# Level of Confidence in the 12 Roles of Medical Teacher. A Descriptive Study at Faculty of Medicine, Srinakharinwirot University, Thailand

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***Background:*** *An appropriate faculty development program is imperative for every medical school and should be tailored to suit the needs of individuals and the institution.*
***Objective:*** *To measure the average level of confidence in each of the 12 roles of medical teachers and analyse if any of these factors: age, gender, duration of teaching, and teaching in pre-clinical or clinical years has effect on the level of confidence in the teacher roles.*
***Material and Method:*** *The online questionnaire invitations were sent via email to all 211 faculty members at Faculty of Medicine, Srinakharinwirot University, and 118 (55.9%) responded. The questionnaire asked about demographic data, teaching experience and their specialty or disciplines. The respondents were also asked to rate their level of confidence in each of the 12 teacher roles on a 5 point Likert scale ranging from 1 (none) to 5 (great).*
***Results:*** *The three most highly rated roles on the level of confidence were the clinical teacher (4.11), the on the job role model (4.11) and the lecturer (3.97). The three roles with the lowest rating were the curriculum planner (3.08), the curriculum assessor (3.23) and the mentor (3.31). Age and teaching experience were positively correlated with the level of confidence in nearly all of the 12 teacher roles. The pre-clinical year teachers had a higher mean level of confidence than clinical teachers in 6 out of the 12 roles.*
***Conclusion:*** *The future faculty development programs should aim towards supporting self-evaluation of teaching, mentoring as well as promoting facilitative roles of the teacher. Retention of faculty members at the institution is also important as the teaching experience significantly correlate with confidence in the teacher roles.*

***Keywords:*** *Faculty development, Teacher roles, Medical education*

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An appropriate faculty development program is imperative for every medical school and should be tailored to suit the needs of individuals, disciplines, and the institution[1]. Thus, identifying the needs of faculty members is a crucial step and should be regarded as a starting point when designing an effective faculty development program within an institution[2]. There is evidence that a program which cover topics that are relevant to teachers' need reflects on teachers' regular participation[3].

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Training needs assessment of a teacher can be accomplished through either a self-evaluation or evaluation from the students, peer or his/her educational administrators. A few frameworks defining characteristics and capabilities of an excellent medical teacher have been proposed[4-7]. These frameworks can be used for self-assessment to identify individual strengths and weaknesses to develop one's own learning goals. Among these frameworks, the 12 roles of the teacher model proposed by RM. Harden in AMEE guide No. 20 appears to be the most comprehensive and uncomplicated framework. It can be easily adopted to construct a questionnaire for surveying self-evaluated confidence in the teacher's roles. Furthermore, in the AMEE guide No. 20, it was also suggested that this framework be used to identify

the needs for staff development program within an institution. Thus, the "12 roles of the teacher" framework was selected to gather information regarding staffs' confidence in each role of a medical teacher at Faculty of Medicine, Srinakharinwirot University. The result of this study was expected to be useful for designing an appropriate future faculty development programs.

## Material and Method

The Medical Education Unit at Faculty of Medicine holds contact details of all teaching faculties including their e-mail address. However, this database was updated 8 months prior to the start of this study, during when some of the staffs have left their post or changed their e-mail address. For this reason, the authors carefully reviewed the staffs' name and e-mail address on the list. A direct contact to the departmental secretary was made where possible to verify that the data is valid. After the review process, the number staffs' contact went down from 230 to 211 valid contacts.

The invitation e-mail consists of 2 elements. The cover letter and a hyperlink to the questionnaire web page. The cover letter provides information about the purpose of the study, why they had been invited to take part and contact details of the researchers. It was noted that the questionnaire takes only 7-8 minutes to complete and has flexible compatibility with computers, smartphones, and tablets. Instructions regarding how to enroll in the study (click on the questionnaire link) and how to opt out from the study (click the opt-out link) was also included.

The questionnaire consists of two parts. The first part asks the participants about their demographic data (Age, gender, medical specialty or discipline, number of years with teaching experience, the average percentage of work time spent on teaching task, the levels of taught students, whether they can choose their taught subject or not, and previous training in medical education). The second part asks the participants to rate their level of confidence for each of the 12 roles of a teacher identified by Crosby et al[7] on a 5 point rating scale. Where 1= none (not confident at all), 2 = little, 3 = some, 4 = considerable, 5 = great. The descriptions of the 12 teacher roles were also included in the questionnaire to provide uniform understanding of each role (Table 1). The authors translated the questions and items in the questionnaire to Thai language with the best attempt to maintain the semantics equivalence to the original description of 12 roles of a medical teacher. In order to settle the content validity of the questionnaire, a group of 4 faculty members form different disciplines was asked to pilot test the first draft of the questionnaire and some changes were made according to the faculty panel comments.

