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The use of SIMPEG-based data mining techniques in measuring employee performance in Islamic higher education

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The use of SIMPEG-based data mining techniques in measuring employee performance in Islamic higher education

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Abstract. This article intends to provide an overview of: 1) employee performance patterns based on Employ Information Systems (SIMPEG) data; 2) important characteristics of employee performance based on Employee Information System (SIMPEG) data; 3) employee performance classification based on Employee Information System (SIMPEG) data. The study was conducted using a qualitative approach, where data collection is done through a process of observation, study of documents, and interviews. The results of the research show that: 1) employee performance at IAIN Kendari tends to be stagnant, which is reflected in the daily performance report (LKH); 2) important characteristics of the performance of IAIN Kendari employees are to focus on routine, based on tasks and functions; 2) the performance of IAIN Kendari employees is divided into high, medium and low categories.

1. Introduction

Performance can be interpreted in several senses: 1) as something that is achieved or work performance; 2) description of the achievement of an activity or program in accordance with the organization's vision, mission and goals; 3) the work of a person or group of people based on their respective duties and responsibilities to achieve organizational goals, carried out legally, does not violate laws and ethics [1]. It can be concluded that performance is an achievement by a person or group through legal means, in line with the goals of an institution. This understanding can apply to organizational actors everywhere, both for profit and non-profit institutions, including universities.

Employee performance can be known through indicators and performance measurement processes. Performance indicators for employees include: discipline, responsibility, ability, courtesy, and friendliness [2]. The collective performance measurement process can be carried out by implementing a Government Institution Performance Accountability System (SAKIP), because this system is based on individual employee performance. However, there is dissatisfaction with SAKIP, so that suggestions arise about the importance of measuring employee performance integrated into the information system [3].

Employee management at IAIN Kendari has been designed in the Employee Information System (SIMPEG), an interaction between employees, data, algorithmic methods and technology. This system is a unity with the Integrated Academic Management System (SIMADU) [4], a tool that functions to help the institution manage effectively and efficiently, in the form of artificial intelligence [5]. The

application of artificial intelligence in the management of tertiary institutions has been carried out with various approaches, including Academic Information Systems based on SMS Gateway using the Breadth First Search method [6], the application of fuzzy logic in the assessment of lecturer quality [7], Decision support system choosing Universities [8], making lecture roster [9], academic consulting [10], and library promotion strategies [11].

Artificial intelligence in the form of SIMPEG at IAIN Kendari, provides a variety of staffing data (see figure 1), so that it actually becomes a database for managerial decision making. In practice, SIMPEG data cannot be developed to add value or be new information. One that has not been touched is performance measurement. Based on this, the study of data mining is important so that the data stored on SIMPEG can be extracted and presented meaningfully to the academic community of IAIN Kendari.
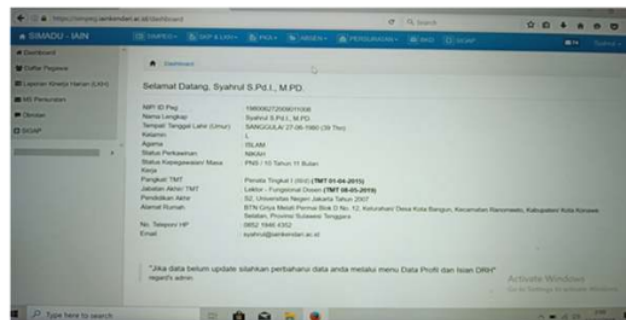

Figure 1. The SIMPEG IAIN Kendari page.

Previous research as stated above, has alluded to the application of various forms of artificial intelligence in higher education. Even so, the measurement of employee performance through artificial intelligence has not been touched. Therefore, this article aims to raise one perspective related to the use of artificial intelligence in the form of SIMPEG through data mining in order to measure employee performance at IAIN Kendari. The use of data mining in tertiary institutions has been carried out among them for the purpose of improving the quality of learning [12], prediction of non-active students [13], classification of student graduation [14], evaluation of student academic performance [15], extraction of college public opinion data [16], predictions of student study periods [17], predictions of enrollment of new students [18], and analysis of the possibility of resignation of prospective new students [19].

