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Effect of Clean and Tidy Environment towards Learning Motivation of Students of Universitas Negeri Yogyakarta

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ABSTRACT: A clean and tidy physical learning environment is crucial for enhancing student motivation, especially in post-pandemic higher education, where physical conditions influence mental health and academic achievement. This study examines the impact of campus cleanliness and orderliness on student learning motivation at Yogyakarta State University (UNY). A cross-sectional quantitative survey methodology was employed to gather primary data via a 40-item Likert-scale questionnaire (10 items on cleanliness, 10 on tidiness, and 20 on motivation) from 344 students selected through purposive sampling, while secondary data were obtained from facility observations. The analysis encompassed validity assessments (estimated r > r table = 0.106), reliability (Cronbach Alpha > 0.7), Pearson correlation, and multiple linear regression utilizing SPSS version 26. The findings indicated a substantial positive correlation: cleanliness-motivation ($r = 0.60$, $p < 0.001$), tidiness-motivation ($r = 0.58$, $p < 0.001$). The regression model demonstrated significance ($R^2 = 0.42$, $F = 124.5$, $p < 0.001$), with cleanliness ($B = 0.35$, $\beta = 0.42$) exhibiting more influence than tidiness ($B = 0.28$, $\beta = 0.31$), accounting for 42% of the variance in motivation. The classical assumption was satisfied (Durbin-Watson = 2.01). The results correspond with Altman's (1975) physical environment theory and endorse the UNY 2020-2024 Strategic Plan for sustainable facilities. The practical consequences encompass policy recommendations for regular cleaning and student engagement, hence enhancing environmental management at higher education institutions inside underdeveloped nations.

KEYWORDS: environmental cleanliness, environmental tidiness, learning motivation, campus physical environment, Universitas Negeri Yogyakarta, physical environment theory

INTRODUCTION

Background of the Problem

Global studies show that a clean environment increases student concentration by up to 15% (Barrett et al., 2015), while in Indonesia, Maxwell (2016) found that classroom tidiness contributed at 25% to student participation at a state university. This research is relevant to the National Research Master Plan (RIRN) in the Student Human Resource Development Sector, highlighting the role of the physical environment in sustainable learning. However, specific research on cleanliness and tidiness at UNY is still scarce, so this study fills this gap with empirical data from 344 students, focusing on the influence of both variables on learning motivation.

The physical learning environment is a crucial factor in influencing the dynamics of higher education, since the cleanliness and organization of classrooms and campus facilities directly affect student motivation and success. In the post-COVID-19 era, heightened awareness of sanitation suggests that students in unclean or disorganized environments may suffer from cognitive impairment, elevated stress levels, and diminished intrinsic motivation, adversely affecting the quality of the Tridharma of Higher Education (education, research, and community service). Universitas Negeri Yogyakarta (UNY), a prominent public university in Indonesia, emphasizes campus environmental management in its 2020-2024 Strategic Plan to foster a conducive learning atmosphere. An internal UNY study (2024) revealed that 35% of students expressed dissatisfaction with facility cleanliness, which corresponded with a 20% decline in learning motivation, highlighting the necessity for empirical research. Global research indicates that a pristine environment enhances student concentration by as much as 15% (Barrett et al., 2015), but in Indonesia, Maxwell (2016) discovered that classroom cleanliness accounted for 25% of student engagement at a public institution. This study pertains to the National Research Master Plan (RIRN) within the Student Human Resource Development Sector, emphasizing the significance of the physical environment in fostering sustainable learning. This study addresses the lack

of specialized research on cleanliness and tidiness at UNY by providing actual data from 344 students, examining the impact of these characteristics on learning motivation.

STATEMENT OF THE PROBLEM

Main research problem: How does the cleanliness and tidiness of the campus environment affect student learning motivation at UNY? Specific formulation: (1) To what extent does environmental cleanliness affect learning motivation? (2) What is the contribution of environmental tidiness to learning motivation? (3) What are the supporting and inhibiting factors in campus environmental management at UNY?

RESEARCH OBJECTIVES

General objective: To analyze the influence of environmental cleanliness and tidiness on student learning motivation at UNY. Specifically: (1) To measure the influence of cleanliness on motivation; (2) To assess the contribution of tidiness to motivation; (3) To identify supporting and inhibiting factors in environmental management.

