Perception Towards Occupational Safety and Health Aspects at Institute of Public Higher Learning (IPTA): A Case at the Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia (UKM), Malaysia

1Kadir Arifin, 2Shaharuddin Ahmad, 3Jamaluiddin Md. Jahi, 4Muhamad Rizal Razman, 5Kadaruddin Aiyub, 1Azahah Awang and 4Azhar Jaludin

1School of Social, Development and Environment, Faculty of Social Sciences and Humanities, 2Institute of the Malay World and Civilization (ATMA), 3Institute for Environment and Development (LESTARI), 4School of Language and Linguistic Studies, Faculty of Social Sciences and Humanities, University Kebangsaan, Malaysia, 43600 UKM Bangi, Selangor, Malaysia

Abstract: The study was carried out to analyze employees and students perception towards Occupational Safety and Health aspects (OSH) at the Faculty of Social Sciences and Humanities (FSSK), Universiti Kebangsaan Malaysia (UKM), Selangor, Malaysia. Based on questionnaire technique, information was gathered from respondents about their knowledge, opinion, understanding, acceptance and awareness towards OSH aspects. By using purposive sampling technique, 250 respondents were chosen from the faculty staffs and students. Data was analysed by using simple statistical methods such as percentage and average. Analysed data was presented in the form of tables and graphs. The results showed that the mean students perception towards OSH was at the satisfactory level (3.75) as compared to the medium mean staffs perception (3.3). The result obviously showed that the level of awareness among the faculty staffs about the occupational safety and health is at the moderate scale. Training and policy factors are the two dominant factors that influence the level of awareness among the FSSK staffs on the occupational safety and health aspects. Out of 49 respondents attended the training program, 89.8% of them showed a high level of awareness towards OSH aspects.

Key words: Humanities, social sciences, respondents, safety, occupation, Malaysia

INTRODUCTION

The issue of occupational safety and health is always discussed either at the national or at the international level by developed and underdeveloped nations. Frequently, reports on damage of properties, accident and death due to occupational hazards at workplaces appear in public news papers, television and other forms of communication. Occupational Safety and Health (OSH) is always associated with high risk jobs such as working in construction sectors, agriculture related to pesticide, industries related to chemical usage and machinery equipments (Arifin, 2002). However, the same condition is also applicable to various jobs in higher learning institutions, especially in the field of engineering sciences, medicare and technologies. These fields of studies involved working in laboratories and workshops during teaching and learning processes such as in

Universiti Kebangsaan Malaysia (UKM) Based on Section 30 (1) Occupational Safety and Health Acts (OSHA) in 1994, each company that employs ≥40 workers must form a committee of occupational safety and health. Based on this procedure, therefore UKM as a higher learning institution that has more than minimum employees (40 workers) must form a committee of occupational safety and health. Besides, UKM is also offering various courses which is recognized as courses handling chemical materials as well as machinery equipments. Thus, in order to fulfil the changes and academic demand in the new millennium UKM is not only a centre for learning and teaching but also a workplace with a high level of occupational safety and health either in administrative or academic aspects. In other words, university environment must be safe enough for the students and staffs to study and work in safe and sound environment, hence the process of teaching and learning

Corresponding Author: Kadir Arifin, School of Social, Development and Environment, Faculty of Social Sciences and Humanities, University Kebangsaan Malaysia, 43600 UKM Bangi, Selangor, Malaysia
can be conducted conductively without any environmental problem at workplace. Occupational safety can be defined as free from any danger at workplace (Arifin, 2002; Ivancevich, 2001). It includes working safety during working hours at workplace. Therefore, individual employee must concern of his/her safety as well as other people at all time during working hours. On top of this, safe working environment will be guaranteed by the management as well as by the presence of safety equipment. However, there is an urgency for the management as well as employee protection board to include in the terms of reference to provide protection to any employee going to and coming back from working. Self safety awareness is a main criterion to avoid any accident at workplace. Should any employee ignores this attitude then accident and injury will be occurred and increased significantly. Besides, self safety awareness is also a measure to reduce organization budget in otherwise management has to pay compensation claims by employees due to accidents at workplace. If no accident occur at workplace therefore, the budget used for paying compensation claims can be used for other purposes such as increase employees bonus and create several intensive schemes for the benefit of employees. However, the most significant implication of the establishment of the OSH Act, 1994 is the opportunity for employees to gain occupational safety and health knowledge.

