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Factors Contributing to Research Misconducts

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Abstract: Scandals related to falsification and fabrication of research data has been exposed by the media despite promising breakthroughs. Although, many scientific research were conducted appropriately and reported accurately but there are researchers who invent or manipulate data to reach desirable conclusions. The public in advanced countries has been aware of scientific misconduct issues since the 1980's but there have been limited studies in developing countries. Several established universities in Malaysia have been accredited as research universities. The academicians working in research universities have felt the added pressure to secure as many research grants as possible and to publish their research in high impact journals to meet the research university's criteria. In addition, they have to carry heavy teaching loads and other assigned responsibilities. Given such a scenario, the probability of scientific misconduct happening is there. If Malaysian universities aspire to be excellent research universities then there should be awareness and clear guidelines on research ethics practices among university lecturers. This study presents a review on the contributing factors of research misconduct that can give an insight towards the preparation of a research ethic guideline.

Key words: Higher institution, research misconduct, scientific fraud, research data, ethic guideline, Malaysia

INTRODUCTION

Research misconduct can be defined as fabrication, falsification or plagiarism and giving false representation of admission letter during proposal, conducting, reviewing or reporting research (DHHS, 2005). Research misconduct occurs in every stage of research process such as during proposal preparation to get permission on ethical issue or funding for research. It can occur in the methodology, during the process of data collection and analysis and during publication of research report. Facing with stressful situation, a person's attitude, credibility, goodness and honesty will be tested. There were possibilities that a researcher might commit misconduct such as falsification during research. While during publication of the research reports, other types of misconduct could happen such as duplication, republishing paper and authorship (Jones, 2002).

Among research community, research misconduct is not a new issue but rather a controversy. Most misconduct is hidden by institution because it can ruin their reputations if it is made public. Some research misconduct occurs due to limited knowledge on ethics or misunderstanding about some unethical actions in the profession. However, there are still some researchers who commit misconduct on purpose, although they knew it is wrong (Barlow, 2001). According to DHHS (2005), studies on factors that lead to research misconduct are limited due to uncooperative respondents during investigation of suspected individuals. It is really important and helpful to determine the source of the problem so a that a proper guideline and suitable solution can be presented. Resnik (2010) share this sentiment when he stated that identifying research misconduct will be helpful in finding the effective way to solve this problem.

The scientist's reputation as objective seekers of truth could be jeopardized by any practices of misconduct in their research process and publications (Fanelli, 2009). Scientific misconduct can add false information to the existing body of knowledge besides the possibility of causing serious risks to people which may results in the public's distrust of scientists and science. As an example, inaccurate results in clinical trials can result in the release of potentially unsafe pharmaceutical products to the market which will pose a serious danger to the consumers' health (Wasunna and Murray, 2011).

Before explaining factors of research misconduct in details, there is one issue that should be discussed that is whether the person involved in research knows and understands about research ethics and the guideline that

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they should follow. This is really important because without awareness, one would simply avoid taking responsibility on his/her unethical behaviour. Findings from a study conducted in 2004 among academicians found that lecturers behave unethically for the reasons that they think the action is ethical since everyone is doing it (Saat *et al*., 2004).

One good example was a plagiarism case which occur in an establish university in Malaysia which the researcher claimed that she did not know that information from article in internet source should be cited (Chapman, 2009). Knowledge and current information on research ethics should be spread among research community by institution either through pamphlet, conference or workshop. Although, ethics policy and protocol are being used as guidelines, it is not enough because there are some situations when conflict occurs that need consideration by the involved parties in order to seek the best decision. Therefore, it is very important for researcher to learn the best way to interpret and apply all the research guideline during conflict situation (Resnik, 2010).

It is really important to clearly define the borderline what is ethically wrong and right. The lack of clear, concise and consistent definition of what constitutes research misconduct will cause troubles in handling suspected misconduct later.

