Analysis of Quality Function Deployment to Improve Competitiveness: A Case Study of Universitas Pendidikan Indonesia

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ABSTRACT

Universitas Pendidikan Indonesia (UPI) is an autonomous state university. Thus, it is not bound by the bureaucratic regulation of the central government. This study examines the innovative strategies of QDF (Quality function deployment) approach through the adoption of service quality and Kano model with creative strategy to examine how UPI has performed. The research methods used is verification and descriptive while the units analysed are students, lecturers and UPI administrative staff through a survey method. A total of 270 respondents participated in this survey. Data was also obtained from interviews with stakeholders of UPI and analysed using Structural Equation Modelling (SEM). The findings showed development of QFD model and resources has an impact on the orientation of the university strategy, knowledge competency, value creation, and competitiveness. Development of QFD Model affected strategic orientation, while Knowledge and Value Creation were influenced by University Resources.

Keywords: Competitiveness; quality function deployment, university resources, value creation, strategic orientation

INTRODUCTION

Marketing of educational services is interesting to examine with regard to the function of the institution to provide higher education. These institutions also face challenges from online learning services. Therefore, educational institutes like Universitas Pendidikan Indonesia (UPI)
must continuously try to innovate and increase their efficiency and competency in running its business and improve its competitive edge to compete with other universities.

Therefore, this research will focus on UPI’s model of competitiveness and how it can improve its marketing approach in order to improve its teaching and research quality to maintain its status as a Research Based Teaching University until 2025.

The UPI offers two services: (1) Higher Education Service for students; and (2) expert-based services for customers which are institutions that require expert assistance. The two services are related to each other whereby the expertise-based services will enrich the capabilities and insights of human resources in UPI (especially lecturers) which will ultimately improve its quality of higher education services.

As a university that is expected to be a leading and independent university, UPI is concerned with getting as many customers (based on its capacity) as possible providing best quality service. Its service quality improvement strategy is based on what is needed and its capacity.

Quality is defined as the overall attributes and characteristics of services and/or products that can satisfy the consumer both expressed explicitly or implicitly (Render, 2009). An important methods that can be used to improve quality of higher education services is Quality Function Deployment (QFD). This method is a management tool to improve quality in accordance with consumer expectations. Specifically, QFD is a structured approach to defining customer needs or requirements and translating them into structured plans to produce products to meet those needs. The “voice of the customer” is the term to describe these stated and unstated customer needs or requirements.

LITERATURE REVIEW

University Competitiveness through Quality of Service

The University in its operations ensures that transformation process is carried out efficiently, based on the resulting output having a greater value than the sum of the inputs used. Product value is often referred to as product quality (Russell & Taylor, 2008); competitive advantage and resources determine the company’s strategy where corporate strategy significantly influences the company’s performance (Gozali, 2016). Product quality is important in the era of globalisation. Most of the University’s businesses are managed through global marketing. The global production process involves the supply chain of many countries, while human resource management involves various cultures and cultures, and financial investments involving world-class stock exchanges. Russell and Taylor (2008) defines quality as attribute of a product or service that has the ability to satisfy needs.

Improving quality leads to cost reductions, and an increase in sales and profits. Quality becomes the competitive advantage of the University through the fulfilment of customer satisfaction. In this approach, market research is vital to gauge the needs and wants of consumers.
Characteristics are described in the form of product-specific characteristics (a product-based approach to quality). The university produces standard operational procedures to produce service that has zero defect (manufacturing-based approach to quality). These contribute to the University’s competitive advantage.

Measurement of Dimension for quality will be determined by the characteristics of the service generated. Indicators measuring goods / manufacturing Universities will be different from the service products / service universities. This difference is due to differences in the characteristics of goods with service characteristics. Factors that determine the dimensions of service quality measurement include: (1) Consumer products which tend to interact with the final product, while consumers of service products involved actively and directly in the process of service production even participate to determine the quality of services provided, for example, legal consultation process, classroom teaching process, and hospital treatment process; (2) Services are customised for each customer; (3) services tend to be labour-intensive, while that of the product tends to be capital intensive, so the quality / competence of human resources becomes an important part in the process of service production; (4) Product defects in services may occur during the production process, making it difficult to repair, while defective products in the product may undergo a process of repair before being launched into the market.

According to Russell and Taylor (2008), there are 7 dimensions of services quality: the timeliness of service delivery, level of completeness of services provided, attitudes and level of hospitality in providing service, consistency of service quality provided for each customer at different times, ease of reaching the services, quality of service, and the degree of responsiveness of the entity in providing services.

