

THE INTERDEPENDENCE OF TOTAL QUALITY MANAGEMENT AND ORGANISATIONAL LEARNING TO MANAGERIAL INNOVATION

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Abstract: In traditional business settings, organisational learning capability and total quality management are significant factors in pushing an innovation level. However, whether the same phenomenon will occur in higher educational institutions needs to be examined. The literature has different views on the success and applicability of Total Quality Management (TQM), organisational learning, and management innovation principles in Higher Education (HE). This article examines the crucial success aspects of TQM in private universities in Indonesia applying managerial innovation. Data was gathered by distributing questionnaires to 349 university faculty members. Factor Analysis was used to assess the construct commonalities, and multiple Regression Analysis was employed to examine the relationship among constructs. If HE adopts managerial innovation, training and learning, process management and benchmarking emerge as essential TQM success elements. It has been discovered that organisational learning, directly and indirectly, affects managerial innovation. This study highlights that organisational learning may strengthen and expand managerial innovation. Organisational learning is acquiring and enhancing new information and skills, enhancing an organisation's capacity for innovation.

Keywords: educational management, total quality management, organisational learning, managerial innovation, university

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Introduction

A rising corpus of economics and innovation studies research has improved our understanding of economic development and innovation drivers during the last two decades (Bergek et al., 2023). This literature has also stimulated discussion over the role and significance of innovation (Hunter et al., 2022). More lately, the role of innovation in solving significant societal concerns has become a component of this debate (Grebski and Mazur, 2022). The spike in interest in innovation policy, its spread into other policy domains, the increasing complexity of policymaking, and new emergent language create critical analytical problems regarding the thinking and actual landscape of innovation (Laasonen et al., 2022). While national governments

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remain key players in these arrangements, particularly in terms of budgetary, regulatory, and legal elements, shrinking public budgets and fierce global competition for relevant knowledge flows in terms of both human capital and ideas necessitate an immediate response from local, national, and international public policy regimes. As a result, governments at all levels emphasise research commercialisation as a vital driver of competitiveness and growth (Etzkowitz et al., 2022; Wróblewski, 2020).

In response to this problem, academia and practice focused more on university reform and accompanying innovations (Whittaker and Montgomery, 2022; Lis, 2021). Due to its intricacy, innovation has become one of the most frequently contested topics in higher education (Morawska-Jancelewicz, 2022). This is because science and technology outcomes continue to be impacted by innovation-driven policies in which universities play a central role (Liu et al., 2022). As the world transitions from industrial experience to knowledge as the primary driver of productivity growth, universities as sources of knowledge must also adapt to the changing circumstances. Universities' traditional power to generate new ideas and academic positions must be matched by the capacity to equip students, staff, and the university with the tools required to interact with industry and society at large (Southworth et al., 2023). Universities in Indonesia face this formidable obstacle. This is coupled with the implementation of the ASEAN Economic Community (AEC) in 2025, after which the government signed a free trade pact, resulting in increased competition among Indonesian universities, as well as between Indonesian universities and foreign universities, which may soon overwhelm Indonesian higher educations (Azman et al., 2023).

Education can only innovate and align with modern management once a client-focused and quality-oriented management system has been established (Savic, 2020). Besides, to innovate, educational organisations as a bridge between knowledge producers and researchers require significant transformation (Czerwińska and Piwowarczyk, 2022). TQM is a technique that can facilitate this change (Srivastava and Hussaini, 2023). According to Aljuwaiber (2022), TQM is a concept of continuous improvement that may equip educational institutions with skills and scientific instruments to meet their present and future demands and expectations (Kurowska-Pysz and Szyszka, 2022). Since educational organisations and institutions are the primary and decisive elements in developing human resources for innovative, productive, and service organisations in society (Kurowska-Pysz, 2020), there is a greater need than ever to study and implement the TQM principles in education.

