Notaries are required to continue to broaden their knowledge about notarial matters. The Regional Supervisory Council also visits the Notary's office at least once a year to check the Notary's protocol.

The supervision that the Notary Supervisory Board can carry out to prevent violations of the Notary's position is only passive supervision. Supervision is only waiting for reports from the public, not supervising Notaries individually. Notaries suspected or proven to have committed violations of their position will only be given guidance in the form of imposing sanctions. Still, the imposition of sanctions is also adjusted to the severity of the violation. If a Notary commits a minor infraction, the Notary Honorary Council or Notary Supervisory Council will issue a warning and provide a solution or direction so that the Notary does not commit a violation in the future.

Notary Sheikh Alkaff., SH, according to an interview conducted at the Notary's office on August 21 2023, stated that the supervision carried out by the Regional Supervisory Council had been optimal. Suppose some actions are not by the Law on Notary Positions. In that case, the Regional Supervisory Council will not hesitate to warn the Notary concerned verbally. So, in facing the rapid growth of notaries in East Lombok Re-

gency, compliance and awareness from each Notary is required.

Furthermore, Notary Sheikh Alkaff., SH revealed that the Regional Supervisory Council provides action in the form of guidance and cannot impose sanctions on individual notaries who violate the Law on Notary Positions; it only offers recommendations to the Honorary Council for sanctions. However, if you hope for more optimal supervision, additional members of the Regional Supervisory Council are needed because the No of MPDs does not match the growth ratio of notaries in East Lombok Regency, and the current supervision is still less than optimal.

In line with the above, Johan., SH, MH hopes for more detailed supervision to hold the Regional Supervisory Council accountable for deeds made by Notaries. He can also provide solutions for notaries in their duties and positions. The responsibility of the Regional Supervisory Council is to prevent violations of the Law on Notary Positions by Notaries in East Lombok Regency. It needs to be adjusted to the conditions of many Notary formations in several East Lombok Regency areas to anticipate unfair competition.

Furthermore, Johan., SH, MH explained the forms of responsibility carried out by the Regional Supervisory Council (MPD), one of which is by routinely conducting inspections of notaries in the East Lombok Regency area according to schedule, as well as providing input and suggestions to Notaries who are detected as having deviations from the law on the Position of Notaries as well as for notaries who encounter obstacles in carrying out their daily duties and obligations. It also summons the Notary who receives reports from the public regarding problems considered to have been carried out by the Notary.

According to the chairman of the MPD, namely Hj. Fanniyah., SH, who was interviewed on August 21, 2023, said the implementation of supervisory duties by the Regional Supervisory Council is going well in terms of the implementation of its obligations. It has carefully carried out supervision, such as monthly reports and notary protocol inspection reports on the deeds it makes. Inspections are carried out periodically, once a year or at any time deemed necessary to carry out an inspection to create harmony between the

Notary's performance and public satisfaction with the Notary's services.

The form of sanctions for notaries who violate their position can be civil, criminal, or administrative. If a Notary whom the Supervisory Board supervises continuously commits violations of his/her position, then the Notary concerned may be subject to sanctions by those regulated in the UUJN in the form of 1) Written warning; 2) Temporary suspension; 3) Dismissal with honour; Dishonorable discharge.

According to information from Notary Hapsan, a member of the Regional Supervisory Council, the sanction given by the Regional Supervisory Council of East Lombok Regency was only in the form of a warning.

Dealing with the obstacles of client ignorance, which is often not possible according to existing regulations, is a challenge and obstacle to implementing a notary's performance. Notary Fanniyah acknowledges this as a Notary in East Lombok and chairman of the Regional Supervisory Council; so far, the authority and performance of notaries have been able to run well. Still, there are often several obstacles in this implementation because there are several authority provisions which, in reality, cannot be fully implemented by a notary, for example, as stated in article 15 (5) f.

CONCLUSIONS

The role of a notary in carrying out his duties according to the law on the Position of Notaries in East Lombok Regency is by the Law of the Republic of Indonesia No 30 of 2004 concerning the Position of Notaries, which Law of the Republic of Indonesia has amended No 2 of 2014 concerning Amendments to Law of the Republic of Indonesia No 30 of 2004 concerning Notary Positions (both called UUJN).

The Regional Supervisory Council supervises the performance of notaries in the East Lombok district by carrying out routine and periodic supervision, apart from holding seminars to increase knowledge about notarial law. The Regional Supervisory Council also visited to carry out protocol checks and held regular meetings as a form of refreshing notarial knowledge for notaries in the East Lombok Regency.

REFERENCES

1. Tan, K. T. (2007). *Study Notariat & Serba Serbi Praktik Notaris* [Notarial Study & Notary Practice Essentials]. Jakarta: Ichtiar Baru Van Hoeve (in Indonesian).

2. Tobing, L. (1999). *Peraturan Jabatan Notaris* [Notary Position Regulations]. Jakarta: Gelora Aksara Pratama (in Indonesian).

3. Salim, H. (2018). *Peraturan Jabatan Notaris* [Notary Position Regulations]. Jakarta: Cetakan pertama (in Indonesian).

4. Sjaifurrachman., & Adje, H. (2011). *Aspek Pertanggungjawaban Notaris Dalam Pembuatan Akta* [Aspects of Notary Liability in Deed Making]. Bandung: Mandan Maju (in Indonesian).

5. Putri, A. R. (2011). *Perlindungan hukum terhadap notaris : indikator tugas-tugas jabatan notaris yang berimplikasi perbuatan pidana* [Legal protection of notaries: indicators of notary duties that have criminal implications]. Jakarta: Sofrnedia (in Indonesian).

Chronotopic Contrasts: Unraveling Temporal Dynamics in Utopian and Dystopian Narratives

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Abstract. This research article delves into the intricate interplay between time dynamics and dystopian narratives, focusing on how temporal disruptions shape and define the genre. It explores the convergence of dystopia and science fiction, highlighting the deliberate construction of time to serve specific purposes within these narratives. Through a comprehensive analysis of seminal dystopian works such as "1984", "Children of Men", and "The Time Machine", the study examines the multifaceted roles of temporal disruptions in critiquing propaganda, totalitarianism, and power structures.

Furthermore, it explores how such disruptions illuminate the confusion, disorientation, and trauma inflicted upon individuals within dystopian societies, challenging conventional notions of linear time and prompting reflections on memory, truth, and narrative complexity. This research aims to deepen our understanding of the complex relationship between time dynamics and dystopian narratives, shedding light on the thematic, philosophical, and socio-political implications inherent in the genre.

Keywords: utopia; dystopia; time; illusion; interpretation; chronotype.

INTRODUCTION

The realms of utopian and dystopian literature offer contrasting visions of societal possibilities. Utopian narratives envision an ideal world of harmony and progress, while dystopian tales explore the consequences of societal decay and oppressive regimes. Despite their apparent differences, these genres share a profound exploration of the human condition.

At the heart of this exploration lies the concept of the "chronotype", a term coined by Russian literary scholar Mikhail Bakhtin. The chronotype refers to a narrative's inseparable relationship between time and space, shaping how we perceive and understand its events and characters. Bakhtin considers that chronotopic "...are the organising centres for fundamental narrative events of the novel. The chronotype is the place where the knots of the narrative are tied and united. It can be said without qualification that to them belongs the meaning that shapes the narrative" [2, p. 250]. In utopian and dystopian literature, the chronotype is a powerful tool for authors to unveil the temporal and spatial dimensions of ideal-

ism and oppression, allowing readers to navigate the intricate landscapes of these imagined worlds.

In the following section, we will analyse frozen temporality, countdown to catastrophe, and temporal disruption. We will examine how these temporal phenomena contribute to the narrative dynamics, shedding light on the scientific importance of understanding the temporal nature of these literary constructs. By dissecting these aspects, we aim to offer insights into the enduring dialogue these genres engage in and their relevance to humanity's quest for improvement.

METHODS

The research employed a multifaceted approach to unravel temporal dynamics in utopian and dystopian narratives. A comprehensive literature review was conducted to identify seminal works and critical analyses in both genres. Close textual analysis was employed to scrutinise specific narratives, focusing on instances of frozen temporality, the countdown to catastrophe, and temporal

disruption. Drawing upon Mikhail Bakhtin's concept of the chronotype, a detailed chronotopic analysis was conducted to examine the interplay between time and space within the selected texts. An interdisciplinary approach was adopted, incorporating insights from literary studies, philosophy, sociology, and cultural studies to enrich the analysis. Case studies of utopian and dystopian texts were conducted to illustrate theoretical concepts.

RESULTS AND DISCUSSION

Timelessness and stability

The idea of utopia, a perfect society where humanity thrives in harmony and prosperity, has been a theme in literature, philosophy, and the human imagination for centuries. In specific utopian works, authors craft chronotypes where time appears to stand still. These societies exist in a perpetual present, emphasising stability and harmony. Within this realm of utopian visions lies a fascinating concept known as the "Utopian Chronotope" – an exploration of how time and space intersect in utopian narratives. It offers a unique perspective on the relationship between timelessness and stability in the context of these idealised societies. Utopias are not just about a perfect place but also an ideal time. They exist outside the ordinary constraints of temporal progression.

As we mentioned, in utopian narratives, time is often portrayed as standing still or, at the very least, moving at a significantly slower pace compared to the real world. This timelessness is critical to creating a sense of stability within these imagined societies. Utopias are often depicted as societies that have overcome the passage of time, offering their inhabitants a perpetually blissful existence. Moreover, the pursuit of timelessness can have a dark side. In literature, utopias outside the flow of time often come at the expense of individual freedom and autonomy. Citizens are bound by rigid rules and norms that leave little room for personal expression or deviation from the established order.

 In More's classic work (T.More. Utopia, 1516), the island utopia is portrayed as a stable and timeless society where citizens live in communal harmony. The island is isolated from external influences, and its customs and laws have remained unchanged for centuries. This timeless-ness is seen as a source of social stability and order.

Another classic example of this timelessness can be found in Aldous Huxley's "Brave New World" (1932). In this dystopian utopia, citizens live in a world devoid of ageing, disease, and suffering, where time is carefully controlled and manipulated. Society's stability is maintained through suppressing change, both in the external world and its inhabitants' minds. Huxley's dystopian vision explores the idea of timelessness and stability differently. In the World State, society is engineered to eliminate suffering and conflict by suppressing individuality and emotions. Time is carefully controlled, and the absence of historical knowledge and personal experiences contributes to the stability of this world, even though it comes at the expense of individual freedom and personal growth and "...that is the secret of happiness and virtue-liking what you've got to do. All conditioning aims at that: making people like their unescapable social destiny" [3].

While timelessness and stability may seem idyllic, they raise important questions about the nature of human existence. In utopian chronotypes, what is gained in terms of stability is often balanced by what is lost in terms of personal agency, creativity, and growth. The absence of change can lead to stagnation, as seen in Yevgeny Zamyatin's "We" (1924), where individuality is suppressed in the name of societal stability.

Asimov's "Foundation" (1942-1993) science fiction series imagines a future where a group of scientists seeks to preserve knowledge and culture during the decline of the Galactic Empire. The concept of "psychohistory" is used to predict the course of history on a large scale and is explained as such, "Psychohistory dealt not with man, but with man-masses. It was the science of mobs, mobs in their billions. It could forecast reactions to stimuli with something of the accuracy that a lesser science could bring to the forecast of a rebound of a billiard ball" [1]. The aim is to shorten the period of chaos and establish a new, stable galactic empire. This series explores the tension between the desire for stability and the inevitability of historical change.

In Lois Lowry's young adult dystopian novel "The Giver" (1993), the community is intentionally kept in the dark about its history. The society has erased the memories of the past to maintain control and order. Jonas, the protagonist, learns about this when The Giver shares memories of

the past with him. Jonas reflects, "It's just that... without the memories, it's all meaningless" [6]. The community attempts to create a sense of timelessness by eliminating variations in climate, family structure, and even emotions. Citizens are conditioned to conform to a highly controlled and predictable way of life. In the pursuit of sameness, individuality and personal experiences are suppressed. This contributes to a sense of timelessness because there is no room for personal growth or change.

Kim Stanley Robinson's "Mars Trilogy" (1990s) series envisions the colonisation and terraforming of Mars. While it is not a traditional utopia, it explores creating a stable and sustainable society on another planet. The novels delve into the challenges and complexities of maintaining stability in a harsh, unfamiliar environment and examine the challenges of maintaining stable political systems over time, 'Democracy was not just based on open discourse; it was based on the strength of the civil society' that supported it" [10].

Ursula K. Le Guin's "The Dispossessed" (1974) tells the story of a physicist from an anarcho-syndicalist society on one planet and his experiences in a more traditional, hierarchical world. The contrast between the two societies highlights the trade-offs between stability and freedom. The utopian vision is one of social and political stability but not at the expense of personal agency.

The concept of the Utopian Chronotope presents a paradox. On one hand, it offers a vision of a society free from the uncertainties and disruptions of time, where stability and harmony reign supreme. On the other hand, it highlights the potential dangers of such a pursuit, where the suppression of time and change can lead to a loss of essential human qualities. The protagonist, Shevek, is a physicist who challenges the status quo on his home planet, Anarres. The timeless pursuit of truth and progress drives his quest for scientific knowledge.

Anarres is depicted as a place where the pursuit of stability through communal living has been a longstanding tradition, "For we have built a wall of our bones, between us and your chaos, and we have kept you out, and when you sent your spies and your agents among us, we detected them and removed them. We have been very stable" [5]. Urras, in contrast, represents a more conventional capitalist society with its forms of stability and control, "There is nothing you can do that I have

not done, too. Do you understand? There is nothing you can do that cannot be turned to a political end, and there are no emotions you can have that cannot be shared or felt by all of us. Think of me as the one who got there first" [5].

As we contemplate the Utopian Chronotope, we must grapple with fundamental questions about the nature of human existence and the trade-offs between stability and progress. Is it possible to achieve a perfect society that exists outside the bounds of time, or is the very essence of humanity tied to our ability to adapt, evolve, and change over time?

The Dystopian Chronotope. Narrative Devices

When examining the essence of utopia and dystopia, the interplay of spatio-temporal dynamics holds significant importance. These genres encompass works such as utopia, dystopia, eutopia, anti-utopia, cocotopia, etc., all grouped under thematic names. Rooted in the concept of "topos", meaning place, the very vocabulary of the genre carries spatial connotations. Notably, the name itself encapsulates an inherent notion of an impossible place. In fictional works, particularly within the realms of utopia/dystopia, where authors' imaginations run free, the creation of an imaginary world inherently involves the construction of space and time. Furthermore, space and time serve as the canvas upon which emotions and values are reflected, as emphasised by Bakhtin's assertion that ".. in work, the chronotype always has an aspect of evaluation" [2, p. 243]. While utopias and dystopias envision future or alternative worlds, they are fundamentally rooted in the intention to critique and potentially dismantle prevailing societal structures and value systems.

Initially, our discussion will centre on the temporal dynamics evident in utopian and dystopian film narratives. This dimension is notably characterised by the illusory nature inherent in utopia, wherein realising this illusion transforms utopia into dystopia. Furthermore, a noteworthy observation is the temporal stagnation or freezing, which reveals the concealed dystopia within utopia and acts as a primary tool of oppression within dystopian societies.

The concept embodies the perfect place and time in artistic depictions of utopia. Time appears to have halted within these utopian worlds, with human society achieving a stable state of devel-

opment where time seemingly stands still. Films such as "The Truman Show" and "Pleasantville" illustrate this by portraying repetitive routines that unfold daily. Despite the passage of time, the inhabitants of utopia remain perennially content, their days blending seamlessly into one another as they repeat their tasks with unwavering satisfaction. However, the disruption of this repetition unveils the dystopian undercurrents lurking beneath the illusion of utopia. Conversely, the construction of time in dystopian narratives exhibits intriguing characteristics. Here, we examine key elements such as "frozen time", "countdown to disaster", and "temporal disruption".

Various factors, including the perpetuation of unchanging social structures and hierarchies, influence time stagnation in dystopian societies. A notable example is George Orwell's renowned novel "1984" and its cinematic adaptation. Within the totalitarian regime of Oceania, time remains perpetually frozen due to relentless propaganda and strict control. The regime's manipulation of information ensures citizens are trapped in a perpetual state of ignorance and confusion, with the ruling party carefully managing historical contradictions. This creates a stark contrast wherein the present is frozen in dystopia while the past undergoes constant alteration. The manipulation of language further contributes to the freezing of time, as the regime dilutes language to align with party ideology, thereby controlling the populace's thoughts. Thus, in Orwell's dystopian world, the concept of "frozen time" under the oppressive regime forms the foundation of societal dystopia.

In Ray Bradbury's "Fahrenheit 451", an intriguing aspect is the depiction of cultural stagnation in a future where books are outlawed and destroyed, stifling societal knowledge and independent thinking. The dystopian regime endeavours to maintain control by eradicating diversity of ideas, initially through burning books. Subsequently, the regime fosters an addiction to mindless, shallow entertainment, further diminishing free thought and interpersonal connections. This obsession with entertainment screens and virtual relationships leads to declining face-to-face interactions and meaningful communication among individuals. Cultural works and historical events are disregarded in this dystopian setting, contributing to a pervasive sense of societal stagnation.

A notable aspect common to both works is the direct involvement of the protagonists in enforcing the dictates of the oppressive system. In Orwell's "1984", Winston is depicted as one of the brooding workers in an office where history is continually manipulated. Similarly, Bradbury's protagonist, who participates in burning books, ironically adopts the role of a fire worker despite his name implying the opposite. Orwell's portrayal of dystopia offers little room for hope. However, Winston dares to rebel against the regime; his eventual fate serves as a grim reminder that there is no escape from the clutches of dystopia. This observation brings attention to another intriguing element in the temporal dynamics of dystopian narratives, which we can call the "countdown to disaster".

This concept encapsulates the authors' technique of building tension, captivating readers and viewers, and shaping the impending climax. In the film "Children of Men" (2006), set in a dystopian world where humanity faces extinction due to infertility, the discovery of a pregnant woman initially appears as a glimmer of hope. However, in both the work and the film adaptation, this moment symbolises the looming disaster, representing the culmination of widespread chaos. Similarly, in the dystopian narrative "Snowpiercer" (2013), characterised by its bleak atmosphere and heavy tone, the breakdown of social order aboard the train and the conflict between different passenger classes lead to an inevitable and unstoppable disaster.

Similarly, in the dystopian narrative "Mad Max: Fury Road" (2015), which evokes intense emotions while captivating audiences with its captivating audio-visual elements, the uprising against the oppressive regime in a world depleted of natural resources, particularly water, marks a pivotal moment as the disaster draws near, heightened by gripping visuals. While feature films have many tools to enhance tension, such as audio-visual imagery, the awakening from the illusion of utopia and the internal conflict faced by the protagonist in dystopia remain pivotal elements across both written literature and cinematic works in the utopian/dystopian genre. This narrative device adds dynamism to the genre and serves a thematic purpose in character development. Moreover, the "countdown to disaster" not only amplifies the audience's engagement with the work but also draws attention to the challenges faced by the characters, establishing a connection with real-world societal issues.

We will label the next aspect of time dynamics in a dystopia as "temporary disruption", signifying the manipulation, distortion, or alteration of time. This concept is evident in dystopian narratives such as "1984", where time is controlled within a repeating loop, trapping society in a perpetual present devoid of past or future. Similarly, in the sci-fi dystopia "Edge of Tomorrow" (2014), the protagonist is stuck in a time loop, restarting his day each time he dies, halting the flow of time. While this work may be classified as science fiction rather than dystopian, this temporal ability becomes crucial for survival. Another form of time disruption is portrayed through anomalies, time travel, temporal displacements, and fragmentation of reality, as seen in "The Time Machine" (2002). Additionally, depicting alternative realities is a familiar motif in dystopian literature and film.

This element blurs the lines between dystopia and science fiction, suggesting a deliberate time construction for specific purposes. Firstly, these narratives warn against the perils of propaganda and totalitarianism, critiquing power structures that manipulate historical realities, namely time, to maintain societal control. Secondly, disruptions in the flow of time in these works vividly illustrate the confusion, disorientation, and trauma inflicted upon individuals by such governing systems. Thirdly, these explorations often challenge conventional notions of linear and continuous time, prompting reflections on memories, events, and the concept of absolute truth. Lastly, this stylistic approach adds complexity to the plot, encouraging readers and viewers to ponder the deeper layers of the narrative.

CONCLUSIONS

In conclusion, this research sheds light on the profound significance of temporal disruptions within dystopian narratives. Temporal chronotypes invite us to navigate the ever-changing landscapes of time within utopian and dystopian worlds. Utopias often begin as temporal paradises, promising a better future. However, these idealistic visions usually erode as time unfolds, revealing dystopian undercurrents. Conversely, dystopias may hold glimmers of hope and the potential for change through temporal cycles of resistance and revolution. Authors employ temporal chronotypes to critique the challenges of maintaining romantic ideals and the cyclicality of human history.

Through a meticulous examination of various dystopian works, we have uncovered how the deliberate manipulation of time is a powerful tool for critiquing oppressive power structures, challenging conventional notions of truth and memory, and fostering more profound reflections on societal complexities. Key findings indicate that temporal disruptions add depth and complexity to the narrative and serve as a poignant commentary on the dangers of propaganda, totalitarianism, and societal control. This study contributes to a deeper understanding of the genre and its broader socio-political implications by unravelling the multifaceted roles of time dynamics in dystopian literature and film.

