

Knowledge Management Capabilities, Organizational Innovation, and Performance of Selected Private Educational Institutions in Batangas, Philippines

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Abstract – *The changing educational landscape brought about by the Covid-19 pandemic and the emergence of the new normal have brought significant realizations for organizations to have knowledge management. An effective knowledge management process helps organizations adjust their business operations in the new normal, optimize their innovation capability, and achieve high performance. Educational institutions have recognized the crucial role and importance of knowledge management as this develops organizational competence, which is fundamental in their operations. The study is conducted to ascertain the knowledge infrastructure capability of selected private educational institutions in Batangas in terms of technology, structure, culture, and incentive. This study also intends to determine the relationship among knowledge management capabilities, organizational innovation and performance among selected private educational institutions in Batangas. Primary data were collected from a total of four hundred six surveys conducted to the administration and college faculty members of selected private educational institutions in Batangas. Four components were assessed under the organization's knowledge management process capability, namely: acquisition, conversion, application, and protection. Organizational innovation was examined in terms of process and technology innovation. Lastly, organizational performance was assessed in terms of financial, customer-related, internal business, and learning and growth. Results of the study state that selected private educational institutions in Batangas have high knowledge management process capability, organizational innovation and performance. The findings of this research also provide evidence that knowledge management capability has a positive significant relationship to organizational innovation and performance. The main conclusion that could be drawn from the study is that through focusing on an organization's knowledge management processes, private educational institutions could have the ability to innovate, thereby positively affecting its performance.*

Keywords – *employee learning and growth, knowledge capability, knowledge infrastructure, organizational structure, technology*

INTRODUCTION

Organizations are largely affected by factors on their business environment, which continually changes. Before the pandemic happened, the business environment is characterized by stiff competition among organizations while trying to satisfy the increasing and demanding customer and client satisfaction. However, these all changed due to the Covid-19 pandemic, which has turned the competition into one of survival. With limited business operations, organizations have been struggling to cope and adjust. The survival of any of these organizations depend on how they can adapt and adjust their business operations to external environment

changes. To cope up with these ordeals, organizations have been tapping on the use of knowledge as an important source of their value creation. As stated by Gonzales and Martins [1], organizations now consider knowledge as a key enabler of competitive advantage. Organizations may hold competitive advantages through continuously improving its products and enhancing its process innovation. Knowledge, as a vital resource, allows organizations to develop activities for improvement and innovation. Through knowledge management, an organization is able to generate solutions to their problems, improve their operational efficiencies and remain globally competitive.

Knowledge management promotes a social interaction culture where employees are able to freely exchange and utilize knowledge, skills and experiences throughout the organization. Knowledge network is built as employees learn to share their knowledge as well as accept information necessary to enhance their learning. Several studies have demonstrated [2]-[4] how essential knowledge management is because of the benefits an organization may derive from it. Knowledge management processes have enhanced innovation performance and likewise, reduced redundant learning efforts of the employees. This has thus contributed to increased employee learning and improved work performance. Employees are then able to provide better service to their customers. Knowledge management as a system enables knowledge to be generated and disseminated across all people in an organization. With knowledge being shared and managed in the organization, their operational costs and productivity are significantly improved. As stated by Merlo [5], the effective growth of business in today's competitive global world is connected to how an individual is able to capture, use, and share information and communication tools to produce knowledge. This enables individuals to make quick and sound decisions; fostering continuous learning and innovation.

Knowledge management is likewise vital to educational institutions because of how it helps improve their teaching, research, administration, and strategic planning. Utilizing knowledge management fosters both the individual and organizational development of an institution. Through the process of creating, sharing, applying and protecting knowledge, organizational innovation and performance of educational institutions are then enhanced. Thus, seeing its benefits and importance, educational institutions have been implementing and merging it in their operations and day to day functions.

The inevitability of changing environmental factors and situations dictate the imperative need for organizations to implement knowledge management. With the onset of rapid technological developments, shorter product life cycles, and customer sophistication, organizations have been utilizing knowledge to improve their innovation capability, which is regarded dependent to the former. Educational institutions are likewise confronted with similar problems. Educational institutions are facing increasing pressure from their various stakeholders to provide significant performance and outcomes, making them realize how knowledge management could help them improve on these aspects.

Despite the growing number of articles and researches about knowledge management, there is still a recognized gap since variables seem disconnected. The study seeks to determine the relationships among knowledge management capabilities, organizational innovation and performance among selected private educational institutions in Batangas. Knowledge management capabilities involve assessing the organization's knowledge infrastructure and knowledge process. The study of Cho [6] assessed knowledge infrastructure capability in terms of the following factors: technology, structure, culture, and incentives. These factors represent the infrastructural environment affecting how organizations perform knowledge management processes. The research intends to develop an integrated framework to model the probable relationship among the three variables.

Through the study, private educational institutions in Batangas may be able to improve their knowledge management processes, which would significantly impact the organization in terms of their management and productivity. More so, an improved knowledge management would make information widely available and accessible, improving private educational institutions' innovation capability and performance. Several studies have shown how innovation is dependent on an organization's available knowledge. Organizations should therefore focus on managing their knowledge to improve their innovation.

With rapid technological developments, the centrality of innovation to organizations cannot be dispelled. An organization's ability to manage their knowledge and increase their innovation capability has become an imperative requirement for all organizations to survive. The research could contribute in terms of imparting relevant and essential information so that private educational institutions could effectively manage and optimize their knowledge, enhance their innovation capability, and improve their organizational performance. Results of this study are deemed valuable in establishing and providing a strong evidence that knowledge management capabilities are essential in improving an organization's innovation and performance.

OBJECTIVES OF THE STUDY

The recent and still on-going Covid-19 pandemic has significantly challenged different organizations' survival and sustainability. Organizations aiming to achieve high business performance have identified that managing their knowledge can help them attain their goals. Knowledge,

as a vital resource, allows organizations to develop activities for innovation and improvement for their continued existence. The study aims to contribute to the field of knowledge management and provide relevant research on its application to enhance selected private educational institution's innovation and performance amidst the emerging business threats. Specifically, the research intends to achieve a number of objectives. The study is conducted to determine the knowledge infrastructure capability of selected private educational institutions in Batangas in terms of technology, structure, culture, and incentive. The knowledge management process capability of these institutions would also be assessed in terms of knowledge management acquisition, conversion, application, and protection. The study also aims to measure organizational innovation of selected private educational institutions in Batangas in terms of process innovation and technology innovation. Organizational performance will also be measured among the following aspects: customer-related, internal business, employee learning and growth and perceptual financial. The study will examine the differences of knowledge management process capability, organizational innovation, and performance when grouped according to knowledge management infrastructure capability. In addition, test of correlation will be conducted among the three variables: knowledge management process capability, organizational innovation, and performance.

