# MENTORING FOR SENIOR PRECLINICAL MEDICAL STUDENTS IN A FACULTY OF MEDICINE

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## ABSTRACT

**Background:** Universities' core values need to be translated into real learning design. At the end of the preclinical phase, the curriculum turned into a more comprehensive and full of trustworthiness of knowledge and attitudes. Meanwhile, the development of attitudes requires intensive support (mentoring). The team intended to translate the core values of Atma Jaya (Christianity, Excellence, Professional, Caring, KUPP) into an instructional design. Mentoring was the selected approach to build a dialogue and work together with students. In this article we presented the implementation of mentoring on the Elective Block of Medical Education (Block IPK) for the 7th semester medical students at Atma Jaya School of Medicine (August-September 2015, 5 weeks). The Block IPK then was followed by an advanced mentoring until the end of November 2015. We intended to realise KUPP through mentorship throughout Block IPK until the end of the first semester of 2015/2016. In particular, this action research was intended to find answers to research questions: (1) What were perceived by the students throughout the mentoring in the Block IPK ?, (2) What were perceived by the students throughout the mentoring after Block IPK?, (3) What products were the students proud of after the mentoring?
**Method:** Qualitative analysis using Delphi method were utilized to determine the main theme. Analyses were fulfilled using interpretive analysis. Data were taken from: reflective writing, FGD or interviews, email communication, and the mentors' observation. The Delphi was performed in three rounds.
**Results:** Findings showed positive impression on Block IPK. Students were aware of the meaning or significance of Block IPK. Field trip and working group were learning methods which considered to be important, because the methods had succeeded in generating meaningful learning for students. Approximately 40-50% of the students stated the significance of working group in Block IPK. Approximately 50-75% of students experienced personal cultivation. Approximately 67-75% of the class stated the superiority of Blok IPK and mentoring. Students appreciated the working group, which gave opportunities to have a discussion on campus with mentors. Mentoring had advantages in terms of students' cultivation of the freedom of thought and to proceed further learning (advance learning).
**Conclusion:** Students perceived positively to mentoring activities during and after the Block IPK. Mentoring benefited to personal cultivation, academic support, role modeling and leadership. The implication to medical education institutions was to implement a mentoring steadily.

**Keywords:** mentoring, meaningful learning, core values, instructional design

## ABSTRAK

**Latar belakang:** Nilai-nilai inti perguruan tinggi perlu diturunkan ke dalam desain pembelajaran. Pada semester akhir preklinik, sifat kurikulum menjadi komprehensif dan sarat kehandalan pengetahuan dan sikap. Sementara itu, pertumbuhan sikap membutuhkan pendampingan intensif (*mentoring*). Tim bermaksud mengejawantahkan nilai inti Unika Atma Jaya yaitu Kristiani, Unggul, Profesional, Peduli (KUPP) dalam desain pembelajaran. *Mentoring* adalah cara untuk menurunkan KUPP dalam dialog dan karya bersama

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mahasiswa. Dalam artikel ini dipaparkan mengenai implementasi *mentoring* pada Blok Elektif Ilmu Pendidikan Kedokteran (Blok IPK) bagi mahasiswa semester VII di FKUAJ (Agustus-September 2015, 5 minggu) yang kemudian diikuti dengan desain *mentoring* lanjutan sampai akhir November 2015. Kegiatan ini bertujuan untuk mewujudkan KUPP melalui *mentorship* sepanjang Blok IPK hingga akhir semester ganjil 2015/2016. Secara khusus, *action research* ini hendak mencari jawaban atas pertanyaan penelitian: (1) Apa yang dirasakan mahasiswa dalam *mentoring* sepanjang Blok IPK?, (2) Apa yang dirasakan mahasiswa dalam *mentoring* setelah Blok IPK?, (3) Produk apa sajakah yang mahasiswa secara bangga dapat selesaikan setelah *mentoring* berkelanjutan?

**Metode:** analisis kualitatif dengan metode Delphi untuk menentukan tema pokok. Analisis dilakukan secara *interpretive analysis*. Data diambil dari: *reflective writing*, hasil FGD atau wawancara, hasil komunikasi melalui surel, dan hasil observasi *mentor* terhadap mahasiswa oleh *mentor*. Delphi dilakukan sebanyak tiga putaran.