Performance measurement and safety perception are the two important procedures in explaining the presence situation of the safety management system. In addition, these procedures can also be a primary step to upgrading the system, for instance by identifying if there is any weakness or disturbance to the system (Zorba and Kisi, 2007). In any organisation, the effectiveness of organisation and employees’ achievement is the two aspects that is very closely related. Several terms have be used in explaining this relationship such as organisation identity, working satisfaction, climate of organisation, safety perception on certain organisation and occupational safety perception. Besides, these procedures are also important in an attempt to put back the system on track should a mistake or failure occurred to the system. Should the correction mechanism to the system or process be carried out then management must first identify failure or malfunction of the system. One of the useful methods to measure the effectiveness of the safety system is survey technique or perceptual survey. Zohar (1980) for example, used questionnaire survey to identify the importance of safety among workers of 20 industrial organizations in Israel. In other study, Bailey (1989) was using Minnesota Safety Perception Survey to identify several positive factors that contribute to the reduction of injury in locomotive industry. Both studies showed that their organisation managed to achieve low injury incidents which implied that both of them had high safety commitment of their employees. In relation to this, therefore their efforts and concern of employees safety reflected by positive perception from their respective employees. On the other hand, organisation with high injury incidents will always has low employees perception for their management due to not abiding and practicing the OSHA by their management.

Employees have always positive perception of their management if safety issues such as employees participation in safety and health exercises, frequent organise safety and health programs, etc., become a regular practice in safety program of the organisation. Previous study by Bailey (1997) showed that employees’ perception on the above factors perhaps was influenced employees towards fulfilling and obedient to what has been outlined in safety and health procedure or policy. Simonds and Shafari-Sahari analysed the relationship between the frequency rate of injury and factors that might be influenced the level of injury such as the management involvement in safety efforts, workforce characteristics and physical conditions. Data was gathered from company management system and the results showed that there was a company with high level of injury as well as a company with low level of injury. Further analysis by them found that company with high involvement from the management in the safety programs produced low rate of injury. Cohen (1997) had studied the critical factors that made the safety program of any organisation succeeded. He found that the effective commitment from the management had produced safety programs successfully (such as company with low rate of injury). The effective commitment of the management on safety issues was reflected in its concern or effort to know any safety problem within its working environment. Cohen was also identifying the formal and informal relationship between employees and management of the company in relation to safety issues and safety exercise processes. He recognised this was the factor that contributed to low rate of injury in any company. Smith et al. (1978) also showed that management commitment to safety process or system was the important factor towards achieving the low rate of injury. Several studies on the occupational safety and health aspects at workplaces were carried out such as by Holmes et al. (1998), Huang et al. (2007), Hovden et al. (2008), Alison (2002), Haslam et al. (1998), Gill and Shergill
(2004), Rise et al. (2000) and Kongtip et al. (2008). All these studies showed how important the employees awareness in order to control any possible incident or injury at workplace. Arifin et al. (2010a) also studied respondents' perception towards OSH aspects at the Universiti Kebangsaan Malaysia students colleges. They found that the level of awareness and knowledge of OSH aspects among students was varied according to questions. For instance, it was only 36.5% of all respondents involved with the occupational safety and health program; about 45.6% respondents knew about occupational safety and health aspects; 40.2% respondents knew the safety procedures if emergency occurred; about 74.5% respondents knew there was safety facilities at the students’ colleges and about 54.1% respondents felt that they were safe with the presence college environment. Previous studies showed that there was a correlation between management approach towards safety, perception of employee on management and accident/injury rates. In addition, commitment and priority of the employers towards safety issues were the significant factor that made employees committed to safety at workplaces (Toole, 2002). Thus, this study is a perception study towards occupational safety and health at the faculty of social sciences and humanities, UKM.