REFERENCES

1. Asimov, I. (2023, July 13). *Foundation: a Novel*. Retrieved from https://www.kepdf.com/english/foundation-pdf

2. Bakhtin, M. (1982). *The Dialogic Imagination*. Austin: University of Texas Press.

3. Huxley, A. (1946). *Brave New World*. New York: Harper & Row.

4. Huxley, A. (n. d.). *Island*. Retrieved from https://www.huxley.net/island.pdf

5. Le Guin, K. (1974). *The Dispossessed Ursula*. Retrieved from https://archive.org/details/the-dispossessed-ursula-k-le-guin-1974

6. Lowry, L. (1993). *The Giver*. Boston: Houghton Mifflin Company.

7. McCarthy, C. (n. d.). *The Road*. Retrieved from https://d-pdf.com/book/3812/read

8. Orwell, G. (1949). *1984*. London: Secker and Warburg.

9. Oxford World Classics, Bruce, S. (Ed.). (1999). *Three Early Modern Utopias*. Oxford: Oxford University Press.

10. Robinson, K. (2014). The Mars trilogy. Retrieved from https://libcom.org/article/mars-trilogy-kim-stanley-robinson

11. Zamyatin, Y. (1972). *We*. New York: Avon Books.

Unique Standpoints of the Distinctive British Feminist Writers of the 20th Century (regarding Gender Concerns)

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Abstract. The 20th century bore witness to a transformative period in literature and society, where the echoes of feminism reverberated through the pens of visionary writers who sought to challenge and redefine gender norms. Among the luminaries of this literary movement were three distinguished British feminist writers – Virginia Woolf, Doris Lessing, and Angela Carter. Their works encapsulated the spirit of their time and forged unique paths in the feminist discourse, offering diverse perspectives on gender concerns.

This research paper explores the distinct perspectives of three influential British feminist writers and their contributions to gender-related discourse. The primary goal is to analyse and compare the approaches of Virginia Woolf, Doris Lessing, and Angela Carter in addressing gender concerns within their literary works. The research focuses on understanding how these writers challenge traditional gender roles, critique patriarchal structures, and contribute to women's empowerment.

The objects of the study include a comprehensive examination of selected works by each author, with a keen focus on identifying recurrent themes, narrative techniques, and ideological underpinnings related to gender. The analysis explores the historical and socio-cultural contexts that shaped these writers' unique gender-issue viewpoints.

The results of this research aim to provide a nuanced understanding of how Virginia Woolf, Doris Lessing, and Angela Carter individually navigate and contribute to the feminist discourse. By comparing their works, the study seeks to elucidate commonalities and divergences in their feminist perspectives, shedding light on the evolving nature of feminist thought throughout the 20th century. Ultimately, this research contributes to the broader conversation on the intersection of literature and feminism, offering insights into how these writers have influenced and shaped discussions around gender concerns.

Keywords: gender; literature; British writers; feminism; modernism; postmodernism.

INTRODUCTION

The 20th century was a pivotal era in the history of feminism, witnessing the emergence of diverse voices that reshaped societal perceptions of gender roles and expectations. Within the annals of British literature, a cadre of formidable women writers emerged as torchbearers for feminist discourse, challenging entrenched norms and advocating for gender equality through their literary works. Their distinct and resonant voices offered unique perspectives on women's multifaceted struggles and triumphs in a rapidly changing world.

In this article, we delve into the rich tapestry of British feminist literature, exploring the unique standpoints of some of the most influential writers of the 20th century. From Virginia Woolf's groundbreaking explorations of female identity

to Angela Carter's subversive reimagining of fairy tales, these writers illuminated the complexities of gender concerns with unparalleled insight and artistry. Through their prose, poetry, and critical essays, they captured the zeitgeist of their time and laid the groundwork for contemporary feminist discourse.

As we navigate the literary landscape crafted by these visionary women, we will uncover the themes, motifs, and ideologies that underpin their works. From the suffragette movement to the sexual revolution, British feminist writers engaged with various socio-political currents, infusing their narratives with a potent blend of activism and introspection. Moreover, their writings transcended geographical boundaries, inspiring generations of readers around the globe to question, critique, and imagine anew the possibilities for gender equality.

Through a nuanced analysis of select texts and critical perspectives, this article aims to illuminate the enduring relevance of British feminist literature in the 21st century. By examining these remarkable writers' distinct voices and standpoints, we hope to honour their contributions and provoke thought and dialogue on the ongoing pursuit of gender equity and social justice. As we embark on this journey through the pages of history, let us pay homage to the courage, creativity, and conviction of the distinctive British feminist writers who paved the way for a more inclusive and equitable world.

Through an in-depth textual analysis and a comparative study, this paper aims to illuminate the individual contributions of Woolf, Lessing, and Carter. It seeks to identify the commonalities that unite these diverse voices, recognising their shared struggles and triumphs in exploring. Additionally, by situating their works within the historical context of 20th-century Britain, we endeavour to unravel the societal currents that influenced the evolution of their feminist perspectives.

As we navigate the unique landscapes crafted by these writers, this research not only honours their legacy but also underscores the significance of acknowledging and celebrating the diversity of feminist viewpoints. In doing so, we embark on a journey to understand the profound impact these writers had on shaping the discourse around gender concerns, leaving an indelible mark on the literary and feminist landscapes of the 20th century.

The investigation into the unique standpoints of the distinctive British feminist writers has been an ongoing scholarly endeavour. Prior research has delved into the individual works of these authors, analysing their contributions to feminist discourse and their respective approaches to challenging traditional gender norms. Scholars have explored themes of androgyny, critiques of patriarchy, and subversive storytelling techniques in Woolf, Lessing, and Carter's writings. Some notable scholars, like Hermione Lee, Sandra M. Gilbert, Susan Gubar, Naomi Black, Claire Sprague, Wendy Pearson, Jenny Taylor, Sarah Gamble, Linden Peach and others, contributed to exploring these literary figures and their feminist perspectives. These scholars have approached the works of Woolf, Lessing, and Carter from various angles, examining themes related to gender, feminism, and the broader socio-cultural contexts in which these authors wrote.

However, our scientific innovation lies in our study's comprehensive and comparative nature. Rather than examining each author in isolation, we have undertaken a nuanced analysis that juxtaposes the unique perspectives of Woolf, Lessing, and Carter. By synthesising their contributions, we offer a more holistic understanding of the evolution of feminist thought in 20th-century British literature. Our innovation extends to exploring the historical and socio-cultural contexts that shaped each author's viewpoint, providing a nuanced examination of the intersections between their personal experiences and feminist ideologies.

Furthermore, our research contributes a fresh perspective on the ongoing discourse around gender concerns by highlighting the distinct ways these writers have influenced feminist thought. The emphasis on comparison allows for identifying commonalities and divergences, enriching our understanding of the broader landscape of feminist literature. In essence, our scientific innovation lies in synthesising existing knowledge, the comparative analysis of these three iconic writers, and generating new insights contributing to the evolving field of gender studies in literature.

METHODS

Virginia Woolf, Doris Lessing, and Angela Carter were chosen based on their pivotal roles in shaping feminist discourse, offering distinct perspec-

tives on gender in 20th-century British literature. The works of these writers are known for their significant feminist themes, spanning different genres and reflecting varied periods within the 20th century.

We tried to conduct a comparative analysis to identify commonalities and differences in how Woolf, Lessing, and Carter approached gender concerns. Examine overarching feminist themes that resonate across their works and trace the evolution of their views on gender across different periods within the 20th century.

This methodology offers a robust framework for comprehensively exploring and comparing the distinctive British feminist writers of the 20th century, contributing to a nuanced understanding of their views on gender within the context of their respective literary and historical milieus.

RESULTS AND DISCUSSION

Gender perspectives in 20th-century British literature. In 20th-century British literature, gender perspectives underwent profound transformations, reflecting societal shifts and cultural movements. Writers such as Virginia Woolf and Doris Lessing challenged traditional gender norms, exploring themes of feminism, individual agency, and the evolving roles of women. Post-colonial feminist literature, represented by authors like Jean Rhys, addressed the intersectionality of gender and colonial experiences. The exploration of sexuality and sexual liberation emerged in works by D. H. Lawrence and Angela Carter. At the same time, the impact of wars on women's roles and identities was a recurrent theme. Modernist and postmodernist shifts, along with feminist revisions of myths and fairy tales, added complexity to gender narratives. Feminist literary criticism and the rise of fourth-wave feminism in the 21st century further expanded the discourse, making 20th-century British literature a dynamic space for exploring gender perspectives and identities [17, p. 557].

The 20th century witnessed a seismic shift in societal paradigms, and nowhere is this more evident than in the pages of British literature. A canvas of diverse voices, experiences, and challenges, 20th-century British literature became a crucible for exploring gender perspectives. From the pioneering works of Virginia Woolf to the post-colonial narratives of Jean Rhys, the literature of this era mirrored and shaped evolving notions of gender identity, roles, and expectations [8, p. 127].

At the forefront of this literary revolution was Virginia Woolf, a luminary who questioned and deconstructed traditional gender norms. In "Orlando" (1928), Woolf defied temporal and gender constraints, offering a narrative where the protagonist spans centuries and genders. Her essay "A Room of One's Own" (1929) called for economic independence as a prerequisite for creative expression, challenging the limitations imposed on women.

Post-colonial feminist literature emerged as a potent force, challenging not only gender norms but also Eurocentric feminist perspectives. In "Wide Sargasso Sea" (1966), Jean Rhys explored the intersectionality of gender and colonial experiences, giving voice to marginalised characters and shedding light on the complexities of identity.

Authors like D.H. Lawrence and Angela Carter explored sexuality and sexual liberation. Lawrence, in "Lady Chatterley's Lover" (1928), confronted societal taboos, while Carter's "The Bloody Chamber" (1979) reinterpreted traditional fairy tales through a feminist and sensual lens, offering new perspectives on female agency and empowerment.

The echoes of both World Wars reverberated through literature, reflecting the profound impact of conflict on women's roles and identities. Muriel Spark's "The Girls of Slender Means" (1963) and the poetry of Sylvia Plath captured the complexities and aftermath of war on gender dynamics.

Modernist and postmodernist movements introduced innovative narrative structures that engaged with the changing face of society. T.S. Eliot's "The Waste Land" (1922) and Salman Rushdie's "Midnight's Children" (1981) reflected the fragmentation of relationships and identities in the modern world, challenging conventional norms.

The impact of 20th-century British literature on gender perspectives continues to reverberate. Contemporary authors like Zadie Smith ("Swing Time," 2016) contribute to ongoing discussions about evolving gender dynamics and identities, adding layers to the rich tapestry woven by their predecessors.

The gender perspectives embedded in 20th-century British literature transcend mere narratives; they are a testament to the evolving consciousness of a society in flux. Through the words of Woolf, Rhys, Lawrence, and others, literature became a mirror reflecting the struggles, triumphs, and complexities of gender in a transformative century. These narratives questioned societal norms and laid the groundwork for ongoing dialogues, ensuring that exploring gender perspectives remains an enduring and essential facet of literary discourse [6, p. 879].

According to certain female novelists and critics, women's literature has finally emancipated itself from its historical subordination to a male tradition, marking a significant historical milestone. Notably, James Joyce, Dorothy Richardson, Virginia Woolf, and D. H. Lawrence explored sexual polarity in parallel ways. This can be attributed to the non-overlapping vocabularies of these two groups of writers, coupled with the distinct experiences and values that characterise women's narratives, preventing any confusion between the two. Virginia Woolf expressed her delight upon encountering women's fiction in 1929. *"Brave, genuine and close to what women feel, this book is courageous and honest. It's not too sour. It doesn't go overboard to claim to be female. When it comes to writing a woman's book, it is not written in the same way as a man's would be"* [17, p. 559].

In 1920, the author R. Brimley Johnson published a book titled "Some Contemporary Novelists (Women)" to elucidate the cooperative essence of women's storytelling and define the concept of a realistic approach specifically crafted by female writers. *"The new woman, in particular, the twentieth-century female novelist, abandons realism. She doesn't believe in what she's seen as a revelation. She has a burning desire to find the Truth that lies beyond the substance, the things that matter, and the spiritual realms. He appears to her to be an outsider, purposefully blind and indifferent."* [9, p. 23]. According to Johnson, the war had bestowed a "new spirituality" upon a disenchanted generation, a sentiment he romanticised.

Moreover, he attributed this change to a perceived lack of respect for women. The novels Johnson examined exhibit numerous shared traits rooted in feminism. By defining reality as subjective, these works challenge the notion that women's experiences are more limited.

Main themes and critical interpretations of Virginia Woolf, Doris Lessing, and Angela Carter's gender perspectives. Woolf often employed the stream-of-consciousness narrative technique, delving into her characters' innermost thoughts and perceptions. Woolf's works, such as "A Room of One's Own" and "Orlando," delve into feminist themes, questioning societal norms and advocating for women's independence. The fluidity of time and the impact of memory are recurring themes showcased in novels like "To the Lighthouse." Woolf is celebrated as a modernist pioneer, challenging traditional narrative structures and exploring new ways of representing consciousness. Feminist critics, including Sandra Gilbert and Susan Gubar, analyse Woolf's works through a feminist lens, emphasising her contributions to the feminist literary canon. Woolf's focus on the characters' interiority has significantly represented the complexity of women's inner lives, offering a nuanced portrayal that extends beyond traditional stereotypes.

Lessing's works often explore the intersectionality of gender, race, and class, addressing the complexities of identity. Lessing engages with feminist ideals and challenges societal expectations in novels like "The Golden Notebook" and "The Grass is Singing." Themes of individual agency and personal choice are prominent, reflecting Lessing's emphasis on autonomy. Scholars like Sneja Gunew emphasise Lessing's contributions to post-colonial feminist literature, unravelling the complexities of colonial experiences. Lessing's narrative experimentation, particularly in "The Golden Notebook," is a subject of critical exploration. Lessing's exploration of identity, coupled with her focus on intersectionality, has been instrumental in broadening the scope of feminist literature [16, p. 124].

Carter is renowned for her feminist revisions of traditional fairy tales, subverting gender norms and exploring female agency. Themes of sexuality and liberation are central, exemplified in works like "The Bloody Chamber" and "Nights at the Circus." Carter's works often involve a critique of societal norms and power structures. Carter's engagement with postmodernist themes, including intertextuality and metafiction, has been a subject of critical analysis. Carter's contributions to feminist literary criticism are underscored, particularly in her deconstruction of traditional fairy tales. Carter's feminist fairy tale retellings have played a pivotal role in challenging and subverting conventional gender roles embedded in classic narratives.

Woolf, Lessing, and Carter represent diverse feminist perspectives, ranging from modernist explorations of consciousness to post-colonial narratives and feminist fairy tale revisions. Together, these authors contribute to an intersectional understanding of feminism, addressing the complexities of gender and other facets of identity. Their significance lies in their literary innovation, challenging norms, and offering rich, multifaceted representations of women's experiences in the 20th century.

Contributions of Virginia Woolf. Virginia Woolf is often hailed as a pioneering feminist writer, acclaimed for her fictional and theoretical contributions. "A Room of One's Own" (1929), "Orlando" (1928), and "Mrs Dalloway" (1925) are her key works on gender issues. One of her most notable works in feminist theory is the essay "A Room of One's Own". Laura Marcus contends that Woolf's association with feminism arises from her depiction of a symbiotic character. Marcus further notes that Woolf's works, encompassing fiction and theory, revolve around women's lives and histories, fundamentally altering perceptions of Woolf as a writer [14, p. 217].

We can divide Woolf's contributions into two fields:

a) Feminist Literary Critique*:* In "A Room of One's Own," Woolf provides a seminal feminist critique of the limitations imposed on women in literature and society. She argues for the importance of economic independence and a literal "room of one's own" for women to be able to write. *"A woman must have money and a room of her own if she is to write fiction."* [21, p.3] This famous line encapsulates Woolf's feminist argument in the essay, highlighting the socio-economic constraints that hindered women's creative endeavours during her time. *"Lock up your libraries if you like, but there is no gate, lock, or bolt that you can set upon the freedom of my mind."* [21, p. 14]. Feminist scholars, including Sandra Gilbert and Susan Gubar, analyse Woolf's feminist perspectives [7]. "A Room of One's Own" is often examined to explore women's economic and creative independence. *"As a woman, I have no country. As a woman, my country is the whole world" "I would venture to guess that Anon, who wrote so many poems without signing them, was often a woman"* [20, p. 17].

b) Gender Fluidity – "Orlando" is a pioneering work exploring gender fluidity and identity. The protagonist, Orlando, lives for centuries and transforms from male to female. This work challenges the fixed nature of gender and highlights its performative aspects.

Examining "Orlando" through the theoretical lens of androgyny, it explores the biological and cultural aspects of gender, Distinguishing between sex as biological and gender as artistic. The term "androgyny," defined by the Oxford Learner's Dictionary as having male and female characteristics, challenges traditional gender norms. In the context of "Orlando," distinguishing between male and female becomes intricate, defying established gender norms. Woolf adeptly crafts a truly androgynous character where neither gender dominates the other. The portrayal of a feminine or masculine type of androgyny reinforces the binary oppositions of male and female. When we discuss Orlando in the context of A Room of One's Own, it pertains to Orlando as the personification of the ideal status of androgyny. It implies someone who knows the secrets of both sexes and can access the whole spectre of human experience. It allows exploiting intellect creativity fully. This state of androgyny prefers to choose the best of the worlds, as effectively depicted in the following lines of the novel: *"nor can there be any doubt that she reaped a twofold harvest by this device; the pleasures of life were increased, and it's experiences multiplied"* [1, p. 153]. The narrator describes Orlando as having an androgynous personality by stating that it was blending her of male and female; one is uppermost, and the other gave her conduct an unexpected turn.

In Orlando, gender expression is enacted through clothing, serving as a symbol that highlights issues related to gender distinctions. The use of disguises and costumes becomes a representation of adhering to traditional societal meanings. Virginia Woolf, through the exploration of costumes and disguises, raises inquiries about identity, essentially presenting a performance of gender. Drawing on Judith Butler's perspective, this performance exposes the inherent constraints and arbitrary nature of gender categories. In essence, Orlando challenges the notion that ideas of gender are absolute, emphasising the performative aspect of gender. The narrative effectively communicates willingness for identity exploration and freedom for each gender. Furthermore, it delves into the two predominant issues of gender construction and the conventions associated with male and female roles.

Lessing's contributions as feminist projections.
Doris Lessing (1919-2013) is acknowledged as a significant figure in the early feminist movement, and many scholars and critics hold recognition. While her novel's feminist categorisation remains a debated topic, its significance in feminist literature stems from exploring women's struggles in the 1960s, encompassing themes of marriage, motherhood, politics, and professions. *"What's terrible is to pretend that second-rate is first-rate. To pretend that you don't need love when you do, or you like your work when you know you're capable of better."* [12, p.342] This perspective positions the novel as groundbreaking and thought-provoking, earning praise from women writers and feminists like Natalie Hanman, who attests that reading the book changed her and guided her toward asking pertinent questions for a different approach. [19, p. 56] However, critiques exist, with some reviewers expressing irritation at the novel's perceived "overstated political message," while others highlight a predominant theme of a "sex war". Julie Cairnie's observations on Lessing's response to these critiques reveal a sense of hostility, with Lessing asserting that the novel could not be written in the present context. [13, p. 72]

As we investigated Woolf's contribution, dividing it into two sections, we can analyse Lessing's fiction from two aspects:

a) Intersectionality – Lessing's works often go beyond a singular focus on gender, incorporating intersectional themes. "The Golden Notebook" (1962) explores the complexities of women's lives through the lens of politics, mental health, and relationships*. "There is only one way to read, which is to browse in libraries and bookshops, picking up books that attract you, reading only those, dropping them when they bore you, skipping the parts that drag – and never, never reading anything because you feel you ought, or because it is part of a trend or a movement."* [12, p.419] While not explicitly addressing gender, this passage reflects Lessing's exploration of individual agency and the importance of personal choice, which are integral to her feminist perspectives.

b) Critique of Gender Roles – In "The Grass is Singing" (1950), Lessing provides a critical examination of the racial and gender dynamics in colonial Southern Rhodesia — the novel delves into the oppressive nature of societal expectations and their impact on individual agency.

Doris Lessing, a well-known writer of novels for all categories, addresses major societal issues, such as women's marginalisation in a male-dominated society. She is for everyone and at all times. She demonstrates her great awareness of women's issues, which bore witness to universal dealings and appeals. *"I'm a feminist. I've been a female for a long time now. It'd be stupid not to be on my side."* [12, p. 573]. Lessing's role as a feminist critic has allowed her to highlight female community status in the middle-class home. Her novels reveal a thorough examination of the patriarchal system's familial, social, cultural, economic, political, psychological, and racial conflict and sexual harassment suffered by women. Mary Turner in The Grass Is Singing, and Anna Wulf in The Golden Notebook are two examples of strong female protagonists she has played. Lessing aspires to open up a new vista for spotlighting women's power, independence, rights, and existence today. Lessing has not only established a strong credit, admiration, and worldwide identification among audiences, readers, professionals, researchers, critics, and scholars worldwide, but he has also established himself as a leading figure in literary texts. [19, p.62].