RESEARCH BENEFITS

This study theoretically enhances the physical environment theory (Altman, 1975) with empirical evidence from Indonesia, corroborating Self-Determination Theory (Ryan & Deci, 2017) on students' fundamental requirements. The findings offer policy recommendations for UNY and the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) to enhance facilities, aligning with the RIRN objective of elevating student motivation by 30% by 2025.

THEORETICAL FRAMEWORK

Concept of Environmental Cleanliness, Tidiness, and Learning Motivation

Campus cleanliness is characterized by the absence of filth, litter, and germs, hence promoting physical health and mitigating the risk of infection (Altman, 1975). Tidiness denotes an organized organization, reduced clutter, and visually appealing configurations to diminish visual distractions (Barrett et al., 2015). Motivation to study is a psychological mechanism that drives students to actively participate in academic endeavors, shaped by external influences such as the environment (Deci & Ryan, 2000). According to Self-Determination Theory (SDT), an organized environment satisfies the requirements for autonomy (a distraction-free setting) and competence (cognitive concentration), hence augmenting intrinsic motivation (Ryan & Deci, 2017).

Empirical research indicates that school cleanliness enhances student motivation by 20-30% due to stress alleviation (Moos, 1981). Maxwell (2016) observed a link of $r = 0.55$ between classroom tidiness and student involvement in Indonesia, however post-pandemic research by Sari et al. (2024) indicated that inadequate sanitation reduced motivation by 15% at a public institution. At UNY, the overcrowding, with a capacity of 20,000 students, intensifies this problem, as noted by Hidayat et al. (2019).

Physical Environment Theory and Its Application

Altman's (1975) physical environment theory posits that human-environment interactions influence behavior, with cleanliness mitigating sensory overload and orderliness promoting a sense of security. A study by Barrett et al. (2015) in European schools demonstrated that organized design enhanced performance by 11%, with analogous effects on motivation. In developing nations, Sayidah (2020) discovered that Indonesia's "clean campus" initiative enhanced motivation by 25%, aligning with this idea. Nonetheless, cultural criticism by Wijaya et al. (2024) underscored discrepancies in access to resources at rural public institutions, affecting efficacy. Recent studies, like Wulandari et al. (2024), indicate that tidiness mediates students' intellectual capital with $R^2 = 0.45$.

Research Hypothesis: H1: Cleanliness exerts a favorable and significant influence on learning motivation ($p < 0.05$). H2: Tidiness exerts a favorable and significant influence on learning motivation ($p < 0.05$). H3: Cleanliness and tidiness collectively account for almost 40% of the variance in learning motivation.

METHOD

Research Design

This research employed a quantitative survey design with a cross-sectional methodology, with the data collection was conducted from July to August 2025 across many UNY sites. This form was optimal for analyzing correlations between variables at a specific moment, facilitating preliminary causal inference devoid of temporal bias.

Population and Sample

Active UNY student population: 20,000. A sample of 344 students was recruited by purposive sampling to ensure representation across faculties (30% from Sports Science and the remainder correspondingly), semesters (60% from semesters 3-6), and regular facility users. The sample size was determined using the Slovin formula (margin of error 5%, confidence level 95%), so assuring generalizability. Demographics: 55% female, predominantly aged 18-22 years old (85%), average semester. 4.

Instrument and Data Collection

Main instrument: A 4-point Likert scale questionnaire (ranging from strongly disagree to strongly agree), comprising cleanliness (10 items, e.g., "The classroom is devoid of dust"), tidiness (10 items, e.g., "Tables and chairs are systematically arranged"), and learning motivation (20 items, adapted from Deci & Ryan, 2000, e.g., "I am inspired to learn in this environment"). Expert content validation (CVI > 0.80); item validity: computed r > tabulated r (0.106, df=342). Reliability: Pilot test (n=50, Cronbach's Alpha >0.7). Secondary data: Checklist for facility observation. Methodology: Distribution via online (Google Forms) and offline channels, achieving a 92% response rate. Ethics: Informed permission, anonymity, approval from the UNY Ethics Committee (No. 2025/ETIK/UNY/002).

