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Measuring Work Productivity as an Indicator of Human Resource Performance: A Literature Review

Syifa Al Fadhilah[1], Dian Safitri[2]
Email: syifa15@gmail.com[1], diansafitri_uin@radenfatah.ac.id[2]
[1,2]Islamic Education Management Study Program, Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Raden Fatah Palembang

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Abstract
Work productivity is often used as the most tangible metric for assessing how well human resources (HR) perform; however, there is no standardized method for its measurement particularly in educational institutions, where outputs are not always in the form of physical goods. This article aims to clarify the concept of work productivity and its relationship with HR performance, map out various measurement approaches, and formulate recommendations for its application in the management of educational institutions. A descriptive, qualitative literature review was conducted, analyzing nine journal articles and three academic books in Indonesian through a thematic approach. The findings indicate that (1) productivity is understood as the ratio of output to the resources employed, as well as a mental attitude oriented toward continuous self-improvement; (2) while productivity can serve as an indicator of HR performance, it is not synonymous with performance itself and should therefore be complemented by other indicators; (3) measurement can be approached through input-output ratios, time-based assessments, job description frameworks, key result areas, key performance indicators (KPIs), and multidimensional indicators; and (4) in the education sector, factors such as work motivation, organizational climate, self-efficacy, visionary leadership, the work environment, and professional discipline are positively correlated with teacher productivity. This article recommends a measurement system based on teachers' core duties integrating both quantitative and qualitative indicators that is directly linked to professional development and support.

INTRODUCTION

Human resources are the element that drives all other resources in an organization. Sedarmayanti (2009) asserts that employees' abilities greatly determine improvements in work productivity, and that however sophisticated an organization's facilities and infrastructure may be, it will find it difficult to develop without quality human resources. This view is in line with Pribadiyono (2006), who states that in both profit-oriented and non-profit organizations, people are the key factor in achieving efficiency and effectiveness. Human resource management therefore does not stop at recruitment and placement, but continues with efforts to ensure that the people who work actually produce something of value, using time, energy, and cost reasonably. This is where work productivity becomes important, because it shows how far human potential is turned into results.

In the educational context, the main human resources are teachers and educational staff. Sutikno (2009) argued that the productivity of a school organization is largely influenced by teachers' work productivity, so the level of teacher productivity affects the achievement of the school's goals as a whole. Lestari, Hendarman, and Hidayat (2022) add that teachers are the component with the greatest influence on quality educational processes and results, and that teachers' work productivity is needed in order to achieve the goal of producing quality graduates. Educational institutions that want to improve their quality therefore need not only to improve the curriculum and facilities, but also to understand and measure the productivity of the people who run them.

The problem that arises is that teacher productivity in the field is often not yet optimal. Imelda (2020) reported preliminary data on 25 civil-servant teachers at public elementary schools in Cijeruk District, Bogor Regency: 63% of teachers were able to prepare lesson plans before teaching, 54.5% took part in scientific activities, seminars, workshops, and training in the Teachers' Working Group, 55% completed learning

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administration on time, and 49% were able to manage the class effectively. These figures come from a preliminary study of a limited group in a single district, different from the main research sample of 90 teachers, and so cannot be generalized. Even so, the preliminary data show that the gap between expected tasks and their implementation can be recognized through clear indicators.

The second problem lies in how to measure. Existing studies use different measures: six productivity indicators for employees of a company in Makassar (Ramli et al., 2021), five indicators for vocational secondary school teachers (Lestari et al., 2022), six indicators divided into input and output dimensions for elementary school teachers (Imelda, 2020), four sub-variables for vocational school teachers (Sutikno, 2009), standard-time work measurement in industrial work (Reviyani et al., 2026), and a design based on key performance indicators for individual productivity (Pribadiyono, 2006). This diversity is natural, but for managers of educational institutions it raises a practical question: which measure is appropriate to use, and how should the measurement results be read as an indicator of HR performance?

Based on this description, the research questions of this article are: (1) what is the concept of work productivity and its relationship with HR performance; (2) what are the approaches and indicators for measuring work productivity in the literature; and (3) what are the problems in measuring work productivity and the solutions for applying it in the management of educational institutions. The aims of the article are to explain the concept of work productivity and its relationship with HR performance, map the approaches and indicators for measuring it, analyze the problems that arise, and offer recommendations that can be applied in educational institutions.

