นิพนธ์ต้นฉบับ

Classroom Interaction between Teacher and CTPB Medical Students Faculty of Medicine, Chulalongkorn University.*

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Chulalongkorn University Faculty of Medicine launched the community-targeted problem-based medical education program (CTPB) in 1998. The first purpose of this descriptive research was to study the classroom interaction between teachers and medical students in the Community Targeted Problem Based Medical Education Program. The second was to study the teaching performance of tutors and resource persons. The team employs a Flanders observation form to collect data on behavior betweeen the teachers and the students in the classroom. The performance of tutors and resource persons checked by selected interviews of tutors and resource persons. Findings were as follows :

1) In tutorial session the students use about 75% of the time to set learning goals or reported the newly gained information. 15% of the time the tutors added information and gave feedback. About 10% of the time it has short periods of silence in the class.

2) In consultative session the resource persons use about 80% of the time to lecture. The students use 15% for answering or asking questions. About 5% of the time it has short periods of silence in class.

3) All tutors who attending the tutor training course and the resource persons can perform role and function as facilitator and information provider respectively.

Key word : Classroom Interaction, Community-Oriented, Problem-Based, Medical Education, Tutor, Resource Person, Flanders Observation Form

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บุญนาท ลายสนิทเสรีกุล, เฉลิม วราวิทย์, เสรี ร่วมสุข, บรรเทอง รัชตะปีติ. ปฏิสัมพันธ์ ภายในห้องเรียนระหว่างครูและนิสิต โครงการการศึกษาแพทย์แนวใหม่ คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย. จุฬาลงกรณ์เวชสาร 2534 มิถุนายน; 35(6) : 341-348

การวิจัยเชิงพรรณนานี้ มีวัตถุประสงค์เพื่อศึกษาปฏิสัมพันธ์ภายในห้องเรียนระหว่างครูประจำชั้น (Tutor) กับนิสิต, ผู้เชี่ยวชาญ (Resource person) กับนิสิต และพฤติกรรมการสอนของครูประจำชั้นและผู้เชี่ยวชาญ โครงการการศึกษาแพทย์แนวใหม่ คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ปีการศึกษา 2532 วิธีการศึกษาใช้การสังเกตโดยตรง ด้วยแบบสังเกตพฤติกรรมของแฟลนเดอร์ และการสัมภาษณ์ ระหว่างเดือนกันยายนถึงเดือนธันวาคม 2532 ผลการวิจัยได้ผลดังนี้

1. จากการสังเกตโดยตรงภายในห้องเรียนของครูประจำชั้น จำนวน 43 ครั้ง ครั้งละประมาณ 1 ชั่วโมง; 24 ครั้งเป็นชั่วโมงที่ครูประจำชั้นมอบปัญหาให้นิสิต ร้อยละ 71 ของเวลา นิสิตอภิปรายเพื่อกำหนดปัญหา ตั้งสมมติฐานและกำหนดวัตถุประสงค์การเรียนเพื่อไปศึกษาหาความรู้ด้วยตนเอง, ร้อยละ 12 นิสิตคิดหรือบันทึกผลการอภิปราย, ร้อยละ 2 นิสิตตอบคำถาม, ร้อยละ 10 ครูประจำชั้นให้ข้อมูลเพิ่มเติม, ร้อยละ 4 ครูประจำชั้นซักถามนิสิต และร้อยละ 1 ครูประจำชั้นแนะนำหรือบอกแนวทางให้นิสิต; อีก 19 ครั้งเป็นชั่วโมงที่นิสิตนำเสนอความรู้ที่ไปศึกษาด้วยตนเอง เพื่อให้ครูประจำชั้นตรวจสอบว่า ถูกต้องครอบคลุม ตามที่หลักสูตรกำหนดไว้หรือไม่ โดยร้อยละ 72 ของเวลานิสิตรายงานข้อมูลที่ไปศึกษาหาความรู้, ร้อยละ 7 นิสิตวาดภาพประกอบหรือบันทึกข้อมูล, ร้อยละ 5 นิสิตตอบคำถาม, ร้อยละ 10 ครูประจำชั้นเพิ่มเติมข้อมูล, ร้อยละ 5 ครูประจำชั้นซักถาม และร้อยละ 1 ครูประจำชั้นแนะนำหรือบอกแนวทาง