**Hasil:** Temuan menunjukkan kesan positif terhadap Blok IPK. Mahasiswa menyadari arti atau kebermaknaan Blok IPK bagi dirinya. *Field trip* dan *working group* merupakan metode belajar yang dipandang penting, karena telah berhasil membangkitkan *meaningful learning* bagi mahasiswa. Sekitar 40-50% mahasiswa menyatakan kebermaknaan *working group* dalam Blok IPK. Sekitar 50-75% mahasiswa mengalami pendewasaan secara personal. Sekitar 67-75% populasi kelas menyebutkan hal-hal yang menjadi kelebihan Blok IPK dan *mentoring*. Mahasiswa menghargai adanya *working group*, yang memberikan kesempatan mahasiswa untuk berdiskusi di kampus dengan pendampingan *mentor*. *Mentoring* memiliki kelebihan pada pendewasaan mahasiswa dari segi kemerdekaan berpikir dan berproses lebih lanjut (*advance learning*).

**Kesimpulan:** Mahasiswa berpersepsi positif terhadap kegiatan *mentoring* yang dilakukan selama dan setelah Blok IPK. *Mentoring* memberi manfaat personal, dukungan dalam akademik, *role modelling*, dan *leadership*. Implikasinya, institusi pendidikan kedokteran perlu menerapkan *mentoring* dengan mantap.

**Kata kunci:** *mentoring, meaningful learning,* nilai-nilai, desain pembelajaran

## INTRODUCTION

In the formulation of the core values of Atma Jaya according to *Nota Yayasan Atma Jaya* or the Atma Jaya Foundation Note,[1] there are four main components: *Kristiani* (Christian), *Unggul* (Excellent), *Profesional* (Professional), and *Peduli* (Caring) or KUPP. That document writes down the meaning of:

> ***Christian**: Catholic faith is the cornerstone of the whole process. This Christian value is revealed in faith and manifests in a true brotherhood and a culture of love.*
>
> *In Christian value, Atma Jaya wants to actualize "**A Strong Community in Faith, a True Brotherhood, and a Culture of Love.**"*

The same document above also writes down this value:

> ***Excellent:** encouragement to keep being the best in one's scientific field, which will ensure each individual to devote themselves in the community interests.*
>
> *In that value of excellent, Atma Jaya wants to form "**An Excellent, Characterized, Critical, Lifelong-Learning Atma Jaya Community**."*

The meaning of **Professional**:

> Is the practice or approach in finishing tasks by prioritizing reliable management principles, so quality results are ensured;
>
> *The attitude of **Caring**: is the main orientation of the actualization of the Christian values, complemented by excellent and professional competence.[1] (p. 13)*
>
> *In the value of caring, Atma Jaya intends to actualize "**A Caring, Solid, Plural, and in-Favor-of-the-Weak Atma Jaya Community**."*

The keywords under the sphere of KUPP has been revealed from the meaning and the purpose of the community that are wished to be actualized by Atma Jaya. Figure 1 summarizes those keywords. If we contemplate it, all those keywords would not be achieved just by reading Atma Jaya Foundation Note. These keywords need to be practiced accordingly. The real measure in the core business of Atma Jaya is the higher education. Inside, it involves educated youngsters served by Atma Jaya community. Those keywords need to be pronounced in the series of educational works by everyone in the academic community. Including those real works into the curriculum is one of the ways.

The meaningfulness of the keywords of KUPP does not spontaneously happen in classes in Universitas Atma Jaya (UAJ). Those keywords also require a shift of perspectives in the academic community. For example, the value of excellent has attitudes of characterized, critical, and lifelong learning inside it. In the relationship between teachers and students, those attitudes would not just appear in the crowd. Teachers cannot see in the crowd whether students actualize those attitudes or not. Another example, the attitudes of solid, plural, and in favor of the weak would only appear if a small group of people really see one another.

The meaning of the keywords is not revolutionary, although revolutionary attitude is needed. For example, the attitude of faithful, in a true brotherhood, and loving could not be observed in a short time in the interaction between teachers and students in a classroom (in a crowd). These attitudes are longitudinal.[2,3] Therefore, other observations also require a revolution of teachers' attitude to provide time, energy, and a place for the development of those attitudes.[4] Similar with this example, in the value of professional, a transparent, accountable, independent, and fair leadership attitude does not appear spontaneously. If these professional attitudes were to be observed from the behavior of the relationship between teachers and students, the observation in a crowd clearly is not the right solution.