METHODS

Research Design

Knowledge management has continuously grown as a research interest through the years because of its immense contribution for the organization. This study determines and conceptualizes how knowledge management impacts innovation and organizational performance of private educational institutions in Batangas. To do this, the research employed descriptive and quantitative research designs to address the objectives and to be able to formulate a model involving the variables of knowledge management, innovation, and organizational performance.

Participants of the Study

Primary data were collected from the survey conducted to the administration and college faculty members of selected private educational institutions in Batangas. Random sampling was utilized in determining the respondents of the study. To determine the sample size, the study used the sample size of 385, computed at Raosoft, with 99 % confidence level and 1% margin of

error. A total of 406 respondents were able to answer the survey instrument.

Research Instrument

The study used a modified survey questionnaire adopted from the study of Cho [6] and Abdou [7]. The survey was pilot tested and reviewed to ensure its validity and reliability. Based on the results of the reliability test, the survey questionnaire is valid and reliable. With a Cronbach Alpha of .933, questions under knowledge management infrastructure capability are excellent. Knowledge management process capability questions in terms of acquisition, conversion, application, and protection are also excellent with Cronbach Alphas of .922, .917, .946, and .947 respectively. Organizational innovation also passed the reliability test with a Cronbach Alpha of .893. For performance, customer-related aspect, internal business, and employee learning and growth questions are deemed excellent with the following Cronbach Alphas: .933, .927 and .956. Perceptual financial performance also passed the reliability test with a Cronbach Alpha of .855.

In order to achieve the research objectives, the survey questionnaire consisted of four parts: knowledge management infrastructure capability, knowledge management process capability, innovation, and organizational performance, was utilized. The items were measured using a four-point Likert scale, ranging from strongly disagree to strongly agree.

Data Gathering Procedure

The survey instrument was pilot tested during the third week of November 2019 to determine its validity and reliability. Revisions were done based on the results of the pilot test. A letter of approval was then sent to the Vice Chancellor for Academics and Research of the selected private educational institutions in Batangas to seek their permission about the study. After approval, the researcher proceeded with the data gathering by administering the survey to the employees. A google form was also sent to respondents should they opt to do it during their most convenient time. The instrument has a cover letter which explained to the respondents the purpose of the study. A consent form for the respondent was also attached to ensure their agreement and understanding about the survey. Participation in the study is voluntary thus, respondents may decide whether or not they will answer the survey questionnaire. They are also free to withdraw should they feel uncomfortable in answering the questions or if they feel that their privacy is affected. The research assures the confidentiality of the information shared by the

respondents. Responses are also presented in aggregate and no individual answers were shown. All information gathered were strictly used only for the purpose mentioned. Data gathering was done during the whole month of January until the second week of February 2020.

Data Analysis

Quantitative analysis was performed to test the differences of knowledge management process capability, organizational innovation, and performance when grouped according to knowledge management infrastructure capability. The statistical tools used to determine the test of difference were Analysis of Variance and Kruskal Wallis Test. To identify if any statistically significant differences exist, the Kruskal Wallis independent sample test was carried out. Spearman Rho was used to determine the correlation among knowledge management process, organizational innovation, and performance.

RESULTS AND DISCUSSION

Table 1. Knowledge Management Infrastructure in terms of Technology

Technology: My organization uses technology that allows ...	WM	VI	Rank
1. Employees to collaborate with other persons inside the organization.	3.45	A	1
2. Employees to collaborate with other persons outside the organization.	3.30	A	3
3. People in multiple locations to learn as a group from a single source or at a single point in time.	3.36	A	2
4. People in multiple locations to learn as a group from a multiple source or at multiple points in time.	3.26	A	4
5. It to map the location (i.e. an individual, specific system, or database) of specific types of knowledge.	3.19	A	5
Composite Mean	3.31	A	

Table 1 shows the knowledge management infrastructure of selected private educational institutions in Batangas in terms of technology. The ratings range from 3.19 to 3.45, with a composite mean of 3.31. The responses indicate that college faculty and the administration of private educational institutions agree that their respective organizations have technology suitable to facilitate the organization’s knowledge management processes. The respondents agree that their

respective organizations used technology that allows employees to collaborate with other persons inside the organization (3.45). They still agree that their organizations used technology that allows it to map the location like an individual, specific system, or database of specific types of knowledge (3.19) with the least mean score. Based on the results of the study, respondents agree that their organizations have high level of capability in terms of technology, which aids them to collaborate with people inside the organization. According to Andreeva and Kianto [8], technology is an integral aspect for an organization to successfully manage their knowledge processes. An organization’s technological infrastructure, composed of its hardware, software and processes, facilitates communication and information processing that is regarded essential in knowledge creation, storage, and transfer. As stated in the research, technology supports knowledge creation in terms of having new sources of knowledge and combining such in order to generate ideas that could improve work processes. Further, technology facilitates just in time learning by decreasing delay in knowledge sharing among members of the organization. Technology also acts as an effective channel of communication necessary in the organization’s process of knowledge application. Technology as a knowledge management infrastructure creates an environment that contributes to effective knowledge management processes. In order to facilitate its knowledge management processes, private educational institutions provide technology infrastructures relevant to their strategic direction. In order to strengthen its initiative of becoming a digital campus, De La Salle Lipa pursued improvements on its internet connectivity, data infrastructure, network security, and bandwidth management among others. Structured cabling, data center facilities, and network monitoring were also implemented to ensure successful execution of its knowledge management processes. The same is true for other selected private educational institutions in Batangas which also recognize the importance of having a strong technological support.

However, though respondents agree that their organization’s technology is able to map the location of their knowledge, it still got the lowest mean from the indicators presented. Technology provides assistance in order for organizations to create repositories of existing knowledge and enabling access to it by having directories and networks open for all organizational members. Through it, a platform is created where people could store and retrieve knowledge in the organization. As affirmed by Amir [9], databases are used by

organizations to transfer knowledge across departments. These systems are also responsible in collecting, storing, and sharing the organization's knowledge. Respondents on this study agreed on the importance of having an accessible and efficient system to successfully implement knowledge management. Further, as stated by employees, a user-friendly system encourages and supports employees to share their knowledge. However, results show that with the current organization's technology, employees have not yet fully maximized the use of technology in mapping the location of their knowledge.