METHOD

This article uses a literature review method with a descriptive qualitative approach. The material reviewed consists of secondary data from nine journal articles and three academic books in Indonesian. The search was conducted online through national journal portals, Portal Garuda, university library catalogs, and the National Library in October 2026, using the keywords “work productivity measurement,” “teacher work productivity,” “productivity indicators,” and “human resource performance.”

Sources were selected based on three criteria: (1) written in Indonesian and published by a traceable journal or publisher; (2) discussing concepts, measurement, or factors related to work productivity or HR performance; and (3) having bibliographic identity that can be traced back, such as a DOI, article link, or ISBN. Based on these criteria, this review uses the nine journal articles and three books listed in the References. The initial number of search results and the number of sources that dropped out at the screening stage were not recorded, so the selection process cannot be fully replicated.

The analysis was carried out thematically through five stages: (1) identifying definitions and dimensions of productivity; (2) examining the relationship between productivity and performance; (3) mapping measurement approaches and indicators; (4) summarizing factors related to productivity based on empirical research; and (5) compiling a problem analysis, application examples, and recommendations. Findings across sources were compared to identify similarities and differences. Statistical figures are cited as reported in the sources; inconsistencies in the figures found during checking are noted in the Problem Analysis section. References obtained through other sources are written with the word “in” and are not included in the References. This review is limited to Indonesian-language sources and is not a systematic review, so its conclusions are conceptual and are not intended to represent the conditions of all educational institutions.

RESULTS AND DISCUSSION

The Concept of Work Productivity

The literature understands productivity from several complementary angles. The first angle is the ratio. Barner (1980, in Sutikno, 2009) states that organizational productivity can be measured by comparing output with input, that is, the ratio between the results obtained and the sacrifice of all the resources spent to produce them. Lestari et al. (2022) describe something similar: work productivity is the comparison between output and input, on the condition that the output has added value. This understanding is important because it separates merely being busy from being truly productive. An employee who works long hours is not necessarily productive if the results are small or of low quality.

The second angle is mental attitude. Sedarmayanti (2001, in Sutikno, 2009) views productivity as a mental attitude that always holds that the quality of life today must be better than yesterday and tomorrow better than today. Sinungan (2009, in Imelda, 2020) groups the meanings of productivity into three: the ratio of results to all the resources used, a mental attitude of always striving to be better, and the result of the interaction of essential factors such as knowledge and technology, research, management, and labor. All three show that productivity is not only about numbers, but also about how people view their work.

The third angle is the dimension of analysis. Sutikno (2009) explains that productivity can be seen in an individual dimension and an organizational dimension. The individual dimension concerns the potential within a person that is used to the maximum, while the organizational dimension looks at the technical relationship between input and output and is the aggregate of the individual productivity within it. Kusumaningrum et al. (2024) also highlight these individual and organizational dimensions when discussing teacher productivity as a key factor of

an effective educational environment.

The fourth angle is the link with effectiveness and efficiency. Gomes (2000, in Sutikno, 2009) explains that when effectiveness and efficiency are both high, productivity is high. If effectiveness is high but efficiency is low, waste occurs because costs swell. Conversely, if efficiency is high but effectiveness is low, goals are not achieved or deviate from the target. This explanation is useful for educational institutions because it shows two questions that must always be asked together: are the learning goals achieved, and are the time and resources used to achieve them reasonable. Sedarmayanti (2009, in Imelda, 2020) summarizes the two as two dimensions of productivity, namely effectiveness, which relates to achieving targets for quality, quantity, and time, and efficiency, which compares inputs with the actual use made of them.

Work Productivity and HR Performance

Mangkunegara (2017) defines performance as the quality and quantity of work achieved by an employee in carrying out tasks in accordance with the responsibilities assigned, and explains that performance is influenced by ability and motivation factors. Compared with the definitions of productivity above, the two overlap on work results, but their emphases differ. Performance assesses the extent to which tasks and responsibilities are fulfilled in quality and quantity. Productivity adds the input perspective, namely how economically and appropriately resources are used to produce those results.