2. จากการสังเกตโดยตรงภายในห้องเรียนของผู้เชี่ยวชาญ จำนวน 23 ครั้ง ครั้งละประมาณ 1 ชั่วโมง; 14 ครั้งเป็นชั่วโมงที่นิสิตพบผู้เชี่ยวชาญทางปรีคลินิก ร้อยละ 79 ของเวลาผู้เชี่ยวชาญให้ข้อมูลโดยการบรรยาย, ร้อยละ 7 ถามคำถามนิสิต, และร้อยละ 2 ผู้เชี่ยวชาญให้คำติชม, ร้อยละ 7 นิสิตตอบคำถาม, ร้อยละ 3 นิสิตถามคำถาม, ร้อยละ 2 เกิดความเงียบภายในห้องเรียน; อีก 9 ครั้งเป็นชั่วโมงที่นิสิตพบผู้เชี่ยวชาญทางคลินิก ร้อยละ 72 ของเวลาผู้เชี่ยวชาญบรรยาย, ร้อยละ 9 ถามคำถามนิสิต, ร้อยละ 8 นิสิตถามคำถาม, ร้อยละ 7 นิสิตตอบคำถาม และร้อยละ 4 เกิดความเงียบในห้องเรียน

3. ครูประจำชั้นจำนวน 21 คนซึ่งผ่านการอบรมหลักสูตรบทบาทและหน้าที่ของครูประจำชั้น ทุกคนสามารถปฏิบัติหน้าที่ของครูประจำชั้นในฐานะผู้สนับสนุน ส่งเสริมการเรียนรู้ของนิสิตได้เป็นอย่างดี ส่วนผู้เชี่ยวชาญทั้งปรีคลินิกและคลินิก จำนวน 24 คน ทำหน้าที่ผู้ให้ข้อมูลแก่นิสิต สอดคล้องกับบทบาทที่ได้กำหนดไว้ในหลักสูตร

งานวิจัยนี้ได้รับทุนจากองค์การอนามัยโลก HMD 015 Budget line (s) : 3

To produce 180 quality doctors well-versed in solving all health problems in rural communities, to meet targets contained in the National Economic and Social Development Board's Fifth Plan, Chulalongkorn University's Faculty of Medicine initiated the Community Targeted Problem Based (CTPB) Medical Education Program¯ In addition to its existing conventional medical programme and its Medical Education for Students in Rural Areas Project (MESRAP). A shortage of university teaching staff, case-study patients and inadequate clinical training facilities for the CTPB programme impelled the Faculty of Medicine to approach the Royal Thai Air Force's Directorate of Medical Services to become its collaborating partner.

Doctors graduating from the innovative programme will not only posses the qualities required by the Faculty of Medicine and the Thai Medical Councils, but also will have good morals, ethical conscience, ability to solve problems under pressure, willpower to continue studying and improving, creative skills and willingness to work for community development and public health.

CU's Faculty of Medicine plans to produce 30 medical students per year from the CTPB programme. Candidates must be graduates of any curriculum except health sciences and must have 26 credits of basic science. To be eligible, they also must pass a rigid screening conducted by the two co-organising institutions. Enrollment began in May 1988 and 19 applicants were selected. In 1989, 12 applicants could passed examination. At this year's enrollment (1990), only 14 applicants passed the screening examination.

The five-year CTPB programme consists of three phases: The first 2.5-year phase, held at the Faculty of Medicine in Chulalongkorn Hospital, covers all basic medical sciences; the second and third phases, emphasising clinical sciences and skills, are supervised by the Medical Service Royal Thai Air Force (MSRTAF). During the 2.5 years under the MSRTAF, medical students will be rotated to experience all levels of health care-primary, secondary and tertiary¯ at Bhumibol Adulyadej Hospital and other state hospitals and health centres, learning how best to act under all circumstances and conditions, whether in large hospitals or small community health centres.

