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Performance Measurement Framework Using Human Resource Analytics for Private Higher Education Institutions

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Abstract

The purpose of this research is to provide a performance measurement framework with key performance indicators (KPIs) practiced by private higher education institutions (HEIs) in terms of instruction, research, and community extension which used human resource analytics (HRA) for objectively measuring academic performance. This is to provide an analytical scientific approach using Analytical Hierarchy Process (AHP) to measure the performance of academic staff of private HEIs in South Cotabato, Sarangani, and General Santos City (SOCSARGEN). This research used the sequential qualitative-quantitative research design methodology which conducted two (2) sessions of focus group discussions (FGD) from seven (7) participating schools with fifteen (15) participants and utilization of the developed performance measurement tool to three (3) private HEIs as basis to develop the performance measurement framework. The selection of participants consists of academic administrators and staff using purposive sampling. This study uses thematic analysis, AHP and ranking to obtain objective and reliable insights on performance evaluation relevant for human resource analytics. Based on results, in terms of instruction, sub-KPIs include work ethics, personality and values, teaching competence and performance, learning atmosphere, qualification, involvement and productivity. In terms of research, sub-KPIs include attendance and presentation, citations and publications, journal memberships and research involvement. In terms of community extension, sub-KPIs include participation and involvement in extension works and external linkages. This research also developed a general performance measurement framework which consists of setting goals and objectives, indicators, evaluation, analysis, reporting and review.

Keywords: private HEIs, performance measurement framework, key performance indicators (KPIs), analytic hierarchy process (AHP), human resource analytics (HRA)

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INTRODUCTION

Higher education institutions (HEIs) play a vital role in shaping the economy and is regarded as one of the key drivers of growth performance, prosperity, and competitiveness. In the Philippines, the Commission on Higher Education listed 2,418 HEIs of which more than majority, 1,734 (72%) are private HEIs for academic year 2020-2021. However, only fifteen (15) HEIs were recognized by the 2022 Times Higher Education University (THE) impact rankings placing Ateneo De Manila University (included in the top 200) as among the best HEI in the world across the four broad areas: research, teaching, outreach, and stewardship (Philippine Commission on Higher Education, 2022).

Although efforts have been made such as current initiatives of internationalization of education (Rosaroso et al., 2015) to improve the performance of Philippine HEIs, there are still challenges in delivering quality education specifically on performance measurement of its academic staff. Kanagat and Sharma (2021) articulated that performance appraisal, a human resource management function, is one of the limitations that remain as a challenge to the roles and responsibilities of academicians in HEIs which is only done in traditional paperwork with no rewards to commensurate their excellent performance. Traditional methods of performance evaluation in HEIs were subjective and had various biases such as perceptions and demographics. This emphasized that organizations including HEIs must deliberately use relevant and reliable data especially on factors that affect people performance to the next level. Chaudhari (2019) recommends that colleges and universities should move past basic HR administrative roles

and become major and leading organizational influence utilizing the integration of performance measurement and HR analytics. People performance measurement integrating HR data analytics is strategically directing organizational efforts towards achieving its goals and objectives. Applying analytics to HR data is "bringing science to talent decisions" as cited by Gobble (2017) from a 2016 report by Society for Human Resource Management (SHRM). This leads to the relevance of HRM in motivation and coordination of the activities and efforts in colleges to obtain maximum output thus achieving the goals of education (Chaudhari, 2019).

Hence, this study aims to develop a performance measurement framework with human resource analytics (HRA) for achieving HEI performance. Specifically, it answered the following questions:

1. What are the key performance indicators employed by private HEIs in South Cotabato, Sarangani, and General Santos City (SOCSARGEN) in terms of the following:
   1.1 instruction;
   1.2 research; and,
   1.3 community extension?

2 What performance measurement tool can be developed for private HEIs in SOCSARGEN in terms of the following:
   2.1 instruction;
   2.2 research; and,
   2.3 community extension?

3. How can human resource analytics (HRA) be used to analyze the results of performance measurement tool used by private HEIs in SOCSARGEN?

4. Based on the findings of the study, what performance measurement framework with HR Analytics can be developed?

LITERATURES

Private Higher Education Institutions. Higher education institution as defined by the Commission on Higher Education (CHED) means an education institution, private or public, undertaking operations of higher education program/s with an organized group of students pursuing defined studies in higher education, receiving instructions from teachers, usually located in a building or group of buildings in a particular site specifically intended for educational purposes (Manual of Regulations for Private Higher Education, 2008). Specifically, private HEIs as described in CHED's Manual of Regulations (Section 20. Incorporation of Private Higher Education Institutions; Limitations) shall be established and incorporated as a non-stock or a stock educational corporation in accordance with the Corporation Code of the Philippines and the Education Act of 1982 (B.P. Blg. 232) as amended by Republic Act No. 7798 (Manual of Regulations for Private Higher Education, 2008). Aside from promoting national development, private HEIs are also under the provisions of the Corporation Code, hence they should also drive towards organizational excellence.