Figure 1. The KUPP Cycle, Nota YAJ, p. 321

The learning design in higher education can be put in a metaphor like a spiral circling that gets wider. The higher a student's level of education is, their spiral encompasses other spirals underneath. It means that higher level students' study load is more comprehensive, more suitable to their interests, more personal, as well as reaches its meaning for the community's work. Especially in medical students, the professional level is very similar to the real professional work. The success of education in this level is affected by several things, including mentoring.[5]

The requirement for the equality of teachers and students can be achieved in the mentorship framework. This framework gives a chance to unify teachers' and students' ideas. The learning design which gives student-centered activities and student-centered learning is the choice to allow this unification. The achievement of this learning activity results will then be measured by an assessment that also unifies teachers' and students' ideas. Clearly, a written examination is not enough to cover mentorship framework. Feedbacks from teachers to students is one of the assessment forms suitable with mentorship.

On a higher level, students get more mature, so it is reasonable to involve them more in learning design evaluation. This action can only happen if there is an equality between teachers and students. This action also requires both parties to think in a higher order thinking skills level until metacognition level.

Metacognition requirements are the planning, monitoring, and evaluation process of how human think. Bloom's taxonomy revised edition includes metacognition as a part of human's cognitive level.[6] In a learning design, metacognition may be actualized through learning activities, assessment, and program evaluation. Learning activities which provide planning, observation, and evaluation process can be approached with various learning models. Inquiry learning, which also requires active learning, is one of learning models involving metacognitive skills. Gradual assessment provides monitoring medium as a part of metacognition process. Program evaluation involving both parties (teachers and students) clearly covers not only learning results, but also critical reflection of a learning design.

According to the description above, research team implemented mentoring in the Elective Block of Medical Education for seventh-semester medical students of Universitas Atma Jaya in term 2015/2016 (August – September 2015),[7] which was followed by an advanced mentoring design for students who were interested until late November 2015 (3 months after Medical Education Block). This study aims to manifest KUPP in a special learning design for final-year students. We considered KUPP needed to be derived in a real activity in a higher education. Mentoring is a way to derive KUPP in students' dialogues and papers. Elective Block of Medical Education only lasted for 5 effective weeks. Meanwhile, mentoring needs a time and place that should be continuous and enough. Therefore, we held continuous mentoring program until the end of odd semester of term 2015/2016 for students taking Elective Block of Medical Education.

The general aim of this activity is to actualize KUPP through mentorship along the Elective Block of Medical Education until the end of odd semester of term 2015/2016.

Specifically, this action research aims to seek answers to these questions:

1. What did students feel during the mentoring along Medical Education Block?
2. What did students feel during the mentoring after Medical Education Block?
3. What products did students proudly finish after advanced mentoring?

## METHOD

This research was a qualitative research using Delphi method analysis to determine the arising main themes. Analysis was done using interpretative analysis. Data were collected from reflective writings, FGDs or interviews, emails, and mentors' observation towards students. Three writers who were also mentors performed Delphi analysis by determining the themes independently by what arose from the data. Furthermore, tables and their explanations were exchanged among the three researchers. The established themes were included in the standard theme. Then, second round Delphi was performed to determine the themes that had not been agreed upon. Third round Delphi could be performed if there was still more than 50% of themes disagreement in the tables. The last interrater meeting with third round Delphi would result in a total unanimity of at least 80% of the themes since the first round.

To determine the Delphi table, here are the definitions and triggers according to the research questions:

1. Research question 1: *What did students feel during the mentoring along Medical Education Block?* This question was answered through a Delphi of Medical Education Block students' reflective writings, especially about the arising themes as feelings. In this case, feeling means impression, emotional state, emotional reaction, overall quality of one's awareness, attentiveness, opinion about good and bad, and inner judgment.
2. Research question 2: *What did students feel during the mentoring after Medical Education Block?* This question was answered through reflective writings and FGDs after the advanced mentoring process.
3. Research question 3: *What products did students proudly finish after advanced mentoring?* This question was answered through discussion process, emails, and observational conversation between mentors and students enclosed with students' products.