Although the CTPB curriculum is similar to other medical programmes, the methodology and learning processes are quite different. Unlike conventional medical programme and the MESRAP, the CTPB curriculum encourages students to become active learners rather than playing a passive role. The philosophy behind the CTPB curriculum combines "INTEGRATION" – learning all related medical and clinical subjects at the same time- which encourages the students' participation in classes and increases their retention of knowledge- and "SELF-DIRECTED LEARNING SKILL" wich instills more self-confidence and help develop critical thinking, clinical reasoning, quick decision-making and problem-solving and willpower to continue acquiring up-to-dated knowledge even after graduation. The CTPB programme also utilises the "REAL PROBLEM-BASED LEARNING" theory. Tutors introduce samples of problems on traumatic cases commonly found in communities and the students analyse cases to identify their learning objectives and then find answers via resources such as reading materials provided by medical libraries in addition to text books, audio-visual materials, Computer-Assisted Instruction (CAI), a skills lab, etc.

Before graduation, CTPB students must earn at least 200 credits and must pass the CU's comprehensive examination, which is mandatory for both conventional and MESRAP students. Upon graduation, CTPB students will receive the Doctor of Medicine (MD) Degree from the University and meet the standards for Medical Practitioners set by the Thai Medical Councils.

In addition to providing clinical teaching/ learning facilities and training for CTPB students. Bhumibol Adulyadej Hospital also is organising a workshop on clinical teaching for the Hospital's 150 medical staff, to familliarise them with the new medical programme.(1)

Because of Chulalongkorn University Faculty of Medicine is the first medical school in Thailand using problem-based learning, the authors are interested to study the behavior of tutors, resource persons and CTPB medical students in the classroom. Their behavior are based on the CTPB philosophy or not.

Objectives

1. To study the classroom interaction between Tutors and Students.
2. To study the classroom interaction between Resource persons and students.
3. To study the teaching performance of Tutors and Resource persons.

Definitions

Block an unit of learning experiences, 6-10 weeks per block. The CTPB curriculum has 10 blocks in phase I.

Tutor a teacher who[2]

a) encourages analysis, synthesis, and evaluation of data.

b) encourages students to model his/her behavior in asking for reasons, justifications, etc.

c) intervenes appropriately to keep discussion on track, to give information, and to stimulate thinking.

Resource person a person who turns for aid in time of need or emergency[3]

Materials

1. Population

1.1 Thirty-one medical students, Community-Targeted Problem-Based Medical Education Programme, in academic year 1989. There are twelve second year and nineteen third year students.

1.2 Twenty-one Tutors from Block 2, 3, 7 and 8.

1.3 Twenty-four Resource persons from Block 2, 3, 7 and 8.

2. Tools

2.1 The observation form of the Flanders System of Interaction Analysis.

2.2 Interview form for Tutor and Resource person.

Method

An observation form was designed to observe the teacher-student interaction in classroom concerned with Flanders' categories. The Flanders' categories were on a 10 categories, with 1-7 indicating teacher-talk, 8-9 student-talk and 10 silence. The observation form was distributed to all class during September to December 1989. In each class, one observer or more observed the class for at least one hour. They had cross check when they observed as group. They spent 80 hours for observing in 3 months.

Teacher Talk - Indirect Influence	**1. Accepts Feelings: Accepts and clarifies the feeling tone of the students in a non-threatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included.** **2. Praises or Encourages: Praises of encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head or saying, "um hm?"or "go on" are included.** **3. Accepts or Uses Ideas of Student: Clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to Category 5.** **4. Asks Questions: Asking a question about content or procedure with the intent that a student answer.**
Teacher Talk - Direct Influence	**5. Lecturing: Giving facts or opinions about content or procedure; expressing his own ideas; asking rhetorical questions.** **6. Giving Directions: Directions, commands, or orders to which a student is expected to comply.** **7. Criticizing or Justifying Authority: Statements Intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.**
Student Talk	**8. Student Talk: Response; talk by students in response to teacher. Teacher initiates the contact or solicits student statement.** **9. Student Talk: Initiation; talk by students which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.**
	10. Silence or Confusion: Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

***Minnesota, 1959, by Dr. Ned A. Flanders.**

Figure 1. Flanders'Categories for Interaction Analysis.*

Results

1. Of the twenty-one tutors, 47.64% are male and 52.38% are female. The academic positions or ranks are as follows, 33.34% are Associate professors, 19.05% are Instructor or Squadron leaders 9.52% are Assistant professors or Colonels or Wing commanders. All tutors were trained by the Research and Development for Medical Education Centre.