Lessing sheds new light on various social structures and norms that women in traditional positions of authority confront. These include the tensions between marriage and affection, the balancing act between motherhood and employment, the injustices of pretence, the dissatisfaction of a woman solely dedicated to her career, and the loneliness within marriage. *"Think wrongly, if you please, but in all cases, think for yourself."* [12, p. 349]. Her most well-known works portray women challenging the unfairness ingrained in traditional authority. She aims to depict the societal system and the conflicting perspectives on women through her fiction. Her feminist concerns primarily revolve around male-female interactions, revealing the struggles faced by her female characters. Lessing's works illustrate both idealised social scenarios and estrangement as her female characters become goal-oriented and take on roles traditionally assigned to men. She emphasises the importance of potentiality, liberation, and asserting women's emancipation in shaping one's identity at home [18, p. 103].

Lessing's objective is to present a realistic portrayal of marriage, career, love, parenthood, and male-female relationships in the contemporary world. Her novels explore the benevolence of pa-

triarchy as a societal construct. The conflict between a woman's evolving understanding of herself as a whole person and men's desire to maintain their reputation is evident in her works, portraying female characters as self-sufficient. Social topics and moral dilemmas, such as sensual double standards, inappropriate behaviour, companionate marriage, extramarital affairs, and the oldest profession, are addressed in her writings. Sometimes, her free-spirited female characters revert to conventional roles, especially when facing the risk of losing a man they love and opting for a life of ancestral duties and care. Lessing aims to convey her frustration with the fluctuating roles of women and her tendency to criticise them for perceived psychological shortcomings. However, it is noteworthy that she wrote these works during significant social change, mainly focusing on women's affairs [15, p. 474].

Diverse perspectives of Angela Carter on gender issues. When exploring the relationship between feminism and postmodernism in literature, the name Angela Carter inevitably comes to the forefront. Angela Carter, a self-proclaimed feminist and one of the foremost British writers of the 20th century, boasts a diverse body of work that includes nine novels, numerous short stories, essays, radio plays, screenplays, television scripts, journalism, and a collection of verse. "*A lot of male writers want to make out that they are the only explorers of the world and that women are just sitting around having little tea parties*" [21].

In her extensive oeuvre, gender is a pervasive and virtually inescapable theme. Despite touching upon a wide array of topics, the concept of "woman" stands out as one of the most significant elements in her work. *"The tiger will never lie down with the lamb; he acknowledges no pact that is not reciprocal. The lamb must learn to run with the tigers."* [4, p.131] This passage from "The Tiger's Bride" in "The Bloody Chamber" showcases Carter's feminist reimagining of traditional fairy tales. It suggests a transformation of the meek into the powerful, challenging traditional gender dynamics. *"My tiger is my work. I have pared the claws and trained it to hunt for its keep. I can sleep with it and eat with it. Everything else follows."* [4, p.134]

Her critical works on gender issues are – "The Bloody Chamber" (1979), "Nights at the Circus" (1984), "The Sadeian Woman and the Ideology of Pornography" (1978), "The Passion of New Eve" (1977).

Most of Carter's protagonists are women, and her perspective on gender oppression and commitment to women's emancipation is consistently evident. In her essay "Notes from the Front Line" (1983), she unabashedly embraces the title of feminist writer, stating, "I'm a feminist in everything else, and one can't compartmentalise these things in one's life". Carter emphasises the "enormously important" role of women writing fiction as women, positioning herself as a writer who addresses women, writes as a woman, and writes for women. She expresses an apparent affinity for her writing, fostering critical gender-oriented conversations among sisters [20, p.269].

From the point of view of gender studies, Angela Carter's contributions can be investigated from two aspects:

a) Feminist Retellings: Carter's short story collection "The Bloody Chamber" reimagines classic fairy tales with feminist twists. By subverting traditional narratives, she explores themes of female empowerment, agency, and the reclaiming of women's stories.

b) Erotic Liberation: "The Passion of New Eve", "The Sadeian Woman". "The Sadeian Woman" delves into the history of erotic literature and presents a feminist perspective on the works of the Marquis de Sade. Carter challenges traditional notions of sexuality and asserts the importance of women's sexual liberation. *"I think of myself as a bad writer with big ideas, but I'd rather be that than a big writer with bad ideas."* [5, p.23].

These quotes provide glimpses into the diverse perspectives of Woolf, Lessing, and Carter on gender issues, encompassing themes of independence, self-determination, and the critique of societal expectations.

Comparison: Analytical Examination of Virginia Woolf, Doris Lessing, Angela Carter

Common Themes:

- All three writers commit to challenging traditional gender roles and advocating for women's agency.

- They explore the intersectionality of gender with other social factors such as race, politics, and sexuality.

- Each writer contributes to the feminist discourse by using literature as a platform for critique and reimagining women's roles in society.

Differences:

- While Woolf is known for her early 20th-century contributions and emphasis on economic independence, Lessing's works span a more extensive timeframe and often engage with broader social issues.

- Carter's writing, influenced by magical realism and gothic elements, adds a unique fantastical dimension to her feminist critique.

- The focus of their critiques also differs, with Woolf examining the literary canon, Lessing delving into post-colonial dynamics, and Carter reinterpreting myths and fairy tales.

Impact:

- Woolf laid the foundation for feminist literary criticism and gender fluidity exploration.

- Lessing's commitment to intersectionality and her exploration of colonial and racial themes expanded the scope of feminist discourse.

- Carter's imaginative and provocative retellings influenced the feminist literary landscape, particularly in fairy tale revisionism.

In essence, these three British feminist writers of the 20th century, each with her distinctive style and thematic focus, collectively contributed to the evolution of feminist thought, expanding the boundaries of literature and challenging ingrained notions of gender and identity.

CONCLUSIONS

In conclusion, we may say that the comparative analysis of Virginia Woolf, Doris Lessing, and Angela Carter provided valuable insights into the distinctive standpoints of these influential British feminist writers regarding gender concerns in the 20th century. Each author, situated in diverse historical and socio-cultural contexts, contributes to the feminist discourse in unique ways. Woolf's exploration of androgyny, Lessing's critique of patriarchy, and Carter's deconstruction of traditional gender norms showcase the evolution and diversity within feminist thought.

While Woolf emphasises the interconnectedness of gender and artistic expression, Lessing challenges societal expectations by critically examining Sade's work, and Carter disrupts traditional narratives through her subversive storytelling. Despite their differences, these writers are committed to addressing gender issues, advocating for women's emancipation, and challenging entrenched power structures.

This comparative study underscores the richness and complexity of feminist perspectives in 20th-century British literature. By examining the unique contributions of Woolf, Lessing, and Carter, we gain a deeper understanding of how these writers have influenced and shaped discussions surrounding gender concerns. The enduring relevance of their work highlights the ongoing evolution of feminist discourse and the enduring importance of diverse voices in shaping our understanding of gender in literature and society.

REFERENCES

1. Buchel, N. M. (2003, October). *'Bankrupt enchantments' and 'fraudulent magic': demythologising in Angela Carter's The Bloody Chamber and Nights at the Circus*. Retrieved from https://repository.up.ac.za/bitstream/handle/2263/29092/00dissertation.pdf%3Bsequence%3D1

2. Butler, J. (1990). *Gender Trouble: Feminism and the Subversion of Identity*. New York: Rutledge.

3. Carter, A. (1997). *Shaking a Leg: Journalism and Writings*. London: Chatto & Windus.

4. Carter, A. (1993). *Burning Your Boats: Collected Short Stories*. London: Vintage.

5. Carter, A. (2001). *The Sadeian Woman and the Ideology of Pornography*. N. d.: Pantheon Books.

6. Cixous, H., Cohen, K., & Cohen, P. (1976). *The Laugh of the Medusa*. Retrieved from https://edisciplinas.usp.br/pluginfile.php/66416/mod_resource/content/1/cixous-the-laugh-of-the-medusa.pdf

7. Gilbert, S. M. (1993). *Introduction: Virginia Woolf's Vita Nuova in Orlando*. London: Penguin Books.

8. Gubar, S. (2000). *Critical condition: Feminism at the turn of the century*. Columbia University Press.

9. Hoffmann, G., Hornung, A., & Kunow, R. (1977). 'Modern,' 'Postmodern' and 'Contemporary' as Criteria for the Analysis of 20th Century Literature. In *Amerikastudien / American Studies*, 19–46. doi: 10.1007/978-3-476-99335-9_2

10. Lessing, D. (1950). *The Grass Is Singing*. New York: Harper Collins Publisher.

11. Lessing, D. (1962). *The Golden Notebook*. London: Michael Joseph.

12. Lyer, N. S. (2005). The unexplored universe of Doris Lessing. In M. Ray, R. Kundu (Eds.), *Studies in Women Writers in English* (Vol. 4, pp. 66–78). New Delhi:Atlantic Publisher and distributer.

13. Marcus, L. (2000). Woolf's Feminism and Feminism's Woolf. In S. Roe, S. Sellers (Eds.), The Cambridge Companion to Virginia Woolf (pp. 209–244). Cambridge: Cambridge University Press. doi: 10.1017/CCOL0521623936.011

14. Morgan, E. (1973). Alienation of the Woman Writer in "The Golden Notebook." *Contemporary Literature*, *14*(4), 471–480. doi: 10.2307/1207467

15. Rohini, J. (2016). Themes of Colonialism and Feminism in Doris Lessing's The Grass Is Singing. *International Journal of English Language, Literature and Humanities, 4*(8), 121–126.

16. Showalter, E. (1971). Women and the Literary Curriculum. *College English*, *32*(8), 855–862. doi: 10.2307/375623

17. Sparks, P. (1997). *Contemporary Women Novelists: A Collection of Critical Essays*. New Jersey: Prentice Hall.

18. Song, S. (2010). Alienation and Isolation – Problems of the Modern Society in Doris Lessing's. *Review of European Studies, 2*(2). doi: 10.5539/res.v2n2p164

19. Trevenna, J. (2002). Gender as Performance: Questioning the "Butlerification" of Angela Carter's fiction. *Journal of Gender Studies, 11*(3), 267–276. doi: 10.1080/0958923022000021250

20. Woolf, V. (1929). *A Room of One's Own*. London.

21. Woolf, V. (1928). *Orlando*. London.

Preserving Local Culture in the Era of Globalization: Balancing Modernity and Cultural Identity

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Abstract. The advancement of globalisation has brought about unprecedented levels of convenience, facilitating swift and efficient completion of tasks. Accompanying technological progress has ushered in an era inundated with information. Consequently, societies worldwide have become interconnected in a global framework. However, this global unity has precipitated a clash between the forces of modernisation and entrenched local cultures, compelling individuals to navigate between embracing modernity and preserving traditional cultural identities. Human nature's perpetual pursuit of perfection perpetuates a propensity for change. Ultimately, the allure of convenience offered by globalisation has overshadowed local cultures, resulting in their marginalisation. Hence, this paper explores avenues for the coexistence of local cultures and modernity, preserving the essence of cultural identity. Employing qualitative methodology, including a literature review and in-depth content analysis, this research seeks to elucidate strategies for the endurance of local cultures amidst globalisation and modernisation.

Keywords: Culture; Globalisation; Modernisation.

INTRODUCTION

Globalisation, a global phenomenon connecting the entire world in various aspects of life, such as economic, social, cultural, and political, has been a significant driver for modernisation. By facilitating the exchange of information, technology, and ideas between nations, globalisation has accelerated the change process toward a more modern and sophisticated lifestyle [1]. The impact is felt in various sectors, ranging from advances in information technology to changes in people's mindsets and values. Along with the increasingly rapid flow of globalisation, many local cultures are affected and even threatened by their existence because more dominant global cultures displace them. Therefore, the role and efforts to preserve local culture are becoming increasingly crucial in facing the modernisation challenges brought by globalisation [2].

Globalisation involves the exchange of information and interaction between countries and cultures worldwide. In Indonesia, the diversity of tribes, cultures, languages, and traditions creates a unique landscape. However, the impact of globalisation has brought significant changes to this diversity, especially because Indonesia is currently experiencing an era of demographic bonuses that support the creativity and innovation of Human Resources (HR). This shows that globalisation affects economic and technological aspects and brings significant social and cultural impacts at the local level [3].

Globalisation, driven by information and communication technology advances, broadly impacts various aspects of life, including culture [4]. Although it brings significant benefits, globalisation also poses challenges to cultural sustainability, such as the loss of existing cultures, cultural replacement, or transformation towards moder-

nity that can eliminate its original values. Although the phenomenon of globalisation is inevitable in the development of human civilisation, this term has only emerged in the last two decades and has become increasingly popular in the previous five years, widely accepted by various circles, including economists, political experts, and traders in the local market [5].

Globalisation affects modernity, the human attempt to improve social conditions through structured change. This process often involves social planning. However, globalisation usually leads to conflicts between modernisation and the preservation of local culture. The drive towards modernity forces people to adopt modern aspects, threatening the existence of local culture in the current widespread globalisation [6].

Given the significant impact that globalisation has generated, a deep understanding of globalisation and modernity becomes particularly relevant. Losing various unique and exciting cultural aspects along with the times is the primary concern that drives the writing of this article. Therefore, this article aims to explore the impact of globalisation on local cultures, highlight the importance of government in protecting and preserving cultural heritage, and raise public awareness of glorifying cultural diversity.

Globalisation has brought the world into the era of Industrial Revolution 4.0, which significantly changed the pattern of human life in technology and other fields [7]. The term "globalisation" comes from the word "global," which means universal, but the definition of globalisation does not have mature agreement and is often interpreted differently [8].

A borderless world has become a reality due to globalisation, with all humanity united as one global community where cultures interact without barriers so that foreign cultures quickly enter unchecked. As a potential market, Indonesia is a place to spread more advanced foreign cultures [5]. Local culture often grows from spiritual values and natural and environmental conditions, and the development of these cultures supports the sustainability of cultural life and the integrity of the nation [9].

Modernisation and globalisation are phenomena that cannot be separated from human life. Modernisation leads to social changes towards more modern life patterns in various aspects of life [10]. However, the impact of the times and tech-

nology has caused cultural elements to begin to fade in society. Globalisation, primarily through the rapid development of information and communication, has led to cultural exchange with foreign cultures, acculturation, and Westernization, threatening national identity [11]. This is triggered by the ease of technology and the inevitable pace of globalisation.

The Western adoption of fast food from the West reflects the influence of globalisation and modernisation on people's eating habits. Despite convenience and practicality, fast food impacts unhealthy dietary changes, increasing the risk of health problems such as obesity and reducing local culinary diversity. In addition, adopting fast food also brings foreign cultural influences that can threaten the sustainability of traditional culinary heritage and hurt the environment through excessive plastic use and production carbon footprint.

Cultural change over time is natural, but keeping the authenticity of cultural characters intact is essential for society [12]. Although the culture changes, its original characteristics must be preserved. However, the local culture faces significant challenges mainly due to the influence of modern technology that pushes the society towards modernisation and abandoning existing traditions. This suggests that the resistance of local cultures to globalisation flows tends to be weak, requiring more significant efforts to preserve them [13]. Globalisation, by bringing modernity, has changed the preferences of people, who prefer practical things and leave local cultures that are considered outdated and impractical. The lack of interest of the next generation in preserving local culture is a significant factor that causes a decrease in attention to traditional culture.

For example, in some regions in Indonesia, such as in rural areas, the tradition of going royong, which was once strong and an integral part of local culture, is now starting to decline due to the lack of interest of the younger generation to continue this tradition. They are more likely to fixate on more modern and practical activities, such as online payment services, rather than directly participating in mutual aid activities in their neighbourhood. This shows how modernisation and the influence of globalisation have changed people's preferences and behaviour toward local cultural traditions.

The effect of this change is the loss of mutual aid practices that affect togetherness and a sense of solidarity in society. Losing this tradition can also build stronger communities, and more mutual support is needed among community members in addressing common problems. In addition, neglect of local culture can also threaten the sustainability of cultural heritage and the regional identity of a region.

Globalisation brings positive impacts such as changes in people's values to be more rational, increased access to knowledge, and ease of activity, ultimately improving quality of life. However, its negative impacts include increased individualism, social isolation, materialism, and consumption. This rapid change can also cause culture shock in society, where people feel unprepared for changes that occur so quickly, resulting in imbalances in their lives.

The development of the times in the era of globalisation does not have to mean the loss or destruction of existing cultural values. Culture can develop along with modernity while still maintaining its authenticity. In the face of globalisation, it is essential to harmonise the incoming culture and filter the adopted culture to encourage rapid cultural development.

For example, the development of South Korea's entertainment industry, especially the Korean pop music (K-pop) industry, has become a global phenomenon reflecting how a culture can evolve along with modernity. Although K-pop has adopted elements of Western culture in its music and visual style, it still retains Korea's unique identity in lyrics, traditional dances, and other cultural elements. Thus, K-pop has achieved global success without losing its cultural roots, showing how culture can evolve with globalisation while maintaining its authenticity [14, 15, 16].

The development of South Korea's entertainment industry, especially K-pop, has significantly impacted cultural globalisation. One positive impact is improving South Korea's image and recognition in the international arena. K-pop has become a powerful soft power tool for the country, attracting interest from various circles worldwide and expanding its cultural influence.

However, the development of K-pop has also caused some negative impacts. Sometimes, the popularity of K-pop can lead to Korean cultural hegemony and shift local cultural identity in other countries. In addition, the high pressure on K-pop artists, both physical and mental, has become a severe concern in the entertainment industry. Some artists even experience excessive pressure and health problems due to the harsh demands of the industry.

Thus, although the development of K-pop has brought benefits in introducing South Korean culture to the world, it is also necessary to be aware of its negative impact on the local cultural identity and the well-being of its artists.

Globalisation and cultural diversity have a complex relationship. Globalisation can expand intercultural exchanges, enrich cultural diversity worldwide, and enable a better understanding of cultural differences. However, globalisation can also threaten cultural diversity by generating cultural dominance in certain countries or groups. It is essential to balance globalisation and the protection of cultural diversity, encourage mutually beneficial cultural exchanges, and value cultural diversity as an invaluable source of wealth [17].

Maintaining local culture remains an obligation, with steps such as building national identity, reviving cultural philosophy, and utilising information technology. Efforts to preserve local culture can be made through direct experience in culture (culture experience) and cultural knowledge (culture knowledge) with the support of cultural information centres. It is also essential to increase awareness of the importance of culture, participation in preserving and maintaining culture, and socialising with others [20, 21].

Maintaining local cultural knowledge is crucial to transforming information through technological developments [22, 23]. However, more than individual efforts are needed, the state's role is vital in maintaining local culture as an asset and identity of the nation through various measures, such as establishing cultural preservation institutions and media regulation. National awareness initiated by the state in filtering incoming cultures and ensuring the preservation of local cultures is vital in safeguarding this unique and diverse heritage as an asset of the nation.

CONCLUSIONS

Globalisation and modernisation, driven by technological and information advancements, have rapidly developed various aspects of life. However, local culture is often eroded and threatened in the process due to the younger generation's lack of awareness and desire to preserve it. Local culture has rich and unique values that should be maintained and preserved. To overcome this

challenge, young people need to understand and love local culture and play an active role in preserving it. Local culture must also keep up with the times and modernity while maintaining its original values. In addition, intensive support from the government and the community is also needed to preserve local culture. Thus, Indonesia's local culture can continue to develop and be appreciated worldwide.

REFERENCES

1. Hidajat, R., Laksana, R., Suharyanto, A., Wiflihani, W., Arrizqi, M., Rochayati, R., & Razak, A. (2022). The Symbolic Battle of Coastal Culture in Zapin Dance in Palembang. *Proceedings of the 1st International Conference on Social-Humanities in Maritime and Border Area, SHIMBA 2022, 18-20 September 2022, Tanjung Pinang, Kep. Riau Province, Indonesia*. doi: 10.4108/eai.18-9-2022.2326041

2. Arfani, R. N. (2004). *Globalisasi. Karakteristik & Implikasinya* [Globalisation. Characteristics & Implications]. Retrieved from https://mirror.unpad.ac.id/orari/library/cd-al-manaar-digilib/bahan/8.%20EKONOMI%20POLITIK/1.%20Globalisasi%20Karakteristik%20dan%20Implikasi.pdf (in Indonesian).

3. Siti, N., & Siregar, S. (2013). Persepsi Orang Tua terhadap Pentingnya Pendidikan bagi Anak. *JPPUMA: Jurnal Ilmu Pemerintahan Dan Sosial Politik UMA, 1*(1), 11–27 (in Indonesian).

4. Suryono, A. (2010). *Dimensi-dimensi Prima teori pembangunan* [Prima dimensions of development theory]. Malang : Universitas Brawijaya Press (in Indonesian).

5. Syam, H. M. (2015). Globalisasi Media Dan Penyerapan Budaya Asing, Analisis Pada Pengaruh Budaya Populerkorea Di Kalangan Remaja Kota Banda Aceh. *Avant Garde, 3*(1) (in Indonesian).