## RESULTS AND DISCUSSION

### Students' feelings along Medical Education Block and mentoring after Medical Education Block

Table 1 showed 100% of unanimity among three raters in the first-round Delphi. This finding showed a good impression towards Medical Education Block. All statements in this high unanimity depicted students' feelings in their view through reflections or dialogues in classes and mentoring activity. Students realized the meaning of Medical Education Block for themselves. More than half of the class felt the advantages of the learning method through a field trip. This also showed the success of the execution of Medical Education Block as well as mentoring for students. Specifically, students mentioned the meaning of learning through methods focusing on students and based on real work such as a field trip to *Yayasan Orangtua Peduli* (YOP). These methods had successfully triggered a meaningful learning in students.

Table 1. Findings with 100% unanimity through Delphi round 1.

| No. | Statements |
|---|---|
| 1 | 1. A majority (more than 80%) of the students felt a good impression towards Medical Education Block |
| 2 | 2. A majority (more than 80%) of the students felt a state related to positive emotions towards Medical Education Block |
| 3 | 3. A majority (more than 80%) of the students gave a positive emotional reaction towards Medical Education Block |
| 4 | 4. A majority (more than 80%) of the students realized the meaningfulness of Medical Education for themselves |
| 5 | 11. More than 50% of the students mentioned the meaningfulness of field trip in Medical Education Block |
| 6 | 13. More than 50% of the students mentioned happy feelings because of Medical Education Block |
| 7 | 16. Less than 10% of the students felt disappointed, upset, not as expected because of Medical Education Block |
| 8 | 17. Less than 10% of the students felt bored and weary because of Medical Education Block |
| 9 | 18. Less than 10% of the students felt Medical Education Block was useless for medical students |
| 10. | 19. Less than 10% of the students felt Medical Education Block did not give new knowledge |
| 11 | 20. Less than 10% of the students hated, disliked, were sick of Medical Education Block |

Table 2 presents similar things with positive feelings experienced by students. During the execution of Medical Education Block, students felt positively happy about Medical Education Block. More than half of the class felt happy and pleased. 40-55% of the class felt a state related to an inner development and about 40-55% of the class mentioned the meaning of working groups in Medical Education Block. About 50-75% of the students in Medical Education Block (Table 2) experienced personal maturation because of the process in Medical Education Block and during mentoring. About 67-75% of the population mentioned the advantages of Medical Education Block and mentoring. In students' reflection, it was stated the advantages of Medical Education Block in its learning method that focused on students. Students appreciated the working groups that gave students the opportunities to discuss in campus with an accompaniment of a facilitator. This discussion resulted in new ideas to finish tasks that were considered difficult in Medical Education Block. Meanwhile, mentoring was considered to have an advantage in maturing students in terms of thinking independently and advanced learning.

Table 2. Findings with tolerable unanimity response (delta ≤ 25%) through Delphi round 2 and 3

| No | Questions of Round 2 | Questions of Round 3 | Response | Delta |
|---|---|---|---|---|
| 1 | 5. What percentage of the students who felt they matured during Medical Education Block? | – | 50-75% | 25 |
| 2 | 6. What percentage of the students who were able give their opinions about the advantages and disadvantages of Medical Education Block? | 6.a. What percentage of the students who were able to give their opinions about the advantages of Medical Education Block? | 67-75% | 8 |
| 3. | | 6.b. What percentage of the students who were able to give their opinions about the disadvantages of Medical Education Block? | 25-50% | 25 |
| 4. | 7. What percentage of the students who felt a state related to personal spirit because of Medical Education Block? | | 40-55% | 15 |
| 5. | 9. What percentage of the students who mentioned the meaningfulness of working groups in Medical Education Block? | | 40-50% | 10 |
| 6. | 15. What percentage of the students who mentioned their wish to recommend Medical Education Block to other students? | | 50-75% | 25 |

Only a few (less than 6 students) felt disappointed, bored, or resentful. Less than six students felt this Medical Education Block was useless for medical students and they did not receive new knowledge. The total number of students in Medical Education Block class was 52. The number of students feeling disappointed was only 11% of all students at most. About 25-50% of the class population were able to mention the limitations and things to review in Medical Education Block as well as the mentoring after Medical Education Block. In the reflections, students also felt bored in the open discussion after an expert lecture, which took too long.

Positive results also showed students' satisfaction level towards Medical Education Block and their willingness to recommend Medical Education Block to other students. About 50-75% of the students mentioned their wish to recommend Medical Education Block to other students in the following year. In the reflections and discussions, students explicitly stated they were willing to promote Medical Education Block to junior students. Their willingness and initiative were certainly meaningful for Medical Education Block organizer. In the reflections upon the mentoring, students also suggested that this activity were continued, but a fixed mentoring schedule were required according to students.