2. The twenty-four resource persons, 75% are male and 25% are female. The academic positions or ranks are as follows, 41.66% are Associate professors, 20.83% are Instructors, 16.67% are Professors or Assistant professors, 4.17% are Group captains. The 37.5% of resource persons were trained by the Research and Development for Medical Education Centre and 62.5% of resource persons had no training.

3. By direct observation in classroom teaching between tutors and students, twenty-four times (one time is an hour) are the tutorial session that tutors gave problems to students. The students use 71% of the time to define problem, formulate hypothesis and formulate learning objectives. The students use 12% of the time for think or record and 2% of time for answer question. The tutor uses 10% of the time for adding information, 4% of time for asking question and 1% of the time for giving direction to students. Nineteen times are the tutorial session that students synthesize and test the newly acquired information with tutor. The students use 72% of the time for presenting information based on basic science. The students use 7% of the time for drawing chart or diagram and 5% of the time for answering questions. The tutor uses 10% of the time for adding information, 5% of time for asking questions and 1% for giving directions to students.

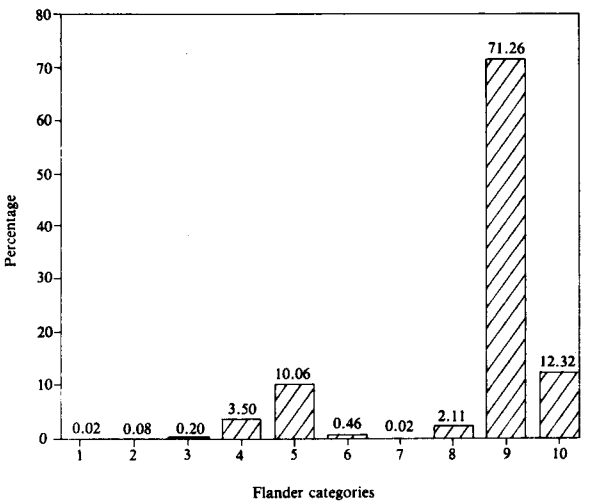

Figure 2. Distribution of classtime among Flanders' categories in tutorial session (Giving problem).

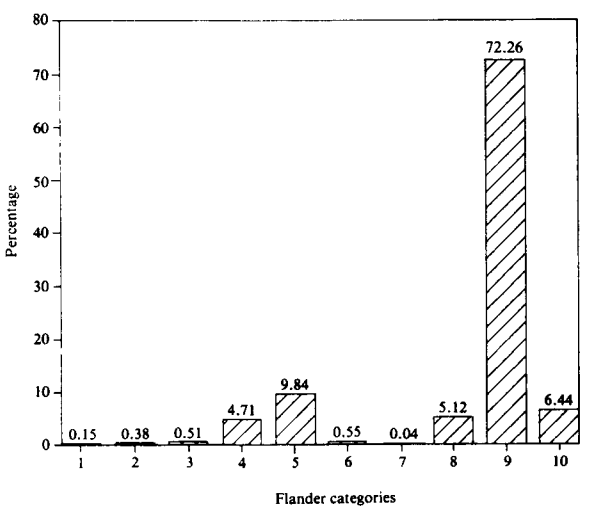

Figure 3. Distribution of classtime among Flanders' categories in tutorial session (Synthesizing information).

4. By direct observation in classroom teaching between resource person and students, fourteen times (one time is an hour) are the pre-clinical teaching. The resource person uses 79% of the time for lecturing, 7% of the time for asking question and 2% of time for give feedback. The students use 7% of the time for answering questions and 3% of the time for asking questions. There is short period of silence about 2% of the time. Nine times are the clinical teaching. The resource person uses 72% of the time for lecturing and 9% of time for asking question. The students use 8% of the time for asking question and 7% of the time for answer question. There is short period of silence about 4% of the time.