Research misconduct has been defined by a panel set up in1989 by the US (NAS *et al*., 1992). National Academy of Engineering and the Institute of Medicine attempted by distinguishing three categories of activities as follows:

- Misconduct in science refers to the practices of fabricating, falsifying or plagiarizing of research proposal in conducting research or writing research reports
- Research practices that are questionable refers to actions that contradict traditional values related to the research enterprise such as refusing to give access on research materials or data related to published results to peers
- Other misconduct refers to actions that are not unique to scientific misconduct. These include general social and legal practices such as negligence, misuse of funds, vandalism and sexual harassment at workplace

The US Congress and the Department of Health and Human Sciences have set up a Commission on Research Integrity in 1995 to refine the definition on research misconduct (Wasunna and Murray, 2011). To them:

> Research misconduct is significant misbehavior that improperly appropriates the intellectual property or contributions of others that intentionally impedes the progress of research or that risks corrupting the scientific record or compromising the integrity of scientific practices. Such behaviors are unethical and unacceptable in proposing, conducting or reporting research or in reviewing the proposals or research reports of others

CONTRIBUTING FACTORS IN RESEARCH MISCONDUCT

Generally, research misconduct happen due to moral failure when ones act in opposite of professional ethics. According to the Bad Apple Theory which is proposed by Resnik (2010) only individual with low moral value has financial problem or psychological disturbance are prone to commit misconduct. In reality, one's actions are always influenced by external factors (Tindemans, 2007) as explained in stressful theory or imperfect environment theory (Resnik, 2010). Pressure from institutions incentive and constraints could cause researcher to commit misconduct. For example, pressure to gain research grant might cause unethical behavior or misconduct in the process of presenting the proposal. When people who are morally weak, ignorant or insensitive are placed in stressful situation or imperfect environment, they might choose an easy way to settle any conflict they face although they realise that those actions are wrong.

Previous scholars (Resnik, 2010; Davis *et al*., 2007; Dhand, 2002) concluded that factors contributing to research misconduct can be divided into five groups. They are individual, situational, organizational, structural and cultural.

Individual factor: The individual factor refers to one's attitude which promotes misconduct to happen. Dresser (1993) opined that any researchers who consciously deviate from research ethics should take full responsibility on their action and should be punished. Even though, other factors could be the reason for research misconduct but the suspected person should be responsible for their mistakes. Even though, pressure in a conflict situation might affect someone decision but in the end it comes to an individual judgment to decide whether to go against professional ethics or not. One good example of this situation is the case involving John Long who admitted his misconduct in 1980's. He did not believe the

environment where he works was responsible for his action. Neither competition to get limited research fund nor competition to get reward were the factors that influenced his action. He contended that an honest researcher could handle pressure effectively. Therefore, he concluded that all his failure to be an objective scientist was not related to the weakness of institutional system (Davis *et al*., 2007).

Someone who has low moral value is prone to commit scientific misconduct. As a researcher, one should always remember that all research purpose is to bring the truth into public knowledge. If a researcher lost his or her virtue, he/she might make unwise choice when facing with problems. Researchers should be honest and able to handle all problems effectively when they are facing pressure. They should focus and give their full commitments to research activities (Woolf, 1981). Researchers who are after personal status, popularity and fame have the tendency to commit unethical action if they have low morality. Scientist in globalization era should keep high moral value in every decision they made. Researchers should not let their desires to achieve tenure and promotions distort their perception of what is ethically acceptable and finally end up committing unethical behavior.

Situational factor: The situational factor can be divided to two which are personal situation and career situation (Davis and Riske, 2002; Goodstein, 2002).

Personal situation: Personal situation refers to personal pressure which researchers go through in their normal daily life. As human norm, many problems will come in life as challenges. Honesty is very important in every action but when the pressure cannot be handled wisely, some might loss judgment and end up choosing unethical behavior that should be avoided in solving problems. Example of personal pressure are when a researcher had to go through family difficulties such as loss of loved ones and relationship problems (Broome, 2003). All this situations could affect one's decision and compromise the quality of research.

According to Davis and Riske (2002), several individuals who were found guilty of scientific misconduct admitted that they had experienced family and other personal problems at the time of their research. Davis *et al*. (2007) identify these difficulties as:

- Loss of family member
- Birth of a new baby
- Relationship breakup for example, divorce
- Financial problems

Usually, the above situations will cause researcher to commit misconduct such as misuse of research fund that will lead to less money spend on the project. Cutting cost of the project will further damage quality of research due to limitation in source of fund for research.

Career situation: Career situation refers to pressure and opportunities that exist in the work place. In scientific research one can disagree with the conclusion, methodology and interpretation of a research. However, the authenticity of data and result of a research cannot be questioned. Science has self-correction characteristic. This characteristic makes information, fact or conclusion from past research could be corrected with new research findings. Goodstein (2002) suggested that career pressure is the causal factor of research misconduct. For example, in a situation when a researcher knows the expected result, he/she might take an easy route by avoiding all difficult and complex procedure that should be followed. The other reasons of data being falsified are when a researcher is in a difficult situation such as not enough subjects or not enough time to conduct a study. This researcher may take an easy solution by qualifying ineligible subjects for enrollment in the study (Woollen, 2001).