A few statements had not yet fully achieved interrater unanimity (Table 3). Although the raters had not yet agreed to the presented things in Table 3, it was seen that students discussed about these things in one or two occasions. The statement that had yet reached an agreement was related to relieved or proud feelings. Furthermore, the pronouncing of grouping, working groups, mentoring after block, and 360° assessment by students was not exhaustive in the reflective writings or in the interviews and FGDs. This was because the trigger questions were not specifically directing to the learned things from the learning method in Medical Education Block.

Table 3. Statements without any agreement through Delphi round 1 to 3.

| No | Questions | Response | Delta |
|---|---|---|---|
| 1 | 8. What percentage of the students mentioned the meaningfulness of mentoring in Medical Education Block? | 13-75% | 62 |
| 2 | 10. What percentage of the students mentioned the meaningfulness of 360° assessment in Medical Education Block? | 0-75% | 75 |
| 3 | 12. What percentage of the students mentioned the meaningfulness of grouping in Medical Education Block? | 17-75% | 58 |
| 4 | 14. What percentage of the students mentioned the proud feelings because of Medical Education Block? | 50-82% | 32 |

**What products did students proudly finish after advanced mentoring?**

During Medical Education Block, students were assigned to produce various products, such as block documents, community education or personal education supporting tools, and scientific writings.

**a. Block Documents**

Block documents produced by students as a task to create block documents are: Life Cycle and Natural Aging Block, Research Method Block, Public Health Block, Reproduction Block, and Endocrinology Block documents. Students were allowed to refer to students' pocket book in writing these block documents, but they were asked to insert learning innovations, either a learning method or an assessment method, to revise the existing block documents in accordance with what they were learning. After finishing this task, students did not only understand the big picture on how to construct a curriculum on a block level, but they also understood the metacognition aspect (learning how to learn) behind each learning and assessment they had designed.

**b. Community Education or Personal Education Supporting Tools**

This task resulted in supporting tools to deliver education to community or an individual. The education materials produced by the students were in the form of: flyers, brochures, posters, audio visual, and audio. The education materials included HIV/AIDS, sexually transmitted infections, cervical cancer, and a few other diseases. Moreover, there were also materials regarding the dangers of smoking, obesity, as well as exercise, balanced nutrition, iodized salt, breastfeeding, and breast-milk substitutes.

c. **Scientific Writings**

The task to write scientific writings chosen by students were writings to publish in newspapers. There were two writings published in Media Indonesia on October 4th, 2015 about Physicians for Eastern Indonesia Program and on December 6th, 2015 about the learning activities in Medical Education Block. One more article regarding vitamin C was also planned to be published by Media Indonesia.

After Medical Education Block ended, students were offered a chance to join advanced mentoring activity. One of the students' tasks in this advanced mentoring was to finish their products in Medical Education Block to be ready-made products and to offer their products to related parties. These are the details of the advanced mentoring activities as well as the products produced:

1. Personal or community education improvement
   Products produced by students during Medical Education Block and to be continued in the production stage were improved by students participating mentoring. These products were given some inputs by the mentors and experts

of the related subjects contacted by students and mentors. Furthermore, in the discussion process of mentoring students found how to fund this production. Students were directed to make proposals aimed to CSR. Three best products by mentoring students were produced using fund from this teaching grant.

2. The practice of community and personal education during mentoring period
   Three students with the best products then practiced their community and personal education in a car free day activity in front of Unika Campus of Atma Jaya on Sunday, January 10th, 2016. Students felt how difficult it was to approach the crowd to explain their projects in their hands.
3. Fund proposals to deliver community or personal education
   For the importance of education materials production, students were directed to make grant proposals using right-on-target and scientific reasons. Proposals were aimed to CSR. Until the mentoring ended, only one group successfully finished this grant proposal.