All faculty members in the Faculty of Medicine, Srinakharinwirot University were included in the study. These yield the total number of 211 participants, with 72 faculty members teaching in the pre-clinical year subjects, and 139 faculties teaching in the clinical year. The invitation e-mail along with the questionnaire was scheduled to be sent out to all recipients. After the questionnaire responses have subsided and no additional response was received for 3 consecutive days, a second reminder e-mail was sent to those who have not yet responded and those who have partially completed the questionnaire. The total time for data collection is this study was 4 weeks. Those who chose to opt out of the survey and the questionnaires that have less than 50% of answered questions were excluded from the study. Data analysis was performed using SPSS version 21. The level of confidence in the 12 roles was reported using means and SD. Pearson correlation coefficient was used to study the correlation between numerical variables (age and teaching experience, answered in the number of years) and means of level of confidence. For categorical variables such as gender and teaching in pre-clinical or clinical year, an independent t-test was used to determine any statistical difference between groups.

## Results

### *Response rate and demographic data of the respondents*

A total of 211 online questionnaire invitation e-mails were sent out. Two recipients refused to participate in the study (by clicking on the opt-out link provided in the e-mail). Among the remaining recipients, 118 followed the invitation link and completed the questionnaire, yielding a total response rate of 55.9%. Of all the responded questionnaires, only 2 were incomplete. However, more than 50% of questions were answered in all of the partially completed questionnaires. Thus, none of them was excluded from the study.

The mean age of the respondents was 41.3$\pm$8.1 years 61% (n = 72) were female and 39% (n = 46) were male 72.9% (n = 86) are the faculty members who teach in clinical years while 27.1% (n = 32) are the faculty members who teach in pre-clinical years. The duration of teaching was 1.0-38.0 years, the mean $\pm$ SD was 11.2$\pm$8.3 years. When the mean teaching duration was

**Table 1.** The description of the 12 roles of the teacher in the questionnaire

| The 12 roles of medical teacher | Detailed description of each role |
|---|---|
| The lecturer | I am knowledgeable in the subject that I teach<br>I have good presentation skills<br>I know how to get students' interaction in a classroom<br>I know how to use appropriate audio-visual aids |
| The clinical or practical teacher | I know how to teach in a clinical setting<br>I know how to teach practical skills<br>I can use simulators to enhance my teaching |
| The on the job role model | Do you, as a clinician, can model a good clinical practice and attitudes to students? |
| The teaching role model | Do you, as a teacher, can model good teacher characteristics to students? For example, enthusiastic in teaching, actively involve students and communicates effectively with students. |
| Mentor | Mentoring is "off-line help by one person to another in making a significant transition in knowledge, work or thinking" |
| Learning facilitator | I know how to facilitate a small group teaching/PBL session<br>I can use good questioning technique<br>I know how to give constructive feedback to students |
| The student assessor | I can create good test items (MCQ, MEQ, OSCE)<br>I am a creditable examiner in an OSCE/Long case examination<br>I know principles and standards of student assessment |
| The curriculum evaluator | This involves not only evaluation of the effectiveness of teaching of courses and curricula but also monitoring your own teaching performance and using feedback from peers/ student to improve. |
| The curriculum planner | This involves contribution in planning and implementing the curriculum within your institution |
| The course planner | This involve designing courses which will achieve the learning outcomes specified by the institution |
| The resource material creator | This involves producing a good quality learning materials, activities, e-learning resources to enhance students' learning |
| The study guide producer | I know what a study guide is and appreciate the value of it.<br>I can write a comprehensive study guide for the course<br>I am teaching |

compared between the pre-clinical year teachers group and the clinical year teachers group, the pre-clinical year teachers had longer teaching experience (mean 16.69 years) than the clinical year teachers (mean 9.20 years). This difference was found to be statistically significant, $t(116) = 4.67$, $p<0.001$.

