# Predictors of Leadership Styles of Medical Students : Implications for Medical Education

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**Abstract**

Providing effective health care services for a population involves a great deal of teamwork among health care workers and leadership of physicians. The primary purpose of this study was to assess the leadership styles of medical students, and to explore factors that may be associated with them. Leadership questionnaires were used to assess leadership styles of 97 sixth-year medical students of the 1995 class at Chulalongkorn University attending the community medicine III program which was designed to introduce basic knowledge and skills in health care management.

The baseline leadership styles of the students were more people-oriented than task-oriented. Multivariate analyses revealed that administrative experiences from extracurricular activities and perceived importance of a health administration course were significantly associated with leadership styles.

Medical students should be encouraged to participate in extracurricular activities during their medical studies, taking leader positions, in order to develop an optimal leadership style to be effective health team leaders.

**Key word :** Leadership, Medical Students, Community Medicine, Medical Education

Physicians usually take the role of health team leaders in providing health services. However, young physicians, just completing their medical training, may not be well prepared to face the realities of health care. Especially for Thailand, new medical graduates usually spend the first few years of their medical profession serving the public in rural hospitals; some of them may even become hospital directors of community hospitals, particularly those in remote areas(1). Empirically, leaders

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have significant impact on performance variation within organizations although their effects may generally not be sufficient to account for performance variation across organizations[2]. Thus, physicians' lack of leadership in leading health teams may be a significant obstacle against any attempt to distribute quality health services to the population.

One of the conclusions from the Fifth National Seminar in Medical Education in 1986 was that Thai medical graduates seemed to have inadequate knowledge and skills in management[3]. At the same time, the 1993 medical professional standard of the Medical Council of Thailand requires medical graduates to have basic knowledge and skills in administration and social science[4]. However, medical education generally offers medical students knowledge and skills in becoming good clinicians. Less effort is concentrated on helping them become good health team leaders. Factors which might contribute to leadership of the students during medical study have not yet been determined.

Since 1987, the Department of Preventive and Social Medicine, Faculty of Medicine, Chulalongkorn University has regularly offered a four-week community medicine III program which has a major objective to introduce sixth-year medical students to basic knowledge and skills in health care management for physicians. The program comprises a few sessions of lectures on the first day of class. Then, each student has an opportunity to have self-guided, hand-on experience observing and working with a director of a community hospital in a rural area for nearly four weeks. The students learn how to manage community hospitals, analyse real situations, and adjust themselves to working systems, people and communities. At the end of the program, they come back to the department for discussion and evaluation with the departmental faculty and staff. Previous studies by Viputsiri et al[5,6] showed that the program led to satisfactory change in management knowledge, skill and attitude of the medical students. However, evidence of success in developing leadership among medical students has not been well documented.

This study is the first attempt aiming at examining leadership styles of final-year medical students of Chulalongkorn University, and exploring factors that may relate to the styles. We also assess whether there is any impact of the Community Medicine III program on leadership styles of the students. We hope that the result of this study will help to guide us in developing effective leadership skills of medical graduates of the University.

**Leadership styles**

Leadership is a complex, multidimensional process of one person (the leader) influencing other people, or a group, (the followers) towards the achievement of particular goals[7]. Behavioral theories of leadership classify most behaviors that leaders exhibit into two dimensions: initiating structure and consideration[8]. The first dimension, initiating structure, is described as the extent to which a leader is likely to define and structure his or her role, and those of subordinates in the search for goal attainment. A leader may do such things as assigning particular tasks, specifying procedures to be followed, clarifying his or her expectations of subordinates, scheduling work to be done, and overseeing day-to-day operations. The behaviors are also called "production oriented" or "concern for production". For simplicity of this study, it will be labeled "task-oriented" because the activities focus mainly on tasks and their purposes.

The other dimension of a leader's behavior, consideration, refers to the extent to which a person is likely to have job relationships that are characterized by mutual trust, respect for subordinates' ideas, and regard for their feelings. A leader emphasizes interpersonal relationship, and may do such things as being friendly and approachable, looking out for the personal welfare of the group, doing little things for subordinates, and giving advance notice for change. Consideration is also called "employee oriented" or "concern for people". In this study, we call it "people-oriented" for it mainly comprises activities towards psychological well-being of people in an organization.