Learning, dynamic structures, adaptability, and quality are the most crucial qualities of higher education in the twenty-first century (Fauzi, 2022). Thus, the higher education system must adapt to continual change to achieve tremendous success, and organisational learning is the most powerful tool for a more effective adaptation (Alerasoul et al., 2022). Organisational learning is a collective and collaborative learning process for dynamic and creative decision-making in response to changes

in the organisation's internal and external environments (Schechter et al., 2022). On the other hand, the changing environment necessitates higher education managers to use their knowledge more and cope with uncertainty. This necessitates managers in higher education to accord innovation in management a high priority (Rajiani and Ismail, 2019). Higher education prioritises consumers and quality through TQM; it should include organisational learning and managerial innovation to provide students and society with better services (Sciarelli et al., 2020).

Previous studies in Indonesian public universities revealed hesitance toward innovation (Putro et al., 2022; Basuki et al., 2022). Due to the significance of TQM, organisational learning, and managerial innovation to the efficacy of educational organisations, and since no research studies have been conducted in the fastest-growing private university in Banjarmasin, Indonesia, the present study is conducted. This research identifies the status of these factors in different types of universities with diverse management, as well as their causal relationship.

Literature Review

TQM is a management philosophy that aims to increase customer satisfaction and organisational effectiveness. TQM principles have been used in manufacturing for a long time, but their application in services and higher education (HE), in particular, is relatively recent. Implementing TQM in HE is motivated by intensifying competition among institutions and labour market requirements (Fernandes and Singh, 2022). While numerous kinds of research exist on TQM's critical success factors (CSFs), there is no universally accepted list. One possible explanation for this lack of agreement is that these investigations are conducted in various circumstances. Current research on TQM deployment is conducted primarily in industrialised nations. It is necessary to examine essential success criteria to comprehend what determines the effective implementation of TQM in HE in developing nations. During TQM implementation, these essential success criteria might be the focus of management efforts. Nevertheless, most recent research focuses on customer attention and satisfaction, top management commitment and leadership, staff participation and teamwork, supplier management, training and learning, process management, benchmarking, quality information, and performance assessment (Budayan and Okudan, 2022).

The research demonstrates that TQM principles are context-dependent and not universally applicable in all circumstances (Haffar et al., 2022). This implies that the findings of TQM application studies conducted in developed nations and mostly in manufacturing sectors must be reconsidered for applicability in emerging countries and non-manufacturing sectors such as higher education. In addition, the literature findings on the value of TQM in education are contradictory (Jasti et al., 2022). Some authors believe that TQM values are equally applicable in higher education (Zalewska, 2021) and that TQM values are compatible with higher education (Nogueiro and Saraiva, 2023), while others argue that TQM values are marginally valuable for a dynamic and changing environment, which is a characteristic of

contemporary HE (Mathur et al., 2022). One probable explanation is that the effectiveness of TQM in higher education depends on how TQM is implemented, whether as a systematic collection of tools and procedures or as a systemic application of TQM principles across the HE. According to a new conclusion, universities and other Higher Education institutions are embracing TQM to keep rivals at bay due to the increased global education competitiveness (Nasim et al., 2020). The studies above provide a more profound knowledge of the implementation of TQM in education, and a larger perspective demonstrates that the fundamental TQM principles are applicable in higher education. Nogueiro and Saraiva (2023) discovered that several TQM elements play a crucial role in process improvement in higher education, including leadership, vision, measurement and evaluation, process control and improvement, programme design, quality system improvement, employee involvement, recognition and reward, evaluation and training, student focus, and other stakeholder focus. This demonstrates that TQM features are equally applicable in the context of higher education and that TQM could play an essential role in improving procedures and enhancing customer satisfaction.