With regards to level of taught students, 100 percent (n = 118) of the respondents teach the undergraduate medical students. 37.3 percent (n = 44) of faculty members are involved in the residency training. 31.4 percent (n = 37) teach students at Master level and 24.6 percent (n = 29) at PhD. Level respectively. The majority of respondents (57.6 percent) stated that they spent 25-50 percent of their work time on teaching task and 93.2 percent of respondents stated that they had given chance to choose their teaching subject or teaching activities according to their preference.

***Average level of confidence in the 12 roles and ranking***

Table 2 summarise the mean and SD of the level of confidence in the 12 roles of teacher measured with a 5 point Likert scale. The three most highly rated roles on the level of confidence were the clinical teacher (4.11), the on the job role model (4.11) and the lecturer (3.97). The three roles with the lowest rating were the curriculum planner (3.08), the curriculum assessor (3.23) and the mentor (3.31).

***Gender, age, teaching experience and the level of confidence in the 12 roles***

The male faculty members reported higher

confidence in the Lecturer and the Role model roles (t 2.49 and 2.15, $p<0.05$ respectively). Age and teaching experience were positively correlated with the level of confidence in almost all of the 12 roles ($r$ 0.20-0.47, $p<0.05$). The exception was that the level of confidence in the resource material creator role was not correlated with age ($r = 0.07$, $p = 0.44$), and level of confidence in the on the job role model and resource material creator was not correlated with teaching experience ( $r = 0.10$, $p = 0.29$ and $r = 0.03$, $p = 0.72$, respectively).

***Pre-clinical versus clinical year teachers***

There was a significant difference in the mean level of confidence in the Mentor, Learning facilitator, Course organiser, Curriculum assessor and Curriculum planner roles, with pre-clinical teachers reporting the higher level of confidence. The t-test result was shown in Table 3.

## Discussion

The three most highly rated roles on the level of confidence were the clinical or practical teacher (mean rating 4.11), the on the job role model (mean rating 4.11) and the lecturer (mean rating 3.97). It is noteworthy that both the lecturer and clinical teacher are categorized as "Information provider". Thus, it implies that our medical teachers were more comfortable with didactic teaching, taking the responsibility of transferring information. It is known that the educational climate is different in the western and the eastern world[8,9] and some cultures favour more didactic roles of teachers[7]. Comparing the result of this study with the rating on perceived importance on the 12 roles of the teacher by Crosby exemplify such difference. In this study, teachers are more confident in the Lecturer role than the Learning facilitator role, while, in the study by Crosby, western teachers rate the Learning facilitator roles as more important than the Lecturer role.

The three roles that the respondents reported the lowest level of confidence were the curriculum planner (mean rating 3.08), the curriculum evaluator (mean rating 3.23) and the mentor (mean rating 3.31).

**Table 2.** Summary of the average level of confidence in the 12 teacher roles

| 12 roles of the teacher | Mean (SD) | Min | Max |
|---|---|---|---|
| Lecturer | 3.97 (0.71) | 2 | 5 |
| Clinical or practical teacher | 4.11 (0.63) | 2 | 5 |
| On the job role model | 4.11 (0.71) | 1 | 5 |
| Teaching role model | 3.77 (0.65) | 2 | 5 |
| Mentor | 3.31 (0.85) | 1 | 5 |
| Learning facilitator | 3.56 (0.83) | 1 | 5 |
| Resource material creator | 3.42 (0.77) | 2 | 5 |
| Study guide producer | 3.56 (0.78) | 2 | 5 |
| Course organizer | 3.60 (0.91) | 1 | 5 |
| Curriculum planner | 3.08 (0.95) | 1 | 5 |
| Student assessor | 3.66 (0.75) | 1 | 5 |
| Curriculum evaluator | 3.23 (0.91) | 1 | 5 |

Rating scale on the level of confidence range from 1 = none (not confident at all); 2 = little; 3 = some, 4 = considerable; 5 = great