2. Materials and method

The study was conducted using a qualitative approach, which saw that SIMPEG-based data mining and performance measurement at IAIN Kendari as a social situation, where interactions between actors-place-activities occur. The aspects explored are employee performance patterns based on Employee Information System (SIMPEG) data, important characteristics of employee performance based on Employee Information System data (SIMPEG), and employee performance classification based on Employee Information System (SIMPEG) data. Data collection is done through a process of observation, study of documents, and interviews. Data analysis was performed using the steps of Miles and Huberman, which began with the process of collecting data, reducing data, presenting data, and drawing conclusions (see Figure 2). Study material can be seen on the page https://osf.io/ncv3j/ [20].
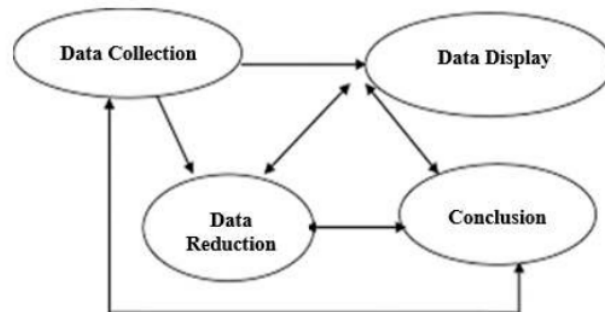
Figure 2. Research data analysis process [21].

3. Results and discussion

Research on the use of data mining techniques in performance measurement at IAIN Kendari found several trends, namely employee performance at IAIN Kendari tended to be stagnant, which is reflected in the daily performance report (LKH); Important characteristics of the performance of IAIN Kendari employees are to focus on routine, based on tasks and functions; IAIN Kendari employee performance is divided into high, medium and low categories.

Performance of civil servants is one component in the Performance Management System of Civil Servants, namely a systematic process consisting of performance planning, implementation, monitoring and coaching performance, performance appraisal, follow-up, and performance information systems. Some related terms are as follows:

- Employee Performance Targets (SKP), which are performance plans and targets to be achieved by a civil servant, which must be achieved every year.
- Individual Performance Indicator is a measure of work success achieved by every civil servant.
- Targets are the amount of work that will be achieved from each performance of the office duties.
- Realization is the work that is obtained partially, in accordance with, or exceeds the target.
- Work behavior is every behavior, attitude or action taken by a civil servant or does not do something that should be done in accordance with statutory provisions.
- PNS Performance Appraisal Officer is the civil servant's direct supervisor who is assessed, with the lowest provisions being the supervisory officer or other official who is given the delegation of authority.
- PNS Performance Evaluation Team is a team formed by the Authorized Officer to give consideration to the Employee Supervisory Officer on the proposed appointment, transfer and dismissal in positions, competency development, as well as giving awards to civil servants.
- Performance of civil servants is the work achieved by every civil servant in the organization / unit in accordance with the SKP and Work Behavior.
- Performance monitoring is a series of processes carried out by the PNS Performance Appraisal Officer to observe the achievement of performance targets contained in the SKP.
- Performance Achievement is a comparison of performance realization with performance targets.
- Performance Guidance is a continuous and systematic process carried out by direct superiors in helping PNS to know and develop PNS competencies, and prevent performance failures.
- Performance Counseling is the process of identifying and helping to solve performance behavior problems faced by civil servants in achieving performance targets.
- Performance Rating is a comparison between the performance of PNS and other PNS in 1 (one) work unit and / or agency.
- Award is an appreciation given by the agency to civil servants for achieving excellent performance.

- PNS Performance Information System is the procedures and procedures for collecting, processing, analyzing, presenting, utilizing, and documenting PNS performance data in an integrated manner.
- Performance Managers are officials who carry out the duties and functions of managing civil servant performance[22].

The performance stagnation experienced by Kendari IAIN employees is caused by the formalistic way of thinking in carrying out tasks, so the performance output is also formalistic in the form of Daily Work Reports (LKH). Routine traps lead to a lack of innovation in carrying out tasks. This is due to not running several functions of employee performance management such as: performance monitoring, performance guidance, performance counseling, and performance ranking. Employee Information System (SIMPEG) which should be a database in performance management, especially in measuring employee performance, has not been utilized, has not been transformed into a supporting force in decision making in the field of staffing.

4. Conclusion
The Employee Information System (SIMPEG) at IAIN Kendari is a collection of various staffing data. For leaders, the availability of data will be an effective tool in decision making. As for employees, the data presented transparently will indicate the performance conditions of each employee, so as to foster motivation to develop competencies continuously. Stagnation of performance, routine traps, and performance that tends to be low, is due to the underutilization of the Performance Information System at SIMPEG.

The performance management system at IAIN Kendari needs to be implemented not only on formalistic aspects through SKP and LKH, but more substantive on work behavior. Performance Information Systems need to be developed so that they are automatically integrated with leaders, performance counselors, performance appraisal teams, and direct superiors.