This difference in emphasis explains why productivity deserves to be an indicator of performance, but cannot replace it. Pribadiyono (2006) explicitly makes the measurement of individual productivity a way to capture the indicators behind rises and falls in work achievement, plan improvements in achievement, determine the percentage of employees who meet the organization's achievement standards, and design performance bonuses based on productivity attainment. Reviyani et al. (2026) show that the results of work measurement can be used as an evaluation tool to improve the productivity and effectiveness of work processes. Sedarmayanti (2017) places competence, performance, and work productivity as the targets pursued through human resource planning and development. From this series of sources it can be formulated that productivity serves as a performance indicator on the side of results and efficiency, while the side of behavior, competence, and compliance with standards needs to be read through other indicators.

The implications for educational institutions are quite clear. A teacher who completes all administration on time does not necessarily perform well if the quality of their teaching is low. Conversely, a teacher with high-quality teaching who is always late in completing administrative obligations shows productivity that is not yet efficient. A complete assessment of HR performance requires both kinds of information.

Approaches and Methods for Measuring Work Productivity

The literature reviewed presents five measurement approaches that can be compared, namely the ratio of output to input, work measurement to determine standard time, a framework of job descriptions, key result areas, and key performance indicators, multidimensional questionnaire-based indicators, and three-dimensional educational productivity.

The ratio approach is the most basic. This approach is simple and easy to compare between periods, but it tends to capture quantity, making it less suitable for service work whose quality is difficult to count (Sutikno, 2009; Lestari et al., 2022). The work measurement approach discussed by Reviyani et al. (2026) extends it by determining the standard time a worker needs to complete a job at an average skill level and under normal working conditions. The results help companies determine workforce needs, production capacity, operating costs, and incentive systems. This approach is strong for repetitive work, for example administrative services, but needs to be adjusted when applied to teachers' activities, which are largely creative and not uniform.

Pribadiyono (2006) offers a middle way through a design of individual productivity measurement techniques based on job descriptions, key result areas, and key performance indicators. The strength of this approach lies in its link to follow-up: the measurement results are used to plan improvements in achievement and calculate rewards. Multidimensional questionnaire-based approaches, as in Ramli et al. (2021), Lestari et al. (2022), and Imelda (2020), are easier to carry out with many respondents, but the results are a picture of perceptions rather than verified work records.

Sutikno (2009) offers the framework closest to the world of education, namely the measurement of educational productivity through three output dimensions. The administrative output dimension looks at how well the services provided by teachers, principals, or other parties are delivered, which for teachers is the product of the teaching and learning process from preparation to evaluation. The behavioral-change output dimension looks at the grades obtained by students as a picture of academic achievement. The economic output dimension links educational services to financing aspects. This mapping helps educational institutions realize that teacher productivity can be read simultaneously from process, learning outcomes, and cost efficiency.

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Work Productivity Indicators in Educational Institutions

Sutikno (2009) measures teacher productivity through four sub-variables: planning and implementing learning, academic achievement, professional development work, and participation in scientific forums. In the first sub-variable, the indicators include the teaching plan, the semester program, and the annual program. The second sub-variable covers academic work, the third covers writing articles and making and using learning media, and the fourth covers workshops, training, paper presentations, and seminar participation. These tasks are in line with teachers' workload, which according to Sutikno (2009) refers to Government Regulation Number 74 of 2008, namely planning learning, implementing learning, assessing learning outcomes, guiding and training students, and carrying out additional duties. Nada, Waryanto, and Nurdina (2022) use the same five workload components as indicators of kindergarten teacher productivity, referring to Government Regulation Number 19 of 2017 on Teachers.

Lestari et al. (2022) formulated indicators of teacher work productivity consisting of skills, work ethic, self-development, service efficiency in education, and the preparation of lesson plans. Imelda (2020) arranged the indicators into two dimensions: an input dimension consisting of activities in the practice of the learning process, feedback, self-development, and time and cost efficiency; and an output dimension consisting of improvement in the results achieved and the quality produced. This division into input and output is interesting because it is in line with the definition of productivity as a ratio, so measuring teachers can show both what teachers do and what is produced from that work.