6. Atmadja, N. B. (2010). *Ajeg Bali. Gerakan, Identitas Kultural, dan Globalisasi: Gerakan, Identitas Kultural, dan Modernisasi* [Ajeg Bali. Movement, Cultural Identity, and Globalisation: Movements, Cultural Identity, and Modernisation]. Yogyakarta: LKIS (in Indonesian).

7. Savitri, A. (2019). *Revolusi industri 4.0: mengubah tantangan menjadi peluang di era disrupsi 4.0* [Industrial revolution 4.0: turning challenges into opportunities in the era of disruption 4.0]. Yogyakarta: Penerbit Genesis (in Indonesian).

8. Haqqi, H., & Wijayati, H. (2019). *Revolusi industri 4.0 di tengah society 5.0: sebuah integrasi ruang, terobosan teknologi, dan transformasi kehidupan di era disruptif* [Industrial revolution 4.0 in the midst of society 5.0: an integration of space, technological breakthroughs, and life transformation in the disruptive era]. N. d. : Quadrant (in Indonesian).

9. Liliweri, A. (2019). *Pengantar studi kebudayaan* [Introduction to Cultural Studies]. N. d.: Nusamedia (in Indonesian).

10. Suradi, A. (2018). Pendidikan Berbasis Multikultural dalam Pelestarian Kebudayaan Lokal Nusantara di Era Globalisasi [Multicultural-based Education in Preserving the Archipelago's Local Culture in the Era of Globalisation]. *Jurnal Pendidikan Ilmu-Ilmu Sosial, 10*(1), 77. doi: 10.24114/jupiis.v10i1.8831 (in Indonesian).

11. Pamungkas, C. (2017). Global village dan Globalisasi dalam Konteks ke-Indonesiaan [Global village and Globalisation in an Indonesian Context]. *Jurnal Global & Strategis, 9*(2), 245. 10.20473/jgs.9.2.2015.245-261 (in Indonesian).

12. Jokilehto, J. (2006). Considerations on authenticity and integrity in world heritage context. *City & Time, 2*(1), 1.

13. Lindholm, C. (2007). *Culture and authenticity*. New York: John Wiley & Sons.

14. Ekin, A. (2020, July 1). *Are K-pop and BTS fans a new force for social justice*? Retrieved from https://www.aljazeera.com/features/2020/7/1/are-k-pop-and-bts-fans-a-new-force-for-social-justice

15. Lie, J. (2021). BTS, the highest stage of K-pop. *The Soft Power of the Korean Wave*, 118–128. doi: 10.4324/9781003102489-10

16. Riani, A. (2020, June 10). *Penggemar K-pop, Sekutu Tak Terduga dalam Gerakan Protes Lawan Rasisme* [K-pop Fans, Unexpected Allies in the Protest Movement Against Racism]. Retrieved from https://www.liputan6.com/lifestyle/read/4275624/penggemar-k-pop-sekutu-tak-terduga-dalam-gerakan-protes-lawan-rasisme (in Indonesian).

17. Fadilah, R., Parinduri, S. A., Syaimi, K. U., & Suharyanto, A. (2020). Islamic Guidance and Counseling to Overcome the Study Difficulty of Junior High School Students in SMP IT Nurul Azizi Medan (Case Study of Students experiencing Anxiety). *International Journal of Psychosocial Rehabilitation, 24*, 1154–1160. doi: 10.37200/ijpr/v24sp1/pr201262

18. Suharyanto, A. (2013). Peranan pendidikan kewarganegaraan dalam membina sikap toleransi antar siswa. *JPPUMA: Jurnal Ilmu Pemerintahan Dan Sosial Politik UMA, 1*(2), 12 (in Indonesian).

19. Suharyanto, A. (2015). Dilema Multikulturalisme Pada Masyarakat Multikultur Di Medan, Sumatera Utara [The Dilemma of Multiculturalism in a Multicultural Society in Medan, North Sumatra]. *Jurnal Kewarganegaraan, 25*(2), 118–127 (in Indonesian).

20. Suratmi, N. (2022). *Multikultural: Karya Pelestarian Kearifan Lokal Kesenian Barongsai-Lion* [Multicultural: The Work of Preserving the Local Wisdom of Lion Dance Arts]. N. d.: Media Nusa Creative (in Indonesian).

21. Wibawanto, S. (2018). Peran Budaya Dalam Mempengaruhi Daya Tarik dan Daya Saing Destinasi Wisata [The Role of Culture in Influencing the Attractiveness and Competitiveness of Tourism Destinations]. *Fokus Bisnis: Media Pengkajian Manajemen Dan Akuntansi, 17*(1), 24–33 (in Indonesian).

22. Suharyanto, A. (2015). Pendidikan dan Proses Pembudayaan dalam Keluarga [Education and the Process of Acculturation in the Family]. *Jupiis: Jurnal Pendidikan Ilmu-Ilmu Sosial, 8*(1), 162. doi: 10.24114/jupiis.v7i2.3123 (in Indonesian).

23. Suharyanto, A., Harianja, R. S. H. K., Ndraha, P. W., Saragih, I. S. K., Sipayung, K. F., Harahap, N., & Nababan, R. D. (2019). Indigenous Knowledge Masyarakat Etnis Karo Terhadap Pengelolaan Tumbuhan Hutan Di Desa Lingga, Kabupaten Karo [Indigenous Knowledge of Karo Ethnic Community on Forest Plant Management in Lingga Village, Karo Regency]. *Journal of Education, Humaniora and Social Sciences (JEHSS), 1*(3), 162–169. doi: 10.34007/jehss.v1i3.33 (in Indonesian).

Electroanalysis of Oenological Products for Fingerprinting: a Brief Overview

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Abstract. The oenology industry faces challenges in maintaining wine authenticity amidst diverse environmental factors and production methods. Electroanalytical wine fingerprinting emerges as a promising solution to authenticate and validate products. Integrating electrochemical techniques with multivariate analysis enables rapid on-site testing, pattern recognition, and fraud detection. Emerging trends include miniaturisation, nanomaterial utilisation, and machine learning, driving innovation towards sustainable practices. This overview describes current trends and achievements in using electroanalysis to fingerprint oenological products.

Keywords: Oenological industry; Electroanalytical techniques; Wine fingerprinting; Authentication; Sustainability.

INTRODUCTION

The oenology industry moves millions worldwide and encompasses many technologies based on traditional and contemporary production methods. From the grape harvest to commercialising finished products, wine commerce fosters jobs and revenue throughout its production chain. In this regard, the contribution of this industry to several populations around the world is remarkable, and wine has been intrinsically linked to regional tradition in numerous nations. Some noteworthy instances are the acknowledged viniculture heritage of European countries, as well as the contribution of awarded African [1], Asian [2], Oceanian [3] and American [4] wineries to the oenological scenario worldwide.

Overall, the organoleptic profile of wines is pretty variable according to edaphological and microclimate influences during grape growth. It has been reported that subtle variations in soil pH and humidity significantly affect wines' final flavour and aroma profile [5]. Several feedback mechanisms depend on environmental conditions, as proven elsewhere [6, 7], regulating the production of secondary metabolites. Likewise, wine astringency is deeply affected by mechanic disturbances on the plant, hence the role of polyphenolic compounds such as tannins in hindering the animal foraging of plant tissues.

Although the chemical variability provided by plant secondary metabolism and its rich feedback mechanisms is noteworthy, the profound influence of fermentation and the production method must be mentioned on wine's chemical identity. Concerning the fermentation protocols usually employed by wine producers worldwide, selected strains or wild colonies are chosen according to historical factors and industrial scalability [8]. This last factor, in particular, considers various nutritional and microenvironmental requirements of the strains, which must be carefully addressed to standardise more significant production and avoid off-flavours that can tarnish wine quality. Fermentation is a critical point

in the production chain of many beverages and foods [9]. Regarding oenological products, it is usually conducted in two steps to improve the resulting aroma and taste.

The first fermentation encompasses the consumption of sugars by the microorganisms in the bioreactor and their controlled growth. Owing to the sudden spike in the amount of biomass in the must, there must be enough macro and micronutrients to sustain the balanced proliferation of selected strains and avoid those leading to foul aromas to thrive [10]. The first fermentation yields ethanol and several byproducts that contribute to wine flavour and mouthfeel, such as malic acid, whose dicarboxylic nature strongly contributes to acidity [11]. To hinder this sharp flavour, many producers follow on with a second fermentation step, wherein malic acid will undergo bioconversion to a monocarboxylic derivative, i.e., lactic acid. This process also contributes to managing the growth of microorganisms in the must and dramatically enhances the organoleptic complexity of oenological products. On the other hand, it lengthens the production time and raises the price of the final product.

Another highly influential factor in the construction of wine aroma is ageing. The controlled ageing of oenological products has been subject to extensive investigation, as it is considered a science and art [12]. In Italy, in particular, the culture of wine ageing led to the creation of a highly lucrative industry altogether, i.e., the balsamic vinegar (Italian: "aceto balsamico"), a Modena region staple in Emilia-Romagna. The ageing process involves many microenvironmental variables: temperature and aeration. The last, in particular, needs to be maintained at deficient levels, i.e., micro aeration, so that a finely controlled oxidation of phenolic compounds may lead to their polymerisation, dramatically changing the product's organoleptic features. Overall, aged wines are darker, paler and less astringent than younger ones; hence, the tannins that would otherwise promote astringency have now undergone polymerisation and are thence no longer able to extensively form complexes with salivary proteins and change oral osmolarity [13].

Considering the chemical complexity of wines and the variety of influences on the aroma and flavour of this product, legal frameworks were developed to ensure the authenticity of wines and link them to the particular organoleptic features consistent with specific production regions and methods. In this regard, many countries adopted the denominations of controlled origin and indication of geographical origin to standardise the classification of oenological products according to their sourcing area [14]. Nevertheless, producers from the same region may have distinct products, and even the same producer may have contrasting wines according to crop and harvest variations, climate changes, and other factors. In this regard, the legal frameworks provide a valuable attempt to establish criteria to classify the authenticity of products but need to be backed by strategies that consider the variability within producing regions [15].

To all accounts, wine is a living product, which continues to evolve from the harvest of the grape until the very moment it is consumed. These characteristics make this beverage versatile and more likely to please more significant demographics, as showcased by the widespread commercialisation of oenological products worldwide and the multimillion market in which moves [16]. On the other hand, this also evidences that the sheer chemical variety of wines leads to a somewhat subjective evaluation of their characteristics, which may lead to fraud that can incur massive financial losses [17]. Several multimillion scam accounts involved making wine sook like legitimate products, and many customers were defrauded [18]. In this regard, there is an urge to develop authentication tools capable of fingerprinting wines according to their geographical origin, grape variety, vintage, and other identification parameters.

RESULTS AND DISCUSSION

Fingerprinting of oenological products. Due to wine industry revenue, the investigation of methods to authenticate and validate the origin of oenological products is a highly debated topic. To all accounts, the history and cultural tradition associated with particular wines dramatically raise their equity, leading to products that can reach millions in auctions. Conversely, the lack of portable technologies to verify the authenticity of these products in a point-of-need setting makes this industry very susceptible to scams [19].

Although numerous reports in the literature detail the metabolomic and chemometric profiling of wines and their identity according to highly relevant attributes such as geographical origin and grape variety, these technologies are still re-

stricted in terms of application [20]. Owing to the high cost and infrastructure requirements of mass spectrometry and spectroscopic devices, these techniques are relegated to costly oenological products. They are unlikely to be applied for mass testing. Moreover, the very requirement of refined and large analytical instruments hinders portability.

Regardless of the limitations in cost and portability, the analysis of wines by standard techniques significantly contributed to a better understanding of their chemical profiles and ways to classify their origin and quality according to the type and proportion of chemical constituents. Overall, wine authentication can be performed by assessing mineral content, volatile metabolites, phenolic constituents, amino acid profile, isotopic ratios, and NA analysis [20]. Indeed, several outreaches employed organic and mineral profiling with refined multivariate analysis and classification tools based on machine learning to establish objective thresholds for authenticity. Furthermore, some of these technologies even led to the development of innovative ways to assess wine quality.

Electroanalysis for Wine Fingerprinting. In recent years, electroanalytical techniques have emerged as promising tools for the authentication and characterising oenology products [21]. These techniques, which encompass a variety of methods, including voltammetry and electrochemical impedance spectroscopy through electrochemical sensors, offer several advantages over traditional analytical methods.

One of the critical advantages of electroanalysis is its simplicity and portability, making it suitable for on-site testing and rapid analysis [21]. Unlike mass spectrometry and spectroscopic techniques, which often require expensive instrumentation and trained personnel, electroanalytical methods can be implemented using compact and relatively inexpensive devices. Some of these platforms were reported to reach values lower than $30 [22], highlighting their affordability in contrast with chromatographic devices. Another noteworthy point of electroanalysis is portability. This attribute is particularly advantageous for the wine industry, where performing real-time analysis directly in the vineyard or winery can facilitate quality control and, when performed at point-of-sale or auctions, could assist in fraud detection.

Voltammetry, in particular, has shown great promise for wine fingerprinting due to its ability to provide detailed information about the electrochemical behaviour of wine components [23]. By measuring the current response as a function of applied potential, voltammetry can identify and quantify specific electroactive species present in the sample [24]. This includes redox-active compounds such as polyphenols, which are crucial in determining wine quality and authenticity [25]. Polyphenols, abundant in various natural sources like fruits [26], vegetables [27], and beverages, have drawn considerable attention for their health benefits [28–30]. The structure of polyphenols has also been extensively used in the pharmaceutical industry as a building block for many medicines [31–33]. Voltammetry offers a promising method for their detection. In voltammetric analysis, polyphenols undergo oxidation or reduction at specific potentials [34], producing characteristic electrochemical signals. By monitoring changes in current or potential during these reactions, voltammetry enables precise and selective detection of polyphenols, even in complex matrices [35]. Its high sensitivity, rapidity, and relatively low cost make voltammetry a valuable tool for assessing polyphenol & antioxidant content in food, beverages, and biological samples, contributing to research in nutrition and medicine.

Moreover, voltammetric techniques can be easily adapted to target specific analytes of interest, allowing for selective detection of essential compounds associated with geographical origin, grape variety, and production methods [23]. For example, cyclic voltammetry can characterise phenolic compounds' redox behaviour], while differential pulse voltammetry can enhance sensitivity and selectivity for trace analysis [37]. Furthermore, voltammetry has been proven to allow susceptible and selective compound detection and is increasingly used in chemical and pharmaceutical industries for quality control [31, 38–40] and environmental monitoring [41–43].

In addition to voltammetry, electrochemical sensors offer a promising approach to fingerprinting [33, 44]. These sensors, which typically consist of an electrode modified with a selective recognition element, can provide rapid and sensitive detection of target analytes. By leveraging the unique electrochemical properties of wine components, such as their redox activity and charge transfer kinetics, electrochemical sensors can

achieve high specificity and accuracy in wine analysis.

Electroanalytical techniques offer a powerful approach to wine fingerprinting, providing rapid, sensitive, and selective analysis of oenological products [45]. By leveraging the electrochemical properties of wine components, these methods can facilitate quality control, fraud detection, and traceability throughout the production chain. As such, electroanalysis holds great promise for ensuring the authenticity and integrity of wines in a global market characterised by increasing demand and diverse consumer preferences.

Integration of Electroanalytical Techniques with Multivariate Analysis. Integration with multivariate analysis methods is highly beneficial to fully exploit the potential of electroanalytical techniques for wine fingerprinting [46]. Multivariate analysis allows for the simultaneous interpretation of complex datasets containing information from multiple electrochemical measurements and complementary analytical techniques such as chromatography and spectroscopy.

Principal component analysis (PCA) is one of the most commonly used multivariate analysis techniques for wine authentication. PCA enables the visualisation of high-dimensional data by identifying patterns and correlations among variables, thereby reducing the dimensionality of the dataset while preserving the most relevant information [47]. By plotting samples in a lower-dimensional space defined by principal components (PCs), PCA can reveal similarities and differences between wine samples based on their electrochemical profiles. Several works have detailed the use of this technique to gather more insights into product development in several industries, such as unfermented consumer goods and pharmaceuticals[36, 48]. Furthermore, PCA can be combined with hierarchical clustering analysis (HCA) to classify wine samples into distinct groups or clusters based on their electrochemical characteristics. HCA utilises similarity measures to group samples with similar profiles together, providing insight into the underlying structure of the dataset. This approach can facilitate the identification of outliers and the detection of fraudulent or adulterated wines [49].

In addition to unsupervised methods like PCA and HCA, supervised classification techniques such as linear discriminant analysis and support vector machines can be employed to build predictive models for wine authentication. These techniques leverage labelled training data to learn discriminative features that distinguish between authentic and counterfeit wines, allowing for highly accurate classification of unknown samples [50]. These artificial intelligence strategies have already established themselves in the medical and pharmaceutical industries, hence the possibility of thoroughly analysing complex datasets and extracting classification parameters that allow disease diagnosis [51, 52]. Moreover, feature selection algorithms can be used to identify the most informative electrochemical variables for wine fingerprinting. By prioritising variables that contribute the most to the discrimination between wine samples, feature selection can enhance the efficiency and interpretability of the analysis. This can lead to more robust and reliable authentication models capable of handling complex and heterogeneous datasets.

Integrating electroanalytical techniques with multivariate analysis methods represents a powerful approach to wine fingerprinting and authentication [23]. By combining electrochemistry's analytical capabilities with multivariate analysis's data processing capabilities, this integrated approach enables a comprehensive and objective assessment of wine authenticity, helping to ensure consumer confidence and preserve the reputation of the oenological industry.

Emerging Trends in Electroanalytical Wine Fingerprinting. As the field of electroanalytical wine fingerprinting continues to evolve, several emerging trends are shaping this research area's future. These trends encompass technological advancements, methodological innovations, and interdisciplinary collaborations aimed at addressing key challenges and expanding the capabilities of wine authentication and quality control.

a) Miniaturisation and Portable Devices. One prominent trend is the miniaturisation of electroanalytical devices and the development of portable instrumentation for on-site wine analysis. Miniaturisation enables the integration of multiple sensing elements into compact and user-friendly platforms, allowing for rapid and convenient testing in diverse settings such as vineyards, wineries, and distribution centres. Portable devices equipped with electrochemical sensors and microfluidic systems offer real-time monitoring capabilities, empowering stakeholders across the wine supply chain to make in-

formed decisions about product quality and authenticity [53].

b) Nanomaterials and Sensing Enhancements. Another trend involves the utilisation of nanomaterials and nanotechnology-based approaches to enhance the sensitivity, selectivity, and stability of electrochemical sensors for wine fingerprinting [54, 55]. Nanomaterials such as carbon nanotubes, graphene, metal nanoparticles, and molecularly imprinted polymers exhibit unique electrochemical properties that can be leveraged to improve the performance of sensors for detecting specific wine components. Nonetheless, all these techniques have been extensively subjected to proof-of-concept through applications in fermented and unfermented consumer goods [45], pharmaceutical [35, 56–58], medical [59] and chemical industries, which highlights the benefits of designing recognition surfaces to enhance analytical response.

c) Multimodal Sensing and Data Fusion. Multimodal sensing approaches, which combine multiple sensing modalities within a single analytical platform, are gaining traction for comprehensive wine analysis. By integrating electrochemical sensors with complementary techniques such as spectroscopy, chromatography, and mass spectrometry, multimodal sensing systems offer a holistic view of wine composition and quality [54]. Data fusion techniques enable the integration of information from different sensors and analytical methods, enhancing the robustness and accuracy of wine fingerprinting models. Multimodal sensing and data fusion facilitate synergistic analysis of wine samples, enabling comprehensive characterisation of complex matrices and identifying subtle variations associated with geographical origin, grape variety, and production methods.

d) Machine Learning and Artificial Intelligence. Advancements in machine learning and artificial intelligence are revolutionising the field of wine fingerprinting by enabling automated data analysis, pattern recognition, and predictive modelling. Machine learning algorithms such as deep learning, random forests, and support vector machines can extract meaningful insights from large datasets, identify relevant features, and classify wine samples based on their electrochemical profiles. These algorithms learn from historical data to develop robust authentication models capable of detecting anomalies, predicting wine quality, and identifying counterfeit products with high accuracy and efficiency [47, 60].

e) Interdisciplinary Collaborations and Knowledge Integration. Interdisciplinary collaborations between researchers in chemistry, material science, engineering, viticulture, and data science drive innovation in electroanalytical wine fingerprinting. By combining expertise from diverse disciplines, interdisciplinary teams can tackle complex challenges, develop novel sensing technologies, and elucidate fundamental relationships between wine composition, sensory properties, and production parameters. Knowledge integration across disciplines fosters a holistic understanding of wine authenticity and quality, paving the way for holistic solutions that address the multifaceted nature of wine analysis and authentication. In conclusion, the future of electroanalytical wine fingerprinting is characterised by ongoing advancements in miniaturisation, nanotechnology, multimodal sensing, machine learning, and interdisciplinary collaboration [17, 49, 54]. These trends promise to enhance the efficiency, accuracy, and accessibility of wine authentication and quality control, ultimately ensuring consumer confidence, safeguarding industry integrity, and promoting sustainability in the global wine market.

