

The Components of Strategic Leadership of Prosthetic and Orthotic Practitioners in Thailand

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ABSTRACT

Objectives: To determine the components and to test the validity of factor analysis of strategic leadership among prosthetic and orthotic practitioners in Thailand with the empirical data.

Methods: The sample consisted of 754 prosthetic and orthotic practitioners from 200 government hospitals in Thailand. The two instruments used were structured interview and questionnaires consisting of 66 items with Item-Objective Congruence (IOC) at 0.96 and the reliability of questionnaire in the form of Cronbach alpha coefficient was 0.98. The content analysis, exploratory factor analysis and confirmatory factor analysis were used to analyze data.

Results: There were 7 components of strategic leadership among prosthetic and orthotic practitioners in Thailand which consisted of 42 factors with factor loadings as follows: relating the part to the whole (0.997), corporate spirit (0.904), strategic thinking and planning (0.899), building partnerships (0.896), developing today' and tomorrow's leader (0.878), making it happen (0.865), and giving direction (0.823). The validity test results of factor analysis of strategic leadership among prosthetic and orthotic practitioners in Thailand were confirmed with the empirical data.

Conclusion: From the research findings, 7 components of strategic leadership should be developed among prosthetic and orthotic practitioners, particularly the first three components i.e., relating the part to the whole, corporate spirit, and strategic thinking and planning.

Keywords: Strategic leadership; prosthetic and orthotic practitioners (Siriraj Med J 2019; 71: 349-355)

INTRODUCTION

The WHO states that an estimated 0.5 percent of people with disabilities require a prosthesis or orthosis. Furthermore, in 2010, among people in Africa, Asia, and Latin America, 30 million people with disabilities required a prosthesis or orthosis and were in need of rehabilitation practitioners; Physiatrist, Certified Prosthetist and Orthotist, and Prosthetist and Orthotist Technician.¹ A Certified Prosthetist and Orthotist could treat 250 patients which means a requirement of approximately

120,000 practitioners. However there are only 34 certified institutes that can produce 600-800 practitioners annually. The production of Prosthetists and Orthotists is still a global issue which requires huge capital for machinery and adequate teaching personnel. This results in a substantial lack of Prosthetists and Orthotists practitioners in developing countries.¹ In Thailand, there are 836,224 people with disabilities in need of prosthetic and orthotic devices as of December 2016.² According to the WHO, a single device has a 3-year lifespan, meaning that Thailand

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Received 29 November 2017 Revised 6 January 2019 Accepted 14 February 2019

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<http://dx.doi.org/10.33192/Smj.2019.53>

requires 1,150 Prosthetists and Orthotists. Physiatrists have specific training in rehabilitation through prosthetics and orthotics. Currently there are only 381 physiatrists working in the Thai healthcare scheme,⁴ and there are only 173 licensed Prosthetists and Orthotists.⁵

Nevertheless, the Sirindhorn School of Prosthetics and Orthotics, established in 2002, is an ISPO Category 1 program which has produced 100 qualified Thai Prosthetists and Orthotists until now. However, despite 100 graduates, only 71 are working in Thailand.³ Strategic management planning is essential in order to progress human resource development. John Adair is an expert in 'Strategic Leadership' and states that leadership comprises strategic thinking and planning, giving direction, relating the part to the whole, corporate spirit, developing today's and tomorrow's leaders, building partnerships, and making it happen.⁵ Strategic Leadership is a characteristic of a leader who brings about advancement to an organization and begins with a good vision and successful practices.⁶ Senior management or manager is required to directly involve with every step of strategic management which consists of 3 main parts; 1) Strategic Formulation, 2) Strategic Implementation, and 3) Strategic Control & Evaluation.⁷

A review of literature did not provide any examples of research on strategic leadership among prosthetic and orthotic practitioners in Thailand and International level. There is literature on leadership in nursing⁵ and some literature focuses on a model for strategic leadership development for secondary school administrators according to Durbin's theory.⁷⁻⁹ This information is useful because it lays the groundwork for preliminary research on the prosthetic and orthotic profession.