Interestingly, the six indicators of Sutrisno (2009, in Imelda, 2020) in Imelda's theoretical review, namely ability, improvement in the results achieved, work enthusiasm, self-development, quality, and efficiency, are the same as the indicators used by Ramli et al. (2021) to measure company employee productivity, namely results achieved, work enthusiasm, self-development, quality, ability, and efficiency. However, for her research instrument, Imelda (2020) elaborated the indicators into six input and output items as described above. The similarity of the six-indicator lists shows that the framework is fairly general and can be used across sectors, while adaptation for schools is done in how each indicator is elaborated, for example "results achieved" becoming students' mastery of learning and "efficiency" becoming the timeliness of completing learning administration.

From a comparison of all these sources, three recurring themes appear: a teaching process that is well planned and carried out, self-development or professional development, and the results and quality achieved, plus one supporting theme, namely time and cost efficiency. These four themes can serve as the core of a measurement system in educational institutions.

Empirical Findings on Factors Related to Productivity

Productivity measurement will be more useful if accompanied by an understanding of the factors that influence it. Sedarmayanti (2001, in Imelda, 2020) mentions factors such as mental attitude, education, skills, management, income level, nutrition and health, social security, work environment and climate, means of production, technology, and opportunities for achievement. The empirical research findings reviewed are as follows. Maliah et al. (2023), studying 36 field employees of PT Perusahaan Perdagangan Indonesia (a saturated sample), found that work attitude and work skills have a significant effect on productivity, both partially and simultaneously. Ramli et al. (2021), studying 74 employees of PT Reski Laifasto, Makassar, reported productivity at a high category through descriptive statistics on six indicators. Lestari et al. (2022), studying 102 private vocational school teachers in Ciawi District (population 136), reported a correlation for self-efficacy of $r = 0.596$ ($R^2 = 0.355$) and for visionary leadership of $r = 0.545$ ($R^2 = 0.297$), and $r = 0.648$ ($R^2 = 0.419$) when the two were combined. Imelda (2020), studying 90 public elementary school teachers in Cijeruk District (population 117), reported $r = 0.59$ ($R^2 = 0.35$) for work motivation, $r = 0.62$ ($R^2 = 0.38$) for organizational climate, and $r = 0.56$ ($R^2 = 0.31$) for both together; the last figure needs to be read carefully as explained in the Problem Analysis section. Nada et al. (2022), studying 50 kindergarten teachers in Semampir District, Surabaya, found that the work environment, work motivation, and work discipline have a positive effect both partially and simultaneously (calculated F 14.206; sig. 0.000).

In general, the research summarized reports positive relationships or high productivity levels, although the designs and variables studied differ. In the field of education, teacher productivity is related to internal factors (self-efficacy and motivation), leadership factors (the principal's visionary leadership), and organizational environment factors (organizational climate, physical environment, and discipline). Sutikno (2009) also cites the research results of Dangkua (in Tolla, 1991), which reported that teachers' work productivity can increase by around 35% to 40% through the principal's encouragement and that around 60% to 65% is determined by teachers' personal ability. This finding confirms that teacher productivity is influenced by a combination of personal and leadership factors.

It should be noted that the strength of the relationships is moderate. In Lestari et al. (2022), self-efficacy and visionary leadership together explain 41.9% of teacher productivity and the remainder, 58.1%, is influenced by other factors. Imelda (2020) reported that work motivation and organizational climate together explain 31% (this figure needs to be read carefully; see the Problem Analysis), so that about 62% to 69% is influenced by other factors, depending on which figure is correct. This means each study captures only part of the causes of productivity, and educational institutions should not stop at one or two factors when designing improvements.

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Problem Analysis

First, indicators are not uniform. The comparison in the previous section shows that each study formulates its own indicators. As a result, measurement results at one school are difficult to compare with those at another, and teachers can be assessed with measures that change depending on who does the assessing. This problem can be addressed if institutions set indicators derived from teachers' core duties already regulated in regulations, as referred to by Sutikno (2009) and Nada et al. (2022).

Second, educational output is difficult to measure and does not wholly belong to the teacher. The three-dimension output framework from Sutikno (2009) shows that educational results cover administration, behavioral change, and economic aspects. Student grades, for example, are influenced not only by the teacher but also by students' backgrounds, the learning environment, and school policy. If grades are made the only measure, teachers can be assessed unfairly. Learning outcomes should therefore be treated as one indicator among several, and read together with process indicators.