Table 2. Knowledge Management Infrastructure in terms of Structure

Structure: My organization uses technology that allows ...	WM	VI	Rank
1. Structure of departments and divisions promotes interaction and sharing of knowledge.	3.41	A	1
2. Structure promotes collective rather than individualistic behavior.	3.34	A	4
3. Structure facilitates the discovery and creation of new knowledge.	3.36	A	2
4. Design processes facilitate knowledge exchange across functional boundaries.	3.31	A	5
5. Structure facilitates the transfer of new knowledge across structural boundaries	3.35	A	3
Composite Mean	3.35	A	

Table 2 shows the knowledge management infrastructure of selected private educational institutions in Batangas in terms of organizational structure. The ratings range from 3.31 to 3.41, with a composite mean of 3.35. The responses indicate that college faculty and the administration of private educational institutions in Batangas agree that their respective organizations have organizational structure that is designed to efficiently facilitate these knowledge management processes. All five items were found to score above the average mean, with the highest agreement on how the organization's structure of department and division promotes interaction and sharing of knowledge (3.41). The result is expected since these organizations are private educational institutions, which are highly engaged in knowledge interaction and sharing. They still agree that their organizations design processes to facilitate knowledge exchange across functional boundaries (3.31) with the least mean score. Though respondents still regard this indicator as high, this result implies that there may be limited knowledge exchange between and among

functional departments in private educational institutions. Exchange of information may only be limited to dissemination of information concerning policies among functional departments. In the study of Amir [9], organizational structure is identified to have a big impact in terms of distributing ideas and removing all barriers that hinder transfer of ideas. Organizational structure functions as a framework which allows knowledge to flow across the organization. Through it, ideas are effectively disseminated to people in the organization. It also helps create an organizational culture which supports and implements knowledge management. In so doing, individuals are encouraged to participate and share their knowledge with others, creating communication network to flow inside the organization.

Table 3. Knowledge Management Infrastructure in terms of Culture

Culture: In my organization...	WM	VI	Rank
1. Employees understand the importance of knowledge to corporate success.	3.46	A	2
2. Employees are encouraged to explore and experiment to enhance learning and expertise.	3.41	A	3
3. Employees are encouraged to interact with other groups and ask others for assistance when needed.	3.46	A	1
4. Employees are encouraged to discuss their work with people in other workgroups.	3.39	A	4
5. Senior management clearly supports the role of knowledge in our firm's success.	3.36	A	5
Composite Mean	3.42	A	

Table 3 shows the mean score for knowledge management infrastructure capability in terms of culture. The ratings range from 3.36 to 3.46, with a composite mean of 3.42. The responses indicate that college faculty and the administration of private educational institutions in Batangas agree that their respective organizations have a culture which promotes and influences people to perform knowledge management processes. This implies that respondents perceive organizations to have high knowledge management capability in terms of culture. With a weighted mean of 3.46, two statements that ranked number one involve their agreement in the aspect of how employees in the organization understand the importance of knowledge to corporate success and how they are encouraged to interact with other groups and ask

others for assistance when needed. However, they least agree on how the senior management clearly supports the role of knowledge into the firm's success (3.31). Though respondents still regard this indicator as high, this result implies that their senior management still has to establish strong visible support to college faculty members and administration in implementing their knowledge management activities.

Culture, defined as the set of shared values, attitude, and norms that prevails in the organization, is essential in developing the knowledge management environment in an organization. Organizational culture is deemed an important factor for organizations to be able to successfully implement knowledge management processes. By providing the overall environment for an effective knowledge management, the organization's capabilities can properly function and provide benefits. Amir [9] has reiterated its impact on improving the individual and organizational learning which then increases knowledge sharing between their members. No organization will attain success without an organizational culture which creates an environment of shared trust among its people. An open organizational culture which encourages activities related to knowledge sharing increases the efficiency of the employees. Participants of the study of Amir [9] strongly agreed that management commitment and support is necessary for an effective knowledge management implementation. As an initiator and supporter of knowledge management, top management must find methods to involve all the people. The study also pointed out that top management and support is an essential element of successfully implementing knowledge management. It has been reiterated that the role of top management goes beyond just being an initiator, but rather as a key provider of all the resources needed to mobilize knowledge management in the organization. According to Chumjit [10], organizational culture could be a factor that resists knowledge management implementation in universities. Successfully implementing knowledge management among universities will depend on the culture that they have. Therefore, knowledge sharing culture should be built based on their values, missions, goals, and strategies. Since the organization may have different subcultures existing within them, the organization must focus on having these three essential factors related to a sharing culture: trust, tolerance, and reward. Trust is established when individuals can freely share and transfer knowledge without fear that others will take credit for it or it will be used against them. Wahda [11] reiterated that organizations to be successful must

continually learn and face changes and challenges. Thus, the learning should be integrated into the culture of the organization. The activities and actions of organizational members must reflect the learning process. Once it strongly becomes part of the culture, capacity is expected to increase as well as performance. Such culture then makes the organization generate, utilize, and transfer knowledge efficiently.

Table 4. Knowledge Management Infrastructure in terms of Incentive

Incentive: In my organization...	WM	VI	Rank
1. Employees are rewarded for sharing knowledge with the firm or other co-workers.	3.14	A	5
2. Sharing knowledge enhances an employee's reputation and benefits one's career.	3.31	A	1
3. My supervisor or co-workers praise me because I share knowledge with them.	3.27	A	2
4. Good knowledge management behavior is monitored and built into the appraisal system.	3.18	A	3
5. Individuals are visibly rewarded for teamwork, knowledge sharing, and reuse of knowledge.	3.17	A	4
Composite Mean	3.21	A	

Table 4 shows the knowledge management infrastructure capability of selected private educational institutions in Batangas in terms of incentive. The ratings range from 3.14 to 3.31, with a composite mean of 3.21. The responses indicate that college faculty and the administration of private educational institutions in Batangas agree that their respective organizations provide incentives to promote their knowledge management processes. This implies that respondents perceive organizations to have high knowledge management capability in terms of incentive. With a weighted mean of 3.31, respondents highly acknowledge that sharing knowledge in their organization enhances their reputation and career. Private educational institutions provide incentives whenever organizational members engage in researches and paper presentations. They are also given recognitions honoring their active involvement in institutional research directives. Respondents still agree that employees are rewarded for sharing knowledge with the firm or other coworkers (3.14) with the least mean score. Though respondents still regard this indicator as high, private educational institutions could still work on improving financial and

non-financial incentives to encourage employees' active participation in knowledge management processes.