MATERIALS AND METHODS

This study attempts to analyze the level of awareness among supporting, management and academic staffs and students of the Faculty of Social Sciences and Humanities (FSSH), Universiti Kebangsaan Malaysia (UKM) towards occupational safety and health aspects at workplace. According to Mohamad Najib case study is an effort to study a particular unit of event at a certain time in order to observe that event intensively at the later stage. The outcome of the study can be used to assume for a bigger population unit of the same situation. This study involved data collection instruments, i.e., questionnaire survey that was distributed to staffs and students of the Faculty of Social Sciences and Humanities (FSSH), UKM, Bangi only. Perceptual survey look into the aspects of knowledge, understanding, opinion, acceptance and awareness of the respondents on the Occupational Safety and Health Aspects (OSHA) at the study area. This study involved the use of questionnaire survey that was distributed to sampled students and staffs of FSSH, UKM. By using purposive sampling technique, there were 250 respondents were chosen to represent the whole population of students and staffs of FSSH, UKM. About 150 sets of questionnaire were distributed to students according to years of study, i.e., 1st year (43 sets), 2nd year (43 sets), 3rd year (44 sets) and post graduate students (40 sets). Meanwhile, the balance was distributed to academic staffs (40 sets), management and professional staffs (5 sets) and supporting staffs (55 sets). The distribution of set of questionnaire to different groups of people at the FSSH is to ensure that the data can easily be analyzed by using the descriptive analysis technique. Table 1 and 2 show the distribution of samples according to students and staffs of FSSH.

### RESULTS AND DISCUSSION

**Knowledge status of employee and student towards occupational safety and health program:** The result showed that 95 respondents (95%) from the staffs of FSSH knew that there was the Occupational Safety and Health Act (OSHA).

Meanwhile among students, there was only 126 respondents (84%) knew the existence of the OSHA. Table 3 shows the sources of knowledge of the respondents about the Occupational Safety and Health Act (OSHA). The result showed that among faculty staffs, broadcasting became the highest source of information of OSHA. This is due to the fact that most of the respondents were academic staffs.

Normally, academicians have a vast of knowledge not only about their disciplines but also about other disciplines. Analysis was also carried out for students and the result showed that the highest percentage was calculated for campus of safety and health, i.e., 41.3%. This is expected result because the faculty management was also carried out the safety and health campaign. Moreover, the campaign was getting good response not only from staffs but also from students of the faculty. Therefore, they learned and gained valuable knowledge of safety and health issues by participating in the campaign.

Staff’s knowledge on procedures in Occupational Safety and Health Act (OSHA) with respect to daily works was also analysed. The result showed that 82% of the respondents knew that they were subjected to the act and
only 42% (51 respondents) believed they were protected by the act, these results are very important in assessing the staffs and students knowledge of OSHA in terms of the act provides knowledge as well as protection. Therefore, action can be taken by the management to avoid any unnecessary incidence or misuse of the power. Table 4 shows the staffs and students knowledge about Committee of Occupational Safety and Health (COSH) at the Faculty of Social Sciences and Humanities, UKM. The analysis showed that 73 and 84% of the staffs and students, respectively new the presence of COSH at UKM. Moreover, more staffs (about 85%) knew the presence of the COSH at the faculty level as compared to students (80%). Meanwhile, the percentage of knowing the OSH policy displayed at the workplace was almost identical for both staffs and students, i.e., 78%. Based on observation, the OSH policy was displayed at a few places in the UKM and at the faculty premises such as at the entrance and notice boards. However due to attitude of not bother about the OSH policy by a few number of staffs and students, it perhaps caused the mistunition and useless objective of the displayed policy.

First aid is considered as the 1st step in giving help to injured and sick people. Normally, people will assist once they encounter with people involve in an accident. This urgent service and attention given to injured and sick people before the arrival of ambulance is made the difference between dead and alive or fully or partly cured. First aid has its limit and not all who involve in the first aid activities are member of paramedic or doctors. However, it is an important aspect and seriously needed in the overall medical system. Information about accident, dangerous incident, occupational poisonous and diseases 2004 is listed in The 514 Act, Section 32 occupational safety and health procedures. This procedure outline the need of first aid and treatment as described in the procedure to employees that experienced electrical sock, injury due to liquid chemical burst and the necessities of first aid to employees. However in the context of environment, emergency is not only associated with accident but also with any form of criminals. Therefore, it is important to know the emergency telephone number in giving an urgent help to needed people. Table 5 shows the analysis of staffs and students knowledge of emergency telephone number. The result showed that there was a different knowledge between staffs and students. It showed that staffs was showing a better knowledge of emergency telephone number than the students. Perhaps, it is because staffs are more matured than students and feel that they have to know the emergency telephone number.