Organizational excellence is commonly associated with performance. It is founded on total quality management (TQM), a strategic management approach (Rodriguez et al., 2018), which comprises leadership, customer focus, strategic alignment, organizational learning, innovation and improvement, people focus, partnership development, fact-based process management, results focus and social responsibility (Dodangeh et al., 2012). It is anchored essentially on mindset that must be present in the organization, which involves all members in the organization, from managers to low-level employees (Team, 2020). The 2019 American Society for Quality (Karr, 2020) also described organizational excellence as the systematic efforts to establish a framework of standards and processes intended to engage all employees to deliver value in the products and services that fulfill customer requirements (Karr, 2020). Companies refer to organizational excellence to determine how they should stand out by placing reliable processes to enhance motivation among employees for better service to customers (Talley, 2018).

Organizational excellence is also the aim of private HEIs. Private HEIs should move towards quality in delivering instruction, how to enhance and evaluate it as its main agenda (Reda, 2017). Higher education institutions especially its teachers play a key role in human capital generation towards building and supporting efforts to attain true national development (Kanagat & Sharma, 2021; Sherwani, 2014). Hence, the role of higher education greatly contributes to the generation of sustainable development of national economies (Krstić et al., 2020). However, just like any other competitive organization, issues and challenges exist in HEIs. Among the problems identified by Kanagat and Sharma (2021) on HEIs are still the recurrent lack of innovation through research and development and poor quality of teaching which are regarded as bottlenecks that challenges higher education institutions to serve and sustain quality education.

Key Performance Indicators of HEIs. Since employees are regarded as the valuable resource (asset) of the organization, the success or failure of the organization depends on employee performance (Ahmad & Waheed, 2011). Employee performance indicates the financial and non-financial outcome of the employee which has a direct link with organizational performance and its related success (J., 2014). As discussed by Shahzadi et al. (2014) this involves quality and quantity of output, presence at work, accommodative and helpful in nature, and timeliness of output. Hence, it is essential that an organization should be able to determine key performance indicators to measure employee performance appropriately leading towards organizational excellence.

In higher education institutions, performance indicators are used to measure higher education processes such as research, teaching, service, and financial performance (Asif & Searcy, 2014) in which teaching or quality instruction has been the top priority (Kumar & Thakur, 2019). Asif and Searcy (2014) also discussed that performance indicators provide guidance and serve as benchmark for continual improvement. Hence, performance measurement indicators are a reliable way of measuring organizational success from failure (Budimir et al., 2021).

In the study conducted by Ishak et al. (2009), fourteen key performance indicators for Malaysia's private HEIs based on the balanced scorecard were developed under five main headlines which are: teaching and supervision, research and innovation, publication, consultancy, and services. Alsarmi and Al-Hemyari (2015) also determined twenty indicators from thirty HEIs which are the following: progression rate, percentage of students' participation in national internships, percentage of students' participation in career guidance programs, communicating vision and mission of the institution to academic staff, communicating goals and objectives of the college to academic staff, communicating core values, strengths, weakness, threats and opportunities of the department to academic staff, average class size, student-instructor ratio for undergraduate students, students' expectations, graduate's satisfaction, students' satisfaction, percentage of Ph.D. holders of academic staff (full-time/part time), average of teaching load for undergraduate studies, academic staff turnover (attrition) rate, academic staff satisfaction, ratio of non-academic/ administrative staff in relation to the total number of students, research size, research ratio, total number of international conferences/workshops participated in by academic staff, total number of graduates in relation to all students (batch).

Pandita and Kiran (2020) also determined that employee experience is the most important significant performance indicator in enhancing the performance of HEIs considering academic culture as a mediating variable followed by student experience. Bucur et al. (2018) discussed in a case study of a university in Romania which was included in the global ranking list of universities which uses "U-Multirank" based their university ranking system on five performance indicators which are reputation for research, teaching quality, international collaborations, successful

transfer of knowledge, and regional commitment.

Varouchas et al. (2018) studied KPIs to be used by universities for measuring quality in teaching, learning and curriculum. The study determined nine generic KPIs. The identified innovative KPIs is proposed for multidimensional quality assessment in HEIs. Tewari et al. (2019) proposed computation of teacher performance with various metrics depending on the Key Process Areas (KPAs). Key practices indicated in the study are for research and development which are: innovation (intellectual property and patent), consultancy, collaborations, publication, and awards; and for teaching learning process are the following: innovation in pedagogy, evaluation process, examination paper setting, student attendance in class.

