

Guidelines for the Development of the Efficiency of the Teamwork of Personnel of King Mongkut's University of Technology North Bangkok Rayong Campus

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Abstract

The objectives of this research were to study 1] The teamwork efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus. 2] Teamwork component of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus. 3] Related Factors affecting the team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus. 4] Development guidelines of the team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus.

This was quantitative research and the population that answered the questionnaire consisted of 236 persons who work at the King Mongkut's University of Technology North Bangkok Rayong Campus, chosen through purposive sampling. The data was obtained from the questionnaire form. The data were analyzed using frequency, percentage, mean, standard deviation and structural equation model method.

The results showed that 1] The team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus was at a high level ($\bar{x} = 3.88$, **S.D.** = 0.770). 2] There are 4 components in the teamwork model of the personnel of the King Mongkut's University of Technology North Bangkok Rayong Campus comprises Leader, Member, Task and System and in general attitude on these were at a high level ($\bar{x} = 3.93$, **S.D.** = 0.594). 3] Related factors affecting the team's efficiency of the King Mongkut's University of Technology North Bangkok Rayong Campus were at a high level ($\bar{x} = 4.05$, **S.D.** = 0.737). 4] Development guidelines of the team's efficiency of the personnel of the King Mongkut's University of Technology North Bangkok Rayong Campus were training and workshop. Related factors have a direct effect on team efficiency can create a regression equation as a following; $Z = .349Z_{\text{Process}} + .264Z_{\text{Context}} + .186Z_{\text{Composition}} + .144Z_{\text{Work design}}$. Teamwork components have a direct effect on team efficiency can create a regression equation as a following; $Z = .545Z_{\text{Leader}} + .345Z_{\text{Members}} + .279Z_{\text{System}} + .230Z_{\text{Work design}}$

Keywords: team's efficiency; teamwork component; development process

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Introduction

Nowadays, teamwork is an important factor affecting the success of any organization. Especially the management process that must focus on the participation of all personnel because when the cooperation in the work of the personnel. Such as this creates a good working environment and promotes work processes to be more efficient. It can help an organization achieve its objectives finally. Teamwork can help an organization get a new concept from members' different skills and experiences. This may lead to creating innovations in the organization (Sayadpanit, 2020).

The development of information technology makes any organization has a more complex structure. So, it is necessary to operate systematically. At present, the operation of any organization must have a relationship with another organization too. This led to the adoption of teamwork principles and styles. To build a strong team and let all personnel see the importance of working together as a team (Paoart, 2016). Many people believe teamwork will help the organization succeed in their work. Besides, organizations need to constantly improve from the point of policy, work characteristics of personnel development management process, and the attitudes of the operators. This is for business organizations to survive and grow under rapidly changing economic, social, political and religious conditions (Pethtongkum, 2008). Teamwork is a working process of people with different knowledge and skills in an organization. We can say that each person will have a different cost of knowledge, ability, or human capital.

King Mongkut's University of Technology North Bangkok Rayong Campus is an educational organization consisting of many personnel with different human capital. Therefore, to work efficiently, it is necessary to develop the human capital of internal personnel as well. Researchers recognize the importance of working as a team and the importance of human capital affecting teamwork. So, research was conducted to study the current teamwork efficiency of personnel of King Mongkut's University of Technology North Bangkok Rayong Campus and study the elements of teamwork and factors affecting the team's efficiency of the personnel and study on development guidelines of the team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus too.

The objectives

- 1] To study the teamwork efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus.
- 2] To study the teamwork component of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus.
- 3] To study the related factors affecting the team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus.
- 4] To study the development guidelines of the team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus.

Literature Reviews

This research has reviewed the theories that concern the following;

Concept and theory of development

The concept of development is the first part of theory development. Concepts are linked together and form hierarchical, compositional, and functional (Kiikkala I. 1994). In this article, development means to make something to be better than the last time or change in a more prosperous way (Royal Institute Dictionary, 1995). Human resource development is very important to the development of the organization. There are several methods of development e.g. training, seminar, and on job training etc. However, in the development, there are many factors involved. The results of Kaewkhao (2018) found, that factors influencing human

resource development of the Department of Agricultural Extension, Ministry of Agriculture and Cooperatives comprises cognitive-behavioural science support of senior management performance of key human resource management functions and technological advancements. And Guidelines for human resource development include individual human resource development planning, career advancement planning, and budget allocation for sufficient human resource development. While N.M. Al-Sayyed. (2014) found, that the most important internal and external factors affecting human resource development are leadership style, employee commitments and motivation, demographic characteristics, labor unions, and governmental laws and regulations.