However, further analysis revealed that most of the respondents new the external rather than internal emergency telephone number (such as police, fire-brigade and rakan cop* rather than UKM health centre, UKM security office and incidence officer telephone number). In the context of emergency, it is important to get a quick and right access in order to avoid a further deterioration to an enure people. Normally if the people involve with an accident receive an earlier emergency aid, they will have a good chance to be saved and cured. Therefore, it is really important for the staff or students to know the emergency telephone number to contact in the case they encounter with an accident at the faculty premises. For the management, it is important to display an emergency telephone number on public notice board in laboratory or at any strategic places within the faculty premises. This suggestion is very important because through researcher observation, there are no stickers, posters or information with respect to emergency telephone number on public notice boards at the faculty premises. This important telephone number was only stick on staffs and lecturers desks which is for the personal use only. Table 6 shows the percentage of several safety aspects. The result showed that about 18% of the students knew where to report if any accident occurred in the vicinity of the colleges. This percentage was much lower than percentage for the same question asked to faculty staffs (89%). The significant different result perhaps due to the
Table 6: Respondents knowledge on several aspects of safety

<table>
<thead>
<tr>
<th>Safety aspects</th>
<th>Students (%)</th>
<th>Staff (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowing where to report emergency accidents at workplace</td>
<td>18.0</td>
<td>89</td>
</tr>
<tr>
<td>Knowing who is incident officer at workplace</td>
<td>12.7</td>
<td>84</td>
</tr>
<tr>
<td>Knowing extinguisher provided at workplace</td>
<td>100.0</td>
<td>100</td>
</tr>
<tr>
<td>Knowing how to use extinguisher provided at workplace</td>
<td>62.7</td>
<td>75</td>
</tr>
<tr>
<td>Ever used extinguisher at workplace</td>
<td>16.7</td>
<td>41</td>
</tr>
<tr>
<td>Knowing emergency stairs if fire broke at workplace</td>
<td>88.0</td>
<td>78</td>
</tr>
<tr>
<td>Ever experienced accident during working at faculty for the last 12 months</td>
<td>0.3</td>
<td>2</td>
</tr>
</tbody>
</table>

The fact that faculty staffs were exposed to more information with regard to occupational safety and health aspects. The much lower percentage of knowledge about the presence of incident officer at college (12.7%) among students placed a very much worried to college management. This is due to the fact that the incident officer is the UKM staff whereby in general responsible to occupational safety and health activities as well as emergency at respective zone (Safety regulation at workplace in UKM 2005). It is interesting to note that both students and staffs of the faculty knew the existence of extinguisher at the faculty (100%). Moreover, more respondents either students or staffs knew how to use the extinguisher, i.e., 62% for the students and 75% for the staff. These percentages will increase should the management organizes more campaigns or courses of fire-brigade. This is because knowledge only is not enough if it is not implemented and practised. Based on this study, it was only 16.7% of the students respondents ever used extinguisher. The right method of using fire extinguisher will control and reduce small fire risk from becoming extensively and dangerously.

Occupational safety and health program: Figure 1 shows the percentage of occupational safety and health programs attended by the respondents. The result showed that 49 out of 100 respondents used to attend occupational safety and health exercises organised by the employer.

Out of that 49 respondents, 14 of them (28.6%) used to attend safety exercise, 10 of them (20.4%) used to attend the induction exercise of the introduction to safety; 4 of them (8.3%) used to attend safety awareness program; 8 of them (16.3%) used to attend safety day and environmental health; 10 of them (20.4%) used to attend safety camp and three of them (6.1%) used to attend exercise or laboratory safety workshop. Figure 1 shows the percentage of the staffs attended the exercises of the OSH program. Difference in attending the OSH exercise could be due to the different job needs among the staffs. Therefore, different staffs will have to attend different and appropriate courses that suite with their office works. Based on this study, almost half of the staffs used to attend OSH exercises and this is a good sign for the development of the OSH program at the faculty. However, the faculty should send more staffs to attend OSH program in future in order to strengthen and to enhance knowledge and skill, hence that knowledge can be implemented when they work at the faculty.