Since this study is contextualized to HEIs in SOCSARGEN, it is appropriate to determine their actual and common KPIs. Asif and Searcy (2014) conducted a process on determining a composite index for measuring performance of HEIs using Analytic Hierarchy Process (AHP) focusing only on research and teaching as the performance measurement criteria. Ishaq, Bhatti and Awan (2014) also used AHP in their study on determining KPIs and their impact on overall organizational performance. AHP is a multi-criteria decision making (MCDM) method that converts respondents' preferences into ratio-scale weights that are pooled into linear additive weights for alternatives. The three primary functions of AHP which are structuring complexity, measurement on a ratio scale and synthesis are appropriate descriptors applicable to HEIs. Asif and Searcy (2014) initiated the development of the composite index using AHP following a three-step process: (1) identification of criteria and performance indicators; (2) developing a hierarchy for integrated performance measurement; and (3) determining KPIs and development of a composite index.

Rosaroso et al. (2015) found that among the three core functions of HEIs, instruction had relatively more international initiatives (includes invitations of resource speakers on current trends and pedagogies, faculty and student mobility and curriculum realignment based on international frameworks), while research is geared more towards international publication, capability building, and involvement in international conferences and fora, and for community service, it is more on local involvement but slowly building to international linkages.

HR Performance Measurement of HEIs. Measurement of performance is the foundation on which performance management is built (Tare & Manjunath, 2019). Performance measurement as defined by Neely et al. (2005) is the process of quantifying the efficiency and effectiveness of an action. Bititci (2015) describe performance measurement as the cultural and behavioral routines that define how performance measurement is being used to manage the performance of the organization. Moreover, HEIs reliably used performance measurement for proper "decision-making" and future progression (Alsarmi & Al-Hemyari, 2015).

Bourne et al. (2013) argues that organizational performance is the result of employee engagement and that developing a performance measurement system serves as a communication and guiding mechanism for employees to perform. Moreover, Kanagat and Sharma (2021) emphasized incorporating HR metrics as the key to HR performance measurement in terms of efficiency and effectiveness of an organization. HR metrics or performance measures are designed to help people determine whether they are moving on the right direction they want to go (Neely et al., 2002). Performance measures are used to evaluate and control the overall business operations which starts with the identification of performance indicators (Ishaq Bhatti & Awan, 2014).

Alternatively, Asif and Searcy (2014) addressed the realities of HEIs in terms of performance measurement which are described as complex, multifaceted, judgmental and requires the participation of key stakeholders (including

faculty, students, funders, community, regulators, and industry) in most cases. Teaching performance appraisal were only done through the traditional paperwork which fails to provide interaction with employees through relevant intervention based on meaningful data, feedback, and evaluation. This also affects how teachers are being ranked and promoted which affects how HR performance measurement systems were structured, applied, and implemented. This could be attributable to subjective ranking and promotion.

Since the main objective of this study is developing a performance measurement framework, this study will base its underlying concepts and principles from literature. Sherwani (2014), illustrates the performance measurement for Higher Education Institutions which applies the Balanced Scorecard Method. The Balanced Scorecard Method is a strategic human resource management performance measurement tool that translates an organization's strategic aims and goals into human resource policies, programs, and practices (Kanagat & Sharma, 2021). It provides a strategic alignment of human factors through performance measurement to accomplish the goals of the organization. Sherwani (2014) adopted the Balanced Scorecard Method as also increasingly being applied in higher education and recommended for universities to evaluate different perspectives as to financial, customer, learning and growth, and internal processes.

Instead, the OECD (2009) developed a conceptual framework for teacher evaluation which features six main interrelated aspects. These are (a) unit assessed (who), the teacher, which is the subject of evaluation; (b) capabilities to assess and to use feedback (by whom), which concerns with determining the evaluators, assessed teachers, users of feedback, and evaluation agencies; (c) aspects assessed (what), which involves the core activities of teaching such as planning and preparation, classroom environment, and instruction; (d) evaluation (how), which refers to the approaches and methodologies on how to conduct the evaluation, which includes instrumentation, criteria and standards, purposes, knowledge and skills which are used in the teacher evaluation model; (e) purposes (for what), which encompasses the objectives of a particular teacher evaluation process and the mechanisms designed to ensure it is achieved such as improvement in the form of performance feedback, professional development plans, financial and other rewards, and accountability; (f) agents involved (with whom), which involves a range of stakeholders affected by such evaluation which includes parents, students, teachers, school leaders, teacher unions, educational administrators, policy makers among others.

Combining the models of the balanced scorecard and the conceptual framework for developing performance measurement framework, a model developed by Star et al. (2016) provides the key elements of PMS development and application. The model details the intricacies of planning, defining and decision-making activities. This includes the following: (1) identifying the goals and objectives; (2) identify the function, audiences, and frequency of system use; (3) selecting a performance measurement framework which is also parallel with identifying the types of measures; (4) developing a system for maximizing benefits of information; (5) parallel development of performance indicators and procedures for collecting performance indicator data; (6) collect, analyze, and interpret data; (7) selecting the most useful reporting format; (8) disseminating the findings and conclusions to stakeholders; and (9) iterative review of framework and performance indicators.

