CULTURE INFLUENCE TO STUDENTS' INTERACTION DUE TO ACHIEVING DEEP LEARNING PROCESS IN PROBLEM BASED LEARNING

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ABSTRAK

Latar belakang: Untuk dapat mencapai pembelajaran yang mendalam dalam proses tutorial, kolaborasi seluruh peserta/ anggota dalam kelompok tutorial menjadi faktor penting. Kualitas kolaborasi tersebut ditentukan oleh interaksi mahasiswa yang dipengaruhi oleh persepsi mahasiswa yang berasal dari berbagai budaya. Penelitian ini bertujuan untuk mengungkapkan hubungan antara persepsi budaya mahasiswa dengan interaksi mahasiswa dalam tutorial.

Metode: Penelitian ini menggunakan pendekatan kuantitatif dengan menyebarkan kuisioner kepada mahasiswa pada sesi kuliah antara Juni-Juli 2012. Instrumen yang digunakan pada penelitian ini adalah kuisioner Pleijers. Pertanyaan dalam kuesioner tersebut dibuat berdasarkan latar belakang teori: ketergantungan terhadap dosen, pengaruh kelompok, orientasi belajar, pengaruh etnik, dan respon terhadap umpan balik. Analisis statistik yang digunakan adalah uji korelasi Pearson atau Spearman.

Hasil: Terdapat hubungan antara interaksi mahasiswa dengan perspektif mahasiswa dimana setiap jenis interaksi memiliki r-value yang signifikan terhadap tiap perspektif spesifik mahasiswa. Jenis interaksi eksploratif dan kumulatif dapat terancam dengan adanya mahasiswa yang memiliki orientasi belajar negatif, seperti pengaruh kelompok yang tidak aktif dan respon negatif terhadap umpan balik. Cara menangani konflik dalam interaksi dipengaruhi oleh persepsi mahasiswa terhadap etnik dan respon terhadap umpan balik.

Kesimpulan: Interaksi yang terjadi dalam proses tutorial merupakan suatu situasi yang kompleks dan dipengaruhi oleh perspektif mahasiswa. Hal ini juga melibatkan peranan dosen sebagai tutor yang juga memilki perspektif berdasar pada budayanya masing-masing. Masih perlu dilakukan penelitian dan eksplorasi lebih lanjut terkait perspektif tutor sendiri terhadap budaya dalam pembelajaran.

Kata kunci: problem based learning, interaksi, deep learning process, budaya

ABSTRACT

Background: In order achieving deep learning in tutorial process, collaboration among member of tutorial group becomes important factor. The quality of collaboration is determined by the students' interaction which is influenced by students' perception sourced from culture. This study aimed to reveal the relationship between students' cultural perception with their interaction in tutorial.

Method: This study used quantitative approach with distributing questionnaire to students in lecturer session during June – July 2012. The Pleijers et al questionnaire was used in this study. While question for cultural perception were extracted from theoretical background: teacher dependencies, group influence, learning orientation, ethnic influence, and response to feedback. Pearson or Spearman correlation test was chosen for further analysis.

Results: There is correlation between students' interaction with their perspectives since each type of interaction had significant r-value with specific students' perspectives. Explorative and cumulative reasoning type of

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interaction could be endangered by students who have negative learning orientation, easily influenced by inactive group, and negative response to feedback. While handling conflict type of interaction is influenced by students' perception on their ethnicity and response to feedback.

Conclusion: Expected interaction during tutorial is complex situation which is influenced by students' perspectives. Thus also involve teacher as tutor who also has perspectives derived from culture. Another research on tutor derived culture perspectives should be further explored.

Keywords: Problem based learning, interaction, deep learning process, cult

INTRODUCTION

Problem based learning (PBL) is learning method that use problem to encourage the student to learn.[1] That method is firstly introduced by Barry and Tamblyn in the MacMaster University, Canada which follows his research on problem solving learning that happen in the small group. He drawn a conclusion that problem based learning has characteristics as follows: *(1) Complex, real world situation that have no one 'right' answer is the organizing focus of learning; (2) Students work in team to confront the problem, to identify learning gaps and to develop viable solutions; (3) Student gain new information though self-directed learning; (4) Staff acts as facilitators; and (5) Problem lead to the development of clinical problem solving capabilities.[1]*