Reward programs are an important factor in motivating and encouraging people to participate in knowledge management processes [9]. Rewards could either be in the form of promotion, recognition, or financial incentives given to employees who played a role in the process. With promotions to be given to employees who share their knowledge, they would more likely be encouraged to participate in the process. This calls for organizations to be able to give intensive training and direction for employees so that they could be able to do their job better. Giving them rewards and recognition could convince them of the benefits and advantages of having the knowledge management system. As confirmed by the study of Amir [9], rewards are necessary to encourage knowledge management initiatives. Further, they also drive attitudes of workers to share more knowledge and foster relationships among colleagues. Such relationships enable easy transfer of knowledge among members, improving their work performance.

Table 5. Knowledge Management Process Capability of the Organization in terms of Acquisition

Acquisition: My organization ...	WM	VI	Rank
1. Has processes for acquiring knowledge about our clients. 3	3.29	A	5
2. Has processes for generating new knowledge from existing knowledge.	3.25	A	8
3. Uses feedback from projects to improve subsequent projects	3.25	A	7
4. Has processes for distributing knowledge throughout the organization.	3.32	A	2
5. Has processes for inter-organizational collaboration.	3.30	A	3
6. Has processes for acquiring knowledge about new products/services within the industry.	3.27	A	6
7. Has processes for acquiring knowledge about competitors within our industry.	3.21	A	10
8. Has processes for benchmarking performance.	3.33	A	1
9. Has teams devoted to identifying best practices.	3.25	A	9
10. Has processes for exchanging knowledge between individuals.	3.29	A	4
Composite Mean	3.28	A	

Table 5 shows the knowledge management process capability of selected private educational institutions in Batangas in terms of acquisition. With a composite mean of 3.28, respondents agree that private educational

institutions have processes to acquire knowledge from different sources. The ratings which ranged from 3.21 to 3.33 and the composite mean of 3.28 indicate that these institutions have high knowledge management process capability in terms of acquisition. College faculty members and the administration of private educational institutions make use of different tools for knowledge acquisition as supported by processes provided by their organizations. With a weighted mean of 3.33, respondents perceive that their organizations have processes for benchmarking performance. Further, to acquire knowledge and cultivate a learning culture, private educational institutions engage in various research and host research presentations in their organizations. However, they ranked the organization lowest in terms of having processes for acquiring knowledge about competitors in the industry. This is due to the fact that competitors are not opened to sharing crucial information since they are also exercising knowledge protection.

As stated by Imran et al. [12], knowledge acquisition is the most important element of the knowledge management process capability. This pertains to the ability of the organization to acquire knowledge within and outside the company to address their concerns and problems. Knowledge acquisition involves acquiring knowledge from internal and external sources. Internal sources include knowledge obtained from co-workers, students, management, or from the different units inside the organization etc. Knowledge can also be acquired outside of the institution especially with the aid of technology. Different databases and the internet provide an organization a huge volume of knowledge that is critical to success and improved performance [13]. Through knowledge acquisition process, new knowledge generated serves as a resource that enhances an organization's ability to gain competitive advantage. The importance of knowledge acquisition for companies is further validated by Sherwood et al. [14] by stating how essential the process is in creating and developing their productivity and innovation.

Table 6 shows the knowledge management process capability of selected private educational institutions in Batangas in terms of conversion. With a composite mean of 3.23, respondents agree that private educational institutions have processes to convert knowledge acquired from different sources into organizational strategies and action plans. The ratings which ranged from 3.15 to 3.30 and the composite mean of 3.23 indicate that respondents perceive these institutions to have high knowledge management process capability in terms of conversion.

Table 6. Knowledge Management Process Capability of the Organization in terms of Conversion

Conversion: My organization has processes for ...	WM	VI	Rank
1. Converting knowledge into the design of new services.	3.15	A	10
2. Converting competitive intelligence into plans of action.	3.17	A	9
3. Filtering knowledge.	3.21	A	7
4. Transferring organizational knowledge to individuals.	3.24	A	5
5. Absorbing knowledge from individuals into the organization.	3.21	A	6
6. Absorbing knowledge from business partners into the organization.	3.20	A	8
7. Distributing knowledge throughout the organization.	3.30	A	1
8. Integrating different sources and types of knowledge.	3.26	A	4
9. Organizing knowledge.	3.28	A	2
10. Replacing outdated knowledge.	3.28	A	3
Composite Mean	3.23	A	

The statement which ranked number 1 pertains to the organization having processes for distributing knowledge as shown by a weighted mean of 3.30. As an educational institution, it is important to have processes for distributing knowledge since that is the core of what their institutions do. As stated by Akpan [13], educational institutions are primarily charged with the responsibility of imparting knowledge to the students. Similarly, Charles and Nawe [3] affirmed the purpose of higher learning institutions to share knowledge among the academic community to nourish their core responsibilities. Educational institutions also perform a huge role in terms of distributing knowledge to the society. Their responsibilities are not only limited to production and storage of knowledge, but also in disseminating them so that others could utilize such information. Respondents ranked last the statement about the organization having processes for converting knowledge into the design of new services. This is because educational institutions have limited offering of new services as they are greatly focused on teaching as a core service.

Knowledge management provides different benefits to higher educational institutions' processes in terms of their curriculum development, research, student services, operations, and strategic management. As stated by Pinto [15], one common challenge in knowledge management process of educational institutions lies in the difficulty to convert knowledge and making it widely available for other organizational members. Knowledge conversion can take several forms such as socialization, externalization,

internalization, and combination [13]. Socialization is a form of knowledge conversion which involves sharing of experiences and different learning processes in the educational institution. Socialization involves practices that are linked to different school activities like discussions, meetings, conferences, seminars, workshops, and trainings. Meanwhile, externalization occurs when tacit knowledge is converted to explicit knowledge. This is done when educational institutions require employees to document and evaluate seminars, workshops or trainings that they have attended. Knowledge conversion also happens through combination, through which an educational institution collects information inside and outside the organization and processes them to create new knowledge.