Human Resource Analytics of HEIs. The main aim of HR analytics is to provide valuable information for better strategies leading towards business growth (Tare & Manjunath, 2019). Schläfke et al. (2013) discussed that advanced data analysis, scenario planning, and predictive capabilities provides a solution to cope with increasing complexity, uncertainty, and volatility which should potentially increase performance management systems. HR analytics which form the bedrock of HEIs

performance measurement and strategic human resource management can be used to provide reasonable basis to support HEI administrators' decision making which leads to HEI performance. HR analytics can then be applied comprehensively along with the recruitment process, training and development and performance management (Tare & Manjunath, 2019). Sharma and Sharma (2017) recommend HR analytics to be a solution to address subjectivity bias in performance appraisal (PA) system. Another key issue in HR is the continuity of HR implementation and adoption. Schläfke et al. (2013) suggests that performance analytics could provide the missing link between performance management systems and their effective adoption.

Since HR analytics is used for evidence-based management, it is classified into four types: descriptive, diagnostic, predictive and prescriptive (Tare & Manjunath, 2019). Descriptive analytics focuses on the "what happened" which presents the results and factual findings related to employee performance. Diagnostic analytics focuses on "why did it happen" to understand and analyze the factors and circumstances affecting employee performance to gain valuable insights. Based on the descriptive and diagnostic HR analytics, predictive analytics provides foresight into employee performance. Predictive analytics can be used to convert employee performance predictions into prescriptive analytics or actions to support HR employee programs and interventions. These can then be used to provide targeted outcomes on employee performance. Duarte et al. (2018) presents a procedure for the evaluation, design, and implementation of a performance measurement systems (PMS) integrated with a data analytic process. This integration of PMS with data analytics transforms data into useful and insightful information that provides knowledge.

To obtain the true purpose of HR measurement systems, this study will also refer to the LAMP framework developed by Cascio and Boudreau (2011). LAMP stands for logic, analytics, measures, and process which are the four critical components of a measurement system that drives strategic change and organizational effectiveness. Tare and Manjunath (2019) discussed the components of the LAMP framework. Logic describes the various reasons for which data is measured and its expected outcome. Analytics are used to draw the right conclusions from data. Measures must be selected considering the quality, timeliness, consistency, and reliability. Process influences the decision makers. All components of the LAMP framework achieve the true purpose of HR performance measurement systems.

Zpěvák et al. (2016) emphasized that the main purpose of the employee evaluation process is to monitor and assess employee performance which is integrated into employee remuneration, personal development, and career advancement. Studies conducted demonstrating their methods of employee performance evaluation includes the study conducted by Ahmed et al. (2013) which proposed an employee performance evaluation system considering various performance evaluation criteria using the fuzzy logic. This method determines the performance indices of employees considering performance using the qualitative and quantitative evaluation criteria and selecting the employee with the highest performance index.

As a strategic management organizational sustainability approach, performance measurement is used to enable control and evaluation of the results Khan et al. (2018). Hence it serves as a yardstick for better quality of services which raises the level of integration between different areas of the organization leading towards its performance. Franceschini et al. (2019) discussed that in constructing the performance measurement system in an organization, three basic aspects must be considered: strategic plan, key-sub processes, and stakeholder needs. In the strategic plan, identification of key employee performance targets and its appropriate and relevant performance indicators is crucial. It must support the organizational context, goals, and objectives. Key-sub processes in a complex and

dynamic organizational context represent the implementation of the strategic plan. It is also important that in constructing the performance measurement system stakeholder needs and expectations must be clearly determined.

This study will also refer to the performance measurement framework developed by Rouse and Putterill (2003) which integrates the three essential dimensions of performance measurement also known as performance triplet and described as the first step towards building performance measurement. These are performance measurement, analysis, and evaluation. The dimensions are depicted as interconnected and inseparable via data and information flows. Depending on the organizational context, the framework starts with performance measures which sought to determine appropriate measures and its underlying causes or drivers, data structure and processes. This is where the adage, "what gets measured is what gets managed" which became the standing point of this study.

Developing performance measures is an effective way to increase how organizations compete as well as to enhance productivity improvements (Aldulaimi & Qadir Obeidat, 2016). Identified performance frameworks and regarded as the most cited (Van Looy & Shafagatova, 2016) such as the balanced scorecard, performance measurement matrix, results, and determinants framework, inputs, processes, outputs, and outcomes, performance pyramid which presents various interpretations of performance measurement frameworks.

In applying performance measures in HEI performance, Asif and Searcy (2014) discussed that performance measurement in HEIs are complex, multifaceted, judgmental, and requires a great deal of participation from stakeholders. It is emphasized by Khan et al. (2018) that organizations would have to use different measurement tools to measure employee performance. Performance measurement should evolve multidimensional performance measures to effectively evaluate employee performance.