The results obtained from reflective writings, FGDs, as well as students' day-to-day interaction with teachers of Medical Education Block showed that almost all responses from the students after the block and mentoring were positive responses. One of the differences of Medical Education Block from other blocks in Faculty of Medicine, Universitas Atma Jaya was scheduled mentoring for students. Considering that 50% of the learning method used in Medical Education Block was SCL method that required students' activeness, this mentoring activity played a role as a control mechanism. On the other hand, students might confirm their block tasks as well as ask their mentors for suggestions about their finished tasks, meanwhile mentors could quickly know the difficulties faced by their mentoring students as well as offer help and guidance if needed. This mechanism was expected to mature students in learning. This mentoring activity was proven to be quite effective because more than 50% of the students claimed they felt they matured after the block.

Data analysis using Delphi for mentoring aspect and products produced after mentoring showed close experience grew interprofessional relationship. Students felt a closeness to the mentors, interpersonal relationship grew here. This finding conforms well to a study about psychological distance and psychological size.[8] Vaughn and Baker[8] stated the importance of teacher-student relationship in educational process and its contribution to support significance learning. In their findings, these researchers stated that psychological distance was interpreted more broadly by students than mentors, this showed that students desire meaningful mentorship relationship with their teachers. Meanwhile, on the other hand, teachers feel they have function and are close as mentors. Clearly, the recommendation to minimize the distance between teachers and students become important.

In the advanced mentoring, students felt a productive mentoring with their own products through project-based assessment. Previous research also demonstrated a similar thing with productive and functional mentoring, students were able to find the meaning of their learning.[9] The condition of mentoring after this Medical Education Block was similar to the concept of continuing medical education (CME), which aims to increase the professionalism of graduate doctors. CME is a functional mentoring[8] suitable with one's assignment. Therefore, recommendation for medical education is to give functional mentoring, meaningful in students' study level, but also has advanced meaning potential in their work in the future.

This study also showed how mentoring was deemed important by students. Students started to think they needed mentors since the first semester until the last, mentors needed to function more productively, interaction between students and teachers in the mentorship framework was very important. Mentors' role in the beginning of a semester is different and increases until the end. This shows the need of mentoring is very precise and in line with adult growth.[10] A research in Switzerland showed young doctors expressed the importance of mentoring, especially to bridge clinical and research

study.[10] Similar research also proved that guidance since the start of education makes students survive better.[11,12] From the students who thought positively towards this mentoring activity during and after Medical Education Block, students claimed that this mentoring should be held since the first semester until the last during their education to become doctors. Mentoring may help students navigate the campus life, especially in providing emotional and psychological support, guidance and help in career planning, and role models. Mentorship may be held formally in the institution by pairing one student with one teacher, or informally with a student and a teacher commit to be a mentee and a mentor without a formal letter from the institution. If a formal mentorship is not held, informal mentorship usually is started by contact and communication between a student and a teacher outside the class.

In a study by Fuentes et al.,[9] it was shown that contact and communication between students and teachers outside the class in the first year of preclinical medical education had positive impact directly towards final-year mentorship. Contact and communication were what started the relationship between students and teachers. Therefore, contact and communication between students and teachers outside the class need to be cultivated by both parties. Students need to have the initiative and teachers need to support and welcome this initiative. Students who have passed Medical Education Block, whether they continued to attend mentoring after the block or not, were expected to have initiative to seek mentors during their education or their career in the future because they had been exposed to the mentoring process, felt the advantages, and understood better on how to start it.

In medical education, the role of mentoring is deemed very important, especially because medicine has many career options, including clinicians, researchers, academics, as well as public health and public policy. A study by Buddeberg-Fischer et al.[10] found that mentoring activity was one of the most important career supports for young academic doctors. Mentors might be from the areas of interest of the mentees, so that mentors might help develop mentees' careers more specifically, but also might be from other areas because general career guidance were still given. Therefore, mentoring in faculty of medicine need to be cultivated not just during education, but also after education for doctors who have not graduated for so long, whatever the career choices are. This is also pointed out to mentoring students that whatever their career choices are, having mentors will be beneficial in developing their professional potential.

Having a mentor was also proven to have a positive impact for student education from year to year in preclinical phase, as demonstrated by Hu and Ma.[12] From the students who have mentors, those who seek guidance more actively are more likely to continue their education in the following year. Students need to be introduced to the concept of mentoring since the beginning of their education in the university because if they have mentors since early on, the higher their chance to continue their education from year to year without any obstacles.[11] Although mentoring is given in Medical Education Block and after it is given in the seventh semester, this was still seen as "early" in medical education, considering that formal medical education requires 5.5 up to 6 years, followed by medical specialist education as well as sub specialist education for those who choose the clinical path, or even masters and doctoral education for those who choose other career path.