Table 7. Knowledge Management Process Capability of the Organization in terms of Application

Application: My organization ...	WM	VI	Rank
1. Applies knowledge learned from experiences and mistakes.	3.28	A	9
2. Uses knowledge in development of new products/services.	3.29	A	6
3. Uses knowledge to solve new problems.	3.32	A	3
4. Matches sources of knowledge to problems and challenges.	3.34	A	2
5. Uses knowledge to improve efficiency.	3.36	A	1
6. Uses knowledge to adjust strategic direction.	3.31	A	4
7. Is able to locate and apply knowledge to changing competitive conditions.	3.29	A	7
8. Makes knowledge accessible to those who need it.	3.31	A	5
9. Quickly applies knowledge to critical competitive needs.	3.27	A	10
10. Quickly links sources of knowledge in solving problems.	3.29	A	4
Composite Mean	3.31	A	

Table 7 shows the knowledge management process capability of selected private educational institutions in Batangas in terms of application. With a composite mean of 3.31, respondents agree that private educational institutions have been applying and utilizing knowledge that they have generated in improving their operations. The results indicate that respondents perceive the selected private educational institutions to have high knowledge management process capability in terms of application. Agawin et al. [16] had similar results in their study entitled "Knowledge Management Practices in Private Higher Educational Institutions in the Philippines." Respondents in their study agreed on all

statements pertaining to knowledge application. As determined in their study, private educational institutions are practicing knowledge application to enhance their knowledge and promote organizational innovation.

With a weighted mean of 3.36, selected private educational institutions use knowledge to improve efficiency. However, with a composite mean of 3.27, respondents rank the lowest the statement about how an organization quickly applies knowledge to critical competitive needs. Knowledge, as one of the most important intangible assets of the company, provides a strategic value for the organization. Private educational institutions may utilize it as a resource in achieving their goals, which can only happen with an effective knowledge management process. As stated by Wahda [11], knowledge management can add value when organizations are able to apply their knowledge to further improve their products and services. The study of Fiscal [17] agreed with the results of the study indicating the contribution of knowledge application in improving higher educational institutions' processes. Through knowledge application, the organizations are able to come up with best practices on teaching, research, and curriculum, etc.

Table 8. Knowledge Management Process Capability of the Organization in terms of Protection

Protection: My organization ...	WM	VI	Rank
1. Protects knowledge from inappropriate use inside the organization.	3.25	A	5
2. Protects knowledge from inappropriate use outside the organization	3.24	A	6
3. Protects knowledge from theft from within the organization.	3.28	A	1
4. Protects knowledge from theft from outside the organization.	3.28	A	2
5. Has incentives that encourage the protection of knowledge.	3.13	A	10
6. Has technology that restricts access to some sources of knowledge.	3.22	A	8
7. Has extensive policies and procedures for protecting trade secrets	3.22	A	7
8. Values and protects knowledge embedded in individuals	3.25	A	4
9. Clearly identifies restricted knowledge.	3.22	A	9
10. Clearly communicates the importance of protecting knowledge	3.27	A	3
Composite Mean	3.23	A	

Table 8 shows the knowledge management process capability of selected private educational institutions in Batangas in terms of protection. With a composite mean of 3.23, respondents agree that private educational institutions protect their knowledge from inappropriate use or theft within and outside the organization. The composite mean of 3.23 indicates that selected private educational institutions have high knowledge management process capability in terms of protection. With a weighted mean of 3.28, respondents rank number one the organization's efforts to protect knowledge from theft within the organization. Different organizational units within the selected private educational institutions have processes to ensure protection of their knowledge from being accessed by different persons inside the company.

However, the organizations do not have much incentives offered for their members in line with protecting their knowledge assets. This is denoted by a weighted mean of 3.13, which is the lowest among knowledge management process capability in terms of protection. The study of Fiscal [17] had similar results, with knowledge protection having the lowest weighted mean among the processes. The result is backed up with the related literature of the study of Fiscal [17], which confirmed that knowledge management security is the least priority of the organization.

Table 9. Organizational Innovation in terms of Process

Process	WM	VI	Rank
1. The organization has clear and specific process of innovation development.	3.28	A	1
2. Service process approach changes at a great speed in comparison with competitors.	3.17	A	5
3. The nature of delivery process in the company is always ahead compared with that of competitors.	3.27	A	2
4. The organization encourages the use of process innovation to understand the information of customers, suppliers, and competitors.	3.27	A	3
5. The organization continues to import new ways of management and knowledge to keep its flexibility.	3.27	A	3
Composite Mean	3.24	A	

Innovation pertains to improvements in the processes of the organization, which could be seen in the development of their service, strategy, procedures, or

technology. Table 9 presents the process innovation of the selected private educational institutions in Batangas. With a composite mean of 3.24, respondents agree that the organizations have been doing process innovations. The results imply that selected private educational institutions have high organizational innovation in terms of process. With the highest mean score of 3.28, respondents agree that their organization has a clear and specific process of innovation development.

This denotes that selected private educational institutions follow an innovation development plan which organizational members clearly understand. Having a well-organized innovation plan and strategy will benefit education as a system. However, with a weighted mean of 3.17, respondents agreed least on the statement pertaining to how the institution’s service processes change at a great speed compared to competitors.

Innovation is the transformation of knowledge that the firm possesses into new products and services, that brings about significant changes in existing processes of the organization [18]. Researches indicated that one positive effect of innovation is better firm performance leading to increase in demand and greater profits for the company. Innovation among educational institutions aims to introduce novelty in the services they provide to their customers. Innovation in education is seen as a departure from traditional practices and making novel changes in their educational policies, curriculum design and implementation, and pedagogical orientation among others. Among the types of innovation that organizations have been doing include one which improves their pedagogy. Private educational institutions have been changing their teaching styles and the educational process itself to make it more fit to current industrial demands. Innovations on methods are likewise being done by reorganizing their curriculum and updating the programs to make it at par with the best local and foreign counterparts.

Table 10 shows the organizational innovation in terms of technology of selected private educational institutions in Batangas. According to Nguyen and Gregar [19], organizational innovation could be seen in terms of how the company adopts new ideas in order to improve their processes. New elements in their operations are also introduced, thus making an impact on their operations. With a composite mean of 3.28, respondents agree that the organizations have been consistently adapting to technological changes and taking it as an opportunity to improve on their services. Results imply that selected private educational

institutions have high organizational innovation in terms of technology.