From this concept, factors affecting human resource development comprise leadership style, employee commitments and motivation, demographic characteristics, cognitive-behavioural science, support of seniors, management performance of key human resource management functions and technological advancements.

Concept of efficiency

Efficiency is the (often measurable) ability to avoid wasting materials, energy, efforts, money, and time in doing something or in producing the desired result. In a more general sense, it is the ability to do things well, successfully, and without waste. Efficiency is thus not a goal in itself. It is not something we want for its own sake, but rather because it helps us attain more of the things we value" (Stone Deborah, 2012). In more mathematical or scientific terms, it signifies the level of performance that uses the least amount of inputs to achieve the highest amount of output. It often specifically comprises the capability of a specific application of effort to produce a specific outcome with a minimum amount or quantity of waste, expense, or unnecessary effort (Sickles, R., and Zelenyuk, V., 2019). Efficiency refers to very different inputs and outputs in different fields and industries. Therefore, efficiency refers to the quality or level of efficiency in any operation. It's about managing the same resources and time for maximum benefit.

Concept of teamwork

In good teamwork, team members must work together where everyone on the team has to put their thoughts, energy, and energy for the job or the success of the job by not being considered as the work of one's only. A good team should create a trusting work environment, trust and relationship with each other which leads to love and unity among the group. Good teamwork should have a good management system or team management with quality members who can work and are responsible for their duties and have effective team leaders with good leadership qualities (Panyaroj, 2012).

There are four key components of teamwork: leader, member, task, and system. That the leader must have good attributes and leadership. That means intelligent, mature, reasonable, motivated to succeed, have good human relations, get along well with members or colleagues, be friendly, compassionate, selfless, and adhere to human relations principles. Besides, Robbins (2001) explained that 4 key factors contribute to effective teamwork: process, resources and context, composition and work design as follows:

1] Process: In the process, there are factors related to the effectiveness of the team as follows;

- Social loafing: It is the behavior of people within the group who prefer to avoid working when working with others. This is to take advantage of other colleagues who work hard and do not use their efforts to benefit the group.

- Team efficacy: This thing means the team's confidence in the ability to succeed in the job (Kritchouw,2020).

- Specific goals: A successful team must be able to translate common objectives into specific, practical goals and measurable and realistic. Such as this, can help to increase performance.

- Common purpose: To be effective a team must have common objectives. This will help to set the direction and help build the strength and engagement of the members. The objective here is a vision.

- Conflict levels: In this item can explain conflicts that arise within the team are not corrupt. Because if any team has no conflict at all, there will be delays and no enthusiasm. However, the conflict should be at an appropriate level.

2] Context: Resources and environmental or contextual influences contribute to an effective team. The context comprised the climate of trust, performance evaluation and reward systems, leadership and structure, and adequate resources.

3] Composition: This component comprises personality, member flexibility, diversity, abilities of the member, member preferences, size of teams, and allocating roles.

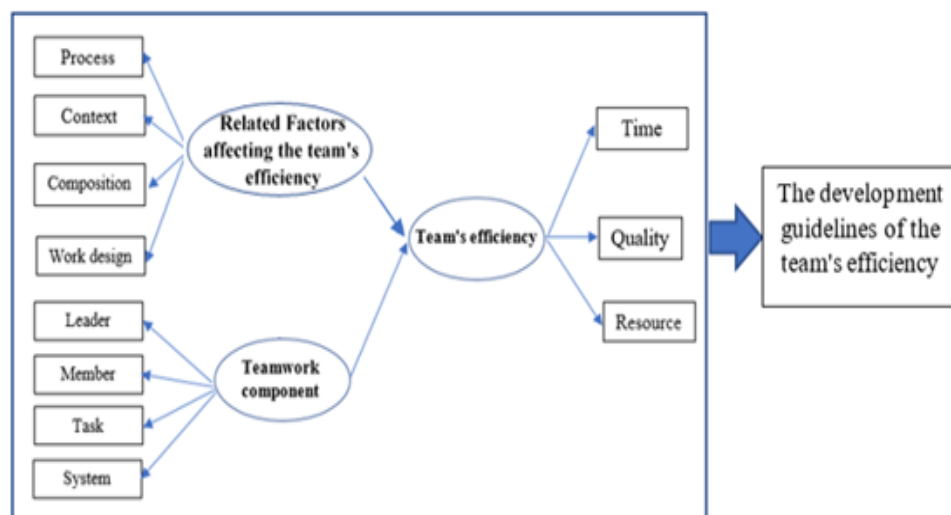
4] Work design: Design is important, taking variables such as freedom into account. and freedom to work with opportunities to use skills and knowledge of various abilities. The formatting of the event can be motivating because it gives members a greater sense of responsibility (Nopporn,2021).