Establishing performance measures through developing performance measurement tool leads to performance analysis which seeks to support organizational growth and progress enabling multi-dimensional views for results analysis (composite scores/weights) providing relevant insights to influence rankings and differences in performance using appropriate methods and tools. Performance analysis involves the adoption and application of relevant and appropriate productivity theories and utilization of statistical methods.

METHODOLOGY

Research Design. This study used the exploratory sequential mixed-method (ESMM) research design using focus group discussion (FGD) and performance measurement tool using case study method. This study followed the sequential process of gathering data wherein data obtained from qualitative results were the basis for research questions in a quantitative study (Morgan, 2015). To obtain qualitative data, this study utilized FGD. FGD is frequently used as a qualitative method to obtain data from a purposely selected group of individuals for in-depth understanding of social issues (Nyumba et al., 2018). The performance measurement tool was designed based on the outcomes of KPIs obtained from the FGD. This becomes the second step from qualitative research to quantitative testing which involves translating the specific conceptual conditions as themes into measurable variables (Morgan, 2015) affecting private HEIs in SOCSARGEN.

The participants of the FGD were academic administrators and staff of private HEIs in SOCSARGEN. SOCCSKARGEN, or the provinces of South Cotabato, Cotabato, Sultan Kudarat, Sarangani, and General Santos, formerly known as Central Mindanao and officially designated as Region XII, is an administrative region in the Philippines occupying the southern-central section of Mindanao. However, this study will only focus on private HEIs in the provinces of South Cotabato, Sarangani, and General Santos City (SOCSARGEN).

South Cotabato occupies the southern-central section of Mindanao in which the City of Koronadal is the capital. The province is situated on a land area of 3,793.90 square kilometers or 1,464.83 square miles. The 2020 Census determines a population of 975,476 which represents 19.90% of the total population of SOCCSKSARGEN region. Sarangani also occupies the southern central section of Mindanao in which the Municipality of Alabel is the capital. The province has a land area of 3,642.16 square kilometers or 1,406.25 square miles. Its population determined by the 2020 Census was 558,946. On the other hand, General Santos, a highly urbanized city, is commonly grouped with the province of South Cotabato. The city has a land area of 492.86 square kilometers or 190.29 square miles. Its population as determined by the 2020 Census was 697,315. Specifically, there are fifty (50) private HEIs identified by CHED Region 12 considered for this study.

However, considering the tri-fold function of HEIs in terms of research, instruction, and community extension, only private HEIs in SOCSARGEN that embody these tri-fold function was considered specifically for the case study method which was used to determine the effectiveness of the developed performance measurement tool. The research instrument used for this study was the FGD guide. Data gathered from the conduct of FGD was utilized to determine KPIs of private HEIs in SOCSARGEN achieving research, instruction, and community extension academic staff performance. Identified KPIs were employed as a basis to develop the performance measurement tool. Results gathered from the performance measurement tool using the Analytic Hierarchy Process (AHP) served as basis to develop the performance measurement framework integrating HR analytics. Statistical treatment in this study were thematic analysis, AHP and ranking. Ethical considerations involve ensuring the anonymity of the conduct of data gathering and its results.

Selection of Participants. Academic administrators and staff of private HEIs in SOCSARGEN were the main participants and respondents of this study. Academic administrators of private HEIs in SOCSARGEN were the appropriate participants of this study especially in the conduct of FGD and administration of the developed performance measurement tool since they are involved in the assessment, evaluation, and monitoring of teacher's performance in terms of research, instruction, and community extension. Moreover, purposive sampling method was the appropriate sampling method since only identified private HEIs embodying the tri-fold function was considered for this study considering time and cost constraints.

Purposive sampling is appropriate for this study especially in the conduct of FGD since it is ideal for exploratory research design (Taherdoost, 2016) in determining KPIs applicable to private HEIs in SOCSARGEN. In the conduct of FGD, a focus group composed of six to ten participants of academic administrators and staff was appropriate for this study. The optimum size suggested by Mishra (2016) is six to eight participants (excluding researchers). The number of participants for FGD was determined using proportionate allocation from the total private HEIs in SOCSARGEN. The inclusion criteria for selecting academic administrators of private HEIs where they are holding positions as College Dean, Program Head, Supervisor or Subject Coordinator of identified private HEIs in SOCSARGEN.

Academic staff of identified private HEIs were also appropriate participants and respondents of this study since they are the main drivers in achieving overall HEI performance. In the conduct of FGD, participants valuable inputs in the discussion measuring their performance strongly enhance and contextualize KPIs applicable to private HEIs in SOCSARGEN. Two (2) sessions of FGD were conducted. The first session consists of four (4) participating schools. Each participating school includes an academic administrator and academic staff with a total of eight (8) participants. The second session consists of three (3) participating schools with seven (7) participants.