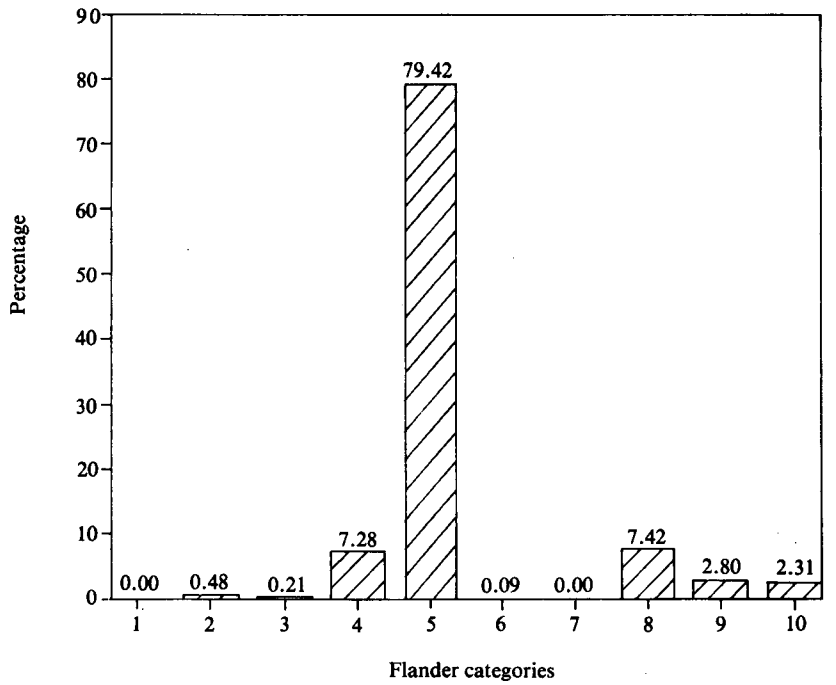

Figure 4. Distribution of classtime among Flanders' categories in teaching session between pre-clinical resource person and students.

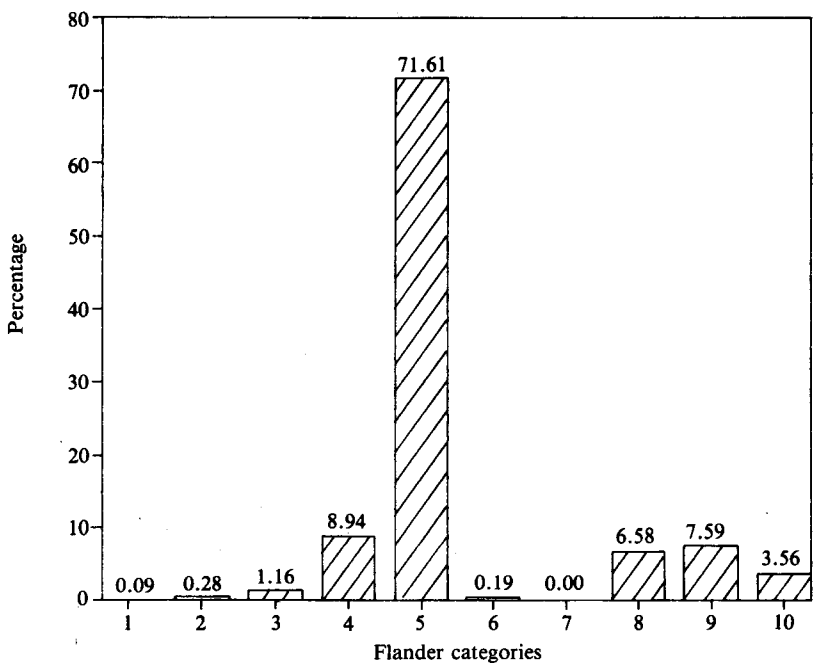

Figure 5. Distribution of classtime among Flanders' categories in teaching session between clinical resource person and students.

5. All tutors act as good facilitators. They periodically ask students to explain and define medical terminology used. They emphasize students to model his/her behavior in asking for reasons. They intervenes appropriately to keep discussion on track and to stimulate thinking.