This study aimed to identify the components of strategic leadership among prosthetic and orthotic practitioners in Thailand. The outcome of this research will be useful for the development of strategic leadership among prosthetic and orthotic practitioners as key success factors of effective health service management. According to the new way of management, not only the top level is important to run the business but also middle level and frontline level. To develop strategic leadership for prosthetic and orthotic in all levels will help increase an effective health service management as a whole.

Research question

1) What are the components of the strategic leadership among prosthetic and orthotic practitioners in Thailand? and 2) Does the component structure of the strategic leadership among prosthetic and orthotic practitioners in Thailand conform with empirical data?

Objective

- 1) Analyze the components of strategic leadership among prosthetic and orthotic practitioners in Thailand.
- 2) Analyze variables of each component of strategic leadership among prosthetic and orthotic practitioners in Thailand.
- 3) Analyze the conformity between the components of strategic leadership among prosthetic and orthotic practitioners in Thailand with the empirical data.

Conceptual Framework

A conceptual framework, which was created based on the strategic leadership framework of John Adair (2010) was used.¹⁰ The framework demonstrates responsibilities of the Chief Executive Officer within 7 components; Giving direction, Making it happen, Relating the part to the whole, Building partnerships, Strategic thinking and planning, Releasing corporate spirit, and Developing today's and tomorrow's leader (Fig 1).

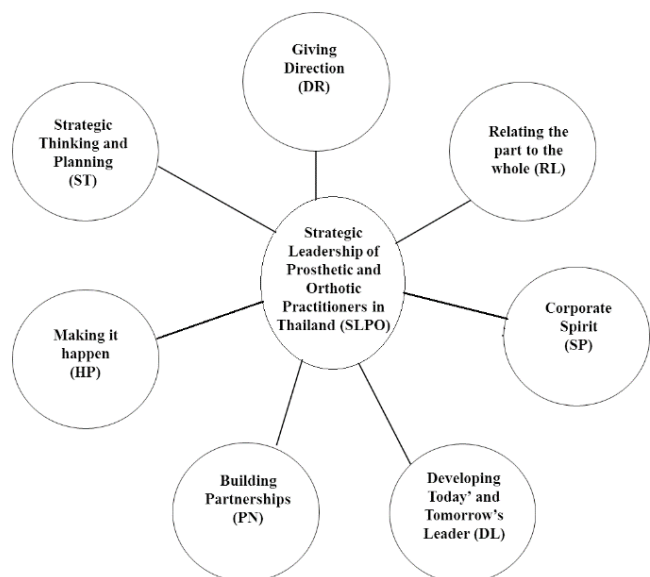


Fig 1. Conceptual framework of the components of the strategic leadership among prosthetic and orthotic practitioners in Thailand.

MATERIALS AND METHODS

From May to October 2016, questionnaires were provided to 754 prosthetics and orthotics practitioners from 200 government institutes in Thailand via post. The research was a correlational descriptive research and utilized a questionnaire of 76 questions divided into 3 parts;

Part 1: Personal Information (10 questions)

Part 2: Questionnaire of the 7 components of strategic leadership among prosthetic and orthotic practitioners in Thailand: Giving direction (7 questions), Make it

happen (7 questions), Relating the part to the whole (15 questions), Building partnerships (6 questions), Releasing corporate spirit (6 questions), Developing today's and tomorrow's leader (10 questions), and Strategic thinking and planning (14 questions)

Part 3: Comments and suggestions (1 question)