CONCLUSIONS

The oenological industry stands at the intersection of tradition and innovation, where centuries-old winemaking practices merge with cutting-edge technologies to produce exceptional quality and character wines. Throughout this review, we have explored the intricate nuances of wine production on a high level, from the influence of terroir on grape composition to the role of fermentation and ageing in shaping wine aroma and flavour profiles. The organoleptic complexity of wines arises from many factors, including environmental influences, fermentation protocols, and ageing processes. As such, ensuring the authenticity and quality of wines presents a multifaceted challenge that requires a comprehensive understanding of their chemical composition and sensory attributes. In response to these challenges, electroanalytical wine fingerprinting has emerged as a powerful tool for authentication, quality control, and traceability in the wine industry. By leveraging electrochemical techniques such as voltammetry and impedance spectroscopy in customised electrochemical sensors, researchers and producers can obtain detailed insights into the composition and characteristics of

wines, enabling them to differentiate between authentic products and counterfeit imitations, as well as potentially harmful contaminants or adulteration. Moreover, integrating electroanalytical methods with advanced data analysis techniques such as multivariate analysis, machine learning, and blockchain technology has further enhanced the capabilities of wine fingerprinting, enabling real-time monitoring, predictive quality control, and transparent supply chain management.

Looking ahead, the future of electroanalytical wine fingerprinting holds immense promise, driven by ongoing advancements in sensor technology, data analytics, and interdisciplinary collaboration. By harnessing the power of electro-chemistry and embracing innovative approaches to wine analysis and quality assurance, the industry can continue to uphold its reputation for excellence while meeting the evolving demands of consumers and regulatory authorities alike. In conclusion, electroanalytical wine fingerprinting represents a valuable tool for preserving the integrity and authenticity of wines, safeguarding the heritage of the oenological tradition, and ensuring a sustainable future for the global wine industry. Through continued research, innovation, and collaboration, we can unlock new possibilities in wine analysis and quality control, enriching the appreciation and enjoyment of this timeless beverage for generations to come.

REFERENCES

1. Piesse, J., Conradie, B., Thirtle, C., & Vink, N. (2018). Efficiency in wine grape production: comparing long-established and newly developed regions of South Africa. *Agricultural Economics, 49*(2), 203–212. doi: 10.1111/agec.12409

2. Ho, H. K. (2021). Twenty-first Century Wine Consumption Trends in East Asia: History, Luxury and Transformation. *Journal of Cultural Analysis and Social Change, 6*(2), 12. doi: 10.20897/jcasc/11450

3. Ling, B.-H., & Lockshin, L. (2003). Components of Wine Prices for Australian Wine: How Winery Reputation, Wine Quality, Region, Vintage, and Winery Size Contribute to the Price of Varietal Wines. *Australasian Marketing Journal, 11*(3), 19–32. doi: 10.1016/s1441-3582(03)70132-3

4. Hisano, A. (2017). Reinventing the American Wine Industry: Marketing Strategies and the Construction of Wine Culture. *SSRN Electronic Journal*. doi: 10.2139/ssrn.2966758

5. Li, S.-Y., Duan, C.-Q., & Han, Z.-H. (2021). Grape polysaccharides: compositional changes in grapes and wines, possible effects on wine organoleptic properties, and practical control during winemaking. *Critical Reviews in Food Science and Nutrition, 63*(8), 1119–1142. doi: 10.1080/10408398.2021.1960476

6. Souza, M. J. M. de F., Thomaz, D. V., Kloppel, L. L., Carneiro, L. A., Rocha, M. C., Aguiar, D. V. A. de, Vaz, B. G., Sousa, C. M., & Santos, P. A. dos. (2021). Influence of organo-mineral supplementation on the production of secondary metabolites in in vitro-germinated Bromelia balansae Mez. *Research, Society and Development, 10*(11), e411101118052. doi: 10.33448/rsd-v10i11.18052

7. Souza, M. J. M. de F., Thomaz, D. V., Carneiro, L. A., Aguiar, D. V. A. de, Vaz, B. G., Sousa, C. M., & Santos, P. A. dos. (2023). In vitro micropropagation of Bromelia balansae Mez.: effects of light intensity and growth regulators on plant development. *Research, Society and Development, 12*(3), e18212340518. doi: 10.33448/rsd-v12i3.40518

8. Lambrechts, M. G., & Pretorius, I. S. (2019). Yeast and its Importance to Wine Aroma - A Review. *South African Journal of Enology & Viticulture, 21*(1). doi: 10.21548/21-1-3560

9. Batista, R. D., de Cássia Sousa Mendes, D., Morais, C. C., Thomaz, D. V., Ramirez Ascheri, D. P., Damiani, C., & Asquieri, E. R. (2020). Physicochemical, functional and rheological properties of fermented and non-fermented starch from canary seed (Phalaris canariensis). *Food Hydrocolloids, 99*, 105346. doi: 10.1016/j.foodhyd.2019.105346

10. González, B., Vázquez, J., Morcillo-Parra, M. Á., Mas, A., Torija, M. J., & Beltran, G. (2018). The production of aromatic alcohols in non-Saccharomyces wine yeast is modulated by nutrient availability. *Food Microbiology, 74*, 64–74. doi: 10.1016/j.fm.2018.03.003

11. Hidalgo, P., Pueyo, E., Pozo-Bayón, M. A., Martínez-Rodríguez, A. J., Martín-Álvarez, P., & Polo, M. C. (2004). Sensory and Analytical Study of Rosé Sparkling Wines Manufactured by Second Fermentation in the Bottle. *Journal of Agricultural and Food Chemistry, 52*(21), 6640–6645. doi: 10.1021/jf040151b

12. Carpena, M., Pereira, A. G., Prieto, M. A., & Simal-Gandara, J. (2020). Wine Aging Technology: Fundamental Role of Wood Barrels. *Foods, 9*(9), 1160. doi: 10.3390/foods9091160

13. Santos, M. C., Nunes, C., Ferreira, A. S., Jourdes, M., Teissedre, P.-L., Rodrigues, A., Amado, O., Saraiva, J. A., & Coimbra, M. A. (2019). Comparison of high pressure treatment with conventional red wine aging processes: impact on phenolic composition. *Food Research International, 116*, 223–231. doi: 10.1016/j.foodres.2018.08.018

14. Ramos Camfield, L. H., Palma Révillion, J. P., Wagner, S. A., Giacomazzi, C. M., & Kindlein, L. (2018). Indicação Geográfica E Atributos Das Regiões De Origem No Comportamento Do Consumidor De Vinhos: Uma Revisão Sistemática Da Literatura. *Revista Em Agronegócio e Meio Ambiente, 11*(2), 663. doi: 10.17765/2176-9168.2018v11n2p663-681

15. Maher, M. (2001). On Vino Veritas? Clarifying the Use of Geographic References on American Wine Labels. *California Law Review, 89*(6), 1881. doi: 10.2307/3481251

16. Jorge, O., Pons, A., Rius, J., Vintró, C., Mateo, J., & Vilaplana, J. (2020). Increasing online shop revenues with web scraping: a case study for the wine sector. *British Food Journal, 122*(11), 3383–3401. doi: 10.1108/bfj-07-2019-0522

17. Holmberg. (2010). Wine fraud. *International Journal of Wine Research, 105*. doi: 10.2147/ijwr.s14102

18. Romano, D., Rocchi, B., Sadiddin, A., Stefani, G., Zucaro, R., & Manganiello, V. (2021). A SAM-Based Analysis of the Economic Impact of Frauds in the Italian Wine Value Chain. *Italian Economic Journal, 7*(2), 297–321. doi: 10.1007/s40797-020-00137-w

19. Chui, L., & Pike, B. (2013). Auditors' Responsibility for Fraud Detection: New Wine in Old Bottles? *Journal of Forensic & Investigative Accounting, 5*(1), 204–233.

20. Markopoulos, T., Stougiannidou, D., Kontakos, S., & Staboulis, C. (2023). Wine Quality Control Parameters and Effects of Regional Climate Variation on Sustainable Production. *Sustainability, 15*(4), 3512. doi: 10.3390/su15043512

21. Kilmartin, P. A. (2016). Electrochemistry applied to the analysis of wine: A mini-review. *Electrochemistry Communications, 67*, 39–42. doi: 10.1016/j.elecom.2016.03.011

22. Thomaz, D. V., Contardi, U. A., Morikawa, M., & Santos, P. A. dos. (2021). Development of an affordable, portable and reliable voltametric platform for general purpose electroanalysis. *Microchemical Journal, 170*, 106756. doi: 10.1016/j.microc.2021.106756

23. Gabel, B. (2019). Wine origin authentication linked to terroir – wine fingerprint. *BIO Web of Conferences, 15*, 02033. doi: 10.1051/bioconf/20191502033

24. Vieira Thomaz, D. (2021). Thermodynamics and Kinetics of Camellia sinensis Extracts and Constituents: An Untamed Antioxidant Potential. *Bioactive Compounds in Nutraceutical and Functional Food for Good Human Health*. doi: 10.5772/intechopen.92813

25. Basalekou, M., Kallithraka, S., Tarantilis, P. A., Kotseridis, Y., & Pappas, C. (2019). Ellagitannins in wines: Future prospects in methods of analysis using FT-IR spectroscopy. *LWT, 101*, 48–53. doi: 10.1016/j.lwt.2018.11.017

26. Thomaz, D. V., Couto, R. O., de Oliveira Roberth, A., Oliveira, L. A. R., de Siqueira Leite, K. C., de Freitas Bara, M. T., Ghedini, P. C., Bozinis, M. C. V., Lobón, G. S., de Souza Gil, E., & Machado, F. B. (2018). Assessment of Noni (Morinda citrifolia L.) Product Authenticity by Solid State Voltammetry. International *Journal of Electrochemical Science, 13*(9), 8983–8994. doi: 10.20964/2018.09.390

27. Thomaz, D. V., Leite, K. C. de S., Moreno, E. K. G., Garcia, L. F., Alecrim, M. F., de Macedo, I. Y. L., Caetano, M. P., de Carvalho, M. F., Machado, F. B., & Gil, E. de S. (2018). Electrochemical study of commercial black tea samples. *International Journal of Electrochemical Science, 13*(6). doi: 10.20964/2018.06.55

28. Moreno, E. K. G., Thomaz, D. V., Machado, F. B., Leite, K. C. de S., Rodrigues, E. S. B., Fernandes, M. A., de Carvalho, M. F., de Oliveira, M. T., Caetano, M. P., Peixoto, C. E. da C., Isecke, B. G., Gil, E. de S., & de Macedo, I. Y. L. (2019). Antioxidant study and electroanalytical investigation of selected herbal samples used in folk medicine. *International Journal of Electrochemical Science, 14*(1). doi: 10.20964/2019.01.82

29. de Oliveira, T. S., Thomaz, D. V., Neri, H. F. da S., Cerqueira, L. B., Garcia, L. F., Gil, H. P. V., Pontarolo, R., Campos, F. R., Costa, E. A., dos Santos, F. C. A., Gil, E. de S., & Ghedini, P. C. (2018). Neuroprotective effect of caryocar brasiliense camb. leaves is associated with anticholinesterase and antioxidant properties. *Oxidative Medicine and Cellular Longevity, 2018*. doi: 10.1155/2018/9842908

30. Thomaz, D. V., Peixoto, L. F., de Oliveira, T. S., Fajemiroye, J. O., Neri, H. F. da S., Xavier, C. H., Costa, E. A., dos Santos, F. C. A., Gil, E. de S., & Ghedini, P. C. (2018). Antioxidant and Neuroprotective Properties of Eugenia dysenterica Leaves. *Oxidative Medicine and Cellular Longevity, 2018.* doi: 10.1155/2018/3250908

31. Thomaz, D. V., de Oliveira, M. T., Lobón, G. S., da Cunha, C. E. P., Machado, F. B., Moreno, E. K. G., Leite, K. C. de S., Ballaminut, N., Alecrim, M. F., de Carvalho, M. F., Isecke, B. G., de Macedo, I. Y. L., do Couto, R. O., Rodrigues, E. S. B., Carvalho, L. A. de F., & Avila, L. F. (2018). Development of Laccase-TiO2@carbon paste biosensor for voltammetric determination of paracetamol. *International Journal of Electrochemical Science, 13*(11). doi: 10.20964/2018.11.61

32. Rodrigues, E. S. B., de Macedo, I. Y. L., Lima, L. L. da S., Thomaz, D. V., da Cunha, C. E. P., de Oliveira, M. T., Ballaminut, N., Alecrim, M. F., de Carvalho, M. F., Isecke, B. G., Leite, K. C. de S., Machado, F. B., Guimarães, F. F., Menegatti, R., Somerset, V. S., & Gil, E. de S. (2019). Electrochemical characterisation of central action tricyclic drugs by voltammetric techniques and density functional theory calculations. *Pharmaceuticals, 12*(3). doi: 10.3390/ph12030116

33. Moreira, L. K. da S., Silva, R. R., Silva, D. M. da, Mendes, M. A. S., Brito, A. F. de, Carvalho, F. S. de, Sanz, G., Rodrigues, M. F., Silva, A. C. G. da, Thomaz, D. V., Oliveira, V. de, Vaz, B. G., Lião, L. M., Valadares, M. C., Gil, E. de S., Costa, E. A., Noël, F., & Menegatti, R. (2022). Anxiolytic- and antidepressant-like effects of new phenylpiperazine derivative LQFM005 and its hydroxylated metabolite in mice. *Behavioural Brain Research, 417*. doi: 10.1016/j.bbr.2021.113582

34. Alves, C. B., Rodrigues, E. S. B., Thomaz, D. V., Filho, A. M. de A., Gil, E. de S., & do Couto, R. O. (2020). Correlation of polyphenol content and antioxidant capacity of selected teas and tisanes from Brazilian market. *Brazilian Journal of Food Technology, 23*. doi: 10.1590/1981-6723.03620

35. Contardi, U. A., Morikawa, M., & Thomaz, D. V. (2020). Redox Behavior of Central-Acting Opioid Tramadol and Its Possible Role in Oxidative Stress. *Medical Sciences Forum, 2*(1). doi: 10.3390/cahd2020-08557

36. Thomaz, D. V., & dos Santos, P. A. (2021). Redox Behavior and Radical Scavenging Capacity of Hepatoprotective Nutraceutical Preparations. *Current Nutraceuticals, 02*. doi: 10.2174/2665978602666210615110653

37. Thomaz, D. V., Couto, R. O., Goldoni, R., Malitesta, C., Mazzotta, E., & Tartaglia, G. M. (2022). Redox Profiling of Selected Apulian Red Wines in a Single Minute. *Antioxidants, 11*(5), 859. doi: 10.3390/antiox11050859

38. da Cunha, C. E. P., Rodrigues, E. S. B., Alecrim, M. F., Thomaz, D. V., de Macedo, I. Y. L., Garcia, L. F., Neto, J. R. de O., Moreno, E. K. G., Ballaminut, N., & Gil, E. de S. (2019). Voltammetric evaluation of diclofenac tablets samples through carbon black-based electrodes. *Pharmaceuticals, 12*(2). doi: 10.3390/ph12020083

39. Garcia, L. F., da Cunha, C. E. P., Moreno, E. K. G., Thomaz, D. V., Lobón, G. S., Luque, R., Somerset, V. S., & Gil, E. de S. (2018). Nanostructured TiO2 carbon paste based sensor for determination of methyldopa. *Pharmaceuticals, 11*(4). doi: 10.3390/ph11040099

40. de Macedo, I. Y. L., Alecrim, M. F., Neto, J. R. de O., Torres, I. M. S., Thomaz, D. V., & Gil, E. de S. (2020). Piroxicam voltammetric determination by ultra low cost pencil graphite electrode. *Brazilian Journal of Pharmaceutical Sciences, 56*. doi: 10.1590/s2175-97902019000317344

41. Morais, R. L., Garcia, L. F., Thomaz, D. V., Lobón, G. S., Rodrigues, M. F., Vaz, B. G., Caetano, M. P., Medrado, L. C. de L., Nunes, E. S., dos Santos, C. G., Avila, L. F., de Souza, K. M., Vieira, R. P., & Gil, E. de S. (2016). Electrochemical removal of algestone acetophenide and estradiol enanthate in real industrial wastewater. *International Journal of Electrochemical Science, 14*(6). doi: 10.20964/2019.04.42

42. Morais, R. L., Garcia, L. F., Moreno, E. K. G., Thomaz, D. V., Rodrigues, L. de B., Brito, L. B., Lobón, G. S., de Oliveira, G. A. R., Rodrigues, M. F., Vaz, B. G., & Gil, E. de S. (2019). Electrochemical remediation of industrial pharmaceutical wastewater containing hormones in a pilot scale treatment system. *Eclética Química Journal, 44*(1). doi: 10.26850/1678-4618eqj.v44.1.2019.p40-52

43. Antunes, R. S., Ferraz, D., Garcia, L. F., Thomaz, D. V., Luque, R., Lobón, G. S., Gil, E. de S., & Lopes, F. M. (2018). Development of a polyphenol oxidase biosensor from Jenipapo fruit extract (Genipa americana L.) and determination of phenolic compounds in textile industrial effluents. *Biosensors, 8*(2). doi: 10.3390/bios8020047

44. Leite, K. C. de S., Garcia, L. F., Lobón, G. S., Thomaz, D. V., Moreno, E. K. G., de Carvalho, M. F., Rocha, M. L., dos Santos, W. T. P., & Gil, E. de S. (2018). Antioxidant activity evaluation of dried herbal extracts: an electroanalytical approach. *Revista Brasileira de Farmacognosia, 28*(3). doi: 10.1016/j.bjp.2018.04.004

45. Pisoschi, A. M., Pop, A., Negulescu, G. P., & Pisoschi, A. (2011). Determination of ascorbic acid content of some fruit juices and wine by voltammetry performed at pt and carbon paste electrodes. *Molecules, 16*(2). doi: 10.3390/molecules16021349

46. Cozzolino, D., Cynkar, W. U., Shah, N., Dambergs, R. G., & Smith, P. A. (2009). A brief introduction to multivariate methods in grape and wine analysis. *International Journal of Wine Research, 1*(1). doi: 10.2147/IJWR.S4585

47. Barth, J., Katumullage, D., Yang, C., & Cao, J. (2021). Classification of Wines Using Principal Component Analysis. *Journal of Wine Economics, 16*(1). doi: 10.1017/jwe.2020.35

48. Thomaz, D. V., Contardi, U. A., Santos, P. A., & Couto, R. O. (2022). Natural or synthetic? Classification of common preservatives in food and drug industry by artificial intelligence. *Brazilian Journal of Health and Pharmacy, 4*(2), 43–61. doi: 10.29327/226760.4.2-4

49. Stój, A., Czernecki, T., Domagała, D., & Targoński, Z. (2017). Comparative characterisation of volatile profiles of French, Italian, Spanish, and Polish red wines using headspace solid-phase microextraction/gas chromatography-mass spectrometry. *International Journal of Food Properties, 20*. doi: 10.1080/10942912.2017.1315590

50. Atwal, G., Bryson, D., & Williams, A. (2021). An exploratory study of the adoption of artificial intelligence in Burgundy's wine industry. *Strategic Change, 30*(3). doi: 10.1002/jsc.2413

51. Contardi, U. A., Scalassara, P. R., & Thomaz, D. V. (2022). Benign and Malign Breast Cancer Classification Using Support Vector Machines Optimised with Particle Swarm and Genetic Algorithms. *Learning and Non-Linear Models, 20*(2), 21–23. doi: 10.21528/lnlm-vol20-no2-art2

52. Contardi, U. A., Morikawa, M., Brunelli, B., & Thomaz, D. V. (2022). MAX30102 Photometric Biosensor Coupled to ESP32-Webserver Capabilities for Continuous Point of Care Oxygen Saturation and Heartrate Monitoring. *Engineering Proceedings, 16*(1). doi: 10.3390/IECB2022-11114

53. Kotani, A., Kusu, F., Takamura, K., & Hakamata, H. (2020). Review – A Portable Voltammetric Sensor for Determining Titratable Acidity in Foods and Beverages. *Journal of The Electrochemical Society, 167*(3). doi: 10.1149/2.0172003jes

54. Wang, J., Zhu, L., Zhang, W., & Wei, Z. (2019). Application of the voltammetric electronic tongue based on nanocomposite modified electrodes for identifying rice wines of different geographical origins. *Analytica Chimica Acta, 1050*. doi: 10.1016/j.aca.2018.11.016

55. Antunović, V., TRIPKOVIĆ, T., TomaŠević, B., BaoŠić, R., Jelić, D., & Lolić, A. (2021). Voltammetric Determination of Lead and Copper in Wine by Modified Glassy Carbon Electrode. *Analytical Sciences, 37*(2). doi: 10.2116/ANALSCI.20P302

56. Thomaz, D. V., & dos Santos, P. A. (2021). Electrochemical behavior of Methotrexate upon binding to the DNA of different cell lines. *The 1st International Electronic Conference on Cancers*. doi: 10.3390/iecc2021-09215

57. Ferraz, D., Thomaz, D. V., Antunes, R. S., & Lopes, F. M. (2021). Development of a low-cost colorimetric paper-based spot test for the environmental monitoring of phenolic pollutants. *Environmental Challenges, 4*, 1–6. doi: 10.1016/j.envc.2021.100128

58. Antunes, R. S., Thomaz, D. V., Garcia, L. F., Gil, E. de S., & Lopes, F. M. (2021). Development and optimisation of solanum lycocarpum polyphenol oxidase-based biosensor and application towards paracetamol detection. *Advanced Pharmaceutical Bulletin, 11*(3). doi: 10.34172/apb.2021.054

59. Thomaz, D. V., Goldoni, R., Tartaglia, G. M., Malitesta, C., & Mazzotta, E. (2022). Effect of Recombinant Antibodies and MIP Nanoparticles on the Electrical Behavior of Impedimetric Biorecognition Surfaces for SARS-CoV-2 Spike Glycoprotein: A Short Report. *Electrochem, 3*(3), 538–548. doi: 10.3390/electrochem3030037

60. Poggesi, S., de Matos, A. D., Longo, E., Chiotti, D., Pedri, U., Eisenstecken, D., Robatscher, P., & Boselli, E. (2021). Chemosensory profile of south tyrolean pinot blanc wines: A multivariate regression approach. *Molecules, 26*(20). doi: 10.3390/molecules26206245

Economic Growth and Environmental Sustainability: Empirical Evidence from Selected African Countries

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Abstract. Environmental deterioration, driven by human activities, poses a critical global challenge. Its far-reaching consequences are a threat to the planet and future generations. Economic growth brought about by rapid industrialisation, increased economic activities, and globalisation has not only improved gross domestic product (GDP) and material well-being globally but consequently increased the emission of greenhouse gases, which in no doubt has far-reaching catastrophic impacts on society in the short-term and long term. Climate change, deforestation, pollution, natural resource depletion, food shortage and loss of biodiversity are interconnected problems of environmental deterioration. Climate change harms ecosystems and food security, increases global inequality, and brings about more frequent and severe weather events – deforestation results in habitat loss - destabilising ecosystems and reducing biodiversity. Pollution from industries, agricultural activities, and urban sources endanger ecosystems and harm human health. Like never before, harmonising the concepts of people (society), profit (economy) and the planet (environment) to achieve a sustainable solution has been more crucial.