6. The resource persons act as discipline experts. They feel a similar need to impart their expertise and knowledge, to transfer their understanding to the students. Clinicians feel the need to assert and demonstrate their expertise and clinical prowess.

Discussion

PBL is characterised as being student-centered.[4,5] At CU, each tutorial group is composed of six students and one basic or clinical science faculty tutor. A typical group session lasts three hours and there are two session a week. The schedule leaves considerable free time for students to pursue independent study, work in the community, and meet with resource faculty. The CTPB medical students perform themselves as active participants, responsible for their own learning and learning how to learn. The tutors who trained tutor training can perform role and function as good tutor.[6-8] They have strong, positive feeling about the experience. Participating in small-group learning allows them to know their students well, and to see at close hand a student's feeling of exhilaration about his or her learning. On the role of resource persons, they use most of the time providing their expertise and knowledge to the students. This role is the same role as lecturer in conventional curriculum.[9-12] This finding is same as the finding of the International Consortium for productivity in Education, USA, that most of the talk is teacher-talk and most of the teacher-talk is lecture. The total of classtime spent in giving praise to students, accepting their feelings, or accepting their ideas is slightly less, on the average, than the amount of time spent criticizing or justifying authority[13]

1. Regardless of cultural setting, teaching is seen as talking and learning is seen as listening.
2. Most of the talk is teacher-talk, and most of the teacher-talk is lecture.
3. Feelings are rarely accepted in the classrooms; student ideas only very infrequently accepted.
4. The total of classtime spent in giving praise to students, accepting their feelings, or accepting their ideas is slightly less, on the average, than the amount of time spent criticizing or justifying authority.

Figure 6. Finding from studies conducted by the International Consortium for Productivity in Education.

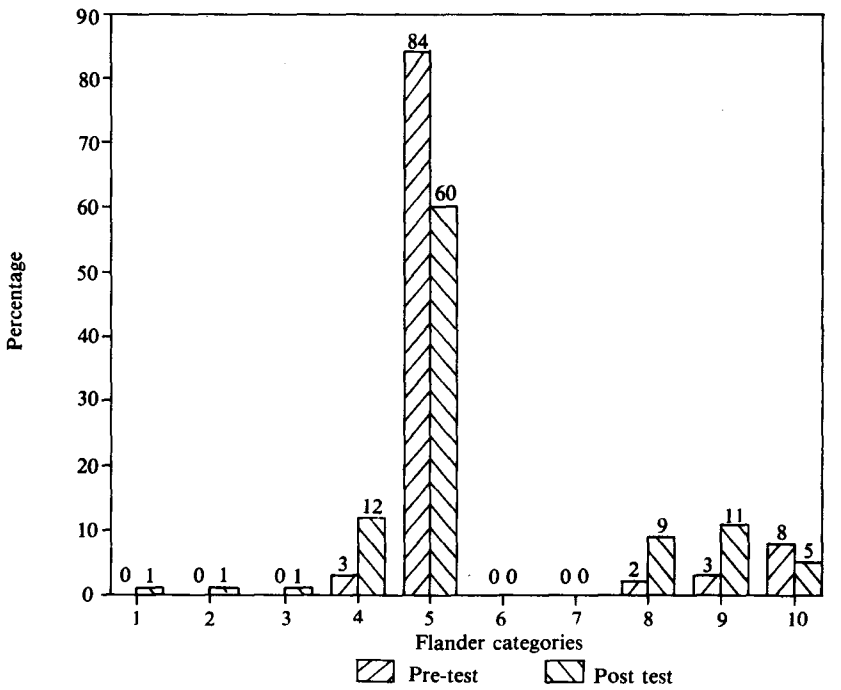

Figure 7. Comparison of distribution of classtime among Flanders' categories in simulated teaching sessions before and after training of physicians on medical school faculties in 26 developing countries (N = 167).

Summary

The descriptive study revealed that the CTPB medical students were active participants and responsible for their own learning. The resource persons performed their role like the instructor in conventional curriculum. The role of the tutor is critical for optimal tutorial group function. The tutor training will be essential and continuing task, both with regard to development of skills in newer recruits as well as to continuing improvement of the skills of the more experienced tutor.

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