The questionnaire was adopted from "The Competencies of Strategic Leadership of Chief Nurse Executives, Private Hospital in Bangkok Metropolitan"⁵ which was based on Adair's concept (2010)^a. It comprised of 7 components 76 items of strategic leadership. The researcher contacted the copyright holder and asked the permission to utilize the questionnaire which has already been translated into Thai language. At the first stage, small group discussion among 20 experts in prosthetic and orthotic, as well as human resources management was set up in order to gather comments and ideas related to the strategic leadership among prosthetic and orthotic practitioners in Thailand. The second stage, in-depth interview with 8 prosthetic and orthotic experts was arranged in order to verify the variables. Finally, the questionnaire was modified based on small group discussion and in-depth interview findings. Eleven items were deleted because they did not fit for the samples in this research study. The original questionnaire was used for the top level, but this research concerned not only the top level but the middle and the frontline level managers. Evaluated with the Index of Item-Objective Congruence (IOC), the content validity of the questionnaire was 0.96 and the reliability demonstrated in the form of Cronbach's Alpha Coefficient was 0.98.

Participants

The participants were prosthetic and orthotic executives and practitioners in government medical institutes, secondary and tertiary hospitals all over the country consisting of 200 management executives in hospitals, 381 physiatrists, 73 prosthetic and orthotic practitioners, and 100 prosthetic and orthotic technicians, so in total 754 persons participated in the study. The prosthetic and orthotic executives and practitioners in private sector were not included because the administrative system between public and private medical institutes was different.

Samples

The samples were physiatrists, prosthetic and orthotic practitioners, prosthetic and orthotic technicians, and hospital management executives. A questionnaire was used to first discuss 76 variables through a small group (20 persons) discussion and in-depth interview of 8 prosthetic and orthotic management executives and experts. A

resulting 65 variables were used in this research because contents of variables use were for senior chief executive, while the prosthetic and orthotic practitioners were junior chief executives. As there were 754 participants, all of them were considered samples¹² and 427 questionnaires were answered on first request (56.63%). Hair et al (2010) and Comrey and Lee (1992) suggested use of factor analysis and determined that a sample should be 10-20 times of variables (650-1,300 sample of 65 variables) and 300 was sufficient for this research using AMOS program.¹²⁻¹⁴

Ethical approval

Ethical approval was approved by Christian University of Thailand Institutional Review Board (Protocol number 4/2015), Faculty of Medicine Siriraj Hospital, Mahidol University (Si 695/2016), Chulalongkorn University (acceptance letter no. 1955/2016) and other institutes as required.

Outcome measurement

The questionnaire was adapted from a strategic leadership capacity questionnaire provided to administrators of nursing departments at private hospitals in Bangkok and surrounding areas,⁵ following concepts of John Adair.¹¹ The questionnaire was already translated into Thai and used in a small group discussion among 20 experts in the Prosthetics and Orthotics field in this research. Secondly, in-depth interviews with 8 prosthetic and orthotic experts were performed to verify final variables by proposive method (experts, lecturers and executive of human resource department in prosthetics and orthotics field). The questionnaire was then evaluated with the Index of Item-Objective Congruence (IOC) which scored 0.96. Thirty questionnaires were provided to prosthetic and orthotic practitioners and human resource management executives which were similar to original research samples for reliability test by Cronbach's alpha coefficient. Also, since the questionnaire was a 5-level measurement, a Cronbach's alpha coefficient was applied and resulted in a value of 0.98.

Statistical analysis

Final data analysis was performed using descriptive statistics; frequency, percentage, mean, mode, standard deviation, and inferential statistics; Exploratory Factor Analysis and Confirm Factor Analysis with AMOS version no.18.

RESULTS

Personal information of the participants verified that the proportion of male and female participants were

almost equal. Most were 31-40 years old and married (33.5%). They possessed more than 15 years of experience in prosthetic and orthotic practice (37%), had Bachelor's Degrees in Health Science (48.9%), and worked in hospitals under the Ministry of Public Health (57.6%).

Variable analysis of each component of strategic leadership among prosthetic and orthotic practitioners in Thailand provided 7 components in ranking order as [Table 1](#). There were 7 Factor Loadings which ranged from 0.823 to 0.997; the highest was Relating the part to the whole at 0.997 while the lowest was Giving Direction at 0.823.