Conceptual Framework

From literature reviews, the researcher creates a conceptual framework as a figure 1;

Figure 1: Conceptual Framework

Hypothesis



H1: Related factors have a direct effect on team efficiency

H2: Teamwork components have a direct effect on team efficiency

Methodology

This was quantitative research and the population in the research consisted of 236 persons who work at the King Mongkut's University of Technology North Bangkok Rayong Campus, and this research collected the data from all populations. A research tool is a questionnaire form and it was checked for content validity by 5 experts whereas the Index of Objective Congruence is between 0.60 - 1.00. It is considered to be consistent with the content and then to determine the confidence of the instrument by try out methodology with 30 non-populations in this research and alpha Cronbach co-efficiency is equal to 0.98. It shows that research tools have high reliability that can be used to collect data. The data were analyzed by descriptive statistics and inferential statistics as follows frequency, percentage, mean and standard deviation. The hypothesis was tested by multiple regression analysis.

Results

Objective 1. The teamwork efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus. The data analysis was shown as follows in table 1.

Table 1: Mean & Standard deviation of the team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus

Topics of the team's efficiency	\bar{x}	S.D.	Interpretation
Time			
The team can complete the work in the specified time.	3.91	0.805	High
The team can complete the work before the scheduled time.	3.88	0.849	High
Quality			
The team can perform the work with quality according to the specified criteria.	3.90	0.762	High
The team can perform the work with quality that exceeds the specified criteria.	3.82	0.814	High
Resource			
Teams can perform quality tasks with limited resources.	3.92	0.809	High
Teams can do quality work with fewer resources available.	3.89	0.580	High
Total	3.88	0.770	High

Table 1 found that; In general, the team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus was at a high level ($\bar{x} = 3.88$, S.D. = 0.770). When considering each aspect, it was found that the mean of resource issues on item

1 is the highest ($\bar{x} = 3.92$, S.D. = 0.809). While the mean of a quality issue on the second item is minimal ($\bar{x} = 3.82$, S.D. = 0.814).

Objective 2. The teamwork model of the personnel of the King Mongkut's University of Technology North Bangkok Rayong Campus comprises 4 components Leader, Member, Task and System. The data analysis was shown as follows in table 2.

Table 2: Mean & Standard deviation of the attitude toward the teamwork component.

Attitude toward teamwork components	\bar{x}	S.D.	Interpretation
Leader	4.00	0.813	High
Members	3.94	0.841	High
Tasks	3.91	0.789	High
System	3.86	0.833	High
Total	3.93	0.594	High

Table 2 found that; In general, the attitude toward teamwork components of the King Mongkut's University of Technology North Bangkok Rayong Campus was at a high level ($\bar{x} = 3.93$, S.D. = 0.594). When considering each aspect, it was found that the mean of the leader item is the highest ($\bar{x} = 4.00$, S.D. = 0.813). While the mean of a system item is minimal ($\bar{x} = 3.86$, S.D. = 0.833).

Objective 3. Related Factors affecting the team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus. The data analysis was shown as follows in table 3.

Table 3: Mean & Standard deviation of Related Factors affecting the team's efficiency.