Table 10. Organizational Innovation in terms of Technology

Process	WM	VI	Rank
1. There is rapid change in technology in the organization.	3.31	A	1
2. The changes in technology has provided huge opportunities in the organization.	3.29	A	3
3. The technological breakthroughs in the organization have made a big change in the processing of information.	3.31	A	2
4. The organization can offer fast service to customers because of technological innovation.	3.28	A	4
5. The company has improved its internal communication efficiency because of innovation.	3.25	A	5
Composite Mean	3.28	A	

Respondents agree that there is a rapid change in technology in the organization with the highest mean score of 3.31. Educational institutions are not spared from confronting technological advancements. The rapidly changing technology and increasing use of digital devices have immensely shifted the role of educational systems. Hence, this has led to organizations making innovations on their educational design and delivery. Respondents agreed least that the company has improved its internal communication efficiency because of innovation (3.25) with the least mean score. Though educational institutions have been investing heavily in their information and communications technology, respondents perceive that they have yet to fully utilize it to improve their internal communication.

Otara [20] described how the economic environment of today has been compelling educational institution to develop innovative ways in order to deliver quality services. Through technical innovation, organizations are able to attain competitive advance and achieve business sustainability [19]. Among the developments that educational institutions have been doing include integration of collaborative learning and educational technologies. An example of how institutions have catered to technological demands is through strategically pushing for a flexible learning option such as the Learning Management Systems (LMS). This learning technology system has provided educational institutions with a new and an unconventional way to improve work

efficiency, lower operational costs, and achieve organizational goals and objectives. The application of technology has thus increased academic mobility for both faculty and students. As part of its strategic direction, De La Salle Lipa acquired Canvas as its Learning Management System (LMS) platform. Similarly, Lyceum of the Philippines Batangas has the application Moodle as its platform. Selected private educational institutions in Batangas clearly realized how challenging the need for innovation in education is. When educational institutions are reluctant to change, serious problems may result and affect future economic growth and social progress because educational institutions produce human capital necessary for the transformation of society.

Table 11. Organizational Performance in terms of Customer-related Aspect

Customer-related aspect: In my organization ...	WM	VI	Rank
1. The quality and number of services that we provide has improved.	3.27	A	7
2. The number of services that we provide has improved.	3.27	A	6
3. The type of services that we provide has improved.	3.26	A	8
4. The number of people who are using our services has increased.	3.31	A	1
5. The demand for the services that we provide has increased	3.28	A	4
6. Our services are considered leaders in the market.	3.28	A	3
My organization ...			
7. Consistently meets the expectations of our customers.	3.20	A	10
8. Takes actions to learn what are the services that customers need.	3.24	A	9
9. Has established a fine reputation due to our services.	3.28	A	4
10. Introduces innovative and unique functional services more often than our competitors.	3.31	A	2
Composite Mean	3.27	A	

Performance is the extent to which an organization is able to achieve its defined targets that are congruent to its mission. Customer-related performance refers to an organization's achievement in terms of satisfying the expectations of its customers by providing quality goods and services among others. Table 11 shows the result for customer-related aspect of organizational performance of selected private educational institutions. The composite mean of 3.27 indicates the agreement of the respondents on the indicators pertaining to customer-related performance of the organizations. Based on the

result, selected private educational institutions have high organizational performance in terms of customer-related aspect. Respondents agree that the number of people availing the services of educational institutions have increased (3.31). With a weighted mean of 3.20, respondents ranked the organization lowest in terms of consistently meeting the expectations of the customers. Organizations are confronted with the challenge of satisfying customers who have high service expectations of them given the rising cost of education. Thus, private schools should consistently enhance their customer value proposition by strengthening their core services and ensuring that these are what their customers want. Yoram Kalman, as cited by OECD ^[19], reiterated that private educational institutions need to understand customer needs by creating customer value so they would be choosing their organization over the others.

Private educational institutions have increasing concerns to exceed customer expectations because of the changing landscape of the education system. In the past, private schools were seen as totally more prestigious, providing higher quality of education than the state-owned ones. However, government universities and colleges have kept up with the trend by improving course offerings and quality education at minimal student fees. Having valid educational options for students now, private schools have been focusing on their customer-related aspect of performance. Private schools attempt to establish customer satisfaction by improving their infrastructures in terms of buildings, classrooms, equipment, and technology. Similarly, processes of serving customers are made efficient to increase their satisfaction.

Table 12 shows the result for organizational performance of selected private educational institutions in terms of internal business. Internal business performance reveals metrics on how organizations are able to execute their internal processes. The composite mean of 3.24 indicates the agreement of the respondents on the indicators pertaining to internal business performance of the selected private educational institutions. The results imply high organizational performance of selected private educational institutions in the aspect of internal business. The organizations are constantly attempting to improve their brand recognition, as presented by a weighted mean of 3.36. Respondents ranked the organization's performance least in lieu of spending more resources on research and development than competitors. One reason for this is because an organization may have little to no information at all regarding their competitor's resource allocation.

Table 12. Organizational Performance in terms of Internal Business

Internal Business: My organization ...	WM	VI	Rank
1. Has improved our planning processes.	3.27	A	4
2. Has improved our quality control processes.	3.24	A	7
3. Has improved our service delivery processes.	3.25	A	6
4. Has developed policies and procedures to increase customer satisfaction.	3.28	A	2
5. Consistently follows service quality protocols	3.27	A	4
6. Introduces more new services than our competitors.	3.27	A	3
7. Has better Research and Development cycle time for services than our competitors.	3.18	A	8
8. Receives less customer complaints than our competitors.	3.17	A	9
9. Is spending more resources on R&D than our competitors.	3.15	A	10
10. Constantly attempts to improve our brand recognition.	3.36	A	1
Composite Mean	3.24	A	

According to Dotong and Laguador [22], the primary goal of educational institutions includes providing quality products and services. In such pursuit, educational institutions strive to integrate it into their mission and vision and ensure that it is communicated from top to the bottom of the organization. Private educational institutions also try to increase their internal business performance through pursuing quality and excellence by working on different accreditations. Achieving high performance has always been one of the main objectives of educational institutions. With this, organizations attempt to improve their planning, quality control, and service delivery processes.