Notwithstanding the real significance of technological innovation, another sort of innovation has effectively penetrated the realm of non-technology. HE has begun to deploy managerial innovation (Putro et al., 2022), a non-technological innovation that is more difficult to reproduce and may contribute to a sustainable competitive advantage (Mol, 2018). Top Indonesian colleges, such as the University of Indonesia, and Bandung Institute of Technology, are outstanding examples of institutions whose success is attributable to managerial rather than technological innovation. While managerial innovation is still relatively under-researched (Chin et al., 2021), more excellent knowledge of managerial innovation, particularly within educational organisations, should be a top priority on the research agenda (Horta and Santos, 2020). Managerial innovation is defined by Mol (2018) as the creation and implementation of a new management practice, process, structure, or technique that is designed to advance corporate goals. New management practises, processes, structures, and techniques entail respective changes in the day-to-day activities of managers as part of their job in the organisation (what managers do), the routines governing their work (how they do it), the organisational context in which their work is performed, and the techniques associated with their work (Rohlfers et al., 2021).

Despite the recent surge in academic interest, managerial innovation remains an under-researched topic because most studies have examined how businesses may stimulate technology innovation (Ozturk and Ozen, 2021). However, innovation in a school context is frequently related to the perception of an inability to innovate meritoriously (Ismail et al., 2020). In other words, schools must demonstrate a business-like approach to innovation in which cost-efficient ideas are kept and less effective ones are abandoned. Since the Indonesian Ministry of Research and Higher Education began evaluating innovation alongside human resources, management, research, and students' accomplishment (Rajiani and Ismail, 2019), change has been applied progressively. Due to this occurrence, the direction of academies, costing,

human resources, and general administration has been delegated to the university, profoundly impacting educational management. As a result, university leaders must pay close attention to developments and innovations in education, as the traditional university can no longer meet society's expanding demand (Moscardini et al., 2022). Organisational learning is a methodical approach to fostering collaboration inside a university to enhance competency, viability, and new product development (Subiyakto et al., 2020). Since the inception of the fifth discipline concept in 1990 (Senge and Von Ameln, 2019), it has been recognised as one of the essential management tools, along with the system approach, shared vision, personal mastery, mental models, and team learning. Personal mastery implies that learning cultivates personal potential to produce more optimal outcomes. Mental models reflect an individual's ever more straightforward view of the world. A shared vision is achieved by creating typical pictures of an ideal future and modifying guiding principles and activities. Team learning refers to a group's ability to develop its intelligence and capacities through communication and collective thought. The system approach is a way of thinking and a vocabulary used to describe and comprehend other forces and principles and to explain the interplay of various commands and principles that shape the behaviour of a system (Ghademarzi et al., 2022).

The literature review reveals that most research in learning organisation and managerial innovation focuses on private companies emphasising assembly (Malik and Garg, 2020). In this approach, a report on the university setting is uncommon. In addition, studies on the impact of learning organisation on managerial innovation in Indonesian higher education still need to be included. This research investigates the potential relationship between learning organisation and managerial innovation in Indonesian private universities. According to Rehman and Iqbal (2020), managerial innovation is closely related to the learning organisation's elements. This feature enables an ongoing organisational learning process, encouraging collaborative, creative, and high-quality group practises (Alagaraja and Herd, 2022). Chen et al. (2022) demonstrated that TQM has a close association with organisational learning and concluded that organisational learning is TQM's end goal. Organisations using TQM are likelier to learn than those without it (Budayan and Okudan, 2022). While some studies have demonstrated a negative association between TQM and innovation efficiency (Attunes et al., 2021), others have indicated that TQM is one of the essential principles of innovation (Jiménez-Jiménez et al., 2020) and positively influences innovation (Albloushi et al., 2023). Tu and Wu (2021) have shown that organisational learning arising from external connections between employees and partners impacts the development of new goods and innovation. Organisational learning drives the organisation towards trust-based mutual communication and fosters a culture of knowledge sharing (Azeem et al., 2021). Consequently, organisational learning mediates between Total Quality Management and managerial innovation (Shuaib and He, 2022).

The following conceptual model is proposed based on the stated definitions and past research (Figure 1). The model is based on the six Malcolm Baldrige National

Quality Award (MBNQA) criteria for performance excellence leadership, strategic planning, customer focus, information and analysis, human resource development and management and process management (Lapoint, 2022).