Result from an analysis of each component of the strategic leadership among prosthetic and orthotic practitioners in Thailand

1) Relating the part to the whole (RL) consisted of 8 variables which were (1) the leader has to clearly understand the objective of the department, (2) the leader has to clearly understand the objective of affiliated organization or unit, (3) all management executives in the department are capable of working as a team in order to create a High Performance Team, (4) the leader is able to get all members to work together to reach objectives of the organization, (5) the leader is able to get all members in the department to work together and reach objectives, (6) the leader should possess a capability to manage personal and work life for better leadership efficiency, (7) the leader should create a work life balance, and (8) creating too many changes may result in confusion and disorganization among practitioners.

2) Realizing corporate spirit (SP) consisted of 5 variables which were; (1) the leader has to be able to draw out efficiencies or strengths in practitioners upon their work, (2) practitioners expect their leader to have strategic leadership and teamwork ability, (3) the leader is required to trust in practitioners until their actions are not trustworthy, (4) the human mind is a powerful tool which can inspire practitioners to do great things, and (5) the nature of practitioners are normally good as a human beings.

3) Strategic thinking and planning (ST) consisted of 7 variables which were; (1) the leader ought to regularly listen to the prosthetic and orthotic management team regarding their strategic and innovative thinking, (2) the leader's strategic planning of the department should be flexible and up-to-date, (3) the leader ought to regularly listen to the hospital executive or management team upon their strategic and innovative thinking, (4) the leader should improve the strategic management of the department in order to provide services at ease, (5) the leader should encourage providing rewards for creative innovation, (6) the leader should create opportunity for practitioners to take part in developing innovation within the department, and (7) creative innovation can encourage achievement in terms of personnel, team, and device productions.

4) Building partnerships (PN) consisted of 5 variables which were; (1) other than income from service provisions, practitioners are required to be aware of benefits for the community, (2) the leader should take part in assisting the department and should get along well with domestic

TABLE 1. Variables analysis of each component of strategic leadership among prosthetic and orthotic practitioners in Thailand.

No	Components	Factor loadings
1.	Relating the part to the whole (RL)	.997
2.	Releasing Corporate Spirit (SP)	.904
3.	Strategic Thinking and Planning (ST)	.899
4.	Building Partnerships (PN)	.896
5.	Developing Today' and Tomorrow's Leader (DV)	.878
6.	Making it happen (HP)	.865
7.	Giving Direction (DR)	.823

alliances outside the hospital, (3) the device service provision, employment policy, and environmental impacts are corporate social responsibilities of prosthetic and orthotic department, (4) the leader should take part in assisting the department to get along well with international alliances of different cultures, and (5) the department will be more successful if the leader expands to have more alliances in terms of device service provision.

5) Developing today's and tomorrow's leader (DV) consisted of 7 variables which were; when a practitioner is appointed to be a management executive, the leader will also have to (1) evaluate the team management of each executive, (2) evaluate the management competency of the assigned works, (3) evaluate the leadership regularly, (4) evaluate the characteristic of a leader, (5) the leader should initiate a career development system for practitioners to be at a management executive level in the future, (6) the leader should make the management executives believe that they are able to train leadership to practitioners, and (7) the leader should launch a policy for the management executives to be responsible for self-development.

6) Making it happen (HP) consisted of 5 variables which were; the leader has to administrate all segments in the department to focus on the customers (1) by initiating quality control system of prosthetic and orthotic service provision, (2) by initiating a quality control system of service provision, (3) by initiating a security system of service provision, (4) the leader should take part in rectifying the problem in case the management executives

under the department failed to achieve their goals, and (5) the leader should always follow up progression and review the strategic planning of the department.

7) Giving direction (DR) consisted of 5 variables which were; (1) the leader has to create a mutual vision in order to make the department a future organization, (2) the leader can clearly explain the core value of the responsible department, (3) practitioners have to clearly understand their roles which conform to the direction of organization, and their own responsibility, (4) the leader can clearly explain the core values which indicate the direction of the organization, and (5) the leader has to clearly understand the main objectives of the department or the organization, and know what to do in the moment and in the future.