Mentoring activity is not only beneficial in the aspect of developing professionalism and career choices, but more than that, mentoring is also beneficial in shaping leadership skills in students. University needs to realize that mentoring is a factor determining the graduates work as leaders.[14] Dugan & Komives[14] stated that mentoring have an important role in developing prospective leaders who have social responsibility. Graduating doctors who have leadership skills in the community is not just in line with the vision and missions of Faculty of Medicine, Universitas Atma Jaya, but is also in line with the profile of an ideal doctor proposed by World Health Organization (WHO).

Other learning approach that got very positive responses from students in this study was interprofessional education (IPE) and in Medical Education Block was performed by involving nursing

students from St. Carolus Health School. Students felt that IPE was very important because it gave them opportunities to learn to manage a problem in a team involving other health professions, such as what they would do in the future. Exposure to other health professions early in their education were considered helping them adapt to clinical education. IPE may be done in various areas of specialization, especially areas with complex problems that require team approach. In Universitas Atma Jaya, the example of an area that has a big potential for the implementation of IPE is geriatrics as one of the superior area in Faculty of Medicine, Universitas Atma Jaya, especially with a School of Pharmacy to be opened soon. Geriatrics is one of the specializations that often faces polypharmacy and drug interactions problems, either with other drugs or with patients' condition itself. One of the implementation of IPE in geriatrics in School of Pharmacy was done by Shrader et al.[15] That study showed a significant increase of students' attitude towards an interprofessional collaboration and of students' understanding about the roles of each profession. Furthermore, the aspects of nursery and nutrition of geriatrics also need team approach which may be done by involving St. Carolus Health School.

The implication based on this study and discussion showed a big potential for the advancement of higher education through mentoring. Important notes from the results of the analysis in this study give better possibilities for the application of mentoring in the future. For the suggestions, medical students of Universitas Atma Jaya expressed the importance of the equalization of perception among mentors, so that in the field there would not be different information from the mentors. In this, the implication is clear where mentors as evaluators at the same time need to be trained for their double roles.[16-18] The preparation for role training as mentors as well as evaluators for students' work may be done by panel discussion and joint assessment rubric preparation. As in the interview, students also expressed that mentoring participation should be optional or free, not restrictive. This kind of participation will show maximal impact. However, students agreed that relatively restrictive guidance was needed, a program was needed early on which stressed that mentoring was not forced, but would result maximally, this conforms well to previous results.[19]

Aside from the teachers, mentoring may be done by involving those who are nonacademic in the institution where students learn. One of the program in the United States, Bridge Builders Academic Mentoring Program (BAMP), linked African American high school students with teaching school students to be their academic mentors.[17,18] This program was proven successful with 100% graduation rate, 97% college matriculation rate, and 89% college graduation rate. One of the important achievements in this program, aside from its main aim to increase matriculation and college graduation rate, was the adaptation of school policy that increased teachers' social sensitivity, starting by a cooperation of a mentee with a mentor. Moreover, mentors also acknowledged they learned a lot about their mentees. This is also the case in the mentors in mentoring program in Faculty of Medicine, Universitas Atma Jaya, where many students' potentials and talents were discovered, either academically or non-academically, which had never been known before by their teachers. Another example, the elderly involved in a study about IPE in the geriatrics subject by Shrader et al.[15] were also called senior mentors because they had experiences to be used by students in their learning.

## CONCLUSION

Students have positive perceptions about mentoring activity during and after Medical Education Block. The advantages of mentoring were not limited to students' personal aspects such as providing emotional support as well as helping students maturing, but it also plays a role to help students in their academic activities and to be role models, as well as develops leadership skills with social responsibilities. The implication of this study is very clear, which is to gather higher education institution, especially in medicine, to start applying mentoring confidently. The examples and suggestions by students through this research analysis mentioned the ways of mentoring suitable with medical students', mentors' and higher education providers' necessities.

## AUTHORS CONTRIBUTION

ER is the first author of this article and also designed the 'mentoring' after the IPK block. NP is the second author of this article, primary lecturer, assessment developer and also brought the idea of 'mentoring' in the IPK block. NH is the third author of this article, IPK block coordinator in year 2015/2016 and the person in charge of the IPK block. Moreover, NH also participated in mentoring and wrote several aspects of this article.

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