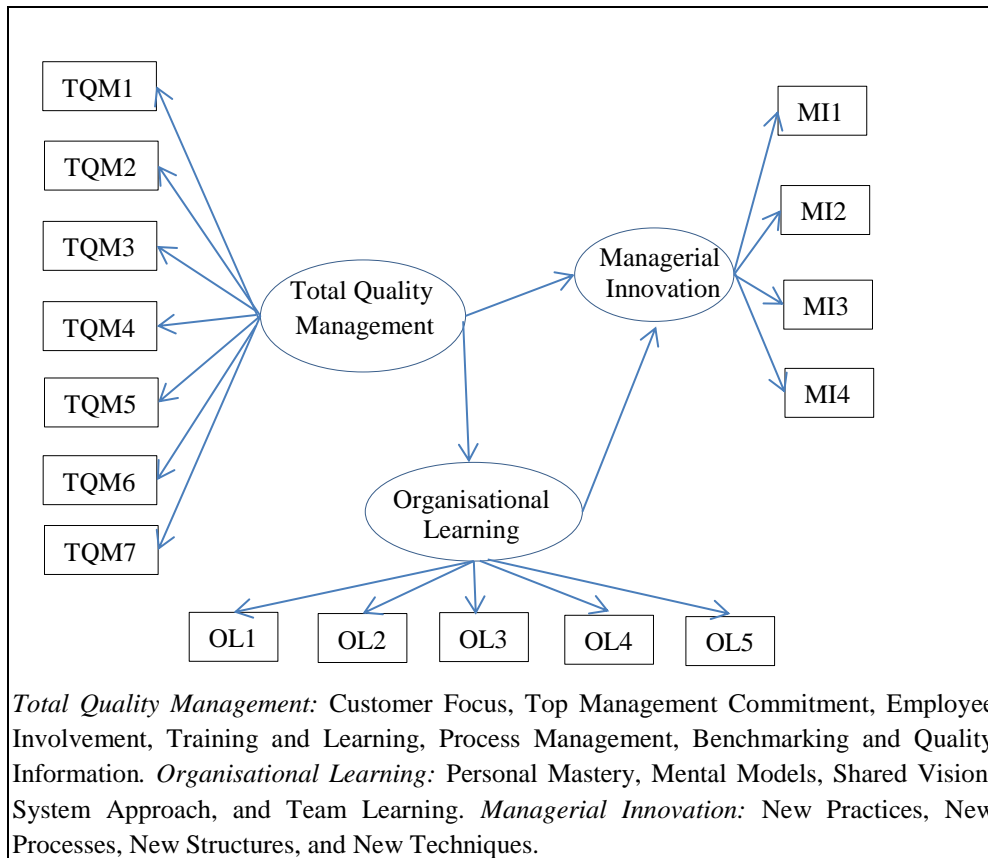


Figure 1: Research Conceptual Model

Based on Figure 1, The hypotheses of the study are:

- H1: TQM positively and significantly affects organisational learning.
- H2: TQM positively and significantly affects managerial innovation.
- H3: Organisational learning directly, positively and significantly affects managerial innovation.
- H4: Organisational learning meditates TQM and managerial innovation.

Research Methodology

This study is a quantitative investigation using a cross-sectional design. From 25 August 2022 to 1 January 2023, lecturers at five (5) private institutions in Banjarmasin, Indonesia, were sent a paper-based questionnaire using purposive

sampling. This research focussed on the management of accredited universities (with grades B) offering graduate programs in South Kalimantan, which have management programs in their learning-instructing processes. University departments with B accreditation (very good) represent quality practice has been implemented. This research solicits the opinions of lecturers of graduate programs as a study population, for they have full knowledge of their departments. Four hundred (400) academics filled out our questionnaires, returning three hundred forty-nine (349) valid responses (87% response rates). Seven self-assessment of TQM practise items were chosen to measure TQM procedures (Budayan and Okudan, 2022; Nogueiro and Saraiva, 2023). Senge and Von Ameln's (2019) model was applied to the five indicators used to quantify organisational learning components: system approach, shared vision, personal mastery, mental models, and team learning. Managerial innovation utilised four variables from a comparable study conducted at an Indonesian public university (Rajiani and Ismail, 2019). Each item was evaluated on a 7-point Likert scale, with "7" meaning a very strong agreement and "1" representing a very strong disagreement. Initially, scale reliability and descriptive statistical analyses were conducted on the study variables. Factor analysis (principal component analysis) is utilised to identify and combine TQM barrier variables in a weighted manner to form components that account for the greatest quantity of score variability. Factor loadings greater than 0.5 were used for factor classification, and the scale reliability value (alpha coefficient) for each factor was more significant than 0.70. Regression with multiple variables is used to predict and model responses to dependent variables.