Result from the analysis of the congruence of the component of the strategic leadership among prosthetic and orthotic practitioners in Thailand with the empirical data

After adjusting the relationship model through a Confirmatory Factor Analysis, the CMIN/Df = 1.590, Root Mean Squared Residual (RMR) = 0.18, Root Mean Squared Error of Approximate Residual (RAMSEA) = .037, Tucker Lewis Index (TLI) = .968, and Comparative Fit Index (CFI) = .975, were found to conform to the empirical data by consistent tolerance index. Therefore, the model was consistent with the empirical data on the components as illustrated in Table 2 and Fig 2.

TABLE 2. Model of a Confirmatory Factor Analysis of the component of the strategic leadership among prosthetic and orthotic practitioners in Thailand with the empirical data.

Consistency Index	Tolerance Index	Adjusted Model	
		Statistical Index	Consistency
χ^2 (FD/NIMC) fd ²	Less than 3	1.590	Consistent
Root Mean Squared Residual (RMR)	Not more than 0.8	.018	Consistent
Goodness of Fit Index (GFI)	More than 0.9	.900	Consistent
Adjust Goodness of Fit Index (AGFI)	More than 0.9	.863	Consistent
Root Mean Square Error of Appr.(RMSEA)	Less than 0.08	.037	Consistent
Tucker Lewis Index (TLI)	More than 0.9	.968	Consistent
Comparative Fit Index (CFI)	More than 0.9	.975	Consistent

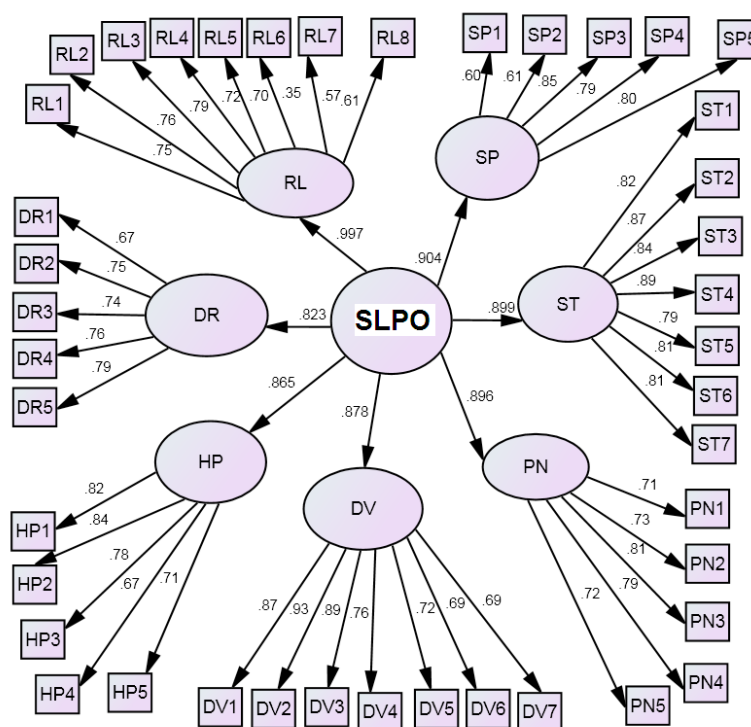


Fig 2. Structural pattern of the component of the strategic leadership among prosthetic and orthotic practitioners in Thailand

DISCUSSION

The difference between the survey of prosthetic and orthotic practitioners in Thailand and the Confirmatory Factor Analysis (CFA) of the component of the strategic leadership among prosthetic and orthotic practitioners in Thailand