As intended purposes of PBL strategy, a deep learning process is not easy to achieve. There are several influencing factors. First, an interesting topic would attract the students to join the discussion and learn for something new.[2] The problems as an entrance point of discussion would have biggest effect. The synchronization of level of knowledge and type of scenario with students' prior knowledge would influence the discussion. Furthermore, too many cues in a problem would make the students lost their joy to discuss. Second, it is also influenced by group dynamics i.e. interaction among students.[2,3] A mutual interaction among students would make the student enjoy the discussion process, easily share information since they feel engaged to learn and have deeper learning process. Third, it is also predisposed by test, course objectives, lecture, tutor, reference literature.[2]

During discussion process, there are several behaviors which could disrupt group dynamic. Thus would continue to inhibit mutual interaction among students. There are several evidences which mentioned those behaviors. First, the students are not too eager to speak up their idea to the group where the opportunities open wide[4]. Second, they tend to be passive during discussion since they expect the teacher to supply whole information needed i.e. lecture from teachers.[5,6] Third, they only would speak whenever they feel comfortable inside a group.[7,8] Minority students could feel discomfort in campus environment due to racial/ethnic difference which could also influence their discussion.[9] Fourth, Ladyschewsky (1996) informed that south east student tend to pretend that they understand the feedback given although they are not understand.[10] They have high confidence since they often over rate their own performance. It would save them from "loss of face". That would hamper the interaction among them since they would be hard to receive feedback. Those behaviors would affect the group dynamic which will lead to dysfunctional group of discussion.

Some of those behaviors could be derived from cultural values which are emphasized by Hofstede.[11] Hofstede imposed that there are five cultural dimensions; power-distance (PDI), uncertainty avoidance (UAI), masculinity-femininity, individualism-collectivism, and short/long term orientation. Based on that, he drawn cultural consequences on teaching and learning situation which is shown in table 1.

Table 1. Hofstede's Cultural Consequences 11

No	Dimension	Educational Consequences	
		Large PDI	**Small PDI**
1	Power Distance (PDI) (the extent to which power distr ibution of an organization is unequal)	- Students dependent on teachers - Students treat teachers with respect - Teacher centered education - Teachers initiate all communication in class - Teachers are gurus who transfer personal wisdom	- Teachers treat students as equals - Students treat teachers as equals - Student- centered education - Students initiate some communication in class - Teachers are experts who transfer impersonal truths
		Strong UAI	**Weak UAI**
2	Uncertainty Avoidance (UAI) (the extent to which society is comfortable or uncomfortable to unstructured situations)	- Students want to know right answers - Teachers supposed to have all answers - Emotions in class can be expressed - Pressure among students to conform - Teachers inform parents	- Students want good discussions - Teachers may say "I don't know" - Emotions should be controlled anywhere - Tolerance for differences in class - Teachers involve parents
		Individualism	**Collectivism**
3	Individualism/Collectivism (the extent to which society affiliation as individual or group)	- Purpose of education is learning how to learn - Students' individual initiatives encouraged - Students are expected to speak up in class when they need or want to - Students associate according to interests - Diplomas increase economic worth and/or self-respect	- Purpose of education is learning how to do - Students' individual initiatives discouraged - Students only speak up in class when sanctioned by group - Students associate according to in-groups - Diplomas provide entry to higher-status group: are sometimes bought
		Masculinity	**Femininity**
4	Masculinity/Femininity (extent to which society values of gender is implemented among roles within a society)	- Brilliant teachers admired - Best student is norm - Competition in class - Praise for good student - Students over-rate own performance - Competitive sports belong to curriculum - Failing in school is a disaster	- Friendly teachers most liked - Average student is norm - Over-ambition unpopular - Praise for weak student - Students under-rate own performance - Competitive sports extra-curricular - Failing in school is a minor incident

No	Dimension	Educational Consequences	
		Large PDI	Small PDI
5	Long/Short Term Orientation (the extent to which society values of orientation)	**Long term orientation** ■ Students attribute success to effort and failure to lack of effort ■ Studying hard is norm ■ High performance at mathematics ■ Talent for applied, concrete sciences ■ Children learn to save	**Short term orientation** ■ Students attribute both success and failure to luck and occult forces ■ Enjoyment is norm ■ Low performance at mathematics ■ Talent for theoretical, abstract sciences ■ Children learn to spend

Tutorial could happen within a complex composition of students. A mixed group could consist of students who have different cultural background. Those backgrounds would be emphasized within students' perspectives. A cultural perspective will give landmark for students to behave.