Table 13 presents the result for organizational performance of selected private educational institutions in terms of employee learning and growth. The indicators focus on how the organization is able to cultivate learning and knowledge among their employees, enabling them to support their strategic goals. The composite mean of 3.37 denotes the agreement of the respondents on the indicators pertaining to employee learning and growth performance of the selected private educational institutions.

Table 13. Organizational Performance in terms of Employee Learning and Growth

Employee learning and growth: In my organization ...	WM	VI	Rank
1. My job is directly related to our mission.	3.49	A	1
2. My job is satisfying.	3.32	A	7
3. My job gives me a sense of accomplishments.	3.39	A	4
4. In a normal work week, I receive enough information to perform my job.	3.38	A	5
5. I have enough information to make optimal decisions to accomplish my performance objectives.	3.38	A	6
6. I have clear performance objectives.	3.41	A	2
7. I am very productive on the job.	3.41	A	3
8. The training programs are provided which I need to meet my job requirement.	3.29	A	9
9. Training programs are conducted that are linked to organizational goals and objectives.	3.32	A	8
10. Necessary equipment/tools are provided to accomplish my performance objectives.	3.29	A	9
Composite Mean	3.37	A	

The results imply high organizational performance of selected private educational institutions in the aspect of employee learning and growth. With a weighted mean of 3.49, respondents perceive that their jobs are related to their mission. They still agree that the organization provides training programs which meet their job requirements and necessary equipment and tools are given to accomplish their performance objectives (3.29) with the least mean score. In this regard, employees feel that the organization could still do more in terms of providing them sufficient trainings and according them with specific equipment and tools. Employee development is an important component of any educational institution's growth and success. Without them, any organizational effort for improvement will likely fail since employees may not be much committed to it.

Table 14 presents the result for organizational performance of selected private educational institutions in terms of perceptual financial aspect. The indicators include perception of respondents on financial aspects such as resource utilization, net income, enrolment and market value. The composite mean of 3.26 denotes the

agreement of the respondents on the indicators pertaining to perceptual financial aspect of the selected private educational institutions.

Table 14. Organizational Performance in terms of Perceptual financial aspect

Perceptual financial aspect:	WM	VI	Rank
1. The resources had improved its utilization.	3.25	A	2
2. I believe that the net income has increased.	3.24	A	3
3. The enrolment has increased.	3.20	A	4
4. The institution's market value has increased	3.33	A	1
Composite Mean	3.26	A	

The results imply that respondents perceive that selected private educational institutions have high financial performance. The respondents have the highest agreement on the indicator which states that there was an increase in the institution's market value. Market value is one of the most important competitive advantage of an educational institution. The result shows that private educational institutions in Batangas have achieved significant market value as perceived by the respondents. However, with the weighted mean of 3.20, the organization is ranked least in terms of increase in enrolment. Respondents perceived this least because there was lesser college enrolment in the past years due to the enactment of the K to 12 program. Moreover, adding Grade 11 and Grade 12 to basic education has led to the rising cost of education, negatively affecting college enrolment.

Significant Difference on knowledge management process capability, organizational innovation, and performance when grouped according to Knowledge Management Infrastructure

There is a significant difference on knowledge management process capability, organizational innovation, and performance when grouped according to level of knowledge management capability in terms of Technology as denoted by the computed p-values of less than 0.01 alpha level. Results showed that those with a very high level of knowledge management capability in terms of technology have significantly higher knowledge management process capability, organizational innovation, and performance. The result is in agreement with the study of Ruiz-Jiménez and María (2013) which stated that organizations with high knowledge capability are able to encourage innovation and likewise, improve their performance. Technology is an essential factor in

establishing knowledge management processes in an organization. Kammani et al. [23] enumerated the different benefits organizations may get from effectively using technology. Through technology, knowledge and expertise are created and disseminated across different organizational units. Having effective knowledge management processes also increase productivity, accelerate innovation, improve decision making, and enhance organizational performance.

There is a significant difference on knowledge management process capability, organizational innovation, and performance when grouped according to level of knowledge management infrastructure capability in terms of Structure as denoted by the computed p-values of less than 0.01 alpha level. Results showed that those respondents with a very high level of knowledge management infrastructure capability on their respective institutions in terms of structure have significantly higher knowledge management process capability, organizational innovation, and performance compared to those with lower structure level.

Organization structure affects knowledge management [24]. A less centralized organizational structure creates better interaction among the employees to engage in knowledge management processes. Since structure encourages communication, there are more opportunities for organizational members to acquire and share new knowledge. Management support also affects an organization's level of knowledge management. Employees are more likely to participate in the process if management support is felt. This increases employee commitment, positively affecting their motivation to perform knowledge management processes. Thus, an organization with a high level of knowledge management capability in terms of structure has increased level of knowledge management process. Several studies have already demonstrated the contribution of knowledge management in the ability of the organization to innovate. As stated by Ruiz-Jiménez and María [25], knowledge capability is a requisite for innovation and success.

There is a significant difference on knowledge management process capability, organizational innovation, and performance when grouped according to level of knowledge management infrastructure capability in terms of Culture as denoted by the computed p-values of less than 0.01 alpha level. Results showed that those respondents with a very high level of knowledge management infrastructure capability on their respective institutions in terms of culture have significantly higher knowledge management process

capability, organizational innovation, and performance compared to those with lower culture level. Culture is said to affect knowledge management process of organizations. Different studies have pointed out the strong link between culture and knowledge management. It could either strengthen or weaken an organization's knowledge management. A culture which establishes trust and learning could highly encourage organizational members to share their knowledge among one another. Private educational institutions with a knowledge intensive culture diligently practice knowledge management processes. Organizations need a continuous learning culture if it is to survive different business challenges. As stated by Charles and Nawe [3], knowledge management increases innovation as knowledge is the organization's source of new ideas.

There is a significant difference on knowledge management process capability, organizational innovation, and performance when grouped according to level of knowledge management infrastructure capability in terms of Incentive as denoted by the computed p-values of less than 0.01 alpha level. Results showed that those respondents with a very high level of knowledge management infrastructure capability on their respective institutions in terms of incentive have significantly higher knowledge management process capability, organizational innovation, and performance compared to those with lower incentive level. Dermal [26] stated that incentives influence knowledge management processes of the organization. Rewards and incentives play a factor as to how knowledge flows within the organization. Thus, it was reiterated that it should be structured to motivate workers to participate in the process. Improving an organization's knowledge management increases their innovation and performance as well.