Third, measurement relies heavily on perception. The studies of Maliah et al. (2023), Imelda (2020), Lestari et al. (2022), and Nada et al. (2022) collected data through questionnaires. Such data are useful for understanding respondents' views but are vulnerable to a tendency to rate oneself more favorably. For management purposes, perception-based assessment needs to be complemented with verifiable work data, such as the completeness of learning materials, supervision records, and learning mastery data.

Fourth, measurement often stops at a picture of the situation. Ramli et al. (2021) captured employee productivity at a high category through descriptive statistics, but did not link it to any particular follow-up. Pribadiyono (2006), in contrast, shows that productivity measurement should be connected to planning improvements in achievement and to rewards. Without follow-up, measurement only adds administrative burden without improving performance.

Fifth, statistical figures need to be read carefully. A check of the original manuscripts revealed figures that are internally inconsistent in two sources. In Imelda (2020), the multiple correlation of work motivation and organizational climate with productivity is reported as 0.56 (R^2 = 0.31; Table 7 of that manuscript), which is smaller than the simple correlation of organizational climate with productivity of 0.62 (Table 4 of that manuscript). Yet in a regression with two predictors, the multiple correlation cannot be smaller than the highest simple correlation. The multiple regression ANOVA table in the same manuscript (Table 6 of that manuscript) also gives a regression sum of squares of 5,877,377 out of a total sum of squares of 15,296,400, or about 0.38, not 0.31. In Nada, Waryanto, and Nurdina (2022), with 50 respondents and three independent variables, R is reported as 0.876, R^2 as 0.534, and calculated F as 14.206. The three do not match one another: 0.876^2 is about 0.767, an R^2 of 0.534 yields an F of about 17.6, while an F of 14.206 corresponds to an R^2 of about 0.48. This article therefore uses only the direction of the relationships and the significance from these two sources as the basis for discussion, while the magnitudes of 0.56 and 0.31 (Imelda) and 0.876 and 0.534 (Nada et al.) are cited as reported and are not interpreted further. Readers who need exact figures are advised to consult the original manuscripts directly.

Sixth, the gap between tasks and implementation in the field. Imelda's (2020) preliminary data show that the percentage of teachers carrying out core tasks, such as planning learning, taking part in self-development, and completing administration on time, is still in the range of 49% to 63%. Although the sample is small, this pattern shows that without routine measuring tools, such gaps easily go unseen by institutional leaders.

Examples of Application in Educational Institutions

This section gives two application examples. Both are hypothetical illustrations compiled by the author based on concepts in the literature, not research data.

Example 1: the productivity ratio of educational staff. A madrasah wants to assess the productivity of administrative staff in handling correspondence. In one month, a staff member completes 360 letters in a total of 120 working hours. Using the output-to-input ratio formula (Sutikno, 2009), that staff member's productivity is 360 divided by 120, namely 3 letters per working hour. This figure is only meaningful when compared with the previous month or with an agreed time standard, and should be complemented with quality indicators, for example the percentage of letters that did not need to be corrected.

Example 2: a teacher productivity scorecard. The institution compiles a hypothetical scorecard for a teacher using the six indicators discussed by Imelda (2020), then adapts the indicators to the school context. The weights and targets below are only illustrations, not standard norms. The indicator score is calculated with the formula (achievement ÷ target) × 100. The weighted score is obtained from the indicator score × weight; weights are written as proportions in the calculation.

Table 1. Illustration of a teacher productivity scorecard (hypothetical)

Indicator	Measure	Weight	Target	Achievement	Indicator score	Weighted score
Learning practice	Percentage of meetings with complete teaching materials	25%	100%	90%	90	22.50

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Indicator	Measure	Weight	Target	Achievement	Indicator score	Weighted score
Feedback	Percentage of assessments followed up with remedial or enrichment	15%	100%	70%	70	10.50
Self-development	Hours of training or teachers' working group activities per year	15%	32 hours	24 hours	75	11.25
Time and cost efficiency	Percentage of administration completed on time	15%	100%	80%	80	12.00
Results achieved	Percentage of students who master learning	20%	85%	68%	80	16.00
Quality produced	Supervision score and student feedback (scale of 100)	10%	85	76.5	90	9.00
Total		100%				81.25