Conventional views of organizational leadership have generally assumed that leaders have a significant impact on the performance of the organizations they head. Extensive research based on these definitions, such as those by Ohio State Studies[9] and Blake and Mouton[10], found that leaders high in task-oriented as well as high in people-oriented behaviors tended to achieve high subordinate performance and satisfaction although the "high-high" style did not always result in positive consequences.

## METHOD

The sample of the study included all sixth-year medical students of the Faculty of Medicine, Chulalongkorn University in the academic year

1995. During their last year as medical students, all of the students attended the four-week Community Medicine III program in four groups. Each group had 24 students. Each student responded to leadership questionnaires before the first session of the program, and on the last day of the course.

There were two questionnaires. The first questionnaire was designed to collect general information about a student, including his/her gender, domicile and cumulative grade point average (GPA), a workplace for which he/she planned to work after graduation, his/her administrative experience in extracurricular activities during the past five-year period in the University, and his/her perception of importance of health care administration course rated on a five-point scale. For simplicity of the analysis, the responses that were equal to one and two were interpreted that the students thought the course was relatively important, while the responses that were equal to three or higher meant the course was perceived to be relatively unimportant.

The second questionnaire was the leadership questionnaire designed to explore an individual's leadership style. It had 35 items: 15 items on people-oriented leadership behaviors, and 20 items on task-oriented leadership behaviors. They were translated and modified from Luthans's leadership questionnaire[11]. The questions were arranged in random. Some of them were positive questions while others were negative. Each item was rated on a 5-point scale- always (1), frequently (2), occasionally (3), seldom (4), and never (5). After being scored, a student would get only one score or nothing for each item. The total leadership scores for people-oriented dimension and task-oriented dimension were 15 and 20, respectively. The 35-item questionnaire was, then, reviewed by an expert in the area of organizational behavior to assure content validity. Cronbach's alpha was used to assess the reliability of the questionnaire as they were applied to this group of students. The pre-test leadership scores of both dimensions were considered "baseline" leadership styles of the students. The pre-test scores were used to explore any relationship with predictive factors. The differences between the pre-test and post-test scores were calculated by subtracting the pre-test score from the post-test score.

## RESULTS

All 97 medical students of the 1995 class were included in evaluating the reliability of the questionnaire, while one student was, later, excluded from the subsequent analyses of the leadership scores due to missing information on general characteristics. A majority of the students were male (65.6%), were from Bangkok (75.0%), and planned to work for the public sector (83.3%). Half of them (50%) had administrative experiences from extracurricular activities. The average cumulative GPA was 3.131 from 4 [95%CI= 3.066-3.196]. The average perceived importance score of a health care administration course was 2.291 [95%CI=2.171-2.413] on the five-point scale. The proportion of the students who thought that the course was relatively important was 65.6 per cent.

The values of Cronbach's alpha of the leadership questionnaire, as applied to this group of students, were fairly high. The alpha values of the people-oriented scale and the task-oriented scale ranged between 0.74 and 0.89. In addition, the reliability values were rather similar between those of the pre-test and those of the post-test, while the task-oriented items were slightly more internally consistent than the people-oriented ones. Consequently, we accepted reliability of the leadership questionnaire.

Fig. 1 shows the distribution of baseline leadership scores of the medical students. The average baseline people-oriented leadership score and the average baseline task-oriented scores were 8.300 [95%CI= 7.867-8.730] and 8.608 [95%CI= 7.867-9.350], respectively. The baseline leadership styles of the students tended to be more people-oriented than task-oriented. However, there was no significant association between the two dimensions of the leadership score ($r = -0.008$).

Table 1 shows baseline people-oriented and task-oriented leadership scores of the medical students. There were no statistically significant differences ($p>0.05$) in the baseline leadership scores among the medical students with different gender, domicile and planned workplace. In contrast, the medical students with administrative experiences from extracurricular activities had different leadership scores from those without the experience ($p<0.001$). The experienced students had higher people-oriented and task-oriented scores (8.833 and 9.875, respectively) than the others (7.917 and 7.500, respectively). In addition, the students that perceived the health administration course relatively important had significantly different leadership styles from the group who perceived the course as