Data Analysis Technique

Descriptive analysis: Mean, standard deviation, and frequency using SPSS 26 to characterize the distribution of variables. Inferential: Pearson correlation for bivariate relationships; multiple linear regression (Motivation = β0 + β1 Cleanliness + β2 Neatness + e) for multivariate effects. Classical assumptions: Normality (Kolmogorov-Smirnov p > 0.05), homoscedasticity (scatterplot of residuals), linearity (ANOVA), multicollinearity (VIF < 10), autocorrelation (Durbin-Watson ≈ 2). Criteria for significance: $p < 0.05$; $R^2 > 0.40$ for a robust model.

Findings

Descriptive Statistics

Students evaluated cleanliness (M = 3.52, SD = 0.42) and tidiness (M = 3.47, SD = 0.48) positively (interpretation: >3.0 = favorable), whereas learning motivation (M = 3.60, SD = 0.52) demonstrated a robust intrinsic drive. A low standard deviation (<0.6) demonstrated a consensus of perceptions, while motivation showed greater variability due to individual circumstances.

Table 1. Descriptive Statistic for Research Variable (N = 344)

Variable	Average	SD	Min	Max	Interpretation
Cleanliness	3.52	0.42	2.00	4.00	High (Positive)
Tidiness	3.47	0.48	2.00	4.00	High (Positive)
Learning Motivation	3.60	0.52	2.50	4.00	High (Strong)

Note: Scale 1-4; M >3.0 = high/positive.

Validity and Reliability Testing

All 40 items were valid (calculated r 0.25-0.65 > r table 0.106, df=342). High reliability: Cleanliness α = 0.88, Neatness α = 0.85, Motivation α = 0.82 (Nunnally & Bernstein, 1994: >0.70 = acceptable).

Table 2. Coefficient of Reliability (Cronbach Alpha)

Variable	Total Item	Cronbach Alpha	Interpretation
Cleanliness	10	0.88	Very Good
Tidiness	10	0.85	Good
Learning Motivation	20	0.82	Good

Note: α >0.80 = Very Good; >0.70 = Good.

Correlation Analysis

Moderate-significant positive relationships: Cleanliness-Motivation ($r = 0.60$, $p < 0.001$), Tidiness-Motivation ($r = 0.58$, $p < 0.001$), Cleanliness-Tidiness ($r = 0.75$, $p < 0.001$).

Table 3. Matrix of Pearson Correlation Among Variables

Variable	1. Cleanliness	2. Tidiness	3. Motivation
1. Cleanliness	1	0.75***	0.60***
2. Tidiness	0.75***	1	0.58***
3. Motivation	0.60***	0.58***	1

Note: ***p < 0.001 (2-tailed).

Multiple Linear Regression Analysis

The overall model is significant (F = 124.5, p < 0.001, R^2 = 0.42, adjusted R^2 = 0.41), explaining 42% of the variance in motivation. Coefficients: Cleanliness (B = 0.35, β = 0.42, t = 7.89, p < 0.001), Tidiness (B = 0.28, β = 0.31, t = 6.45, p < 0.001). Assumptions met: Normality (KS p = 0.12), homoscedasticity (random residual plot), linearity (p > 0.05), DW = 2.01 (no autocorrelation), VIF < 2 (no multicollinearity).

Table 4. Coefficient of Multiple Linear Regression

Predictor	B	SE	β	t	p	VIF
(Constant)	1.45	0.18	-	8.23	<0.001	-
Cleanliness	0.35	0.04	0.42	7.89	<0.001	1.56
Tidiness	0.28	0.04	0.31	6.45	<0.001	1.56

Note: R^2 = 0.42, F = 124.5, p < 0.001; Dependent Variable: Learning Motivation.

DISCUSSION

Effect of Cleanliness towards the Learning Motivation

The regression analysis indicates that cleanliness exerts a robust and statistically significant influence (B = 0.35, β = 0.42, p < 0.001), hence corroborating H1. This coefficient signifies that a 1-unit enhancement in cleanliness (scale 1-4) elevates motivation by 0.35 units, aligning with Altman's (1975) physical environment theory, which posits that cleanliness mitigates sensory overload and facilitates cognitive processing. Barrett et al. (2015) discovered that a pristine atmosphere enhanced student concentration by 15%, consistent with the UNY average of 3.52, which exhibited a correlation of r = 0.60 with motivation. Hidayat et al. (2019) observed that a campus cleaning initiative in Indonesia enhanced Tridarma motivation by 28%, but it was constrained by overcrowding (YUY capacity of 20,000 students). Interviews (n = 50) indicated that 70% of participants show the heightened focus in a clean environment, corroborating Self-Determination Theory (Ryan & Deci, 2017), which posits that cleanliness satisfies the desire for competence. Nevertheless, an SD of 0.42 signifies minimal fluctuation, potentially attributable to UNY's standard program, in contrast to Sari et al.'s (2024) post-pandemic observations of a 15% decline in motivation resulting from inadequate sanitation.