For this reason, this study examines the impact of economic growth on environmental sustainability – empirically examining 15 randomly selected African countries. The Fixed Effect (FEM) method regression model was employed for the panel data. The analysis revealed that the coefficient of GDP growth rate is positive and statistically significant. However, the GDP growth rate squared is negative and statistically significant. These coefficients suggest that economic growth contributes positively and significantly to environmental degradation through the emission of greenhouse gases but substantially declines as the economy grows further. Thus, these coefficients show that we have an inverted U-curve, which supports the Environmental Kuznets Curve (EKC) Hypothesis. Agricultural value-added (AVA), manufacturing value-added (MVA) and foreign direct investment (FDI) have negative and significant impacts on greenhouse gas emissions, hence promoting environmental sustainability.

In contrast, trade openness had a positive but insignificant impact on greenhouse gas emissions. The study urges policymakers across Africa to be benevolent in crafting economic policies – considering the environmental and social effects to protect people's well-being today and in future generations. Appropriate sensitisation and policy initiatives such as taxes and subsidies should be effectively employed to reduce emissions

of greenhouse gases to the barest minimum while also promoting eco-investing and eco-friendly initiatives.

Keywords: Environmental Sustainability, Economic Growth, Greenhouse Gaseous Emissions, Environmental Kuznets Curve.

INTRODUCTION

Higher growth and economic prosperity have always been significant goals of governmental initiatives, and they still are now. However, achieving higher growth necessitates using natural resources (such as energy resources), which has detrimental consequences on the environment [4]. Achieving sustainable growth - continued improvements in the current quality of life at a lower intensity of resource use without endangering future generations is of immense importance in recent times, with global warming, climate change, and other environmental issues becoming increasingly severe and has thus received more attention than ever.

Since the beginning of humankind, the environment has served as a host to animals and humanity's activities [17]. The environment creates a habitable atmosphere for humans to live in and act towards improving their lot within that abode, which in turn breeds growth and development [16]. Nevertheless, man's desires to achieve growth, including meeting the increasing needs of the ever-growing global population, have encouraged mass production, technological advancement, industrialisation, urbanisation, and many more, which came with negative consequences on the environment. Inventions like automobiles, production plants, and carbon-emitting electricity generation machines have resulted in the emission of harmful substances into the atmosphere, resulting in heavy depletion of the ozone layer, climate change, food shortage, and loss of biodiversity.

In 1972, the UN Conference on the environment held in Stockholm, Sweden, was the first ever focus on the environment as a political concern, where the United Nations Environment Programme (UNEP) was established. Succeeding the Stockholm conference was the conference on environment and development (also known as Earth Summit) in Rio de Janeiro, Brazil 1992. According to the United Nations, the primary goal of the summit was to create a comprehensive agenda and new framework for global action on environmental and development concerns that would help direct worldwide cooperation and development strategy in the twenty-first century. John Elkington developed the Triple Bottom Line Theory – the people, profit, and planet in 1994, representing the three sustainability dimensions. People are related to the social dimension; profit is associated with the economic dimension, while the Earth is related to the environmental dimension. However, most countries often choose the economic dimension as the most critical dimension. According to [48], this is because economic growth is the foundation of any nation. An economic focus and sustainability will provide immediate financial support and the financial capabilities needed for further national development [48].

Nevertheless, it is essential to meet all three dimensions simultaneously. The point of intersection of all three dimensions is considered the sustainability region. Subsequently, there have been several other summits on environmental sustainability issues, such as the New York Conferences of 1997, 2000, 2005, 2008, 2010, 2013 and 2015; Johannesburg of 2002, Rio 2012; and the United Nations Climate Change Conferences initiated since 1995 in Berlin, Germany to Glasgow, United Kingdom in 2021. Essentially, all these summits have been geared toward achieving a healthy environment (green future) and sustained levels of growth for the present and future generations.

Irrespective of various postulations and policy declarations and proceedings, there are still growing concerns about the increasing depletion of our environment, leaving very few desirable results. Data from the United States Environmental Protection Agency revealed a continued increase in global carbon dioxide emissions and other greenhouse gases into the environment. The agency stated that in 2014, China was the highest emitter of carbon dioxide, with 30% of global emissions. The United States followed this with 15%, and the European Union with a 9% global emission rate. The United States alone emits slightly less than Europe and Central Asia combined. In 2015, 196 countries were present for the Paris Climate Agreement to combat climate change, with a long-term plan to decarbonise their economies since greenhouse gaseous emissions (GHG) are a key element to global warming. In the two and half

decades preceding 2015, when the United Nations Framework Convention on Climate Change signed the COP21 Paris Agreement on climate change, which envisioned keeping global warming below 2 degrees Celsius, the emission of greenhouse gasses continued to rise. China, the United States of America, India, the European Union, Russia, Indonesia, Brazil, and Japan have remained the top emitters of greenhouse gases. However, data between 1990 and 2018 obtained from the World Bank revealed that when the average per capita CO_2 emissions are used, countries like the United Arab Emirates (25 metric tons), Kuwait (23 metric tons), Bahrain (22 metric tons), Luxembourg (21 metric tons), USA (18 metric tons), North America region (18 metric tons), Australia (17 metric tons), Canada (16 metric tons), Brunei Darussalam (15 metric tons), Saudi Arabia (14 metric tons) and Trinidad and Tobago (13 metric tons) are considered as top emitters while China, India, Russia and Brazil are regarded as low emitter with about 4 metric ton, 11 metric ton, 1.1 metric ton and 1.8 metric ton emissions respectively. This is quite misleading given that per capita emissions are a negative function of population, and the latter countries have large populations. The energy industry has remained the most significant source of GHG emissions since reporting started in 1990, with 76% of world emissions in 2019. This covers the generation of heat and power and the final applications in industry, construction, transportation, and buildings. This explains why energy usage is a significant contributor to the atmospheric emissions of greenhouse gaseous emissions.

In the last decades, the African continent has experienced rapid growth and industrialisation, with countries like Angola, Egypt, Ethiopia, Kenya, Nigeria, and South Africa experiencing the highest growth rates. Economic growth implies more production and consumption, which involves greater fossil fuels and other nonrenewable energy use. The result is higher emission of greenhouse gases. Based on available data, the highest emitters of CO_2 in Africa include Nigeria, South Africa, Libya, Egypt, Angola, and Algeria. Figure 1 below represents the average carbon dioxide emission for 21 African countries selected at random (Egypt, Nigeria, South Africa, Kenya, Togo, Mauritius, Ghana, Cameroon, Ivory Coast, Gabon, Tunisia, Uganda, Zimbabwe, Chad, Morocco, Tanzania, Botswana, Lesotho, Congo Republic, Zambia, and Mauritania) for periods between 1990 and 2020.
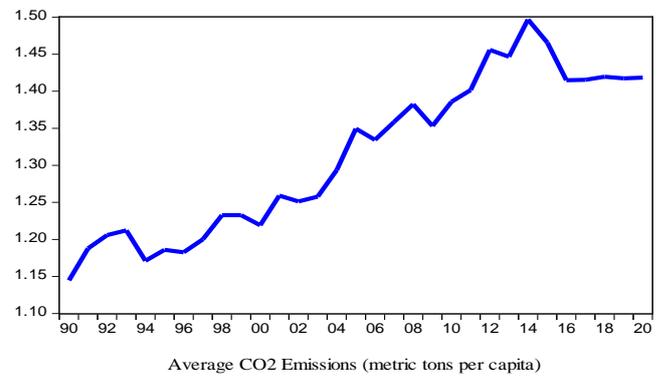

Average CO2 Emissions (metric tons per capita)

Figure 1 − Average CO2 emissions

Figure 1 indicates a continued increase in per capita carbon dioxide emissions within the selected African countries. On average, CO_2 emissions within these regions increased from 1.14 metric tons per capita in 1990 to approximately 1.50 in 2015. However, following the 2015 COP21 Paris Agreement, the average per capita CO_2 emission within these regions declined to approximately 1.42 metric tons in 2020, representing a 3.2% decline in CO_2 emission.

In response to evaluating the nation's commitment to a green future, an index which measures environmental sustainability was developed by the Yale Center for Environmental Law & Policy and the Center for International Earth Science Information Network at Columbia University in collaboration with the Joint Research Centre of the European Commission and the World Economic Forum, this was termed the Environmental Performance Index (EPI). The Environmental Performance Index (EPI) is an index that offers a variety of indicators, including socioeconomic, environmental, political, and institutional indicators that have a significant impact on environmental sustainability at the local, national, and global levels. Initially, the EPI was formulated to support the United Nations' Millennium Development Goals (MDGs). It, however, adopted measures of the international environmental compact of Sustainable Development Goals (SDGs) to eradicate poverty and promote human development. The Environmental Sustainability Index (ESI) provides a gauge of a society's natural resource endowments and environmental history, pollution stocks and flows, and resource extraction rates, as well as institutional mechanisms and abilities to change future pollution and resource use trajectories. The EPI is used to evaluate the ESI, and the higher the point value, the better the environmental quality. The graph below shows the environmental index performance for thirty randomly selected African countries.
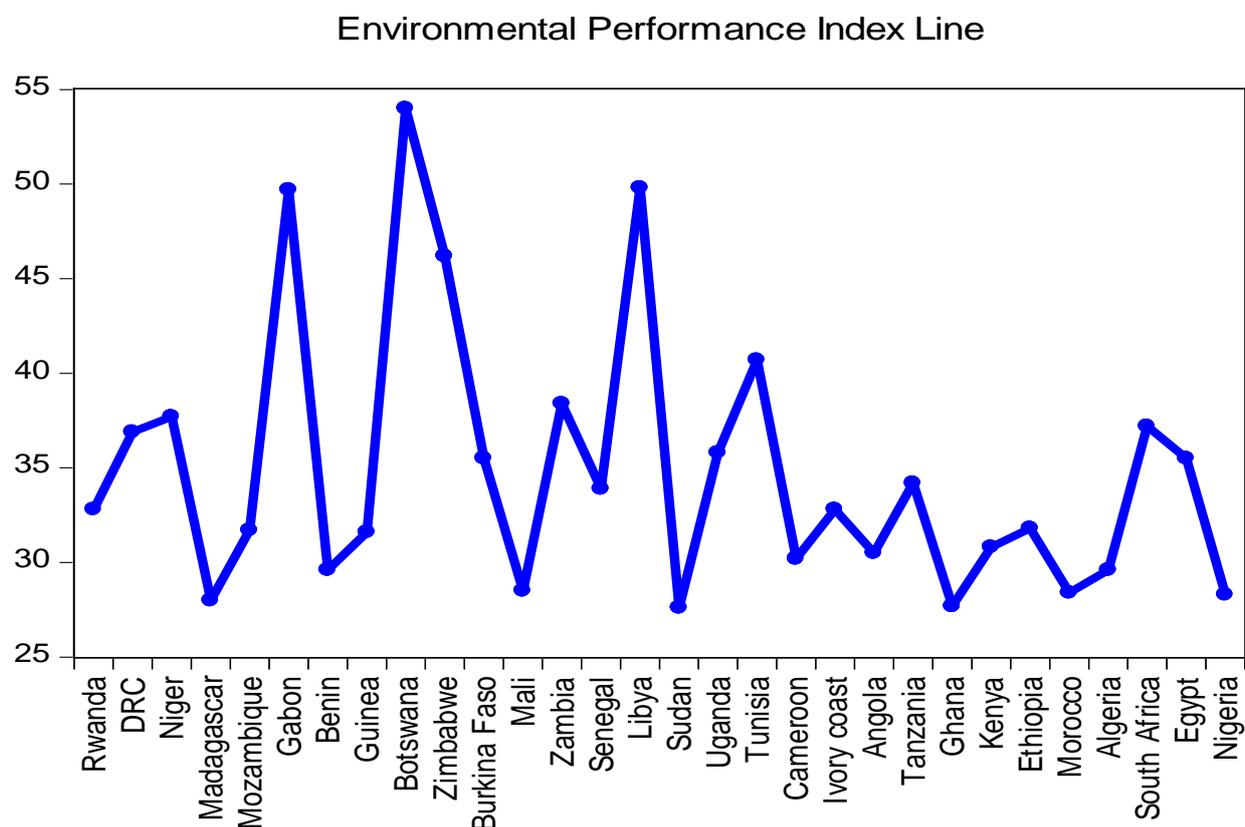
Figure 2 – 2022 Environmental Performance Index Line

The graphical representation reveals that lower to median-income countries in Africa tend to have better environmental quality than higher-income countries in Africa. However, some countries, irrespective of their level of economic development, tend to have a more deteriorated environmental quality than others. Increased economic activities, including production and consumption, may often result in environmental degradation because more harmful gases and chemicals are released into the environment especially when an environmentally unfriendly methods are adopted. Most developing countries, including those in the African continent, adopt environmentally unfriendly productive methods due to insufficient capital, poor institutional framework, and inadequate social infrastructures.

Possibly, environmental conditions might be improved in the long term to support the argument of [5] that after a certain point of achieved economic growth, legislative focus and social investment will be aimed towards sustaining the already deteriorating environment. On this note, this study seeks to explore the relationship between economic growth and environmental sustainability and examine the sustainability status in selected developing countries using panel data analysis. There aren't many empirical studies that focus on a sustainability-oriented EKC analysis in general. In particular, the topic of sustainability has not been covered in the SSA region's EKC analysis. This study improves on these backdrops by extending existing research frontiers and focusing analysis on the African continent. Following this section is the literature review. Section three explains the data, data sources, and methodology employed, section four discusses the results, section five concludes, and gives policy recommendations.

THE LITERATURE REVIEW

Conceptual Review

Sustainable Development. In 1987, Gro Harlem Brundtland officially defined sustainable development in the Brundtland report under the World Commission on Environment and Development [56]. The report defines sustainable development as growth that satisfies current demands without jeopardising the ability of future generations to satiate their own needs. This definition contains two key points: the concept of need, particularly the essential needs of the world's poor population. This requires an overriding priority, and the second is the limitations imposed by the state of technology and institutions on the environment's

ability to meet present and future needs [37]. The definition of sustainable development implies a continual change or evolution of the term "needs". It is doubtful that the present and future generations will have the same or identical needs and priorities [43].

Nevertheless, as explained by John Elkington's triple bottom line theory, sustainable development revolves around three broad dimensions - social, environmental, and economic dimensions. Likewise, [29] presented the paradigm of sustainable development. This paradigm consists of Economic Sustainability, Social Sustainability and Environmental Sustainability. This is elaborately displayed below.

Kahn's Paradigm of Sustainable Development

Elements	Criteria
Economic Sustainability	Growth Development Productivity Trickle Down
Social Sustainability	Equity Empowerment Accessibility Participation Sharing Cultural Identity Institutional Stability
Environmental Sustainability	Eco System Integrity Carrying Capacity Biodiversity

Environmental Sustainability. Environmental sustainability requires maintaining natural capital as both a provider of economic input (sources) and an absorber (sink) of economic output (waste) [13]. Environmental sustainability refers to responsible participation in the environment to prevent the depletion or degradation of natural resources and ensure long-term ecological quality. Environmental sustainability ensures that resources are not consumed faster than they are renewed. Environmental sustainability implies curtailing socioeconomic effects on the environment to preserve life and resources. Socioeconomic effects on the environment could fall under four effect categories: chemical, biological, physical, and sociological. The chemical effect category relates to releasing harmful gaseous substances into the atmosphere. The biological effect category

consists of the loss of bio-diversities. The physical effect category relates to and is not limited to the loss of fertile land, food shortage, and lack of clean water. In contrast, the sociological effect category relates to the displacement of people and cultural erosion.

Green House Gases Emission and Economic Growth. Conceptually, economic growth is the quantifiable and consistent rise in a nation's per capita output or income through time, accompanied by increased labour force, consumption capital, and trade volume. It alludes to an increase in the gross national product or the income per person. In a different context, it may refer to an increase in a country's quantitative production of goods and services as economic growth. [38] viewed economic growth as the use of technological advancement and institutional and ideological adjustment to supply increasingly diverse economic goods to its population. According to [7], economic growth can be positive (expansion) or negative (contraction) depending on the values of current and past national output as given by the gross domestic product.

Specifically, the increase in economic activities measured by GDP implies more use of nonrenewable energies and greenhouse gas emissions. Economic growth implies increased industrial and agricultural activities (production and consumption), increased fossil fuel use, possible deforestation, land reclamation, environmental degradation, pollution, etc. Irrespective of the improved output and consumption patterns, there is an increasing tendency for rising emissions of greenhouse gases. This is more plausible because most countries' growth and use of renewable energies are in the early stages. According to the Oxford Dictionary, greenhouse gases contribute to the greenhouse effect by absorbing infrared radiation. Department of Agriculture, Water and the Environment, Australia noted that the greenhouse effect is a natural process that warms the Earth's surface. According to them, "When the sun's energy reaches the earth's atmosphere, some of it is reflected to space and the rest is absorbed and re-radiated by greenhouse gases". They also pointed out that the absorbed energy warms the atmosphere and the Earth's surface. This process maintains the Earth's temperature at around 33 degrees Celsius, which is warmer than it would otherwise be, allowing life on Earth to exist. Examples of greenhouse gases are methane, nitrous oxide, ozone, carbon dioxide and chlorofluorocarbons. Production plants, machines, and vehicles often release these gases.

Theoretical Framework

One of the most cited theories explaining the relationship between the environment and economic progress is the Environmental Kuznets inverted U-shaped curve, which suggests a non-linear relationship exists between the two variables [32]. The theory explains that the environment tends to deteriorate to a certain point (peak of the curve), after which more attention and sustainability investment will be stimulated to improve environmental conditions. The increased sustainability focus was attributed to the increase in per capita income. In a rough sense, the Kuznets environmental curve implies that low per capita income is associated with environmental degradation, while high per capita income is related to ecological sustainability. The EKC's reasoning makes intuitive sense: during the early stages of industrialisation, pollution increases more quickly because expanding material output is given top priority, and individuals are more concerned with their financial well-being than the environment. Rapid growth always results in greater use of natural resources and, consequently, more significant emissions of pollutants, which damage the environment. However, as industrialisation progresses and money rises, the desire to pay for a clean climate rises by a factor more significant than income, environmental regulatory agencies become more effective, and pollution levels decline [30]. This tends to imply that, rather than endangering the environment, economic expansion might, in the long term, be consistent with environmental improvements since nations might eventually grow themselves out of their environmental issues.