According to his survey, he concludes that Indonesia has high PDI and UAI, tend to be Masculine, and more collectivism. High PDI would means the student dependent on teacher, the student treat the teacher with respect, be liable to fit with teacher centered education, teacher initiate all communication in class, and teacher as guru who transfer personal wisdom. High UAI means students want to know the right answer, teacher supposed to know the right answer, emotion in class can be expressed, pressure among students to conform, and teacher inform the parents. Tend to be more masculinity means brilliant teacher admired, best student is norm, competition in class, praise for good students, students over rate own performance, competitive sport belong to curriculum, and failing in a school is disaster. Be likely to be more collectivism means purpose of education is learning how to do, students' initiatives discourage, students only speak up in class if sanctioned by group, student associate according to in-groups, and diploma provide entry to higher status group: are sometime brought.

Indonesian people have various cultural backgrounds. According to *Badan Pusat Statistik*, Statistic Center Agency (BPS), there are approximately 1.128 ethnicities in Indonesia, including Javanese, Acehnese, Bataks, Minangkabaus, Sundanese, Madurese, Balinese, Sasak, Dayaks, Minahasa, Torajas, Makassarese, Buginese, Wajak, Irianese, etc.[12] Each ethnic has its own language-dialect, value, and perspectives. Among those ethnics, Javanese is the dominant ethnic which has the biggest community. Furthermore, it has specific culture than others for some reasons. Java is the centre of development since Java has the highest gross regional domestic product (GRDP) and educational level which is shown by its high human development index, high adult literacy rate, and high school enrollment ratio.[12] Besides that, educational centers are mostly in Java. Thus could make Javanese students would have different cultural perspective from other ethnic.

GMU FM (Gadjah Mada University, Faculty of Medicine) is one of the educational centers which located in Java. It has one medical education program which is applied into regular and international programs. PBL is their main educational strategy. The regular students are mostly come from Java and the rest could be Acehnese, Bataks, Minangkabaus, Sundanese, Madurese, Balinese, Sasak, Dayaks, Minahasa, Torajas, Makassarese, Buginese, and Irianese. The international students come from Indonesia (mostly Java), Malaysia, Myanmar and Western country (inconsiderable). A tutorial process would consist of students with many cultural backgrounds i.e. multicultural tutorial. For example, first tutorial group in the regular program has seven students with Java background, and three students with Sumatra background. A tutorial group in the international program consists of five students with Java background, and five students with Malaysia

background. Three cultural categories are used in this study i.e. Java, non Java, and International.

Based on the literature, it is very likely that culture could hamper the students' interaction during multicultural tutorial.[13] This research is aimed to measure the correlation between students' cultural derived perspectives with their interactions. It divided into two sections. First part is the differentiation of three cultural categories which could give different cultural characteristic based on Hofstedes' dimension; Java, non Java, and International. Second part, if culture influences the students' interaction during tutorial, they're supposed to be having correlation with type of interaction i.e. exploratory questioning, cumulative reasoning and handling conflict.[3] The result of this study should give insight to educators that culture could affect the interaction during tutorial. As consequences, they should carefully treat each student in a tutorial discussion.

METHOD

A quantitative study is hold to answer two research questions. A quantitative study was hold by using a questionnaire which is divided into four sections: A, B, C, and D (see appendixes A). First section (part A) is the *inform consent* section. It would ask the students' agreement on their participation in this research. Second section (part B) is the *students' identity* part. It is part to achieve the students' cultural background i.e. length of stay, resource address, their high school location, and ethnicity. The cultural background categories (Java, non Java, and International) of the student would be determined based on the information from this part. Third section (part C) is the *students' interaction* part. This part uses a validated questionnaire by Pleijers, Dolmans, Wolfhagen, & Van der Vleuten.[3] Each question is representative from three types of interaction i.e. exploratory questioning, cumulative reasoning, and handling conflict. The students were asked to reflect on their latest tutorial i.e. in previous six months. Each students assessed on his own behavior and the behavior of peers in their tutorial process which uses 5 points Likert-scale of

frequency i.e. never, seldom (mostly never), now and then, often (mostly), and in every tutorial. Those scales would assess on their frequencies for each type of interaction. The last part of questionnaire (part D) is the *students' cultural perspective*. The questions were retrieved from literature on culture which could influence the students' interaction. Those sixteen questions are representative of five factors of cultural perspective i.e. teachers' dependency, response to feedback, learning orientation, group influence, and ethnicity influence. The students were asked to assess their perspective by using five point Likert-scale on agreement i.e. strongly disagree, disagree, neutral, agree, strongly disagree.