Research Results and Discussion

The participants' demographic data revealed that 52.7% were male and 47.3% were female. 56.9%, 26.2%, 15.7%, and 1.2% of the university employees investigated were between the ages of 31-40, 20-31, 41-5 years, and >50 years. 34.5% of employees had worked for the organisation for 11 to 15 years, representing the highest frequency in terms of tenure. 64.88% had a master's degree, 27.36% had a doctorate, and 7.71% were full professors.

Principle component factor analysis with varimax rotation validated the underlying self-assessment of TQM practises, organisational learning, and management innovation. With a minimum loading of 0.706 (New Practices), the item loading range for each component (factor) was high. Steenkamp and Maydeu-Olivares (2023) state that a loading of 0.4 or greater is generally deemed suitable. As a result, the survey instrument was validated for construct validity. Table 1 displays the factor analysis results for each construct. The reliability coefficients of the independent variables (Managerial Innovation) and the dependent variables (TQM and Organizational Learning) were more than 0.70, which agrees with Kretzschmar and Gignac's suggestion (2019).

Respondents' perceptions of the level of TQM practises, organisational learning and managerial innovation were estimated using the various mean scores of the

constructs. The results are presented in Table 2. The mean score of constructs ranged from 3.6734 to 5.4814, with all two scores corresponding to a reasonable level and the rest being a moderate level of practice.

Table 1. Results of Factor Analysis and Scale Reliabilities

Items	Factor Loading	Reliability
Customer Focus	0.827	0.760
Top Management Commitment	0.819	0.763
Employee Involvement	0.832	0.760
Training and Learning	0.815	0.763
Process Management	0.814	0.766
Benchmarking	0.814	0.766
Quality Information	0.801	0.806
Personal Mastery	0.857	0.779
Mental Models	0.863	0.781
Shared Vision	0.828	0.784
Team Learning	0.864	0.784
System Approach	0.804	0.791
New Practices	0.706	0.775
New Processes	0.723	0.775
New Structures	0.720	.773
New Techniques	0.712	.809

An overall mean score of 4.628 indicates that the university has a positive level of TQM implementation. This score is at the lower middle end of the seven-point Likert scale, where 7 represents the maximum positive evaluation, and 1 is the maximum negative evaluation, with 4 being the average value. This meant that equal importance had been given somewhat to all components of TQM procedures rather than highlighting individual TQM constructs. So, it is possible to conclude that TQM was regarded and applied half-heartedly.

Table 2. Descriptive Statistics of Research Constructs

Items	Mean	Std. Deviation	Ranks
Customer Focus	3.810	1.9457	15
Top Management Commitment	4.616	1.7241	11
Employee Involvement	3.673	1.8575	16
Training and Learning	4.974	1.8105	7
Process Management	5.074	1.5812	6
Benchmarking	5.481	1.4031	4
Quality Information	4.770	1.9760	10
TQM Overall Mean	4.628		
Personal Mastery	6.447	0.9623	1
Mental Models	6.320	1.0143	2
Shared Vision	4.8997	1.7432	9
Team Learning	6.114	1.2496	3
System Approach	3.851	1.92701	13
Organisational Learning Overall Mean	5.526		
New Practices	5.151	1.7689	5
New Processes	4.495	1.9082	12
New Structures	3.836	2.0183	14
New Techniques	4.920	1.880	8
Managerial Innovation Overall Mean	4.601		

Benchmarking achieved the highest mean score of 5.16. This indicated that the university stressed the threat of competitors in the TQM implementation process. Process Management is the second most emphasised TQM construct, with an average score of 5.074. This demonstrated the university's emphasis on management and continuous process improvement.