Misconduct can easily happened when someone just manipulate digitised images to clean up data then use it to fabricate new data like the cases of Branch and Schon (Dhand, 2002). In 2002, Schon claimed to be able to create transistors from single molecules using nano-electronics. From his study, he published 80 papers in 2 years which means a paper every 8 days. Schon was suspected of committing misconduct in 24 cases and he was convicted of fabricating data in 16 cases (Dhand, 2002). This case proof that there are situations in which scientists find they can easily commit misconduct without being traced. This case happened due to the nature of science itself. Science operates on trust (Smith, 2009). For example, when a survey was conducted among 100 respondents, there will be no name that could be view due to the need to maintain confidentiality of subjects. Similarly in a study report usually only combined and analysed data will be viewed. No raw data will be included because of the trustworthy nature in scientific study (Smith, 2009).

In some scientific domain, researchers have to work alone for a long time without any superior checking on them to ensure that they follow proper guidelines (Tindemans, 2007). Thus, the lone wolf researcher may start taking for granted or ignoring certain procedures and quality of their work. This situation shows how important it is for an organization to cultivate culture of concern among workers because it can act as barrier to research misconduct.

Organizational factor: It is the responsibility of the organization to provide a condusive working environment for their employees. Comfortable workplace is important to cultivate responsible atmosphere among employees and honesty in managing research (James *et al*., 2003). Interpersonal relationship is also important because it represents the culture of the institution. According to Morrison (1990), good relationship between supervisor and subordinate is important to avoid research misconduct. Some values that should be practiced in an organization are caring and cooperation to solve problems. The relationship is important so that when a researcher faces problems during the research process, he/she can share and discuss with colleagues or supervisor in finding the best solution. Without strong relationship between co-workers, a person might choose to keep the problems and try to solve them alone. In this stressful situation and without strong relationship among colleagues, researcher may violate professional ethics. This unprofessional behavior might ruin reputation of the institution.

If relationship problems among subordinate and supervisor still persist then other experienced parties should get involved in this situation (Hansen and Hansen, 1995). Mumford and Helton (2002) said that there are several propositions that support the idea that other party involvement is important when there is research misconduct occurring in an organization.

One of the most compelling factors of misconduct is being too trusting (Dhand, 2002). When working in a team, co-workers trust that everyone in the team will do what they say they are going to do (Dhand, 2002). However, sometimes there is a person who will take this opportunity by refusing to do as expected. For example, the Gupta misconduct case where he had recycled the specimens of geological fossil in his study. This is why he went undiscovered for so long by his 60 colleagues (Dhand, 2002). This problem will occur in an environment where researchers always work independently without any supervision. Thus, it is not advisable to put too much trust on others. The co-researchers must be concern with the work of the other team members. This is important because during publication of research materials, all authors should always take responsibility on what they wrote.

Structural factor

Workload: Heavy workload is the source of research misconduct among researchers. Usually, researchers are academicians who have responsibilities in teaching, researching, publishing, attending conferences and providing community services (Abidin and Ayudin, 2008). This overload might cause conflict of interest. It will also lead to burn-out and thus they will barely meet their teaching and research obligations (Sugarman, 2005). Several behaviors that occur due to this working structure are when researchers are not confident to publish article because they worry if the paper did not have good quality instead it will ruined their reputation. This situation happens among academician (Woolf, 1981; Martin, 1992).

Competition: Correlation between competition and research misconduct should be given attention. There is strong positive correlation between competition to publish or perish pressure among colleagues in a department and possibility of finding research misconduct among them (Louis, 1995). Anderson (1996) had found that competitive environment in a department positively correlate with discovery of research misconduct. Now-a-days, science progress is being limited by number of position and research fund available (Goodstein, 2002). Science used to be a field where exploration of knowledge is unlimited but it becomes restricted due to competition of gaining research grant. Thus all scientists are fighting for the few grants available and the numbers of top jobs are also limited (Dhand, 2002). In order to compete for these jobs, scientists must have fantastic publication records (Dhand, 2002). This could be the reason why some researchers duplicate their publications to have a better resume.