Related Factors	\bar{x}	S.D.	Interpretation
Process	4.14	0.775	High
Context	4.05	0.708	High
Composition	3.95	0.771	High
Work design	4.06	0.697	High
Total	4.05	0.737	High

Table 3 found that; In general, related factors affecting the team's efficiency of the King Mongkut's University of Technology North Bangkok Rayong Campus were at a high level ($\bar{x} = 4.05$, S.D. = 0.737). When considering each aspect, it was found that the mean of the process item is the highest ($\bar{x} = 4.14$, S.D. = 0.775). While the mean of a composition item is minimal ($\bar{x} = 3.95$, S.D. = 0.771).

Objective 4. Development guidelines of the team's efficiency of the personnel of the King Mongkut's University of Technology North Bangkok Rayong Campus can do through training and workshop.

Hypothesis

H1: Related factors have a direct effect on team efficiency

Table 4: Regression coefficient

Variable	b	S.E. b	β	t	Sig
Constant	-.159	.095	-	-.167	.006
Process	.316	.027	.349	11.210	.000
Context	.245	.030	.264	8.021	.000
Composition	.207	.032	.186	6.458	.000
Work design	.137	.029	.144	4.785	.000

R = .930, $R^2 = .865$, $R^2_{adj} = .862$, F = 539.504, p = .000

p-value < .01

Table 4 found that; Related factors have a direct effect on team efficiency at 86.50% a significance level of .01 and the Regression coefficient is equal to .930. From the information presented, the researcher can create a regression equation as a following; $Z = .349Z_{\text{Process}} + .264Z_{\text{Context}} + .186Z_{\text{Composition}} + .144Z_{\text{Work design}}$

H2: Teamwork components have a direct effect on team efficiency

Table 5: Regression coefficient

Variable	b	S.E. b	β	t	Sig
Constant	.680	.182	-	3.757	.000
Leader	.554	.052	.545	10.412	.000
Members	.358	.056	.345	6.250	.000
Tasks	.283	.059	.230	4.720	.000
System	.310	.055	.279	5.520	.000

R = .820, $R^2 = .672$, $R^2_{adj} = .669$, F = 144.292, p = .000

p-value < .01

Table 4 found that; Teamwork components have a direct effect on team efficiency at 67.20% a significance level of .01 and the Regression coefficient is equal to .930. From the information presented, the researcher can create a regression equation as a following; $Z = .545Z_{\text{Leader}} + .345Z_{\text{Members}} + .279Z_{\text{System}} + .230Z_{\text{Work design}}$

Discussion

In general, the team efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus was at a high level. Which consistent with the research result of Paoart (2016) found teamwork of government teachers in schools and Expanding opportunities in Mueang Trat District under the Office of Trat Primary Educational Service Area as a whole and Each aspect is at a high level. The reason for this may be the team has good planning and it was consistent with the management theories that Atiwitayapon

(2010) said, good planning helps work quickly and effectively because there was a plan as a guideline.

The teamwork model of the personnel of the King Mongkut's University of Technology North Bangkok Rayong Campus comprises 4 components Leader, Member, Task and System. It was consistent with Keawchaoon (2017) found the component of effective teamwork had 4 elements and comprised individual, task, team, and organization. The four components of teamwork are different and similar to the elements of teamwork in this research. The reason for this may be due to different organizational structures and job descriptions.

Related Factors affecting the team's efficiency of the personnel of King Mongkut's University of Technology North Bangkok Rayong Campus. The result found in general, related factors affecting the team's efficiency of the King Mongkut's University of Technology North Bangkok Rayong Campus were at a high level. It is consistent with the research result of Ngamwuttiwong (2016) found the factors affecting the teamwork of the ad hoc committee and the standing committee were at a high level. It showed that the variable were factors that can affect teamwork.

Development guidelines of the team's efficiency of the personnel of the King Mongkut's University of Technology North Bangkok Rayong Campus found the method for developing team's efficiency of the personnel of the King Mongkut's University of Technology North Bangkok Rayong Campus can use training and workshop. Whereas there must be clearly defined development objectives and a survey of the problems in the organization before development and must evaluate the development results regularly. It was consistent with the research result of Khiinth and Limmanee (2018) found the development of teacher teamwork guidelines for educational institutions under the Education Service Area Office Secondary School District 21 had 5 steps and comprised problem recognition, data collection and analysis, systematic operational planning, implementation of the plan, and assessing results from operations.