Further study was carried out to analyse the effectiveness of the Occupational Safety and Health program (OSH). The result indicated that 49 respondents used to attend the program organised by the faculty. Out of this number, 44 of them (89.8%) said that the program was very effective whereby 30 out of this 44 respondents (61.2%) believed that by attending the program it gained more knowledge about OSH aspects. Another five respondents (10.2%) said that the OSH program taught them what were the rights being a employee of any organisation, meanwhile another seven respondents (14.3%) believed that the program help them how to carry out the OSH program. Remaining two respondents (4.1%) did not give specific answers but choose other reasons. High percentage of respondents agreed that the program was very effective due to the fact that the program was conducted in good and effective way, thus it can be implemented in daily respective works. Table 7 shows the percentage of the effectiveness program in the form of occupational safety and health exercises organised by the faculty. The result showed that four respondents (8.5%) believed that the program they attended was not effective at all. This is perhaps because the program was not attracted and very much in stereotype form. According to Flynn, committee of the occupational safety and health can apply a creative method in trying to nurture safety awareness among participants. So that the organised program will become an attractive and interesting event to attract more people to attend it. The analysis showed that 51 respondents (51%) did not ever attend any form of occupational safety and health program. Out of that 51 respondents, 23 of them (45.1%) had never got the chance to attend safety and health exercise; 14 of them (27.5%) were not interested to attend any safety program.
organised by the university or faculty; 13 of them (25.5%) choose other reasons not to attend any safety program and 1 of them (1.97%) said that he was already expert in safety procedure and therefore, it was not important for him to attend any safety exercise. Out of 45.1% of whom did not get the chance to attend any form of occupational safety and health program, academic staffs were the highest number, i.e., 11 of them (47.8%) followed by nine supporting staffs (39.1%) and three professional and management staff (13.04%) (Table 8). High percentage of respondents did not get the chance to attend any OSH program organised by the university or the faculty is a good sign to the management since, they are also interested to attend any program of OSH. Therefore, the committee of OSH, especially the UKM management and the faculty should be aware and give more attention to such program at any level in UKM environment. In addition, the management should increase more OSH programs so that it will provide more chances to employees, especially who did not get the chance before to attend OSH programs such as OSH exercises, workshop, seminar, etc. Moreover, the chances are not only offer to supporting staffs but also to other employees including academic and management and professional staffs.

Mean respondents satisfaction towards several aspects of occupational safety and health at the Faculty of Social Sciences and Humanities (FSSK), Universiti Kebangsaan Malaysia (UKM): Average (mean) is a value represents a whole observed values in a set of data. This method is used to generalise respondent perception towards several aspects of occupational safety and health. Table 9 shows the mean of respondents satisfaction towards several OSH. Generally, the results indicated that the average score of all OSH aspects was three whereby the medium value of 3.27 was calculated for students and of 3.77 for staffs. However, a few aspects were observed having an average score of 2 and 4, i.e., representing unsatisfy and satisfy, respectively. In terms of the staircase safety level at the faculty, students voiced their unsatisfied with the condition. This is reflected by the mean score of 2.57 (Table 9). Based on observation, most of the staircase was in poor conditions; some with potholes, uneven surfaces and dangerous feelings. Therefore, these conditions can cause injury and accident to users if did not take precaution when walking through these unsafe staircases.

Even though, there was no written reports of injury due to unsafe staircases, the UKM and faculty management should take proper mitigation to repair and upgrading the staircase condition, hence avoiding any unnecessary injury or accidents. With respect to toilet cleanliness level, both student and staff respondents showed their least satisfaction with the toilet condition. This is clearly shown by the low value of mean for both types of respondents, i.e., 3.07 and 3.35 for students and staffs, respectively. Although, these mean values can be considered as the lower upper part of the mean categories, the staffs satisfaction about the toilet condition at the faculty were still at the moderate level. Based on observation by the staffs, they found that toilet spaces were not clean and properly managed. There was no effective ventilation in toilets.

Apart from that toilets were also very smelly, especially with cigarette smoke, hence the toilet environment was full of smoke. Frequently, toilet became the place for smokers to smoke cigarette due to fact that other places in the university compound are restricted areas for smoking.