A test of validity and reliability was conducted before further analysis of data. Based on the validity and reliability test, there are two result of analysis; validity and reliability of Pleidjers questionnaire of interaction during tutorial and validity and reliability of students' cultural derived perspectives. According to factor analysis and α-Cronbach test, both questionnaires showed good validity and reliability. Based on the factor analysis, Pleidjers questionnaire could be extracted into three factors. While cultural perspectives could be extracted into five factors. Those confirm each factors which are targeted by questionnaire. Alpha-Chrobach test of Pleidjers questionnaire showed that each questions had α-Chrobach equal to 0,745 and cultural perspectives showed that each questions had α-Chrobach equal to 0,753.

This study was hold in GMU FM which has location in Yogyakarta, Java, Indonesia. The data collection occurred in the February-March, 2012. It is achieved by using stratified random sampling i.e. the sample is stratified by the students' batch.

RESULTS AND DISCUSSION

Five hundred questionnaires were distributed to the students. 463 questionnaires are collected which means the response rate is 96,7%. 267 samples are from java group, 91 samples are from non java group, and 89 samples are from International group. The description of data is shown in table 2.

Table 2. Descriptive data

	Students' interaction				Cultural perspectives			
	Exp. Quest. (20*)	Cum. Reas. (20*)	Hand. Conf. (12*)	Teacher. Dep. (30*)	Group. Influence (15*)	Feedb. Resp. (10*)	Learn. Orient. (15*)	Ethnicity Influence (15*)
N	461	457	462	461	460	459	457	462
N missing	2	6	1	2	3	4	6	1
Mean	13,6	14, 84	8,95	17,47	9,39	3,77	8,73	7,36
Std. dev	2,237	2,299	2,037	3,459	2,149	1,425	2,010	2,326
Modes	14	15	9	18	10	4	8	6
Min	7	8	3	8	3	2	3	3
Max	20	20	15	25	15	10	15	15

Exploratory questioning (4 questions); Cumulative reasoning, (4 questions); Handling conflict, (3 questions); Teacher dependency, (6 questions); Group influence, (3 questions); Feedback response, (2 questions); Learning orientation, (3 questions); Ethnicity influence, (3 questions)
*Maximum score for each item

The data shows that students' exploratory questioning type of interaction sometimes happened among the students (μ=13,6, SD=2,237, Mo=14). Further, it also shows that the students often have cumulative reasoning type of interaction (μ=14,84, SD 2,299, Mo=15). Moreover, the data also shows that handling conflict type of interaction sometimes happened in the tutorial discussion (μ= 2, 98, SD=2,037, Mo=9). Based on that, three type of interaction sometime happen in the students' tutorial. Thus is not quite satisfactory because it means around fifty percent from students' tutorial, they would not have good interaction which will lead to good learning process i.e. criticize arguments, conclude, and elaborate new knowledge.

The students' perspective on culture has five components i.e. teachers' dependency, group influence, response to feedback, learning orientation, and ethnicity. The students' perspective on teacher dependency is neutral (μ=17,47, SD=3,459, Mo=18). And the students' mentioned that they are not influenced by their group during tutorial, i.e. their friend activity, and their comfort in the group (μ=9,39, SD=2,149, Mo=10). Further, they are easy to receive feedback (μ=3,77, SD=1,425, Mo=4). Unfortunately, it shows that the students tend to have short learning orientation (μ=8,73, SD=2,010, Mo=8). The students are reject that the ethnicity (language, comfort due to different ethnic, minority ethnic background) will influence their discussion in tutorial (μ=7,36, SD=2,326, Mo=6).