Academic administrators from three (3) identified private HEIs in SOCSARGEN embodying HEI trifold function used and administered the developed performance measurement tool in evaluating the performance of their respective identified academic staff. These inclusion criteria apply to both the conduct of FGD and the administration of the developed performance tool using the case study method.

Academic administrators were asked to conduct a performance evaluation on them using the developed performance measurement tool based on identified KPIs from FGD. Purposive sampling was applied in identifying three academic staff per college as respondents in the administration of the developed performance measurement tool. This study used the case study method to analyze the effectiveness of the instrument. The inclusion criteria for selecting academic staff of private HEIs who were appropriate for this study were at a minimum full-time professor of identified private HEIs in SOCSARGEN. However, based on the conduct of the research, it was only limited to the College of Business and College of Education due to time and availability constraints of academic administrators to conduct the use of the performance measurement tool.

Research Instruments. This study used the mixed method, exploratory sequential process of qualitative-quantitative research methodology. A qualitative approach using FGD was adopted in this study. This methodology is appropriate for this study since it provides generation of ideas, insights, experiences, and sharing of common applicable practices emphasizing in detail and holistic description (Breen, 2006; Dilshad & Latif, 2013) of KPIs of private HEIs in SOCSARGEN in terms of instruction, research, and community extension performance. Dilshad and Latif (2013) discussed the major phases/stages involved in focus group interviews which were as follows: planning the focus group, group composition, conducting the focus group, recording the responses, data analysis and reporting of the findings. Focus group questions undergone validation process through a validation tool and validation questionnaire to ensure adequate reliability and validity.

After the conduct of FGD on identification of KPIs, results were then processed using the AHP model and were used as basis to design the performance measurement tool to determine academic staff performance. Morgan (2015) also emphasized that the subsequent conduct of quantitative studies is more effectively grounded based on the results of qualitative studies rather than relying on highly theoretical concepts and models.

Data Gathering Procedure. A list of private HEIs in SOCSARGEN was obtained from the online website of CHED which includes their school address, contact numbers and email address. From the list, initial formal communication asking permission to conduct the study and obtain ethical clearance were sent to their indicated email address and some were delivered personally to their school address. Upon granting the request to conduct the study, the next step was determining the actual number of academic administrators and staff to participate in this study. The schedule to conduct FGD among academic administrators and staff and using the developed performance measurement tool to academic staff was scheduled in coordination with the academic administrators of private HEIs in SOCSARGEN.

The following were the details of the data gathering procedure divided into sequential phases (phase 1 and phase 2) that was used in the conduct of this study as adopted from the study of Asif and Searcy (2014) and Lele (2020). Phase 1 was the identification of KPIs. Asif and Searcy (2014) consider instruction, research, and community services KPIs for integrated measurement of HEI performance. Indicators also include financial but were not included in the scope of this study. Identification of KPIs was determined through the conduct of FGD among identified academic administrators and staff of private HEIs in SOCSARGEN. This study adopted the flowchart of steps illustrated by Nyumba et al. (2018) in the conduct of FGD which

include (1) research design, (2) data collection, and (3) analysis.

The objective of phase 1 in this study was to identify KPIs contextualized to private HEIs in SOCSARGEN. This phase used FGD in which the participants of this study were key academic administrators and staff of private HEIs in SOCSARGEN. Letters to invite participants in the FGD were also administered. Data collection in this phase involved initial preparation before the conduct of FGD, pre-session preparation and facilitation involved during FGD.

Initial preparation required advance schedule for online Zoom link, preparing relevant materials (recording equipment, online consent forms, script, etc.). Pre-session preparation comprised familiarization with the script, group dynamics, equipment operation, etc.). Facilitation during FGD involved introduction (randomized self- introduction, rationale of the session, consent, confidentiality, session rules), discussion (record and observe discussion, probe, pause, reflect, observe non-verbal cues), and track questions for completion and follow up on themes of discussion, then conclusion (acknowledgement of participants). After determining the KPIs for research, instruction, and community services, each participant in the FGD was given an AHP questionnaire to perform pairwise comparison (level of importance) among the main indicators, sub indicators, and intensity values.

In phase 2, the objective was to execute the performance measurement tool. Based on the outcomes using AHP obtained from phase 1, a performance measurement tool was developed. Descriptive case study method on three private HEIs was used in this phase. Case studies are relevant when research questions require an extensive and "in-depth" description of a social phenomenon (Yin, 2018). Identified academic administrators from identified private HEIs used the developed performance measurement tool on their academic staff to determine instruction, research, and community extension performance.