**Table 3.** The level of confidence in the Mentor (pre-clinical versus clinical year teachers)

| | Pre-clinical teachers | | Clinical teachers | | t-test | *p*-value |
|---|---|---|---|---|---|---|
| | M | SD | M | SD | | |
| Lecturer | 4.00 | 0.762 | 3.97 | 0.694 | 0.23 | 0.814 |
| Clinical or practical teacher | N/A | | 4.11 | 0.693 | N/A | N/A |
| On the job role model | N/A | | 4.17 | 0.637 | N/A | N/A |
| Teaching role model | 3.91 | 0.689 | 3.72 | 0.644 | 1.36 | 0.176 |
| Mentor | 3.63 | 0.871 | 3.20 | 0.823 | 2.46 | 0.015* |
| Learning facilitator | 3.94 | 0.840 | 3.42 | 0.789 | 3.12 | 0.002** |
| Resource material creator | 3.58 | 0.807 | 3.36 | 0.754 | 1.34 | 0.183 |
| Study guide producer | 3.74 | 0.930 | 3.49 | 0.718 | 1.51 | 0.132 |
| Course organiser | 4.03 | 0.836 | 3.45 | 0.852 | 3.28 | 0.002** |
| Curriculum planner | 3.39 | 0.989 | 2.96 | 0.919 | 2.14 | 0.034* |
| Student assessor | 3.71 | 0.824 | 3.65 | 0.735 | 0.39 | 0.695 |
| Curriculum evaluator | 3.52 | 0.724 | 3.13 | 0.961 | 2.03 | 0.044* |

M = mean; SD = standard deviation; * $p<0.05$, ** $p<0.01$ (two tail)[11]

The low confidence in these roles reflects the training needs of the faculty members.

The average age of the faculty members were 41 years, which compared well with demographic data in some of the US medical schools[10]. When subgroup analysis was done, the mean age of clinical year teachers was 39 years while the mean age of the pre-clinical year teachers was 47 years. The clinical year teachers also had less teaching experience than the pre-clinical year teachers (9.2 vs. 16.6 years). Regarding the correlation between age and the level of confidence, there was a positive correlation in all roles, except for the resource material creator. It could be explained that, because the description of the resource material creator role was producing a good quality learning materials, activities, and e-learning resources. The "e-learning," which is a relatively new field in medical education, possibly triggered some senior faculty members, who are not familiar with information technology and its application, to rate lower on the level of confidence in this role. The same logic applied to the disassociation between the level of confidence in the resource material creator role and the length of teaching experience. The length of teaching experience was not correlated with the confidence in the on the job role model, and the mean confidence in this role was very high ($4.11 \pm 0.71$). This implies that the medical faculties identified themselves as good doctors and their professional identity and attitudes might have fully developed during their medical school and specialty training, not after their appointment as faculty members.

The pre-clinical year teachers had a higher mean level of confidence than clinical teachers in all 12 roles. However, only the difference in 6 roles had statistical significance. As mentioned before, the pre-clinical teachers were older and had longer teaching experience than the clinical teachers. Thus, the difference in the level of confidence could be explained by the difference in age and teaching experience between the two groups.

The response rate of 55.6% in this study is considered to be satisfactory compared to other published literatures that also used the web-based online questionnaire to survey the consultants and medical faculty members which yield only 21-28% response[11,12]. The design of this study was self-completed questionnaire survey; therefore, it was subjected to some bias. Because the participants rated the level of confidence based on their perceived competency and knowledge in each subject, their level of confidence may be over or underestimated. The volunteer bias is also another concern; the faculty members who responded to the survey may be those who had more interest in medical education than those who simply ignore the invite to participate in the study. However, the researcher believes that, at the response rate of 55.9%, the volunteer bias should not have much effect on the validity of this study.

Because this study was conducted exclusively at the Faculty of Medicine, Srinakarinwirot University, the generalizability of the study result is limited. The confidence in the teaching roles of faculty members depends on many factors, one of which is the educational climate of each institution. Thus, the researchers suggest that it is best to perform needs analysis within one's own institution. However, the result of this study may be useful for the medical schools that have similar characteristics of the faculty members with ours. For example, a relatively new medical school predominates by younger generation medical teachers.

**Conclusion**

For the current faculty members, there should be short courses focusing on evaluation of teaching (supporting curriculum evaluator role) and mentoring (supporting mentor role). However, for the curriculum planner role, which is often required limited proportion of staffs to be engaged, the effort should be put towards recruiting the faculty members who would be happy to contribute to the role and offer individual training or mentorship from a senior faculty member who has more experience with the curriculum planning and development. Age and teaching duration are the factors that positively correlate with confidence in most teacher roles. Thus, retention of faculty members at the institution is a very important strategies, and every effort should be made in order to maintain the experienced faculty members in the medical school.

**What is already known on this topic ?**

There are various roles to be completed as a medical teacher. The 12 roles of medical teacher framework offer a comprehensive understanding of the overall responsibilities of a faculty member working in a medical school.