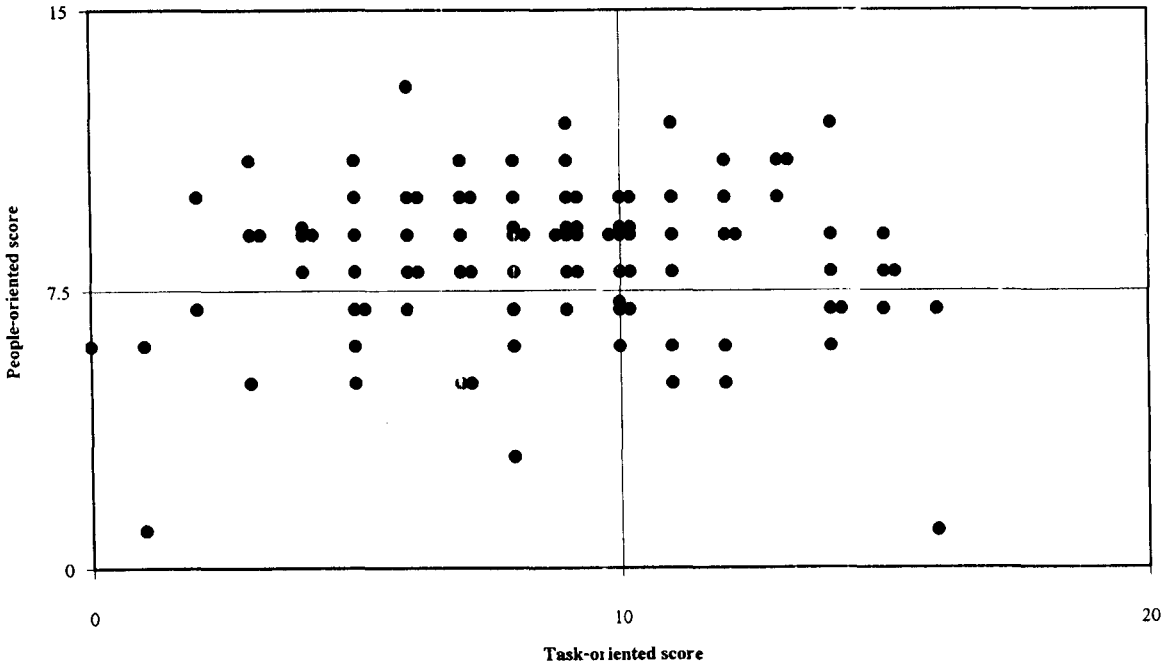


**Fig. 1. Distribution of baseline leadership scores of the medical students.**

**Table 1. Baseline people-oriented and task-oriented scores with 95% confidence intervals by categorical variables.**

| Variables | Group | Frequency | People-oriented scores | | | Task-oriented scores | | | P-value |
|---|---|---|---|---|---|---|---|---|---|
| | | | Mean | 95%Conf. Int. | | Mean | 95%Conf. Int. | | (1) |
| Gender | Male | 63 | 8.381 | 7.843 | 8.919 | 9.175 | 8.274 | 10.075 | 0.189 |
| | Female | 33 | 8.364 | 7.726 | 9.002 | 7.758 | 6.498 | 9.018 | |
| Domicile | Bkk | 72 | 8.514 | 8.062 | 8.965 | 8.806 | 8.003 | 9.608 | 0.429 |
| | Other | 24 | 7.958 | 6.998 | 8.919 | 8.333 | 6.552 | 10.115 | |
| Planned workplc. | Public | 80 | 8.488 | 8.041 | 8.934 | 8.613 | 7.812 | 9.412 | 0.439 |
| | Other | 16 | 7.813 | 6.725 | 8.900 | 9.063 | 7.036 | 11.089 | |
| Extracur. Activities | Yes | 48 | 8.833 | 8.320 | 9.346 | 9.875 | 8.954 | 10.796 | 0.000* |
| | No | 48 | 7.917 | 7.289 | 8.544 | 7.500 | 6.435 | 8.564 | |
| Perceived importance | Yes | 63 | 8.063 | 7.546 | 8.581 | 9.095 | 8.166 | 10.024 | 0.037* |
| | No | 33 | 8.970 | 8.321 | 9.618 | 7.909 | 6.709 | 9.109 | |

Note (1) People-oriented and task-oriented scores were jointly tested by Hotelling's $T^2$ for differrences of the mean scores between two groups; each pair was categorized by gender, domicile, planned workplace and administrative experience in extra-curricular activities, respectively.

less important (p=0.037). Surprisingly, the academic performance of the students as measured by cumulative GPA was not statistically associated with their people-oriented and task-oriented leadership scores (Spearman's correlation coefficients = -0.045 and 0.074, respectively).