Data Analysis. For Phase 1, this study referred to Asif and Searcy (2014) on determining KPIs. Step 1 was identification of KPIs for research, instruction, and community extension performance. This study used FGD to determine the KPIs applicable to private HEIs in SOCSARGEN. These were discussed with participants of key academic administrators and staff of private HEIs in SOCSARGEN. Thematic analysis was used to process and analyze data gathered from the conduct of FGD. Results of the thematic analysis determined KPIs for instruction, research, and community extension performance. Thematic analysis is a method for systematically identifying, organizing, and offering insight into patterns of meaning (themes) across a data set (Braun & Clarke, 2012). Thematic analysis involves identifying, coding, and categorizing patterns found in participant's perceptions (Varouchas et al., 2018). Specifically, this involves line by line analysis of the text of the participant's responses, then the codes were assigned to words or phrases that represented units of data associated with a theme or concept. Then quality perceptions were grouped into categories that best fit the data. Categories obtained were also directly related to the KPIs applicable to private HEIs in SOCSARGEN. Thematic analysis is an appropriate data treatment for this study to obtain contextualized and applicable KPIs for private HEIs in SOCSARGEN.

Table 1
Summary of Key Performance Indicators

KPI	Sub-KPI
Instruction (KPI 1)	Work Ethics, Personality and Values (KPI 11) Teaching competence and performance (KPI 12) Learning atmosphere (KPI 13) Qualification (KPI 14) Involvement and productivity (KPI 15)
Research (KPI 2)	Attendance and Presentation (KPI 21) Citations and Publications (KPI 22) Journal memberships (KPI 23) Research Involvement (KPI 24)
Community Extension (KPI 3)	Participation and Involvement (KPI 31) External Linkages (KPI 32)

Step 2 is further processing and analysis of the identified indicators from FGD using AHP. AHP is a multi-criteria decision making (MCDM) approach when problems are complex, unstructured and involve multiple criteria (Asif

& Searcy, 2014). Saaty (1988) described AHP as a general theory of measurement. It is based on three basic principles of decomposition, measurement and data collection and computation of priority weights. AHP decomposes a problem into a hierarchy that descends from an overall objective (focus), down to criteria, down further to sub criteria which are the subdivisions of the criteria and finally to the alternatives from the choice is to be made (Saaty, 1988). This forms a hierarchical model or structure which represents the problem and uses pairwise comparisons to establish relations or synthesis within the structure. The synthesized algorithmic results give the relative importance of alternative courses of action (Saaty, 1987). Asif and Searcy (2014) used AHP in determining key performance indicators which resulted in developing a composite index for HEIs. Lele (2020) also introduced a new approach of performance measurement in conducting qualitative performance evaluations to employees which were then processed through AHP for determining the final evaluation score for each employee and employee ranking among peers.

The indicators obtained from the FGD were plotted in the hierarchical structure. There are three levels in the hierarchical structure. Level 1 is the main goal or objective which is academic staff performance. Level 2 are the main KPIs which are instruction, research, and community extension. Level 3 consists of sub-KPIs of main KPIs. The performance rating scale for performance used intensities of Excellent (E), Good (G), Average (A), Satisfactory (S), Poor (P) to evaluate academic staff performance based on the identified main KPIs and sub-KPIs.

Step 3 involves pairwise comparisons which involves assigning a score for each KPI in terms of instruction, research, and community extension. FGD participants were given an AHP questionnaire based on the hierarchical structure and were asked to rate the KPIs according to the level of importance (pairwise comparison).

Pairwise comparisons are fundamental in the use of the AHP model (Saaty, 1988). HEI key academic administrators and staff were asked to answer the fundamental question: "With respect to academic staff performance (instruction, research, community extension), which indicator is more important and by what scale (1-9)?" Twelve participants (12) out of fourteen (14) or 86% were able to return the AHP questionnaire and indicate their scores on the importance of each main and sub-KPIs and the rating scale intensities. After all the AHP questionnaires were retrieved, the next step requires preparing the pairwise comparison matrix for analysis.

Step 4 involves calculating the priority weights for each KPI in terms of instruction, research, and community extension performance and their respective sub-KPIs. Based on step 3 which is constructing the pairwise comparison matrix for all the indicators, next was to compute the normalized principal right eigenvector of the matrix (Saaty, 1988). This vector will give the weights of the indicators. This will be similarly done for the sub-KPIs, and rating scales. Next was multiply the weights of the KPIs, sub-KPIs and the rating scale intensities to compute for the global weights.

Step 5 involves the test for consistency. Idalisa Norddin et al. (2015) describes this step as providing validation and also a measurement of consistency among pairwise comparison that were done throughout the judgment process. Saaty (1988) describes this test as the consistency ratio (CR) which is calculated using the consistency index (CI) and the random index (RI). Consistency is determined where $CI = (\lambda max - n) / (n - 1)$ where n is the matrix size. As described by Abduh & Omar (2012), the rule of thumb for consistency is that the value of CR is smaller or equal to 10% or .10, the inconsistency is deemed acceptable. However, in the study conducted by Pant et al. (2022), which also refers to Saaty (1988), that for matrices of order three and four thresholds .50 and .80 can be taken as acceptable, respectively.