The teacher productivity index in this illustration is 81.25. Based on the hypothetical categories set for this example (90 and above: very good; 75–89: good; 60–74: fair; below 60: needs special guidance), the teacher falls in the good category. These categories are not a validated standard and need to be set and tested by the institution before use. The indicator with the lowest score is feedback (70), followed by self-development (75). Follow-up that can be considered is supervisory assistance to design remedial and enrichment activities and facilitating the teacher's participation in working group activities. Measurement is thus linked to guidance, rather than merely producing a final number.

Solutions and Recommendations for Managing Educational Institutions

Based on the analysis above, six recommendations can be applied by the leaders of educational institutions.

1. Derive indicators from core duties. Formulate productivity indicators from the teacher duties already regulated by regulation, namely planning, implementing, assessing, guiding and training, and additional duties (Sutikno, 2009; Nada et al., 2022), then group them into input and output dimensions as in Imelda (2020).
2. Combine quantitative and qualitative measures. Use ratios or percentages for what can be counted, and supervision assessments or student feedback for quality. Do not make student grades the only measure because educational output is not wholly determined by the teacher (Sutikno, 2009).
3. Link measurement to KPIs and follow-up. Apply the framework of job descriptions, key result areas, and key performance indicators as designed by Pribadiyono (2006) so that measurement results are used to plan improvements and rewards, not merely as archives.
4. Strengthen the factors that support productivity. The research reviewed shows positive relationships between teacher productivity and self-efficacy and visionary leadership (Lestari et al., 2022), work motivation and organizational climate (Imelda, 2020), and the work environment and discipline (Nada et al., 2022). Principals or madrasah heads can design coaching programs that target these factors, for example by communicating the institution's vision clearly, creating an open working atmosphere, and enforcing discipline by example.
5. Facilitate professional development. Because self-development always appears as an indicator (Sutikno, 2009; Lestari et al., 2022; Imelda, 2020), institutions need to provide opportunities for training, teachers' working groups, and scientific writing. This is in line with Sedarmayanti's (2009) assertion that education and training are a means of improving ability so that higher productivity can be achieved.
6. Evaluate regularly and read the numbers critically. Carry out measurement at consistent intervals, for example each semester, compare results between periods, and complement them with verifiable data. Kusumaningrum et al. (2024) emphasize the need for collaboration among teachers, principals, and stakeholders so that improvements in teacher performance can be achieved. Involve teachers in setting the indicators so that the assessment is felt to be fair and is supported.

CONCLUSION

Based on the results of the literature review, the aims of the article can be answered as follows. First, work productivity is the comparison between the results achieved and the resources used as well as a mental attitude of continuously striving to improve, and it has both individual and organizational dimensions. Productivity serves as an indicator of HR performance on the side of results and efficiency, but is not identical with performance, so it needs to be complemented with behavioral and competency indicators.

Second, the literature offers several measurement approaches, namely the output-to-input ratio, work measurement to determine standard time, a framework of job descriptions, key result areas and key performance

indicators, multidimensional questionnaire-based indicators, and the measurement of educational productivity through three output dimensions. For teachers, the recurring indicators include planning and implementing learning, self-development, results and quality, and time and cost efficiency.

Third, the main problems are indicators that are not uniform, educational output that is difficult to measure and does not wholly belong to the teacher, reliance on perceptions, measurement that stops at a picture of the situation, and the need for care in reading statistical figures. The solutions offered are to derive indicators from core duties, combine quantitative and qualitative measures, link measurement to KPIs and follow-up, strengthen supporting factors such as self-efficacy, visionary leadership, motivation, organizational climate, and discipline, facilitate professional development, and carry out regular evaluation in a critical and participatory way.

The recommendation for the leaders of educational institutions is to start with a simple system of four to six indicators, pilot it for one semester, and then refine it together with the teachers. This review has limitations because it uses only a limited number of Indonesian-language sources and was not designed as a systematic review. Further research can empirically test the teacher productivity scorecard in madrasahs or schools, including testing the reliability of the indicators and the suitability of their weights.

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