The first hypothesis testing found related factors comprised process, context, composition, and work design have a direct effect on team efficiency and according to the research hypothesis. It was consistent with the research result of Ngamwuttiwong (2016) found the factors affecting the teamwork of the ad hoc committee and the standing committee can be categorized into 6 areas: Relationships among colleagues, roles of team members, communication skills, work skills, organizational objectives and targets, and leadership. These factors affect the level of teamwork significantly.

The second hypothesis testing found teamwork components have a direct effect on team efficiency and according to the research hypothesis. It consisted of the research result of Emmanuel (2015) found there was clear evidence that teamwork and other measures of team performance are positively related to organizational performance. The result of the study shows that there was a significant positive impact of teamwork on organizational performance.

The hypothesis showed; Both related factors and teamwork components affect the team's efficiency. The reason may be all factors and all components are important e.g. the leader is one of the teamwork components if we considered we will find in the regression equation the leader was the most important whereas the β value is equal to .545. It shows leader's competency affects the team's efficiency itself.

Suggestions

Although the result showed; Teamwork efficiency is at a high level. But in the composition of teamwork, there are also different levels. Therefore, the management should consider the improvement on a case by case basis. where the element with the least average must be developed first.

The next time should research the other area because the researcher will get the information around and the next research may only study qualitative research. It will help the research get the depth data from individuals in the organization.

References:

1. Atiwitayapon. (2010). Principle and Management Theory. Songkla: Thaksin University.
2. Bua-In, N. (2021). Factors Influencing the Good Corporate Governance of the Listed Companies on the Stock Exchange of Thailand. Journal of Management Information and Decision Sciences, 24(1), 1-10.
3. Emmanuel OSEI BOAKYE. (2015). Employee perception of corporate social responsibility and organization citizenship behaviors: A comparative gain. The University of Ghana.
4. Keawchaoon, K. (2017). Team Working for Increasing Work Effectiveness. Journal of Dusithanee Campus. 11(1), 365 – 370.
5. Kaewkhao, S. (2018). Factors influencing human resource development of department of agricultural extension, Ministry of Agriculture and cooperatives. Academic Journal of Thonburi University. 12(27), 111 – 121.
6. Kiikkala I. (1994). Concept development in theory development. Sairaanhoitaja. 1994;(3):23-4.
7. Khiinth and Limmanee. (2018). Guideline Development Teamwork of teacher for Schools under The Secondary Education Service Area Office 21. Journal of Roi Et Rajabhat University. 13(3), 94 – 103.
8. Kritchouw N. (2020). Guidelines for Private Educational Institute for Sustainable Development. Journal of Education, Prince of Songkla University, Pattani Campus. 31(3), 136-148.
9. Ngamwuttiwong, K. (2016). FACTORS AFFECTING TEAMWORK IN THE BUREAU OF GENERAL ADMINISTRATION OF THE MINISTRY OF EDUCATION'S OFFICE OF PERMANENT SECRETARY. FACULTY OF POLITICAL SCIENCE. THAMMASAT UNIVERSITY.
10. Niveen M. Al-Sayyed (2018) Critical Factors affecting Human Resource Development in the Arab World. Life Science Journal 2014;11(4s). 113 – 123.
11. Paoart, L. (2016). Teamwork of government teachers in schools expands opportunities. Mueang Trat District Under the Trat Primary Education Service Area Office. Master degree's thesis of Faculty of education. Burapha University.
12. Pethtongkum, A. (2008). TEAM WORKING OF TEACHERS IN MUANG TRAT EXPANDING OPPORTUNITY SCHOOLS UNDER TRAT PRIMARY EDUCATIONAL SERVICE AREA OFFICE. Bangkok: Chulalongkorn University
13. Robbins, S.P. (2001). Organizational Behavior. (11thed). New Jersey: Pearson Prentice-Hall.
14. Royal Institute Dictionary. (1995). Development. Bangkok: Royal Institute Dictionary.

15. Sayadpanit, P. (2020). Effective team building. (online) Retrieved May 24, 2021, from www2.si.mahidol.ac.th/km/knowledgeassets/kmexperience/kmarticle
16. Sickles, R., and Zelenyuk, V., (2019). Measurement of Productivity and Efficiency. United Kingdom: Cambridge University Press.
17. Stone Deborah. (2012). Policy Paradox: The Art of Political Decision Making. 3rd ed. n.p.