In the 1950s, Simon Kuznets developed a hypothesis that was later used to explain the impact of economic growth on the environment. The reformed hypothesis argued that economic growth will result in environmental deterioration in the short run. Still, after certain levels of economic development, society will begin to reconcile with the environment and reduce the levels of degradation. The earliest form of the Kuznets curve in 1955 focused on income inequality and per capita income. However, it was later adopted by [22, 41, 45, 46] to explain the relationships between economic growth and environmental sustainability [8]. The environmental Kuznets curve suggests that as real income increases, individuals and governments devote more time and resources to protecting the environment and mitigating environmental degradation. The EKC further explains that

environmental degradation is associated with low per capita income and suggests that poor nations use inefficient and environmentally unfriendly production and consumption methods, which results in harmful environmental consequences. These poor countries cannot afford more efficient and environmentally friendly methods. Still, as per capita income increases, the EKC suggests that there will be an improvement in the environment as these countries begin to adopt environmentally friendly processes and devote more investment and legislation to protecting the environment.
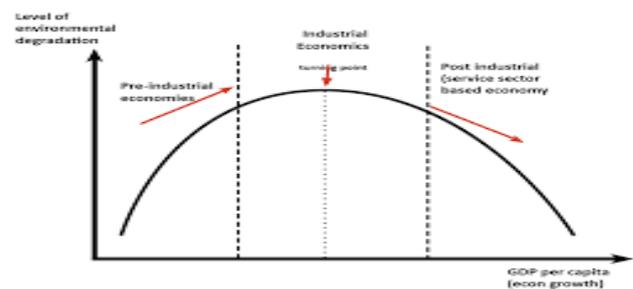

Figure 3 – Environmental Kuznets Curve

Some post-Kuznets theory has different views on the turning point established by Simon Kuznets. Some new views argue that as economic growth increases, existing pollutants will be reduced, but new pollutants that substitute the existing ones will increase. For instance, the race-to-bottom theory emphasises that environmental damage will increase at first due to international competition. However, a point is eventually reached where developed countries will reduce their environmental impacts and transfer/outsource polluting activities to developing or poor countries [51, 54].
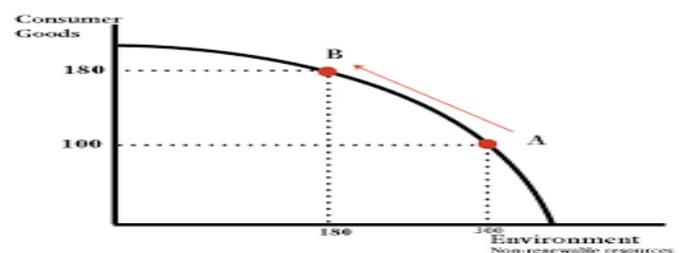

Figure 4 – Trade-off between Consumer Goods and Environment

Based on this theory, nations can combine production and environmental protection. At one point, a choice to increase production, says to point B (180, 180) on the production possibility

frontier (PPF), will result in less environmental protection/stock of resources from 300 to 180 units. On the other extreme side, increasing environmental protection to point A (300, 100) would reduce production to 100 units. In other words, a trade-off exists between more/less goods and less/more environmental stock. The best combination, therefore, depends on domestic and international law and priorities. However, adopting efficient techniques that have less implication on the environment has been observed to increase both production and environmental protection.

Empirical literature

The study on environmental-growth nexus spanned from the early 1990s. Lying in the frontier is [22], and different studies were conducted afterwards. However, there has been inconclusive evidence. The study of [14] between 1961 and 2010 adopted the ARDL model to examine the relationship between carbon emissions, income, and electricity production from renewable energy sources in Turkey. Based on their findings, the researchers conclude that there is an inverted U-shaped relationship between per capita emissions and per capita real income, which supports the environment Kuznets curve. In Tunisia, [28] examined the causal relationship between CO_2 emissions, economic growth, renewable and non-renewable energy consumption, and trade between 1980 and 2009, and it was found that trade, per capita export, and import positively impacted per capita CO_2 emission. However, the study outcomes supported an inverted EKC in the short run alone. In Pakistan, [3] examined the relationship between CO_2, energy consumption, economic growth, trade liberalisation and population density using the ARDL model. Contrary to the findings of [28], [3] found an inverted EKC to exist in the long run alone. While population density was shown to cause environmental degradation, trade openness was revealed to improve the environment in the short run. [55] employed the ARDL model to test the EKC in India by incorporating coal consumption and trade openness between 1966 and 2009. It was reported that EKC exists in both the short and long run and that trade openness and coal consumption increased carbon emissions in the long run.

Similarly, [27] studied Indian and Chinese economies using the ARDL model for periods between 1971 and 2007. EKC was found to exist in both China and India and energy consumption increases per capita emission by 0.97% in India. [44] employed panel analysis to examine the impact of energy consumption and CO_2 emissions on the economic growth of 58 countries. It was revealed that CO_2 emissions negatively and statistically significantly impact economic growth. However, the study also showed that energy consumption and FDI positively and significantly affect economic growth in the countries. [59] studied the relationship between total energy consumption, FDI, economic development and CO_2 emissions for BRICS countries between 1990 and 2012. The study concludes that due to restrictions in advanced economies, foreign investors find their way into developing countries with little or no environmental restrictions to cause environmental degradation, which makes their conclusion in tandem with the race-to-bottom theory. Energy consumption and trade openness were found to have a long-run negative effect on the environment in the study [53]. Author [1] used the ARDL model to study environmental sustainability and its relationship to economic growth in Ghana, and the results fell short of confirming the EKC hypothesis in both the short- and long-term.

Earlier studies by [57, 42, 23, 25, 15] supported the Kuznets postulation. According to them, they supported the finding of [5] that economic growth is a prerequisite and a requirement for environmental sustainability. However, [4] argued that environmental degradation is not only caused by the impact of income per capita growth but also by other economic development factors [24]. More recent studies have recorded different results regarding sustainability in various regions. The studies of [47, 9, 58, 17, 31, 11] supported the evidence of the EKC hypothesis, while the studies of [6, 36, 35, 40] are of contrasting views and mixed results were recorded in the studies of [10, 19, 26, 20, 21, 33, 34, 39, 49].

METHOD

To access environmental sustainability and economic growth in Africa, cross-sectional data on greenhouse gaseous emissions, GDP growth rate, manufacturing value-added, agricultural value-added, and foreign direct investment were sourced for Nigeria, South Africa, Cameroon, Egypt, Ethiopia, Morocco, Kenya, Ghana, Tanzania, Angola, Ivory Coast, Zimbabwe, Chad, Botswana, and Tunisia as specific African countries to be studied. Data for these countries were sourced from World Development Indicators (2022)

between 1990 and 2022. The study expresses environmental sustainability (proxy by greenhouse gaseous emissions) as a function of GDP growth rate, manufacturing value, agricultural value addition and foreign direct investment, and it is shown below:

$$GHG = f(GDPG, GDPG^2, MVA, AVA, FDI) \quad (1)$$

$$GHG_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 GDPG^2_{it} +$$

$$+ \beta_3 MVA_{it} + \beta_4 AVA_{it} + \beta_5 FDI_{it} + \epsilon_{it} \quad (2)$$

where GHG represents greenhouse gas emissions in $MtCO2e$; PGDP represents per capita GDP, a proxy for economic development; MVA represents manufacturing value added (% of GDP); AVA represents agricultural value added (% of GDP); FDI represents foreign direct investments (% of GDP); ϵ is the noise or stochastic term; T is time; i is countries and i= 1, 2, 3, ..., 21; βs are the coefficients of the explanatory variables.

RESULTS AND DISCUSSION

This paper employed the Fixed Effect (FEM) method and rejected the possibility of using the Pooled OLS as shown by the Breusch-Pagan - Lagrange Multiplier (LM) test. The Hausman tests also indicated that the Fixed Effect model is a more efficient for regressing the model (Table 1).

The Hausman test justifies the decision to use the Fixed Effect (FE) model with a prob value of 0.0000. The result of the random effect panel model is presented in Table 2.

Table 1 – Breusch- Pagan and Hausman Test

Breusch- Pagan	Cross- section	Time	Both
Prob.	0.0000	0.1633	0.0000
Hausman Test	Chi² Statistics	Chi² d.f	Prob.
Cross Section Random	55.121074	6	0.0000

Table 2 – Results of the Estimated Model

Explanatory Variables	Coefficients	t-statistics	Prob.
GDPG	0.030047	5.299197	0.0000
GDPG2	-0.002422	-4.366143	0.0000
AVA	-0.009286	-4.079248	0.0001
MVA	-0.036466	-6.841731	0.0000
FDI	-0.019000	-2.799994	0.0053
TOP	0.001948	1.604652	0.1093
C	4.988047	38.59331	0.0000
F – Statistics	314.1467		0.0000

Table 2 represents the results of the random effect model of the panel regression. The p-value of the F-statistics shows that all explanatory variables except trade openness jointly impact the dependent variable and are significant even at a 1% level. The estimates show that the coefficient of GDP growth rate is positive and statistically significant. However, the GDP growth rate squared is negative and statistically significant. These coefficients suggest that economic growth contributes positively and significantly to environmental degradation through the emission of greenhouse gases but substantially declines as the economy grows further. Thus, these coefficients show that we have an inverted U-curve, which supports the Environmental Kuznets Curve (EKC) Hypothesis. According to the EKC Hypothesis, countries often prioritise economic growth over environmental concerns at the early stage of their economic development. Industries may engage in resource-intensive activities without adequate environmental regulations, leading to pollution and degradation of natural capital. As a country's economy grows and per capita income rises, the EKC Hypothesis suggests that society becomes more concerned about environmental issues and the quality of life, hence, more environmentally responsible. This can lead to increased demand for environmental protection and better regulations and policies. Economic growth might still contribute to environmental degradation but at a lower rate. However, beyond a certain level of per capita income, the theory suggests that societies become wealthy enough to afford cleaner and more efficient technologies, stricter regulations and environmental policies, and more sustainable consumption patterns. At this stage, environmental concerns become more critical, and economic growth starts to disassociate from environmental degradation, resulting in an overall improvement in environmental conditions. We also find that agricultural value-added (AVA) as a percentage of GDP, manufacturing value-added (MVA) as a percentage of GDP and foreign direct investment (FDI) have negative and significant impacts on greenhouse gas emissions, hence promoting environmental sustainability. In contrast, trade openness had positive but insignificant effects on greenhouse gas emissions.

CONCLUSIONS

This paper reviewed the concept of environmental sustainability and economic growth with evidence from countries that towed the line in the

past and recent times to develop theoretical backings and policies to combat more of the hazards against a green future. Though the path to environmental sustainability and economic growth in each country and territory may differ, the goal is the same for all. It is worth noting that the global environment keeps deteriorating despite policies put forward since the Rio 1992 Earth Summit. Micro and macroeconomic environment changes sprout issues that make achieving a green future daunting. However, depending on the commitment towards environmental sustainability and measures put in place, environmental sustainability must be reached as soon as possible – humanly and economically. This may imply that strategies and policies to be developed should be communicated effectively to shareholders and tailored towards specific countries and economic needs for optimum results.

This paper's analysis reveals that economic growth's impact on environmental sustainability is significant. Conclusions were made that increased economic growth will increase greenhouse emissions and deter environmental sustainability. However, the result also follows the Kuznets inverted U-curve, which suggests improving environmental conditions as per capita income increases.

The study urges policymakers across Africa to be benevolent in crafting economic policies – considering the environmental and social impacts to protect people's well-being today and in future generations. Appropriate sensitisation and policy initiatives such as taxes and subsidies should be effectively employed to reduce emissions of greenhouse gases to the barest minimum while also promoting eco-investing and eco-friendly initiatives. Mainly, investment in renewable energy is always a solution to environmental sustainability at every level of economic advancement, safeguarding and sustaining resources and creating long-term sustainable mechanisms for cycling and recycling natural resources where necessary to promote a green economy. Efforts should also be made to rehabilitate degraded ecosystems.

REFERENCES

1. Aboagye, S. (2017). Economic Expansion and Environmental Sustainability Nexus in Ghana. *African Development Review, 29*(2), 155–168. doi: 10.1111/1467-8268.12247

2. Samimi, A., Ghaderi, S., & Ahmoadpour, M. (2011). Environmental sustainability and economic growth: Evidence from some developing countries. *Advances in Environmental Biology, 5*(5), 961–966.

3. Ahmed, K., & Long, W. (2012). Environmental Kuznets Curve and Pakistan: An Empirical Analysis. *Procedia Economics and Finance, 1*, 4–13. doi: 10.1016/s2212-5671(12)00003-2

4. Akpan, F. U., & Chuku, C. A. (2012). *Economic growth and environmental degradation in Nigeria: Beyond the Environmental Kuznets Curve*. Retrieved from https://mpra.ub.uni-muenchen.de/31241/1/MPRA_paper_31241.pdf

5. Alam, S., & Kabir, N. (2013). Economic Growth and Environmental Sustainability: Empirical Evidence from East and South-East Asia. *International Journal of Economics and Finance, 5*(2). doi: 10.5539/ijef.v5n2p86

6. Al Sayed, A. R. M., & Sek, S. K. (2013). Environmental Kuznets curve: evidences from developed and developing economies. *Applied Mathematical Sciences, 7*, 1081–1092. doi: 10.12988/ams.2013.13098

7. Amoako, S., & Insaidoo, M. (2021). Symmetric impact of FDI on energy consumption: Evidence from Ghana. *Energy, 223*, 120005. doi: 10.1016/j.energy.2021.120005

8. Sajeev, A., & Kaur, S. (2020). Environmental sustainability, trade and economic growth in India: implications for public policy. *International Trade, Politics and Development, 4*(2), 141–160. doi: 10.1108/itpd-09-2020-0079

9. Apergis, N., & Ozturk, I. (2015). Testing Environmental Kuznets Curve hypothesis in Asian countries. *Ecological Indicators, 52*, 16–22. doi: 10.1016/j.ecolind.2014.11.026

10. Apergis, N. (2016). Environmental Kuznets curves: New evidence on both panel and country-level CO2 emissions. *Energy Economics, 54*, 263–271. doi: 10.1016/j.eneco.2015.12.007

11. Awan, A. M., Azam, M., Saeed, I. U., & Bakhtyar, B. (2020). Does globalisation and financial sector development affect environmental quality? A panel data investigation for the Middle East and North African countries. *Environmental Science and Pollution Research, 27*(36), 45405–45418. doi: 10.1007/s11356-020-10445-4

12. Edens, T. C. (1979). Resources, Environment, and Economics. Applications of the Materials/Energy Balance Principle. *Journal of Economic Issues, 13*(3), 856–859. doi: 10.1080/00213624.1979.11503707

13. Basiago, A. D. (1998). Economic, social, and environmental sustainability in development theory and urban planning practice. *The Environmentalist, 19*(2), 145–161. doi: 10.1023/a:1006697118620

14. Bölük, G., & Mert, M. (2015). The renewable energy, growth and environmental Kuznets curve in Turkey: An ARDL approach. *Renewable and Sustainable Energy Reviews, 52*, 587–595. doi: 10.1016/j.rser.2015.07.138

15. Borghesi, S., & Vercelli, A. (2003). Sustainable globalisation. *Ecological Economics, 44*(1), 77–89. doi: 10.1016/s0921-8009(02)00222-7

16. Brundtland, G. H. (1987). *Our common future*. Retrieved from https://www.are.admin.ch/dam/are/en/dokumente/nachhaltige_entwicklung/dokumente/bericht/our_common_futurebrundtlandreport1987.pdf.download.pdf/our_common_futurebrundtlandreport1987.pdf

17. Awaworyi Churchill, S., Inekwe, J., Ivanovski, K., & Smyth, R. (2018). The Environmental Kuznets Curve in the OECD: 1870–2014. *Energy Economics, 75*, 389–399. doi: 10.1016/j.eneco.2018.09.004

18. Cockburn, T. A. (1971). Infectious Diseases in Ancient Populations. *Current Anthropology*, *12*(1), 45–62.

19. Destek, M. A., & Sarkodie, S. A. (2019). Investigation of environmental Kuznets curve for ecological footprint: The role of energy and financial development. *Science of The Total Environment, 650*, 2483–2489. doi: 10.1016/j.scitotenv.2018.10.017

20. Dogan, E., & Inglesi-Lotz, R. (2020). The impact of economic structure to the environmental Kuznets curve (EKC) hypothesis: evidence from European countries. *Environmental Science and Pollution Research, 27*(11), 12717–12724. doi: 10.1007/s11356-020-07878-2

21. Gormus, S., & Aydin, M. (2020). Revisiting the environmental Kuznets curve hypothesis using innovation: new evidence from the top 10 innovative economies. *Environmental Science and Pollution Research, 27*(22), 27904–27913. doi: 10.1007/s11356-020-09110-7

22. López-Menéndez, A. J., Pérez, R., & Moreno, B. (2014). Environmental costs and renewable energy: Re-visiting the Environmental Kuznets Curve. *Journal of Environmental Management, 145*, 368–373. doi: 10.1016/j.jenvman.2014.07.017

23. Grossman, G., & Krueger, A. (1991). Environmental Impacts of a North American Free Trade Agreement. *National Bureau of Economic Research*. doi: 10.3386/w3914

24. Phimphanthavong, H. (2013). *The impacts of economic growth on environmental conditions in Laos*. Retrieved from http://www.ijbmer.com/docs/volumes/vol4issue5/ijbmer2013040501.pdf

25. Hill, R. J., & Magnani, E. (2002). An Exploration of the Conceptual and Empirical Basis of the Environmental Kuznets Curve. *Australian Economic Papers, 41*(2), 239–254. doi: 10.1111/1467-8454.00162

26. Isik, C., Ongan, S., & Özdemir, D. (2019). The economic growth/development and environmental degradation: evidence from the US state-level EKC hypothesis. *Environmental Science and Pollution Research, 26*(30), 30772–30781. doi: 10.1007/s11356-019-06276-7

27. Jayanthakumaran, K., Verma, R., & Liu, Y. (2012). CO2 emissions, energy consumption, trade and income: A comparative analysis of China and India. *Energy Policy, 42*, 450–460. doi: 10.1016/j.enpol.2011.12.010

28. Ben Jebli, M., & Ben Youssef, S. (2015). The environmental Kuznets curve, economic growth, renewable and non-renewable energy, and trade in Tunisia. *Renewable and Sustainable Energy Reviews, 47*, 173–185. doi: 10.1016/j.rser.2015.02.049

29. Kahn, B. E. (1995). Consumer variety-seeking among goods and services. *Journal of Retailing and Consumer Services, 2*(3), 139–148. doi: 10.1016/0969-6989(95)00038-0

30. Kijima, M., Nishide, K., & Ohyama, A. (2010). Economic models for the environmental Kuznets curve: A survey. *Journal of Economic Dynamics and Control, 34*(7), 1187–1201. doi: 10.1016/j.jedc.2010.03.010

31. Koilo, V. (2019). Evidence of the Environmental Kuznets Curve: Unleashing the Opportunity of Industry 4.0 in Emerging Economies. *Journal of Risk and Financial Management, 12*(3), 122. doi: 10.3390/jrfm12030122

32. Kuznets, S. (1955). *International differences in capital formation and financing in Capital formation and economic growth*. Retrieved from https://www.nber.org/system/files/chapters/c1303/c1303.pdf

33. Majeed, M.T., & Mazhar, M. (2020). Reexamination of environmental Kuznets curve for Ecological footprint: The role of biocapacity, human capital, and trade. *Pakistan Journal of Commerce and Social Sciences, 14(*1), 202–254.

34. Maneejuk, N., Ratchakom, S., Maneejuk, P., & Yamaka, W. (2020). Does the Environmental Kuznets Curve Exist? *An International Study. Sustainability, 12*(21), 9117. doi: 10.3390/su12219117

35. Martino, R., & Van, P.N. (2016). *Environmental Kuznets curve and environmental convergence: A unified empirical framework for CO2 emissions*. Retrieved from https://www.researchgate.net/publication/303408879_Environmental_Kuznets_curve_and_environmental_convergence_A_unified_empirical_framework_for_CO2_emissions

36. Mazur, A., Phutkaradze, Z., & Phutkaradze, J. (2015). Economic Growth and Environmental Quality in the European Union Countries – Is there Evidence for the Environmental Kuznets Curve? *International Journal of Management and Economics, 45*(1), 108–126. doi: 10.1515/ijme-2015-0018

37. Mishra, M. K. (2020). *Sustainable Development: Linking economy and environment In the Era of Globalization*. Retrieved from https://www.econstor.eu/bitstream/10419/215793/1/Sustainable%20Development%20Linking%20economy%20and%20environment.pdf

38. Muritala, T. (2011). Investment, inflation and economic growth: empirical evidence from Nigeria. *Research Journal of Finance and Accounting*, *2*(5), 68–76.

39. Ng, C.-F., Choong, C.-K., & Lau, L.-S. (2020). Environmental Kuznets curve hypothesis: asymmetry analysis and robust estimation under cross-section dependence. *Environmental Science and Pollution Research, 27*(15), 18685–18698. doi: 10.1007/s11356-020-08351-w

40. Özokcu, S., & Özdemir, Ö. (2017). Economic growth, energy, and environmental Kuznets curve. *Renewable and Sustainable Energy Reviews, 72*, 639–647. doi: 10.1016/j.rser.2017.01.059

41. Panayotou, T. (1993). *Empirical tests and policy analysis of environmental degradation at different stages of economic development*. Retrieved from https://econpapers.repec.org/paper/iloilowps/992927783402676.htm

42. Pearce, D. W., & Warford, J. J. (1993). *World without end: economics, environment, and sustainable development*. Oxford: Oxford University Press.