Quality Function Deployment Methods Based on a Consumer Products

The QFD is a package of matrix diagrams (as a quality table) in the form of a house. The House of Quality consists of 6 parts: part 1 is the service quality that consumers desire and their priorities; part 2 constitutes an assessment of the quality of services of a competing University; part 3 is quality strategies undertaken by the University to meet consumer expectations; part 4 is the linkage between quality of the product the consumer expects and the strategy undertaken by the University; part 5 is the linkage between the diverse quality strategies undertaken by the University; section 6 is the strategic priority the University should focus on.

METHODS
This research was conducted to analyse Quality Function Deployment (QFD) in Improving Service Quality at UPI. The object of this research is Quality Function Deployment (QFD). The measurement of QFD was done through five variables: 1) QFD model through Service Quality Integration, and Kano, 2) measurement of university resources, 3) University strategic orientation, 4) capability knowledge, 5) Value Creation, and 6) University competitiveness.

A survey method was used in this research whose target populations were UPI students, lecturers and administrative personnel in the academic year 2015/2016. A total of 270 respondents were interviewed. Primary data for this study was obtained using questionnaires and conducting interviews with UPI stakeholders. Data was analysed using Structural Equation Modelling (SEM).

RESULTS AND DISCUSSION
Implementation of QFD on Higher Education Services
Characteristics of services desired by users of education services in UPI are based on the results of the voice of consumers developed through the house of Quality (Table 1).

Table 1
Priority order of the desired service characteristics

<table>
<thead>
<tr>
<th>Service Characteristics</th>
<th>Rank</th>
</tr>
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<tbody>
<tr>
<td>The availability of adequate classrooms</td>
<td>19</td>
</tr>
<tr>
<td>The availability of equipment that supports adequate learning activities</td>
<td>17</td>
</tr>
<tr>
<td>The availability of library space equipped with various reference books both from within and outside the country</td>
<td>15</td>
</tr>
<tr>
<td>The availability of a large library room with adequate air conditioners, reading areas and cafeterias</td>
<td>18</td>
</tr>
<tr>
<td>The availability of online library facility</td>
<td>16</td>
</tr>
<tr>
<td>The availability of adequate e-Learning facilities.</td>
<td>14</td>
</tr>
<tr>
<td>The availability of adequate wi fi network facilities</td>
<td>11</td>
</tr>
<tr>
<td>The availability of adequate academic services for students</td>
<td>3</td>
</tr>
<tr>
<td>The availability of lecturers’ attendance and course news</td>
<td>10</td>
</tr>
<tr>
<td>The availability of professional lecturers in their fields are adequate</td>
<td>4</td>
</tr>
<tr>
<td>The availability of adequate academic service personnel</td>
<td>1</td>
</tr>
<tr>
<td>The availability of websites in which there is adequate academic information</td>
<td>7</td>
</tr>
<tr>
<td>The availability of material for recovery in accordance with the appropriate curriculum</td>
<td>6</td>
</tr>
<tr>
<td>The suitability of learning process from lecturer with syllabus and Learning Plan.</td>
<td>8</td>
</tr>
<tr>
<td>The availability of adequate student practice laboratories</td>
<td>13</td>
</tr>
<tr>
<td>The availability of an online student value information system is adequate</td>
<td>5</td>
</tr>
<tr>
<td>The availability of a standardised appraisal method to be applied by an adequate lecturer</td>
<td>9</td>
</tr>
<tr>
<td>The availability of adequate cleaning service and security personnel</td>
<td>12</td>
</tr>
<tr>
<td>The availability of student and lecturers’ communication media via webmail and face-to-face meetings</td>
<td>2</td>
</tr>
</tbody>
</table>
Based on the calculation of priority order of the desired service characteristics, the importance of the service can be sorted through the order of the most important to the lowest, the first rank for high importance and the last rank for the lowest level of importance. The first rank is the availability of adequate academic service personnel. Academic services have a high level of urgency because it is important in the implementation of all academic activities which can improve student satisfaction. Apart from UPI, the other university is Bandung City Indonesia, which changed its status to State University of Legal Entity (PTN-BH) and Padjadjaran University (UNPAD). Therefore, UNPAD should be able to maintain and improve its quality of service.