On the other hand, the two lowest mean scores come from Customer Focus (3.810) and Employee Involvement (3.673). Both received negative scores and occupied all constructs' lowest ranks (15,16). This suggested that more effort should be focused on internal and external relationship management and justifying that some TQM elements are not applicable in the university setting (Haffar et al., 2022; Mathur et al., 2022; Jasti et al., 2022).

The results also indicate the importance of organisational learning and managerial innovation. A mean score of 5.52 indicates a positive level of organisational learning implementation. The mean score of constructs ranged from 3.851 to 6.447 with three scores corresponding to an excellent level: Personal Mastery (6.447), Mental Models (6.320), Team Learning (6.114) hold the first, second, and third positions in the construct, respectively. However, the lowest mean scores come System Approach (3.851). This suggests that more effort should be focused on describing and comprehending other forces and principles, explaining the interplay of various commands and principles shaping the behaviour of a system. In terms of managerial innovation, a mean score of 4.601 indicates that the university has begun to shift the

paradigm by implementing New Practices (5.151), New Processes (4.495), and New Techniques (4.920) but is hesitant to implement New Structures (3.836). (3.836). However, the finding contradicts public universities' findings (Putro et al., 2022; Basuki et al., 2022), considering new practises, processes, techniques and structures as irritation, not innovation. This is because the private university is designed and operated differently from the private sector regarding recruitment, career path, and work environment. A multiple regression analysis was conducted to determine the direct and indirect effect of TQM and organisational learning on managerial innovation. By applying implicit procedures, a positive, significant path confirms the mediation (Rasoolimanesh et al., 2021).

Table 3. Results of Multiple Regression Analysis

Independent Variables	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
TQM	0.428	0.045	0.449	9.492	0.000
Organisational Learning	0.412	0.051	0.383	8.093	0.000
<i>Dependent Variable: Management Innovation</i>			<i>R = 0.761, R Square = 0.580</i>		

The positive path in Table 3 implies that managerial innovation is greatly affected by TQM and organisational learning directly and indirectly. This means that all four hypotheses are accepted. The results also indicate that the TQM, organisational learning and managerial innovation are highly correlated (R of 0.761, R² of 0.580); the TQM and organisational learning have significantly explained 58 per cent of the variance in managerial innovation. The results support the conclusion of a recent study (Jiménez-Jiménez et al., 2020) that TQM is one of the basic principles of innovation and positively promotes invention. Moreover, this study supports that organisational learning mediates TQM and managerial innovation (Shuaib and He, 2022). The assumption that TQM elements do not fit in HE (Mathur et al., 2022) did not support this research.

Managerial Implication

Some have questioned whether the critical TQM factors identified in the manufacturing sector in developed countries could be applied in entirely different contexts, such as HE in developing countries. This research identified seven critical success factors of TQM implementation in Indonesian private universities: customer focus, top management commitment, employee involvement, training and learning process management, benchmarking and quality information that must be fulfilled to implement managerial innovation supported with organisational learning. While the critical factors of HE, organisational learning and managerial innovation share certain parallels, the whole collection of critical factors in HE differs from the traditional critical factors mentioned in the literature. This shows that the unique processes of HE require various sets of essential success criteria while implementing TQM and organisational learning to boost managerial innovation. The leadership of

universities and policymakers could focus on these factors to facilitate the implementation of managerial innovation.

Conclusion

Finally, the study provides an understanding of quality management practices and levels of organisational learning to implement managerial innovations in universities. However, based on the current state of its Total Quality Management practice, the university needs to catch up to the world-class standards of excellence of the Malcolm Baldrige National Quality Award (MBNQA). Indeed, two key elements of TQM: customer focus and employee engagement related to HR development, were rated lowest.