**What this study adds ?**

We use the 12 roles of medical teacher framework to assess how confident our faculty members are fulfilling their teacher roles. At our medical school, our faculty members are readily confident in

information provider roles. But the ability to be a mentor, curriculum planner and evaluator still could be improved.

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**Potential conflicts of interest**

None.

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## ระดับความมั่นใจในบทบาทครูแพทย์ 12 ด้านของอาจารย์คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ ประเทศไทย

**พรรณวรา ปริตกุล, มณฑล วองวันดี, ฐานิตรา ตันติเตมิท, สมโภชน์ ภูมิพิเชฐ, Reg Dennick**

***ภูมิหลัง:*** *การพัฒนาศักยภาพอาจารย์แพทย์นั้นเป็นเรื่องจำเป็นสำหรับโรงเรียนแพทย์ทุกแห่ง และการวางแผนการพัฒนาอาจารย์ควรมีความสอดคล้องกับความต้องการทั้งของคณาจารย์และสถาบัน งานวิจัยนี้ได้นำกรอบโครงร่างบทบาทครูแพทย์ทั้ง 12 ด้าน ซึ่งตีพิมพ์ใน AMEE guide ฉบับที่ 20 มาใช้เป็นกรอบในการวัดระดับความมั่นใจของอาจารย์แพทย์ในแต่ละบทบาท โดยจะนำผลวิจัยมาวิเคราะห์ความจำเป็นในการฝึกอบรมอาจารย์แพทย์ของสถาบันได้*

***วัตถุประสงค์:*** *เพื่อวัดระดับความมั่นใจในบทบาทครูแพทย์ 12 ด้าน และวิเคราะห์ว่าปัจจัยเรื่อง อายุ เพศ ประสบการณ์การสอนและการสอนในชั้นคลินิกหรือพรีคลินิกมีผลต่อระดับความมั่นใจหรือไม่*

***วัสดุและวิธีการ:*** *ผู้นิพนธ์ส่งจดหมายเชิญและแบบสอบถามออนไลน์ให้อาจารย์ทุกคนทาง e-mail (จำนวน 211 คน) และได้รับการตอบกลับทั้งหมด 118 คน (55.9%) แบบสอบถามนั้นจะสอบถามข้อมูลพื้นฐาน ประสบการณ์การสอน และสาขาวิชาของอาจารย์ การวัดระดับความมั่นใจนั้นใช้ Likert scale โดยแบ่งเป็น 5 ระดับ ตั้งแต่ 1 (ไม่มั่นใจเลย) ถึง 5 (มั่นใจมาก)*

***ผลการศึกษา:*** *บทบาทที่อาจารย์แพทย์มีความมั่นใจสูงที่สุด 3 อันดับแรก ได้แก่ ผู้สอนปฏิบัติงานทางคลินิก (4.11) เป็นต้นแบบแพทย์ที่ดี (4.11) และสอนบรรยาย (3.97) บทบาทที่อาจารย์แพทย์มีความมั่นใจต่ำที่สุด 3 อันดับ ได้แก่ ผู้วางแผนปรับปรุงหลักสูตร (3.08) ผู้ประเมินหลักสูตร (3.23) และอาจารย์ที่ปรึกษา (3.31) อายุและประสบการณ์สอนนั้นมีความสัมพันธ์เชิงบวกกับระดับความมั่นใจในเกือบทุกบทบาทของครูแพทย์ อาจารย์แพทย์ชั้นพรีคลินิกมีค่าเฉลี่ยของระดับความมั่นใจสูงกว่าอาจารย์แพทย์คลินิกอย่างมีนัยสำคัญทางสถิติใน 6 จาก 12 บทบาทของครูแพทย์*

***สรุป:*** *แผนการพัฒนาอาจารย์แพทย์ในอนาคตนั้นควรมุ่งเน้นการส่งเสริมให้อาจารย์แพทย์ สามารถประเมินการสอนของตนได้อย่างมีประสิทธิภาพ และสามารถเป็นผู้อำนวยการเรียนรู้ที่ดีแก่นิสิตแพทย์ได้ กลยุทธ์ในการจูงใจอาจารย์แพทย์ให้อยู่กับองค์กรก็นับเป็นสิ่งสำคัญ เนื่องจากอาจารย์แพทย์ที่สอนมานานจะมีความมั่นใจในบทบาทครูที่มากขึ้นตาม*