Table 3. Difference between cultural derived perspectives among Java, non-Java,
and International group students

	Java			Non java			International			Sig*
	N	Mean	Std. dev	N	Mean	Std. dev	N	Mean	Std. dev	
Teacher. Dep.	268	16,88	3,205	89	18,07	3,309	90	18,58	4,050	0,000**
Group. Influence	267	9,39	2,072	90	8,91	2,015	89	10,08	2,212	0,001**
Feedb. Resp.	267	3,69	1,343	89	3,64	1,432	89	4,24	1,603	0,004**
Learn. Orient.	267	8,57	2,081	90	8,50	1,763	88	9,35	1,788	0,003**
Ethnicity Influence	267	7,13	2,158	91	7,30	2,465	90	8,22	2,393	0,000**

*significant difference among three group (Java, non Java, International)
**p<0,005

Regarding to its size, Java group is counted as control group for Java vs. non Java ES test and Java vs. International ES test. And the non Java group is considered as control group in the non Java vs. International ES test. According to Hojat and Xu (2004), value categorization for ES is small if ES=0,0-0,2, moderate if ES=0,3-0,5 and large if ES=0,6-0,8. Those value means: small value of ES means that it has negligible importance, moderate value of ES means that it has moderate importance, and high value of ES means that it has crucial importance. And the result of this calculation is shown in table 4. Based on the result, there are moderate values and crucial value. The moderate importance is applied for difference on non Java vs. international regarding to cumulative reasoning, difference on Java vs. non Java and Java vs. International regarding to teachers dependency, difference on Java vs. International and non Java vs. International regarding to feedback response, learning orientation, and ethnicity influence, and difference on Java vs. International on group influence regarding to group influence. And the crucial value is applied only for non Java vs. International regarding to group influence.

Table 4. Effect size

	Effect Size		
	Java vs. Non Java	Java vs. International	Non Java vs. International
Exp. Quest.	0,125	0,143	0,267
Cum. Reas.	0,292	0,062	0,323*
Hand. Conf.	0,165	0,080	0,221
Teacher. Dep.	0,359*	0,419*	0,081
Group. Influence	0,238	0,312*	0,529**
Feedb. Resp.	0,035	0,343*	0,374*
Learn. Orient.	0,039	0,436*	0,475*
Ethnicity Influence	0,069	0,455*	0,384*

*ES = 0,3 – 0,5, moderate
**ES = 0,5 – 0,8, high

A simple analysis with compare means T-test is applied to reveal a correlation between the students' interaction and their perspective. Each student's interaction is compared with five cultural perspectives. Therefore, there is fifteen analyses. The result is shown in table 4. Further, the "r" is also categorized based on ES category i.e. small (r=0,0-0,1), moderate (r=0,2 – 0,3), and high (r=0,4-0,50).

First, a significant correlation lay between the exploratory questioning and the students' perception on their learning orientation (p=0,000, p<0,005). Moreover, it has moderate importance (r=0,234).

Second, there is significant correlation between cumulative reasoning interaction with learning orientation (p=0,000, p<0,05) and feedback response (p=0,004, p<0,05). Only one correlation which is categorized to have moderate importance (r=0,232) i.e. correlation between cumulative reasoning and learning orientation. Third, the students' perspectives on ethnicity influence (p=0,002, p<0,005) and feedback response (p=0,04, p<0,05) have significant correlation with the students' interaction, handling conflict. Nevertheless, both correlation have negligible importance (r handling conflict vs. ethnicity influence=0,02 and r handling conflict vs. feedback response= 0,04). As consequence, the students' interaction would be hampered. The collaborative learning which is base of tutorial would be hard to achieve. In other words, the student would feel small advantages from PBL.

There are several factors which would influence the students' interaction in tutorial. Those are the students' motivation, sponging, withdrawn, cohesion, interaction, and elaboration.[13] In the same study, there is an interesting finding i.e. there is difference among man and women students. Based

Table 5. Correlation between cultural derived perspectives with interactions

	Exploratory questioning			Cumulative Reasoning			Handling Conflict		
	N	Correlation (r)	Sig*	N	Correlation (r)	Sig*	N	Correlation (r)	Sig*
Teacher. Dep.	459	0,350***	0,452	455	-0,150	0.742	460	0,084	0,073
Group. Influence	458	-0,130	0,005	454	-0,123	0,009	460	0,116	0,013
Neg. Feedb. Resp.	457	-0,061	0,197	453	-0,136	0,004*	458	0,133	0,004*
Short Learn. Orient.	455	-0,234**	0,000*	451	-0,232**	0,000*	456	0,074	0,115
Ethnicity Influence	460	-0,056	0,228	456	-0,114	0,015	461	0,143	0,002*