Based on the results of House of Quality analysis, student expectations as consumers of educational services is the availability of professional lecturers in their field. While other indicators assessed are equivalent to other service quality dimensions in UPI. Hence, the findings of this research indicate that the direct influence of value creation to the competitiveness of the University is indicative of greater than the direct effects of strategic orientation and knowledge capability. The effect of the creation of value based on the highest influence is the strategic orientation, and the lowest is knowledge capability. The greatest influence on value creation is strategic orientation, and the lowest influence is knowledge capability. Greater strategic orientation is influenced by the development of QFD compared with university resources. The above findings are described in Figure 1.

Figure 1. The results of model testing
Based on the research findings, in order to improve the competitiveness of the University of Education of Indonesia, it is necessary to develop and improve the performance of value creation. To improve the strategic orientation, UPI must optimise the development of QFD while to optimise knowledge capability, it must maximise the use of its resources.

The dimensions with the highest order to the lowest in reflecting the value creations are business partners, business domains, and customer benefits. The dimensions with the highest order to the lowest in reflecting the strategic orientation are customer orientation, inter-functional coordination, entrepreneurial orientation, and competitor orientation. Dimensions based on the highest order to the lowest reflect the knowledge capabilities are the application of knowledge, knowledge evaluation, knowledge management, and knowledge transfer.

The findings of this study can be used to develop a problem-solving formula in order to improve the competitiveness of the University in the case of UPI to be research-based teaching university through the development of value creation supported by the management’s ability in developing strategic orientation and knowledge capability. In this case, problem solving consists of two main aspects: mapping of University strategy and formulation of operational strategy. The reference for determining the policy for UPI can be done through strategic steps which include planning, organising and supervision of university management system (UPI) within 5 years, which is done systematically through proper leadership management, continuous supervision, and the use of various policies to support the creation of UPI’s competitiveness to be a research-based Teaching University. The measures of operational strategy to improve the competitiveness of the university are implemented based on the level of influence of each dimension.

Strategy in developing QFD, reflected by service quality, is improving management’s understanding of the importance of quality of service, because the university is a business organisation in the field of services. Management must focus on the diversity of customer characteristics, such as students, users of services based on alumni and lecturer expertise. To improving the management understanding of the diversity of educational service, management understanding of business partners and institutions aside from that advertising/media optimisation as part of quality service through media is vital.
Strategy in developing QFD, which needs to be addressed in QFD development based on KANO model, is by improving employees understanding of Internet technology, improving employee understanding of Information technology where latest development is updated regularly, improving employee understanding of the use of information technology as one of the media or tools in the learning process, improving management understanding of the application of operational equipment for operating efficiency, improving management’s understanding of the use of Voice of Consumer, and improving management’s understanding of IT utilisation opportunities as one of supporting activities.

Operational Strategy In Developing QFD, which needs to be addressed in QFD Development through integration of Quality and KANO service model, is by improving Management understanding to Ease of development of QFD as a measurement tool in customer service, increasing management understanding of superior value that we will have through service attribute which should be improved, increase the understanding of management of matters relating to academic services and administrative servants, improving management understanding of the conditions and culture of service users, increasing understanding of working area conditions and improve management understanding of the unique culture of learners from all over Indonesia.

Operational Strategies In Increasing University Resources, which needs to be addressed in Tangible Assets Is improving management capabilities in developing: adequate computer facilities, adequate printer facilities, accurate practicum tools, adequate ATK, quality of PBM tools, adequate micro teaching, wide parking area, communication tool, adequate fax machines, Email and Website and related facilities and equipment. In order to support the learning Process in Classroom, it is vital to enhance management capabilities in developing: intensive communication channels among employees across branches in Indonesia, e-learning UPI, and management information systems.

CONCLUSION

Indonesian universities must provide adequate academic service in terms of quantity and quality of service. Academic service is considered to support quality academic activities, which can have an impact on student satisfaction. There is a positive influence of the development of the University’s Quality Function Deployment and Resource Model on Knowledge Capability at Universitas Pendidikan Indonesia. This study is limited in terms of its sample size and units of analysis. Based on the results of data analysis techniques using Structural Equation Modelling (SEM), the highest dimension in reflecting value creation is the business partner. The dimension that reflects the highest strategic orientation is customer orientation. The dimension that reflects the highest in knowledge capability is the application of knowledge. The dimension that reflects the
highest of university resources is the tangible asset. Dimensions that can reflect the highest in QFD development is through Service Quality, followed by QFD by adopting KANO model, and developing QFD through KANO integration and Service quality. In order to reach research-based teaching university status, Universitas Pendidikan Indonesia must have Value Creation, which can be built through the support of Strategic Orientation and Knowledge Capability.

REFERENCE