Effect of Tidiness towards the Learning Motivation

Tidiness also had a substantial impact (B = 0.28, β = 0.31, p < 0.001), corroborating H2, albeit to a lesser extent than cleanliness. This aligns with Moos (1981), who asserted that neatness fosters a sense of security and mitigates worry (r = 0.58). Maxwell (2016) discovered that organized layouts at Indonesian public colleges enhanced engagement by 20%, aligning with the UNY average of 3.47. Recent research by Wulandari et al. (2024) indicated that tidiness mediates student intellectual capital, with R^2 = 0.45, pertinent to UNY's Strategic Plan. The standard deviation of 0.48 in cleanliness surpasses expectations due to faculty variability (e.g., sports lab versus lecture hall), as indicated by Oluwunmi et al. (2020), where organizational support diminished differences by 50%. Interviews revealed that 65% of participants perceived themselves as "more organized" in an orderly environment, while 30% expressed concerns regarding overcrowding, hence partially corroborating H3 (R^2 = 0.42 > 40%).

Supporting Factors and Obstacles

Primary supporting factors: Institutional cleaning schedule (40% of responders), aligning with Sayidah (2020), which indicated that student involvement enhanced efficacy by 25%. Obstacles: Restricted sanitation budget (55%), in accordance with Wijaya et al. (2024), which affects behavioral innovation. Table 5 encapsulates the results derived from the interviews.

Table 5. Summary of Supporting and Obstacle Factors from Interview (n=50)

Type of Factors	Description	Frequency (%)	Reference
Supporting	Routine Cleaning Schedule	40	Sayidah (2020)
Supporting	Participation of students (clean campus)	35	Oluwunmi et al. (2020)
Obstacle	Limited sanitation budget	55	Wijaya et al. (2024)
Obstacle	Dense facility	30	Sari et al. (2024)

Notes: Frequency of open-ended responses; Implication: Prioritize funding to address the 58% unexplained variance.

Theoretical Implication: Enriching Altman (1975) with Indonesian data, where regional disparities (Almendarez, 2011) require cultural adaptation. Practical: Supporting the UNY Strategic Plan with a "green campus" program, targeting motivation >3.5. Limitations: Cross-sectional (no long-term causality); recommendation: Longitudinal study.

CONCLUSION

Analysis involving descriptive, correlation, and regression methods of 344 respondents indicates that the cleanliness and tidiness of the campus environment positively and significantly influence student learning motivation at UNY ($R^2 = 0.42$, $p < 0.001$), with cleanliness exhibiting a more pronounced effect (B = 0.35). This discovery corroborates the significance of the physical environment in Tridarma as per Law Number 14/2005, UNY's 2020-2024 Strategic Plan, and RIRN, with instrument reliability exceeding 0.80 and all assumptions satisfied. This program enhances the quality of student human resources, while 58% of the variance from other factors necessitates comprehensive integration.

RECOMMENDATION

For UNY Institution

Expand the "clean campus" program with daily cleaning frequency and 50% student participation, targeting motivation >3.5 through monthly monitoring. Allocate IDR 5-10 million per faculty for sanitation, in line with Oluwunmi et al. (2020).

For National Policy

The Ministry of Education, Culture, Research, and Technology integrated hygiene standards into the Indonesian Education Scholarship (BPI), focusing on remote areas to reduce disparities (Almendarez, 2011), with special national funding of IDR 20 billion for state university facilities.

For Further Research

Using longitudinal mixed methods (n>1000) with moderators (gender, pandemic effect), exploring the mediation of social capital (Pil & Leana, 2009) and the impact of academic achievement (Sari et al., 2024).

For Students

Engage in tidiness initiatives for mutual benefit, focusing on quality outputs such as collaborative learning.

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