43. Redclift, M. (1993). Sustainable Development: Needs, Values, Rights. *Environmental Values, 2*(1), 3–20.

44. Saidi, K., & Hammami, S. (2015). The impact of CO2 emissions and economic growth on energy consumption in 58 countries. *Energy Reports, 1*, 62–70. doi: 10.1016/j.egyr.2015.01.003

45. Shafik, N., & Bandyopadhyay, S. (1992). *Economic growth and environmental quality: time-series and cross-country evidence* (Vol. 904). Retrieved from https://www.researchgate.net/publication/23723867_Economic_Growth_and_Environmental_Quality_Time_Series_and_Cross-Country_Evidence

46. Selden, T. M., & Song, D. (1994). Environmental Quality and Development: Is There a Kuznets Curve for Air Pollution Emissions? *Journal of Environmental Economics and Management, 27*(2), 147–162. doi: 10.1006/jeem.1994.1031

47. Shahbaz, M., Mutascu, M., & Azim, P. (2013). Environmental Kuznets curve in Romania and the role of energy consumption. *Renewable and Sustainable Energy Reviews, 18*, 165–173. doi: 10.1016/j.rser.2012.10.012

48. Shen, D. (2015). Environmental sustainability and economic development: A world view. *Journal of Economics and Sustainable Development, 6*(6), 60–80.

49. Soberon, A., & D'Hers, I. (2020). The Environmental Kuznets Curve: A Semiparametric Approach with Cross-Sectional Dependence. *Journal of Risk and Financial Management, 13*(11), 292. doi: 10.3390/jrfm13110292

50. Stagl, S. (1999). *Delinking economic growth from environmental degradation? A literature survey on the environmental Kuznets curve hypothesis*. Retrieved from https://ideas.repec.org/p/wiw/wiwgee/geewp06.html

51. Stern, D. I. (2004). The Rise and Fall of the Environmental Kuznets Curve. *World Development, 32*(8), 1419–1439. doi: 10.1016/j.worlddev.2004.03.004

52. Bretschger, L., & Smulders, S. (2000). *Explaining environmental Kuznets curves: how pollution induces policy and new technology*. Retrieved from https://www.econstor.eu/bitstream/10419/48905/1/322739268.pdf

53. Tenaw, D., & Beyene, A. D. (2021). Environmental sustainability and economic development in sub-Saharan Africa: A modified EKC hypothesis. *Renewable and Sustainable Energy Reviews, 143*, 110897. doi: 10.1016/j.rser.2021.110897

54. Everet, T., Ishwaran, M., Ansoloni, G., & Rubin, A. (2010). *Economic growth and the environment*. Retrieved from https://mpra.ub.uni-muenchen.de/23585/1/economic-growth-environment.pdf

55. Tiwari, A. K., Shahbaz, M., & Adnan Hye, Q. M. (2013). The environmental Kuznets curve and the role of coal consumption in India: Cointegration and causality analysis in an open economy. *Renewable and Sustainable Energy Reviews, 18*, 519–527. doi: 10.1016/j.rser.2012.10.031

56. United Nations. (1987). *Report of the World Commission on Environment and Development: resolution*. Retrieved from https://digitallibrary.un.org/record/153026?ln=en&v=pdf

57. World Bank. (1992). *Governance and development*. Retrieved from https://documents1.worldbank.org/curated/en/604951468739447676/pdf/multi-page.pdf

58. Ben Zaied, Y., Ben Cheikh, N., & Nguyen, P. (2017). Long-run analysis of Environmental Kuznets Curve in the Middle East and North Africa. *Environmental Economics, 8*(4), 72–79. doi: 10.21511/ee.08(4).2017.09

59. Zakarya, G. Y., Mostefa, B., Abbes, S. M., & Seghir, G. M. (2015). Factors Affecting CO2 Emissions in the BRICS Countries: A Panel Data Analysis. *Procedia Economics and Finance, 26*, 114–125. doi: 10.1016/s2212-5671(15)00890-4

О синтаксически-семантических особенностях слова
On the Syntactic-Semantic Features of the Word

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Аннотация. В статье рассматриваются синтаксически-семантические особенности слова. В статье широко отражен анализ научно-теоретических источников по азербайджанскому и немецкому языкознанию. Заслуживают внимания мнения лингвистов в расслоении словарного запаса языка с социально-диалектической точки зрения, в семантическом анализе, в изучении структурных нюансов значения слова. Конечно, чем богаче словарный запас языка, тем легче говорить и писать на этом языке. Словарный запас языка развивается и меняется быстрее, чем его грамматическая система. Здесь упоминается происхождение слова и его функция в тексте. Синтаксически-семантика слова возникает из строения каждого языка, аналогии событий и предметов.

За основу словотворчества взят семантический метод. Основная суть семантического метода состоит в том, что к словам добавляется новое содержание и они приобретают новое значение в терминологии разных областей. Такие термины состоят как из слов нашего языка, так и из заимствований, чаще всего они возникают из общебытовых слов. Эти слова действительно имеют реальный, самостоятельный и переносный смысл. Каждое новое созданное слово должно фильтроваться по правилам языка и учитываться его использование в социологической среде.

В приведенных примерах поясняется функция слова в предложении. Семантическая функция слова подробно объяснена в этой статье. Следует отметить, что среди исследователей существует разногласие в изучении синтаксически-семантических особенностей слова. Это можно объяснить различием критериев, используемых при изучении синтаксически-семантических особенностей слова. В статье ценные теоретические идеи ученых дополнительно уточняют анализ словотворчества.

Ключевые слова: синтаксически-семантические; лексико-семантические; интонация; фразеологические сочетания; текст.

Abstract. The syntactic-semantic features of the word are discussed in the article. The analysis of scientific-theoretical sources on Azerbaijani and German linguistics is widely reflected in the article. The opinions of linguists are noteworthy in the stratification of the language's vocabulary from the social and dialectic point of view, in the semantic analysis, and in the study of the structural nuances of word meaning. Of course, the richer the vocabulary of a language, the easier it is to speak and write in that language. A language's vocabulary develops and changes more rapidly than its grammatical system. The word's origin and function in the text are mentioned here. The syntactic semantics of the word arise from the structure of each language, which is the analogy of events and objects.

The semantic method is taken as the basis for word creation. The main essence of the semantic method is that new content is added to the words, and they acquire new meanings in the terminology of different fields. Such terms consist of words of our language as well as borrowings. Most often, they arise from common household words. Those words have a real, independent, and symbolic meaning. Each new word created must be filtered according to the rules of the language, and its use in a sociological environment must be considered.

In the given examples, the function of the word in the sentence is explained. The semantic function of the word is described in detail in this article. It should be noted that there is a difference of opinion among researchers in the study of the syntactic-semantic features of the word. This can be attributed to the difference in the criteria used in the study of the syntactic-semantic features of the word. In the article, the valuable theoretical ideas of scholars further clarify the analysis of word creation.

Keywords: syntactic-semantic; lexical-semantic; intonation; phraseological combinations; text.

ВВЕДЕНИЕ

Одной из основных единиц языка является слово. Все слова языка вместе составляют лексическую систему языка, т. е. словарный запас. В современных лексикологических исследованиях на первый план, прежде всего, выходит анализ одновременного понимания лексики языка. В этом случае лексические единицы языка рассматриваются как часть макросистемы. В связи с этим большое внимание уделяется функционально-семантическим, прагматическим и социолингвистическим аспектам языка. В связи с этим заслуживают внимания мнения таких лингвистов, как Р. Гроссе в расслоении лексики немецкого языка с социально-диалектической точки зрения, В. Шмидт и Т. Шиппан в семантическом анализе, Г. Вотяк, Э. Агрикола и Д. Вейвегер [10, 181] внимания в исследовании структурных нюансов значения слова. Одной из основных целей лексикологии, которая начала формироваться в середине ХХ века, было изучение лексики языка с диахронической точки зрения, как отрасли науки языкознания. В тот период основное внимание лингвистов было сосредоточено на словотворчестве. Дж. Гримм и Х. Пауль считаются первыми основоположниками этого понятия в лингвистической литературе [10, 181]. «Лексика каждого языка отражает все аспекты образа жизни людей, говорящих на этом языке. Конечно, чем богаче словарный запас языка, тем легче говорить и писать на этом языке. Словарный запас языка развивается и меняется быстрее, чем его грамматическая система» [10, 181].

РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЯ

В области лексикологии изучаются сущность слов, их форма и содержание, группы, которые они образуют, происхождение слов и сфера обработки. Большинство слов нашего языка имеют лексико-грамматическую структуру. Значение слова называется его семантикой. Другими словами, лексическое значение слова связано с содержанием и выражает какое-либо понятие. Синтаксически-семантика слова возникает из строения каждого языка, аналогии событий и предметов.

Говоря о создании слова, Л. Гурбанова на основе семантического метода отмечает: «Основная суть семантического метода состоит в том, что к словам добавляется новое содержание и они приобретают новое значение в терминологии разных областей. Такие термины состоят как из слов нашего языка, так и из заимствований, чаще всего они возникают из общепринятых слов. Слова эти, действительно, как сказано выше, имеют реальный, самостоятельный и переносный смысл» [6, 62]. Он также считает создание новых слов и терминов важным в обогащении лексической системы и отмечает, что «вообще слова играют очень важную роль в создании терминов в языке и в обогащении терминологического словаря, так как они относятся ко всем областям человеческой деятельности. Широ-

ко используются термины, созданные либо благодаря внутренним возможностям языка, либо заимствованные из разных языков» [6, 28].

Можно согласиться с автором, что слова (т.е. неологизмы), входящие в основу языка и сам язык, играют важную роль в обогащении словарного запаса. Однако это не означает, что любые заимствованные слова или старые слова можно обновить и ввести в словарь. Каждое новое созданное слово должно фильтроваться по правилам языка и учитываться его использование в социологической среде. С другой стороны, обогащение лексической системы связано с диалектами.

Ученый С. Джафаров в своей работе «Современный азербайджанский язык. Лексика» проводит различие между лексико-семантической и грамматической точками зрения [9, 17]. Говоря о многозначных словах, он справедливо пишет: «В многозначных словах один из смыслов, которые они несут, находит свое конкретное выражение только внутри текста. С другой стороны, одно и то же слово используется в предложении и тексте в переносном смысле, в зависимости от контекста. Например, /Я расслабилась/, /Дела идут как по маслу/, /Ручка пишет как по маслу/; /Извелась, ожидая сына/, /Вода, которую я выпила из истока родника, охладила моё сердце/, /Засорилась машина для переработки масла/. С. Джафаров, говоря о способах обогащения словарного запаса языка, рассматривает обогащение лексического пласта языка как результат совместной деятельности внутриязычный и экстралингвистических факторов. Заметим, что автор вообще не затрагивает здесь событие конверсии [9, 17].

Автор Л. Гурбанова дала следующее определение полисемии: «Полисемия означает употребление слова в нескольких смыслах, а не в одном. С точки зрения общего языкознания невозможно представить ни один язык без многозначности. В современном азербайджанском языке также много многозначных слов. Любое слово в языке может иметь два, три, четыре и даже более значений» [6, 44]. С автором можно согласиться, если есть слово, то неоднозначность возникает при его переходе в разные поля. Правда, двусмысленность не приемлема в области терминологии, но

этот процесс необходим в вопросе словотворчества в лингвистике.

В указанной работе Л. Гурбанова дает широкую трактовку этого вопроса и относит термины к точным и конкретным областям. С другой стороны, автор отмечает, что «одной из причин двусмысленности является переносное употребление слова. Поскольку обычные слова имеют переносное значение, этот процесс мало проявляется в терминах. В то же время этот термин выходит из терминологии и становится обычной лексической единицей» [6, 48].

Ученый А. Ахундов упоминает три аспекта, отличающие лексический уровень языка от других уровней: 1) лексический уровень представляет собой открытую систему: 2) лексико-семантическая система непосредственно связана с внешней структурой языка, языковыми стилями и различными коммуникативные сферы речевой деятельности; 3) лексико-семантические категории определяются по различным и многим семантическим основаниям [4, 163-164]. Когда он говорит о словотворчестве, показывает 4 типа фразеологизмов: фразеологические онемение, фразеологические сочетания, фразеологические союзы и фразеологические выражения [4, 187].

В целом синтаксически-семантическая структура языка одинаково активна в каждом словотворчестве. Если вещь или предмет назван словом, грамматика придает ему форму или помещает его в предложение. Синтаксис – наука о грамматическом строе языка, изучающая систему синтаксических единиц (словосочетания, предложения, сложные синтаксические единицы) и способы построения и соединения синтаксических единиц. Под словом синтаксис понимают синтаксическую структуру языка, понимают структуру словосочетаний и предложений.

«Современный Азербайджанский язык: Синтаксис» принимает в качестве объекта синтаксиса словосочетание и предложение. По мнению авторов, комментирующих отличие предложения от словосочетания, «основными признаками предложения являются то, что оно обладает предикативным качеством (в том числе и модальностью) и сопровождается интонацией предложения» [3, 6].

Изменение слова внутри текста означает, что оно выходит за его пределы. То есть, если слово при употреблении отдельно дает одно значение, то значение меняется внутри текста, в контексте и при сочетании с другими словами (сложные слова, фразеологизмы, словосочетания, идиомы изменяются по смыслу). Предложение строится вокруг слова. Однако даже если предложение не выражает законченной мысли, в тексте раскрывается полная мысль.

«Линейная последовательность между предложениями и их компонентами, используемыми в тексте, обеспечивает создание крупных единиц предложения. Предложения сохраняют свою структуру по отдельности, но при образовании единства предложений они выходят за пределы их структуры и соединяются со структурно-семантическими предложениями, стоящими перед ними и после них [8, 159-165].

Ученый А. Абдуллаев, изучавший придаточные сложные предложения в Азербайджанском языке, различает формальные и смысловые аспекты между их компонентами: «Главное предложение более свободно в силу своего грамматического статуса, а придаточное предложение подчинено самому себе. «...придаточное предложение грамматически зависит от главного предложения, но не может быть семантически зависимым» [1, 9]. Поэтому возникает необходимость точно определить формальную, информативную стороны взаимодействия компонентов сложного предложения.

В лингвистике текста текст изучается также с точки зрения синтаксиса. Синтаксическая структура языка включает словосочетания, предложения и структуру текста. Текст создается путем соединения предложений друг с другом.

Ученый К. Абдуллаев считает компоненты подчинительного сложного предложения самостоятельными предложениями и считает правильным изучение в синтаксисе текста языковых единиц, называемых «сложное предложение без подчинительного». Автор, не считающий необходимым причислять подчинённые сложные предложения с параллельным содержанием к подчинённым сложным предложениям типа /Этот хмурый, молчаливый человек не соответствует таким нежным чувствам/, в Азербайджанском язы-

ке отрицает существование однотипные предложения: «Если в каком-либо предложении есть два полноценных независимых, сказуемых, то мы встречаем не одно предложение, а два предложения» [1, 62].

«Мы всегда отмечаем, что предложение выражает законченную мысль. Верно, но предложение не может отразить всю мысль предмета, полная информация раскрывается при создании текста. Итак, основа информации начинается с предложения, но завершается в тексте. В лингвистике для завершения текста служат лингвистические, психологические и логические факторы. В тексте раскрываются лексические повторы, формальные грамматические правила, фонетические особенности и развитие мысли в речи» [8, 159-165].

Ученый Г. Казимов отмечает: «Чтобы построить и сформировать текст, его компоненты, помимо смыслового аспекта, должны быть связаны между собой грамматически». Автор упоминает интонацию как наиболее универсальный инструмент устной речи [11, 434].

Среди исследований по синтаксису в Азербайджанском языкознании особое место занимают работы К. Абдуллаева. К. Абдуллаев исходит из идеи, что «главной особенностью члена предложения является то, что он имеет функциональное значение». По его мнению, «...все члены предложения... не имеют одинакового функционального значения в предложении азербайджанского турецкого языка» [2, 35]. К. Абдуллаев также считает полноту главным членом, включает в качестве второстепенных членов только определение и наречие, советует принимать наречие как вид определения: «Если смотреть чисто с точки зрения языкознания, то полноту следует выделять как непременное компонент не только коммуникативной, но и структурной формы предложения. Иными словами, помимо подлежащее и сказуемое, дополнение может быть включена в число главных членов предложения на равных правах» [2, 36].

Своеобразием отличаются работы А. Демирчизаде по изучению структуры синтаксического предложения. Автор подробно изучил виды предложения по цели и интонации и предлагает в качестве основного принципа взять цель и междометие вместе. Он впервые рассмотрел сходство и различие придаточных и придаточных сложных пред-

ложений и разделил ветвящиеся предложения на два типа под названием трансформированных и самостоятельных предложений [8, 5].

В третьей части работы под названием «Синтаксис текста» он различал «текст, являющийся объектом лингвистического исследования, и текст, являющийся объектом лингвистики текста» и отмечал синтаксическое целое (текст) как «единство двух или более предложений, объединенных общими смысловыми и формальными отношениями», текст и подробно разъяснил проблемы абзаца [2, 403].

Ученый Ю. Сеидов – один из первых лингвистов, прокомментировавших понятие синтагмы. Однако Ю. Сеидов удовлетворился тем, что дал обзор взглядов на синтагму и выявил различные ее стороны при сочетании слов. Однако похвально, что он раскрывает и показывает различия между синтагмой и словосочетанием [12, 89-90]. А. Ахундов отмечает, что синтагма употребляется в языкознании в трех значениях: «синтагма считается фонетической единицей,.. она употребляется в смысле результата стилистической интеграции определенного словосочетания. ...синтаксическая единица» [4, 154-155].

Среди исследований по синтаксису обращают на себя внимание исследования Ф. Вейсалли. По мнению Ф. Вейсалли, «предложение есть та структура, которую мы ему придаем» ...«интонационный контур предложения регулируется составом синтагмы»...интонация в предложении «является языковым сред-

ством, реализующим встреча нового и старого» [5, 252].

«В лингвистике текста просодические факторы принимаются как дифференциальные элементы в тексте, и здесь изучение синтаксических отношений объясняется структурно-семантическим путем» [7, 159–165].

ВЫВОДЫ

Таким образом, всегда существует потребность в обогащении словарного запаса языка, и этот процесс создает условия для межъязыковых отношений. С другой стороны, глобализация в современном мире помогает переводить слова с языка на язык. Поэтому, если в какой-либо области необходимо новое слово, то в языке создается новое слово и термин. С синтаксически-семантической точки зрения слово раскрывается в словосочетании и предложении, но становится более понятным в пределах текста. Сколько бы исследований и научно-методических исследований ни проводилось в различных областях языкознания, после восстановления независимости Азербайджана возникла необходимость в современных научных исследованиях, которые были бы более систематическими во всех областях языкознания и охватывали бы все аспекты языка – фонологическое, морфологическое, лексическое, синтаксическое поля. Таким образом, словотворчество помогает проводить новые исследования в современном азербайджанском языкознании.

СПИСОК ИСПОЛЬЗОВАННОЙ ЛИТЕРАТУРЫ / REFERENCES

1. Abdullaev, A. (1974). *Podchinitelnye slozhnye predlozheniya v sovremennom azerbajdzhanskom yazyke* [Subordinating complex sentences in modern Azerbaijani language]. N. d.: Maarif (in Azerbaijani).

2. Abdullaev, A., Sejidov, Yu., & Gasanov, A. (1972). *Sovremennyj Azerbajdzhanskij yazyk. Sintaksis* [Modern Azerbaijani language. Syntax]. N. d.: Maarif (in Azerbaijani).

3. Abdullaev, K. (2017). *Teoreticheskie problemy sintaksisa azerbajdzhanskogo yazyka* [Theoretical problems of Azerbaijani language syntax]. N. d.: Maarif (in Azerbaijani).

4. Ахундов, A. (2006). *Obshaya lingvistika* [General linguistics]. N. d.: Sharg-Garb (in Azerbaijani).

5. Vejsalli, F. (2007). Yazyk [Language]. N. d.: Tehsil NPM (in Azerbaijani).

6. Gurbanova, L. (2006). *Terminologicheskaya leksika v yazykovoj sisteme. Na materialah azerbajdzhanskogo i anglijskogo yazykov* [Terminological lexicon in the language system. On the materials of Azerbaijani and Anglo languages]. N. d.: ADPU (in Azerbaijani).

7. Gurbanova, L. (2023). Tekst i sredstva ego svyazi [Text and its means of communication]. *Lingvisticheskie proizvedeniya, 1*, 159–165 (in Azerbaijani).

8. Demirchizade, A. (1963). *Sovremennyj Azerbajdzhanskij yazyk. Chleny predlozheniya* [Contemporary Azerbaijani language. Members of the sentence]. N. d. (in Azerbaijani).

9. Dzhafarov, S. (1970). Sovremennyj Azerbajdzhanskij yazyk. Leksika [Contemporary Azerbaijani language. Lexicon]. N. d.: Maarif (in Azerbaijani).

10. Dzhumaeva, S. (2023). Mesto slozhnyh slov v nemeckom leksikone [The place of compound words in the German lexicon]. *Voprosy filologii, 1*, 180–187 (in Azerbaijani).

11. Kazimov, G. (2000). *Sovremennyj Azerbajdzhanskij yazyk. Sintaksis* [Modern Azerbaijani language. Syntax]. N. d.: Unsijjat (in Azerbaijani).

12. Sejidov, Yu. (2006). *Trudy* [Proceedings] (Vol. 1). Baku: Izdatelstvo Bakinskogo Universiteta (in Azerbaijani).