Evaluation: Evaluation used by research institution to evaluate researcher is based on quantity and quality of article one's published that may cause negative impact to the research community. The aim of evaluation is to increase competitive atmosphere among researchers and also to recognize those who are successful. But there are some researchers who think that this acknowledgement is a platform for them to show off their capabilities. This negative thinking would drive them to compete for profit or fame without consideration of unethical behavior.

Other than that researchers also get pressure from the authorities of institution which set the target of output. If they do not fulfill the target, then they will lose the opportunity to get promotions which translate into advancement and greater financial rewards or tenure which represents academic job security and also may affect the research funding (Davis *et al*., 2007). Therefore, this problem will cause pressure especially to those fresh researchers who are just starting a research project. There are also situations when pressure comes from supervisor, research fund provider and publisher to get the positive and significant result without maintaining the integrity of science itself (Tindemans, 2007). According to Mumford and Helton (2001), pressure is the main source which

correlated with integrity issue in scientific works. As we know, scientific works usually involve lots of pressure from multiple commitments such as meeting dateline, getting sources of fund and anxiety in achieving project output.

Pressure in structural tasks can be an endemic source in a scientist life. Although, pressure can contribute in ones productivity but in the end, too much pressure will cause someone to loose ability in making good judgments. Thus, this person is prone to commit research misconduct.

Cultural factor: An observation by Davis (2003) found that foreign researchers might be susceptible to unique pressure to deviate from science's norm. Individuals who experience changes in culture usually carry the norms of the culture in which they were socialized (Davis *et al*., 2007). Research conducted by Meyer and Bernier (2002) found that foreign researchers were rated as high among the accused in research misconduct cases. However, their samples were derived from only one research institution and therefore it we could not deduce any valid inferences about the causal relationship of the cultural factor to research misconduct (Meyer and Bernier, 2002). But still a study on the correlation between culture and perception on research norms would be valuable. Cultural factor is also link to questionable authorship. According to Jones (2003), several young scientists assumed that their mentors expect to be named as other reearchers on publications. This gift authorship by young scientists toward their mentors is an unethical action. This young scientist worried if they would not be accepted by the research community in their own country when they come back if they refuse to include gift authorship. Furthermore, cultural factor can be link to the tradition which is being practiced in a research community. Commonly the director of a research laboratory is named as researchers in any research published by employee from that laboratory although, he does not contribute significantly to that research (Resnik, 2010). From a study conducted by Eisenberg, their findings state that the rate of perceived honorary authorship was substantially more frequent among respondents of lower academic rank in those working in an environment in which their section or department head was automatically listed as an researcher. The question is whether this action is wrong? Some individuals may say that this action has become a tradition in that community and never being questioned. In this situation, we can see that how important it is to understand research ethics. This problematic unethical tradition can be solved by keeping the awareness of the community on the importance of knowledge on ethic and its understanding through discussion. Continuous record on scientific misconduct scandals suggest that existing policy may not be adequate in controlling research misconduct (Redman and Caplan, 2005). Redman and Caplan (2005) suggested an alternative policy to minimize the incidence of scientific misconducts and associated costs. They felt that public funded research should be used more prudently and appropriate laws and regulations are enacted to protect research integrity and to ensure that false results do not become integrated into the body of scientific knowledge (Redman and Caplan, 2005). Thus, it is really important to make sure misconduct in research is regulated by appropriate laws or regulations. The environment of research should also be changed. According to Dhand (2002), other researchers must take responsibility on the material being published, since they are supposed to give consent before the publication of the study.

CONCLUSION

Based on the discussion, there are various factors which influence scientists to commit research misconduct. If Malaysian universities aspire to be excellent research universities then there should be awareness and clear guidelines on the practices of research ethics among university lecturers. It has been shown that the main reason of research misconduct is human psychological characteristic such as fear, greed, pride and arrogance that influence their judgments. Although this is a human norm, being an ethical person one should analyze his/her conduct. The Bad Apple Theory emphasized that good people will have good behaviour while bad people act badly. This theory cannot be applied in all situations since we know that each person is prone to commit misconduct due to external factors such as environmental, situational, cultural and structural that can influence their judgments. Hopefully, this review on factors contributing to research misconduct can lead to several solutions in eliminating research misconduct among members of the institution.

RECOMMENDATIONS

According to results it is recommended that researchers should have enough knowledge and keep their integrity in the process of gaining knowledge. Researchers should keep away their personal interests during research process to ensure the trustworthiness of the knowledge or facts that will be shared with others. However, every researcher should always takes responsibility of their decision.

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