Therefore, respondents suggested to the university management as well as to faculty to provide special space/area for smokers. Meanwhile, the higher mean of respondents satisfaction level among staffs and students was for illumination at the faculty. The calculated mean scores for this aspect were 4.05 and 3.95 for staffs and students, respectively.
Table 10: Perception towards safety between students and staffs by program

<table>
<thead>
<tr>
<th>Programs</th>
<th>Students</th>
<th>Staffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSDES</td>
<td>3.70</td>
<td>3.05</td>
</tr>
<tr>
<td>CPHDS</td>
<td>3.86</td>
<td>3.82</td>
</tr>
<tr>
<td>CILS</td>
<td>3.79</td>
<td>3.55</td>
</tr>
<tr>
<td>CPPDSS</td>
<td>3.77</td>
<td>3.16</td>
</tr>
<tr>
<td>CLCMLS</td>
<td>3.80</td>
<td>4.00</td>
</tr>
<tr>
<td>DEAN OFFICE</td>
<td>3.80</td>
<td>3.50</td>
</tr>
<tr>
<td>CMCS</td>
<td>3.70</td>
<td>3.43</td>
</tr>
<tr>
<td>Total</td>
<td>3.75</td>
<td>3.30</td>
</tr>
</tbody>
</table>

Perception: 1 = Very unsatisfied; 2 = Unsatisfied; 3 = Medium; 4 = Satisfied; 5 = Very satisfied

Based on observation, there was spaces at the roofs of faculty buildings that allow sunshine entering the rooms. Hence, it provides enough illumination to internal rooms, especially at the lobby and corridor of the faculty at day time. Observation was also carried out at the academic lobbies such as lecture theatres, seminar rooms, computer laboratories, library and discussion rooms. The result showed that the number of lamps was proportionate with the size of the lobby, thus enough to bright the rooms.

Comparison safety level perception between students and staffs: In general, the analysis showed that almost all respondents agreed that the level of occupational safety and health at FSSH was in good safety condition (Table 10). However, there was a different degree of satisfaction among respondents. The highest mean score for students perception towards safety aspects was came from the Centre for Psychology and Human Development Studies (CPHDS), i.e., 3.86. Meanwhile, the highest mean score among the staffs was observed at the Centre for Languages, Cultures and Malay Literatures Studies (CLCMLS), i.e., 4.0. The different highest mean scores between the staffs and students could be due to different exposure and access to environment at the faculty level by both category of respondents. Based on time factor, it was obvious that staffs were spent more time at office compared to students.

Therefore, staffs should be known better about the level of safety and health at the faculty. The parents and teachers perception on the school environmental safety in Serdang, Selangor was studied by Mariah Awang. They found that almost all the respondents agreed and satisfied with the safety and health condition at the schools in Serdang. Furthermore, they used statistical analysis and found that there was a significant and positive relationship between various variables such as communication, safety perception, school physical environment and toilets. Besides, they found that toilet was the most significant variable that can be used as yardstick of physical environmental safety and cleanliness at schools.

CONCLUSION

Generally, this study has shown that the level of awareness among the faculty staffs about the occupational safety and health is at the moderate scale. Training and policy factors are the two dominant factors that influence the level of awareness among the FSSH staffs on the occupational safety and health aspects. Out of 49 respondents attended the training program, 89.8% of them showed a high level of awareness towards OSH aspects. The study was also found that the respondents’ level of awareness towards OSH aspects was at the moderate scale. The mean score of all factors was calculated at the moderate level of awareness, i.e., 3.75 and 3.3 for students and staffs, respectively. This moderate perception, however, is not seriously concerned matter because it still can be improved. What is concerned most is the cooperation of all people in the faculty, staffs as well as students to ensure that OSH aspects become a culture among faculty members.

Nevertheless, the determination effort of the Occupational Safety and Health Committee, the Faculty of Social Sciences and Humanities to plan, manage and improve safety aspects through campaign, workshop, exercises and putting up posters of the OSH policy on public notice boards should be appreciated and supported. It is believed that the true dangerous to occupational safety involves risk and opportunity of unexpected events at workplaces such as accident and injury due to equipments improperly managed and stored in the laboratory. Once the management overcomes these unexpected events then the safety issues will be no longer related to safety and health aspects at workplaces. At the same time, the environmental aspects at the workplaces must be audited so that risk of accident at workplaces can be controlled and managed at the earlier stage (Arifin et al., 2010b, c, 2011).

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REFERENCES