By applying a backward variable selection, the univariate general linear model and the multivariate general linear model yielded very similar results in terms of statistically significant variables, regression coefficients and coefficients of determination ($R^2$). Two variables remained in the final

models: administrative experience from extracurricular activities and perceived importance of the health administration course. The students' gender, domicile, planned workplace, and GPAs of the students were not significantly associated with the leadership scores, controlling for the other variables, and were excluded from the model. Only the final multivariate model is presented here in Table 2, since it seems to be a more proper approach than the other in analysing leadership styles. While the people scores and the task scores may co-vary, the multivariate general linear model estimated the regression coefficients by allowing for covariability between the response variables.

Table 2 reveals that, controlling for the students' perception of the administration course, the mean people-oriented and task-oriented scores of the medical students who had administrative experiences from extracurricular activities were significantly 1.131 and 2.240 scores higher than those without the experiences, respectively. The students who perceived the health administration course to be relatively important would have lower people-oriented scores, adjusting for their extracurricular activities. Moreover, they tended to have higher task-oriented scores, on average, but the result was not statistically significant at the $\alpha$=0.05 level.

The differences in the people-oriented scores and the task-oriented scores between the post-test and the pre-test were 0.062 [95%CI= (-0.381, 0.505)] and 1.711 [95%CI=(1.062, 2.360)], respectively. The Spearman's correlation coefficients between the pre-test people scores and the change in the people scores was -0.433 ($p<0.001$), while the correlation coefficients between the pre-test task scores and the change in the task scores was -0.364 ($p<0.001$). However, the score changes in both dimensions of leadership were not statistically associated with any characteristics or experiences of the medical students being studied.

## DISCUSSION AND IMPLICATIONS

By examining a leadership style, one may predict whether it is appropriate for given work situations. The use of an inappropriate leadership style can lead to disenchantment and frustration among workers in an organization. While the medical students generally get mid-range leadership scores, they tend to have high people-oriented scores relative to task-oriented scores. This indicates a tendency towards a participating style of leadership, with which the main role of a leader would be facilitating and communicating, rather than directive[8]. As the students gain administrative experiences from their extracurricular activities, they tend to be more people-oriented as well as more task-oriented; their leadership styles become a team approach[10, 12]. While a leader with a team management style applies some directive behaviors, and still makes final decisions, group members share in the process, fostering a greater acceptance of the decision and a greater commitment to seeing that the decision is effectively implemented. Although this latter style of leadership may not be appropriate for all situations, it is usually preferred, in general[10].

**Table 2. The final multivariate general linear model by a backward selection approach.**

| Response variables | Obs. # | Parameters | RMSE* | $R^2$ | F | P-value |
|---|---|---|---|---|---|---|
| People scores | 96 | 3 | 1.910 | 0.122 | 6.479 | 0.002 |
| Task scores | 96 | 3 | 3.436 | 0.118 | 6.211 | 0.002 |
| | Reg. Coef. | Std. Err. | *t* | P-value | 95% Conf. | Interval |
| **People scores** | | | | | | |
| Extra.Act.: No | -1.131 | 0.398 | -2.843 | 0.005 | -1.915 | -0.346 |
| Importance: Yes | -1.141 | 0.419 | -2.726 | 0.007 | -1.967 | -0.315 |
| _constant | 9.689 | 0.418 | 23.19 | 0.000 | 8.865 | 10.513 |
| **Task scores** | | | | | | |
| Extra.Act.: No | -2.240 | 0.714 | -3.136 | 0.002 | -3.649 | -0.831 |
| Importance: Yes | 0.721 | 0.752 | 0.958 | 0.339 | -0.763 | 2.204 |
| _constant | 9.334 | 0.750 | 12.438 | 0.000 | 7.854 | 10.815 |

Administrative experiences from extracurricular activities in the medical school are associated with the students' leadership style. Sriratanaban et al[13] studied 535 first-year to fifth-year medical students of Chulalongkorn University, and found that participation of the students in most extracurricular activities was associated with several motivating reasons, such as, to improve personality or self-improvement. It is possible that the students who have gained experiences in leader positions from their extracurricular activities have certain advantages over the other group of students in this regard, resulting in significantly different leadership styles. However, it may be that leadership traits of some students are so people-oriented and task-oriented that they lead them to take active leading roles in extracurricular activities, though this direction of the relationship between leadership style and extracurricular activities seems to be less likely in our opinion.