Acknowledgment

References
[1]   Sofyan D K 2013 Pengaruh Lingkungan Kerja Terhadap Kinerja Kerja Pegawai BAPPEDA *Malikussaleh Ind. Eng.* **2**(1) 18–23
[2]   Jamaluddin J, Salam R, Yunus H and Akib H 2017 Pengaruh Budaya Organisasi terhadap Kinerja Pegawai pada Dinas Pendidikan Provinsi Sulawesi Selatan *J. Ad'ministrare* **4**(1) 25
[3]   Sofyani H and Akbar R 2015 Hubungan Karakteristik Pegawai Pemerintah Daerah Dan Implementasi Sistem Pengukuran Kinerja *Jaai* **19**(2) 153–173
[4]   Syahrul, Alim N, Pairin and Nur J 2019 Utilization of management information systems in managerial supervision at IAIN Kendari *Int. J. Recent Technol. Eng.* **8**(1C2) 392–395
[5]   Suhartono E 2011 Kecerdasan Buatan *Mengen. Teknol. Inf.* 1–9
[6]   Haryansyah and Novianto E 2014 Terapan Sistem Kecerdasan Buatan Pada Sistem Informasi Akademik Berbasis Sms Gateway Menggunakan *Semin. Nas. Teknol. Inf. dan Multimed.* 21–26
[7]   Adiguna M A and Muhajirin A 2017 Penerapan Logika Fuzzy Pada Penilaian Mutu Dosen Terhadap Tri Dharma Perguruan Tinggi *J. Online Inform.* **2**(1) 16
[8]   Ranius A Y 2014 Sistem Pendukung Keputusan Memilih Perguruan Tinggi Swasta Di Palembang *Proseding Semin. Bisnis Teknol.* **240** 15–16
[9]   Syahrizal M 2012 Perancangan Sistem Aplikasi Pembuatan Roster Mata Kuliah Pada Perguruan Tinggi *Pelita Inform. Budi Darma* **I** 37–45
[10]   Cucus A, Endra Y R and Naralita T 2019 Chatter Bot untuk Konsultasi Akademik di Perguruan

       Tinggi *J. Manaj. Sist. Inform. dan Telemat.* **10**(1) 20–25

[11] Sari E A 2019 Peran Pustakawan Ai (Artificial Intelligent) Sebagai Strategi Promosi Perpustakaan Perguruan Tinggi Di Era Revolusi 4.0 *BIBLIOTIKA J. Kaji. Perpust. dan Inf.* **3**(1) 64–73

[12] Handoko K 2016 Penerapan Data Mining Dalam Meningkatkan Mutu Pembelajaran Pada Instansi Perguruan Tinggi Menggunakan Metode K-Means Clustering (Studi Kasus Di Program Studi Tkj Akademi Komunitas Solok Selatan) *J. Teknol. dan Sist. Inf.* **02**(03) 31–40

[13] Hastuti K 2012 Analisis Komparasi Algoritma Klasifikasi Data Mining untuk Prediksi Mahasiswa Non Aktif *Semin. Nas. Teknol. Inf. Komun. Terap.* 241–249

[14] Nugroho Y S 2012 *Data Mining Menggunakan Algoritma Naive Bayes untuk Klasifikasi Kelulusan Mahasiswa Universitas Nuswantoro* (Unpublished)

[15] Ridwan M, Suyono H and Sarosa M 2013 Penerapan Data Mining Untuk Evaluasi Kinerja Akademik Mahasiswa Menggunakan Algoritma Naive Bayes Classifier *Eeccis* **7**(1) 59–64

[16] Rozi I F, Pramono S H and Dahlan E A 2012 Implementasi Opinion Mining (Analisis Sentimen) Untuk Ekstraksi Data Opini Publik Pada Perguruan Tinggi *J. EECCIS* **6**(1) 37–43

[17] Haryati S, Sudarsono A and Suryana E 2015 Implementasi Data Mining Untuk Memprediksi Masa Studi Mahasiswa Menggunakan Algoritma C4.5 (Studi Kasus: Universitas Dehasen Bengkulu) *J. Media Infotama* **11**(2) 130–138

[18] Sugianti D 2012 Algoritma Bayesian Classification untuk Memprediksi Heregistrasi Mahasiswa Baru di STMIK Widya Pratama *J. Ilm. ICTech* **10**(2) 1–5

[19] Pujiantoro T H, Renaldi F and Teogunadi A 2011 Penerapan Data Mining untuk Menganalisa Kemungkinan Pengunduran Diri Calon Mahasiswa Baru *Konf. Nas. Sist. Inform.* 51–60

[20] Syahrul 2019 Sistem Informasi Manajemen Pendidikan pada Pendidikan Tinggi (Kajian di IAIN Kendari) *Eksek. Summ. Penelit.* 1–18

[21] Miles M B and Huberman A M 1994 *Qualitative Data Analysis: An Expanded Sourcebook* (California: Sage Publication, Inc,)

[22] Peraturan Pemerintah Nomor 30 Tahun 2019 tentang Penilaian Kinerja Pegawai Negeri Sipil 1–52

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GENERAL COMMENTS

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