The survey outcome on the components of strategic leadership among practitioners in Thailand demonstrated giving precedence to the component consecutively as follows; giving direction ($\bar{X} = 4.56$, $SD = 0.58$), make it happen ($\bar{X} = 4.53$, $SD = 0.59$), strategic thinking and planning ($\bar{X} = 4.46$, $SD = 0.62$), relating the part to the whole ($\bar{X} = 4.43$, $SD = 0.63$), develop today's and tomorrow's leader ($\bar{X} = 4.32$, $SD = 0.67$), building partnerships ($\bar{X} = 4.31$, $SD = 0.68$), and releasing corporate spirit ($\bar{X} = 4.14$, $SD = 0.74$). On the other hand, the outcome of CFA turned out to fall in an alternative order of precedence; relating the part to the whole (factor loading = 0.997), releasing corporate spirit (factor loading = 0.904), strategic thinking and planning (factor loading = 0.899), building partnerships (factor loading = 0.896), develop today's and tomorrow's leader (factor loading = 0.878), make it happen (factor loading = 0.865), and giving direction (factor loading = 0.823).

Such different outcomes of precedence levels from the research were due to the fact that practitioners considered the components of strategic leadership separately and gave precedence to external environment which evidences

an increase of people with disabilities that augments the demand of practitioners and treatment.¹ Still, the CFA helped to determine whether the variable was a reasonable and systematic construct in the theoretical model or not.¹² According to the CFA, each variable has an effect on each other and concerns a possible deviation on the overall model.

The Confirmatory Factor Analysis of the component of the strategic leadership among prosthetic and orthotic practitioners in Thailand demonstrated that all 7 components were consistent with the empirical data.

The research outcome reaffirmed the component of strategic leadership of John Adair (2010) responsibility for Chief Executive Officer. All 7 components conformed with the research outcome of strategic leadership capability of the chief executive of the nursing department at hospitals in Bangkok and surrounding areas.⁵

This research outcome reaffirmed that a strategic leader is required to predict future directions of the organization and initiate strategic planning to pursue the objectives.⁶ This research outcome demonstrated that the most significant components relate the part to the whole, releasing corporate spirit, and strategic thinking and planning. Whereas the research outcome observed in nursing management demonstrated that the most significant components were strategic thinking and planning, relating the part to the whole, and developing

today's and tomorrow's leader.⁵ This similarity is as a result of practitioners being medical personnel who provide assessment, design, invent, and produce prostheses and orthoses for people with disabilities,¹³ while nurses provide hospitalized care to people, families, and communities by instructing, suggesting, consulting, giving health counsel, physical and mental contact, environmental care, rehabilitating, provision of primary care, and assisting the specialist in treating diseases.¹⁴ By doing so, both careers are connected by a medical profession which shares a similar responsibility to take care of people with disabilities.

The component of strategic leadership among prosthetic and orthotic practitioners in terms of relating the part to the whole is a first priority.

Regarding to a process of providing medical care, prosthetics and orthotic devices to the patient requires communication, cooperation, and assistance from various practitioners; prosthetic and orthotic practitioners, technicians, orthopaedists, physiatrists, surgeon, physiologists, nurses, mechanical engineers, and rehabilitation staff. Relating the part to the whole, thus, is the most important component for the strategic leader to understand about the objectives and working system of their department and organization. Also, individuals will have to work as a team to in order to create a chief executive team that is highly efficient.

Recommendations to apply the research outcome in the organization administration

1.1 This research discovered that relating the part to the whole is the most significant component, and therefore the organization must pay close attention in order to enhance the strategic leadership of practitioners, especially in their understanding of objectives of the organization. Being consistent with the objectives of the affiliated organization and team work is compulsory, and will lead to an effective chief executive and team leader.

1.2 The providing direction is the least significant component, but the most agreed component by practitioners. Therefore, the organization should support and improve by creating shared vision in order to move forward to a future organization, and increase a clear core value picture in responsibility of departments. Moreover, a clear understanding of the role, direction of organization, and personal responsibilities is also essential.

Recommendation for future research

1. Creating guidelines for strategic leadership of practitioners in Thailand and facilitating progress

by initiating training centered on strategic leadership development programs.

2. Future research should consider related components of strategic leadership with operational performance of practitioners.

3. Creating research of strategic leadership in other medical fields such as Physiotherapists, and Thai Traditional Medicine, etcetera.

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