* significant value of correlation (p<0,005)

** negligible importance (r=0,0 - 0,1)

*** moderate importance (r=0,2 – 0,3)

on that, it was assumed that it could be caused by cultural background. This study adds one further analysis in order to reveal culture as one factor which could affect the students' interaction. It use simple analysis based on the students' type of interaction in tutorial i.e. exploratory questioning, cumulative reasoning, and handling conflict. A compare mean analysis was applied to data. If culture has effect on the students' interaction, there should be any difference among cultural background which is drawn based on literature. In this study, three groups of cultural background were used i.e. Java, non Java, and International. The determination of each cultural background used the cultural perspectives which are retrieved from literature. Nevertheless, there is no difference among those cultural backgrounds. Based on that, it could be assumed that culture has no influence to the students' interaction.

However, there is slight evidence that shows culture could influence the students' interaction. In this study, the finding shows that there is significant correlation between cultural perspectives (learning orientation) and students' type interaction (exploratory questioning and cumulative reasoning which has moderate importance. Shortly, it means that the students' learning interaction is influenced by their learning orientation. It could be a general values.[2] Nevertheless, the students' learning orientation has significant difference between Java-non Java (overall, Indonesia) and International group. It could be withdrawn that students' learning orientation is nationality based culture. As consequence, there would be any difference on the students' interaction due to their nationality background. Based on

findings, International group has shorter learning orientation than Java and non Java. Those students would be more pay attention to the exam than their discussion process. As consequence, the group in International program which consists of mostly International students would have tendency to be un-productive since the discussion would be more silent.

This research depends on the students' perspective to assess their interaction and cultural background. Therefore, another further research which use observation and followed by deep interview would suit this research. It took place only in GMU FM. Although it has many cultural backgrounds, GMU FM is only one from 71 faculty of medicine in Indonesia. Furthermore, it has location in Java which makes Java students dominant. There is no certain calculation on its population. Thus make the sample hard to ascertain. Moreover, the cultural perspective part of questionnaire has general statements which are retrieved from literature. There is no validity test before it is used. Therefore, a generated conclusion would have weak power.

Based on this research finding, there should be guidance for teachers. Firstly, the tutor should be "down to earth". They need to understand whether the students have their own environment and joy which could influence the discussion process. Therefore, the teacher should be give some "space" for the students by not frequently interrupting the students' interaction, not too strict on grammar, not harass, not frequently challenge/confront the students, not judging, and not drop the students' mental. Secondly, for the teacher who teaches the

first year students, they should understand that the students come from all around Indonesia or even foreign. The teachers need to know the students' cultural background which represents their learning orientation since it could influence the students' interaction. Further, they would have their own cultural background (values and dialect) which could bring cultural conflict. Regarding that, a teacher should be able to overcome the difference among them and facilitate various cultural backgrounds to be actively participating in the discussion process. Specific guidance for each culture need to be further investigated. That would bring to effective discussion process which makes all students to have deep learning process.

CONCLUSION

Based on findings from this study, it could be concluded that culture does not influence the students' interaction. However, there are findings that show culture could influence their discussion during tutorial. Such as several students' statements "*Java students tend to quite since they are shy to express their opinion....*" (Java group), "*I think that they (refer to Indonesia students) shy to express their opinion because they are not get used to express their opinion*" (International group). Furthermore, a correlation between learning orientation with the students' interaction would also show that culture could influence the students' interaction. A nationality would difference the students' learning orientation. Thus implies that a nation with short learning orientation tend to have silent interaction during discussion in tutorial. As consequence, it would be better if there is guidance for tutor in order to overcome that. A further study is required in order to make a specific guidance for culture.

Culture is not the only factor which could influence tutorial. There are other factors which are more influential such as topic, students' preparedness, scenarios, and test which coincidence with tutorial. Those factors could be more managed and manipulated in order to encourage the tutorial productivity.

DISCLOSURE STATEMENT

This article have accepted and presented by the author as poster in AMEE 2014 in Milan, Italia.

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