Correlation Matrix among the Three Major Variables

The changing education landscape has significantly affected the operations of all educational institutions. To cater to increasing complexity of customer demands and satisfaction, organizations have been improving their knowledge management processes, as it is said to significantly enhance their innovation and performance as well. As the results of the study show, there is a positive significant relationship between the knowledge management process and organizational innovation and performance as indicated by the computed p-values of less than 0.01 alpha level. This signifies that those institutions with higher level of knowledge management

process are also institutions with higher organizational innovation and performance. There is also a significant relationship between Organizational Innovation and Organizational Performance as denoted by the computed p-values of less than 0.01 alpha level.

Dynamic and transformational changes in the business environment have forced educational institutions to enrich their knowledge to enhance organizational innovation and performance. Updated knowledge brings about improved operational processes that reduce an organization's uncertainties, risks, and costs. Knowledge management process capability is considered a critical element to improving a firm's innovation and performance. As stated by Ma [27], an organization's process of acquiring, processing, renewing, and storing knowledge is an essential factor of innovation. In support of the results, the study of Laith and Hassan [28] concluded that knowledge management strategies are important in enhancing innovation and improving organizational performance. A significant positive relationship is also said to exist among the three variables namely: knowledge management strategies, innovation, and organizational performance. The study of Nguyen and Gregar [19] also had similar deduction with regard to the relationship of knowledge management and innovation. Knowledge management is found to be directly associated with innovation. Likewise, higher educational institutions can improve organizational performance through performing knowledge management activities directed to enhance their innovation.

CONCLUSION AND RECOMMENDATION

Knowledge management capability is assessed in terms of an organization's knowledge infrastructure and knowledge management process. Knowledge management infrastructure is determined by assessing the organizational infrastructural environment of selected private educational institutions in terms of technology, structure, culture and incentives. The results of the study reveal that selected private educational institutions have high capability in all four aspects. As perceived by respondents, selected private educational institutions have the highest capability in terms of culture and the lowest capability in terms of incentives.

Knowledge management process capability focuses on four processes, namely knowledge acquisition, knowledge application, knowledge conversion and knowledge protection. In terms of knowledge management process capability, results state that respondents highly agree that selected private

educational institutions are performing the processes of knowledge acquisition, conversion, application and protection.

Results on selected private educational institutions' organizational innovation reveal high process and technology innovation. The results denote that selected private educational institutions are well-prepared with innovation development plans despite rapid changes in their environment.

Selected private educational institutions in Batangas have high organizational performance in terms of customer-related aspect, internal business, employee learning and growth and perceptual financial aspect. Selected private educational institutions have the highest rating on organizational performance in terms of employee learning and growth. Respondents rate the organization lowest in the aspect of internal business.

There is a significant difference on knowledge management process capability, organizational innovation and performance when grouped in terms of technology, structure, culture and incentives. This denotes that those respondents with very high level of knowledge management capability on their respective institutions in terms of technology, structure, culture and incentive have significantly higher knowledge management process capability, organizational innovation and performance compared to those with lower level of knowledge management capability.

Based on the result of the study, a positive significant relationship exists between knowledge management process capability and the organizational innovation and performance. Institutions with higher level of knowledge management process capability have higher organizational innovation and performance. Similarly, there is also a significant relationship between organizational innovation and performance.

The study shows that the knowledge management process has positive significant relationship to organizational innovation and performance. The findings indicate that focusing on knowledge management processes enhances a firm's innovative capability and performance. Thus, the results provide significant implications for organizations in terms of how they can fully utilize knowledge management towards achieving their organization's goals.

It is recommended to improve the knowledge management process, organizations must focus on enhancing its knowledge management infrastructure such as technology, structure, culture, and incentive. They must strengthen their knowledge infrastructure capability in order for the knowledge management

process to support innovation and performance. New technologies and applications have increased the ability of private educational institutions to capture, utilize, and transfer knowledge among organizational members. The improved knowledge network has allowed employees to enhance their work performance, thus increasing innovation and performance. It is then recommended for private educational institutions to consistently improve their technological infrastructure so there could be no disruptions in work processes that utilize technology.

The organization should also offer increased incentives, rewards, and training programs to encourage practice of knowledge management processes. A well-structured reward program further motivates employees to share knowledge among their colleagues, which in turn enhances the overall work performance of the unit and the organization.

With innovation being a driver of competitive advantage, top management should be open to accept innovative ideas and support its execution. The organization should continually create a culture where knowledge could be harnessed and further developed. In order to establish such culture, the organization should design programs and policies to foster knowledge management processes. Mentorship programs and cross-functional training should be encouraged so that it could become an integral part of their functions.

Private educational institutions must create knowledge sharing processes that draw on the learning of individuals and groups. The management of these institutions must stimulate generation of ideas by providing avenues such as activities, seminars, and training that may impart new learning and information among organizational members. Since employee commitment is a crucial aspect of organizational success, private educational institutions must further involve and engage everyone in different knowledge management processes.

The results imply that organizations should manage their knowledge to improve innovation and performance. This means that private educational institutions must realize that all knowledge processes are equally important. Private educational institutions must learn how to efficiently acquire, utilize, transfer, and protect knowledge so they could fully capitalize on the benefit that it brings. Barriers hindering effective knowledge management must also be identified so private educational institutions could work on lessening its impact to better facilitate the processes.

Organizations should properly create, organize, and manage knowledge repositories so people could easily

access and learn from them. As results imply, there is still a need for organizations to properly utilize gathered knowledge.

The organization may also establish a central management office that would handle implementation of knowledge management (KM) initiatives and processes. Through forming a team composed of identified knowledge management champions from different departments, the organization can effectively assess and protect valuable knowledge necessary to improve their innovation and performance. The said office will also be tasked with effective dissemination of knowledge across organizational units in order to enhance business processes.

For future studies, researchers may choose to widen the locale of the study by considering local or government universities. It will be another point of reference to determine whether state-owned colleges or universities have the same responses as that of the private ones. The researcher could analyze the reason if there are any differences between the two.

Future studies might also include determining how other organizational factors influence the knowledge management process. Research involving other stakeholders, aside from management and employees, may also be done to determine their perception on the knowledge management process, organizational innovation, and performance. Future research may also consider how the external environment impacts the said variables.

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