Individual consistencies of up to CR=.30 were considered for aggregated (group) judgements. Geometric means were used to compute for data aggregation of individual (participant) judgement to aggregated (group) judgements. Geometric mean was also used in the study of Abduh and Omar (2012) and Pauer et al. (2016) for data aggregation.

Step 6 was to compute for the global weights based on the results of each indicator geometric mean. Each KPI was multiplied to its respective sub-KPI and its corresponding rating scale to determine global weights.

For phase 2, step 1 required private HEI academic administrators to take one academic staff at a time and measure his/her performance intensity in terms of instruction, research, and community services performance. Using the performance rating sheet, three (3) private HEIs participated in this phase. Participating colleges per HEI were the College of Business and College of Education. Academic administrators evaluated and rated their respective three (3) academic staff's performance based on the sub-KPIs.

Step 2 was determining the global weight corresponding to each indicator and level of intensity for each academic staff. Next was adding all the global priorities of the intensities for each academic staff. Repeat the process for other academic staff evaluated. The results of global weights for HEIs academic staff performance rating.

Step 3 determined the performance ranking among the academic staff per college and per HEI. Based on the ranking of academic staff performance using the performance measurement tool and applying the case study method, an inductive strategy can be used. This strategy can obtain valuable insights suggesting additional relationships. Yin (2018) recommends adopting the inductive strategy in case studies calling for collecting quantitative data covering two reasons: explaining the "outcomes" in an evaluative quantitative study covering behavior and events (academic staff performance) and data gathered may be related to an embedded broader unit of analysis (performance measurement of academic staff).

RESULTS AND DISCUSSION

Based on the results of thematic analysis conducted from FGD, sub-KPIs which contextualize the private HEIs in SOCSARGEN in terms of instruction were work ethics, personality, and values (KPI 11), teaching competence and performance (KPI 12), learning atmosphere (KPI 13), qualification (KPI 14) and involvement and productivity (KPI 15). Sub-KPIs for research academic performance includes research attendance and presentation (KPI 21), citations and publications (KPI 22), journal memberships (KPI 23), and research involvement (KPI 24). Sub-KPIs for community extension academic performance includes participation and involvement (KPI 31) and external linkages (KPI 32).

Based on the results and analysis using the performance measurement tool from the three (3) sample private HEIs, Participant College of Business HEI (CBH3) from private HEI 3 obtained a consistent highest academic performance rating in terms of instruction, research, and community extension.

The function of the performance measurement framework as shown in Figure 1, is to provide a reliable and objective basis in the assessment on the performance of academic staff as basis for relevant HR functions such as retention, compensation management, training and development and overall general profile of academic staff.

Figure 1
Performance Measurement Framework

In Figure 1, the overall goal of the framework is to achieve excellence in terms of instruction, research, and community extension. In terms of instruction, the objective is to create quality teaching delivery to students. In terms of research, the objective is to enhance research culture. In terms of community extension, the objective is to promote relevant external linkages. After determining the goals and objectives of private HEIs, key performance indicators (KPIs) in terms of instruction, research, and community extension are also determined. This will be used as basis in the evaluation aspect of the framework for academic staff performance measurement using a performance rating tool. In the analysis aspect, the results of using the performance rating tool will be processed and interpreted using Analytic Hierarch Process (AHP) for human resource analytics (HRA). To obtain substantial and relevant added value and meaning to the results, it will be disseminated to academic staff and administrators in the reporting aspect. In the review aspect, indicators, and results of using the performance measurement framework entails revision and update.

Conclusion. Based on the results, analysis, and implications of the findings, the performance measurement framework with human resource analytics using AHP is essential for a reliable and objective academic performance assessment on academic staff contextualized to private HEIs in terms of its tri-fold function of instruction, research, and community extension. A performance measurement tool using KPIs provides a reliable and objective academic performance evaluation relevant for academic administration and human resource management decision making such as retention, compensation management, training, and development. Based on the indicators determined and insights gained from the conduct of the performance measurement tool, a general performance measurement framework was developed for adoption and implementation for private HEIs which is composed of goals and objectives, indicators, evaluation, analysis, reporting, and review.

Recommendations. Recommendations made from this study include: (1) conscientious determination and priority ranking by academic and HR administrators of KPIs related to instruction, research, and community extension based on the unique practices of HEIs; (2) top level support for the adoption and implementation of performance measurement framework initiated by HR; (3) emphasize as a critical aspect of the performance measurement framework continuous improvement through feedbacking, learning and review especially on determining the KPIs; and (4) dissemination and utilization of the performance measurement tool and adoption of the framework which are critical in HR functions to other industries in which performance is a significant aspect of organizational excellence.

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