Besides, the study showed that the leadership style of the medical students who perceived the importance of the health administration course tended to be less people-oriented. They also inclined to be task-oriented, despite lack of statistical significance. We hypothesize that this group of students might have relatively more concern on the structural, or rational, aspect of the management science than on the human relations side, as they might expect to learn more of how to "manage" rather than how to "lead" from the course. It is also worth noting that leadership styles of the students are not associated with their academic performances. The academic performance of medical students at Chulalongkorn University showed no association with their participation in extracurricular activities either (13). Nevertheless, our final multivariate model explains only a small proportion (~12%) of the total variation in the leadership scores.

Finally, leadership styles may be changed. We found that the medical students became slightly more task-oriented after attending the Community Medicine III program. The people-oriented dimension was, on average, unchanged. The students may realize from their experience during the program that they need to be more directive in leading some health care personnel. However, the negative correlation coefficients between the baseline leadership scores and their changes after the students have attended the program might indicate that the students become less extreme in their leadership styles, or it is suggestive of "regression to the mean" phenomenon. The results of this study show some consistency with that of Chiravisit[14], which examined leadership of 72 medical students of Chulalongkorn University in the academic year 1994. The study found that the students increasingly realized the importance of working as a group after completing the Community Medicine III course although they tended to be task-oriented over people-oriented. Some differences between the findings of these two studies might be a result of different baseline leadership styles and group characteristics, as well as different analytic approaches. However, both studies suggest that leaders can be trained. This issue requires further investigation.

In sum, medical students should be encouraged to participate in extracurricular activities in leading positions, along with learning medical knowledge and skills. Opportunities of being in such positions help gear the students towards having the optimal leadership style. As these going-to-be physicians are more people-oriented and task-oriented, they are expected to develop good teamwork within an organization. Working as a team, work assignments are the result of shared discussion, understanding and agreement. An atmosphere of trust will develop, as communication is kept open, free and candid. We can expect more effective and efficient health teams under their responsibility than those under others.

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# ข้อพยากรณ์ลักษณะผู้นำของนักศึกษาแพทย์: ความเกี่ยวข้องกับแพทยศาสตร์ศึกษา

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การให้บริการทางสาธารณสุขแก่ประชาชนจำเป็นต้องอาศัยการทำงานเป็นทีม และความเป็นผู้นำของแพทย์เป็นอย่างมาก การศึกษานี้จึงมีวัตถุประสงค์สำคัญเพื่อประเมินลักษณะความเป็นผู้นำของนิสิตแพทย์ และศึกษาปัจจัยที่สัมพันธ์กัน โดยใช้แบบสอบถามความเป็นผู้นำ ประเมินนิสิตแพทย์ชั้นปีที่ 6 ของปีการศึกษา 2538 จำนวนรวม 97 คน ระหว่างเข้ามาศึกษาวิชาเวชศาสตร์ชุมชน 3 ซึ่งเป็นวิชาที่สอนความรู้และทักษะด้านการบริหารจัดการระดับพื้นฐานในการให้บริการสาธารณสุข

ผลการศึกษาพบว่า ลักษณะความเป็นผู้นำพื้นฐานของนิสิตแพทย์มีแนวโน้มให้ความสำคัญกับคนมากกว่างาน การวิเคราะห์แบบหลายตัวแปรพบว่า ประสบการณ์ด้านบริหารในกิจกรรมนอกหลักสูตรของนิสิต และการเห็นความสำคัญของวิชาด้านการบริหาร มีความสัมพันธ์กับลักษณะความเป็นผู้นำอย่างมีนัยสำคัญ

นิสิตแพทย์ควรได้รับการส่งเสริมให้เข้าร่วมกิจกรรมนอกหลักสูตรในระหว่างการศึกษาวิชาแพทย์โดยเฉพาะในตำแหน่งที่เป็นผู้นำในงานนั้น ๆ ทั้งนี้เพื่อพัฒนาลักษณะผู้นำที่ดีสำหรับการเป็นผู้นำในทีมงานด้านสาธารณสุขของประเทศในอนาคต

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