Since the results show a significant relationship between organisational learning and managerial innovation, it is recommended that higher education administrators play an essential role in achieving managerial innovation by creating the conditions of professional cooperation among teachers, designing courses based on learning the latest subjects, the university appropriately cooperates with other governmental and non-governmental organisations, provides new teaching facilities, changes the structure organisational structure of the university, revises the method of selecting professors, accepts suggestions and criticisms at the university. The university has a communication problem, which results in a low score for the systemic approach in the organisational learning structure.

Results are based on self-administered survey data, which may be subject to response bias. It is difficult to determine through surveys whether respondents' attitudes towards self-assessment are general or explicit. Since universities were the only subjects of this study, the reported result is not generalisable to other situations or contexts. Future research could focus on critical factors of TQM, organisational learning, and managerial innovation in other developing countries to determine if there are common critical factors for these structures in HE managerial environments.

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WSPÓLZALEŻNOŚĆ CAŁKOWITEGO ZARZĄDZANIA JAKOŚCIĄ I ORGANIZACYJNEGO UCZENIA SIĘ DO INNOWACJI MENEDŻERSKICH

Streszczenie: W tradycyjnych środowiskach biznesowych zdolność do organizacyjnego uczenia się i całkowite zarządzanie jakością są istotnymi czynnikami wpływającymi na poziom innowacyjności. Należy jednak zbadać, czy to samo zjawisko wystąpi w instytucjach szkolnictwa wyższego. W literaturze istnieją różne poglądy na temat sukcesu i możliwości zastosowania całkowitego zarządzania jakością (Total Quality Management - TQM), organizacyjnego uczenia się i zasad innowacji w zarządzaniu w szkolnictwie wyższym (Higher Education - HE). Niniejszy artykuł analizuje kluczowe aspekty sukcesu TQM na prywatnych uniwersytetach w Indonezji, stosujących innowacje w zarządzaniu. Dane zostały zebrane poprzez rozprawdzenie kwestionariuszy wśród 349 członków kadry uniwersyteckiej. Analiza Czynnika została wykorzystana do oceny podobieństw konstruktywów, a Analiza Regresji Wielokrotnej została zastosowana do zbadania relacji między konstruktywami. Jeśli HE przyjmuje innowacje w zarządzaniu, szkolenia i nauczaniu, zarządzanie procesami i benchmarking wyłaniają się jako podstawowe elementy sukcesu TQM. Odkryto, że organizacyjne uczenie się, bezpośrednio i pośrednio, wpływa na innowacje menedżerskie. Niniejsze opracowanie podkreśla, że organizacyjne uczenie się może wzmocnić i rozszerzyć innowacje menedżerskie. Organizacyjne uczenie się polega na zdobywaniu i doskonaleniu nowych informacji i umiejętności, zwiększając zdolność organizacji do innowacji.

Słowa kluczowe: zarządzanie edukacją, całkowite zarządzanie jakością, organizacyjne uczenie się, innowacje menedżerskie, uniwersytet

全面质量管理与组织学习的相互依存关系管理创新

摘要: 在传统的商业环境中，组织学习能力和全面质量管理是推动创新水平的重要因素。但是，同样的现象是否会出现于高等院校中，还有待考察。文献对全面质量管理 (TQM)、组织学习和管理创新原则在高等教育 (HE) 中的成功和适用性有不同的

看法。 本文探讨了印度尼西亚私立大学全面质量管理在应用管理创新方面的关键成功方面。 通过向 349 名大学教职员工分发调查问卷来收集数据。 因子分析用于评估结构的共性，多元回归分析用于检查结构之间的关系。 如果 HE 采用管理创新、培训和学习、过程管理和基准测试，就会成为 TQM 成功的基本要素。 已经发现，组织学习直接和间接地影响管理创新。 本研究强调组织学习可以加强和扩大管理创新。 组织学习是获取和增强新的信息和技能，增强组织的创新能力。

关键词：教育管理，全面质量管理，组织学习，管理创新，大学