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Critical Thinking Gone Sinking? The Curious Case of Azizan Osman

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Abstract: With the advent of a millennial invention called social networking, humans' ability to think critically has been tested many a time. Controversial issues surrounding the society spread fast via this networking, enabling greater number of people to involve in hotly debated discussions. This interestingly leads to many divided opinions – those of the supporters, opponents and neutrals – the virtual war of words with no or little solid information presented to justify their personal views and preferences. This is when the art of critical thinking is lost in the social networking discussions, where critical thinking elements like clarity, accuracy, relevance, logic and precision among many others are usually faded in the presence of emotional outburst, ignorance and fanaticism, consequently leaving a room for weak and fallacious arguments. This paper argues on the disappearance of critical thinking standards in a Facebook post, comments and replies on the recent academic fraud allegedly done by a renowned entrepreneur and motivator, Azizan Osman. Logical fallacies evident in the thread were grouped and tabulated and frequency counts were recorded. Findings show that critical thinking standards were mostly absent in this type of discourse with the fallacy of Red Herring being firstly committed which later led to Ad Hominem/ Personal Attack fallacy being mostly used by the commenters.

Keywords: Academic Fraud, Critical Thinking, Facebook, Logical Fallacies

1. Introduction

The significance of critical thinking skills in governing good and rational thinkers goes undoubted. This is especially true in the millennium years where people can be easily overloaded with information with the upsurge of social network like Facebook, Twitter, Instagram and many others. Given the speed at which issues can be exposed and viral and the ease of which people can involve in social-network based discussions, one's ability in making "logical arguments based on substantive claims, sound reasoning and relevant evidence" (Kuhn & Crowell, 2011, p.545) while arguing in social network can be a challenge. This paper thus looks at a string of argument, debating on the recent academic fraud allegedly done by entrepreneur/motivator, Azizan Osman. The news on the alleged fraud appeared nationwide in October with University of Malaya, National University of Malaysia, University of Kuala Lumpur and University of Hertfordshire as being reported to have all denied conferring a doctorate degree to him (Fazlina, A, 2016; Madihah, A, 2016; Lim, I, 2016 & Yet Another University..., 2016). University of Malaya was the first to issue a press release, to be shortly followed by the other three institutions. The controversy has thus resulted in the netizens' arguments - for and against him - in Facebook posts, each comes with its own proposition that leads to online debates. The paper argues on the disappearance of critical thinking in the selected Facebook discourse and discusses the logical fallacies found in the Facebook thread, comments and replies.

2. Literature Review

2.1 Critical thinking: A definition

Critical thinking as defined by Bassham, Irwin, Nardone and Wallace (2011, p.1) is:

"... a wide range of cognitive skills and intellectual dispositions needed to effectively identify, analyze, and evaluate arguments and truth claims; to discover and overcome personal preconceptions and biases; to formulate and present convincing reasons in support of conclusions; and to make reasonable, intelligent decisions about what to believe and what to do."

In addition, Cottrell (2011 p.1) highlights the mental processes – "attention, categorization, selection, and judgment" – all of which necessary in making any critically analytical evaluation of things surrounding us. Demanding rigorous intellectual activities, critical thinking aims at governing rational thinkers who are trained to argue sensibly with intellectual standards like clarity, accuracy, relevance, logic, precision and many others intact. Despite the complexity and mental challenges demanded, critical thinking skills as argued by Kuhn and Crowell (2011, p.545) can be "identified, assessed and…developed in facilitative settings", ideally instilled in the youngsters whose simple reasoning, as claimed by them can be important in the children's contemporary life.

2.2 Barriers in Critical Thinking and Logical Fallacies

Cottrell (2011) argues that critical thinking ability in many people can be dampened by their personal and emotional reasons besides misconstrued idea of criticism, lacking in practice and people's reluctance to oppose experts' arguments. These barriers, besides egocentrism, socio-centrism, stereotypes, relativistic and wishful thoughts (Bassham et al., 2011) can lead to people making a weak argument in which logical fallacies or mistakes in reasoning are included in their lines of argumentation. There are many types of logical fallacies committed by people while reasoning, of which Basham et al. (2011) have categorized into two groups namely 1) Fallacies of Relevance and 2) Fallacies of Insufficient Evidence. As the names suggest, people commit the former when an argument is based on a logically irrelevant reason/s and the later, when inadequate evidence offered in the lines of reasoning. Tables 1 and 2 describe some of the logical fallacies that weaken one's argument and makes it discredible.

Logical Fallacy	What is It?	Example	
Personal Attack (Ad Hominem)	An arguer attacks the opponent, instead of the opponent's argument/claim.	Donald Trump's idea on tracking American Muslims is as hilarious as his orange complexion.	
Attacking the Motive	An arguer criticizes the opponent's motive behind his argument/claim, ignoring a proper examination of the argument /claim itself.	Of course Trump will defend the new Jewish settlements in Gaza. He will get billions-worth contract.	
Look Who's Talking (Tu Quoque)	An arguer rejects the opponent's argument/claim by pointing out the opponent's failure to practice what he preaches.		
Two Wrongs Make a Right	An arguer attempts to justify a wrongful act by claiming that others' act is equally bad or worse.	What is wrong in me bribing the police with RM5? Many people even give them thousands.	

Table 1. Common Fallacies of Relevance (Adapted from Bassham et al., 2011)

Scare Tactics	An arguer uses a threat to get the opponent/reader/listener on his side.	Stop the debate on green technology or I'll splash your mother green.
Appeal to Pity	An arguer uses pity or compassion to get the opponent/reader/listener on his side.	Sir, you should not fire me. I have two disabled kids and sick parents to feed.
Bandwagon Argument	An arguer argues for popularity/social approval/disapproval	I believe the world should produce more food. Many people believe the same.
Straw Man	An arguer twists the opponent's argument/claim and attacks him using the misrepresented point.	Environmentalists who are against this highway project are anti-development.
Red Herring	An arguer raises an irrelevant issue to divert the opponent/reader/listener from the real argument/claim.	Many criticize the manager's sloppy work, but he is a kind man.

Table 2. Common Fallacies of Insufficient Evidence (Adapted from Bassham et al., 2011)

Logical Fallacy	Definition	Example
Appeal to Authority	An arguer uses unreliable authority in his argument/claim.	We should bring PPSMI back. Many parents admit its benefits.
Appeal to Ignorance	An arguer uses a lack of evidence as a reason for his argument/claim.	No one has ever found the connection between poor economy and increased crimes. Thus, these two are not related.
Hasty Generalization	An arguer makes a general conclusion, derived from a too small or biased sample.	People from Country X are so lazy. Don't hire them.
False/Weak Analogy	An arguer simply compares things that 1) are not really comparable or 2) share few similarities.	Drugs are addictive. So do caffeinated drinks. We should prohibit caffeinated drinks too.

2.3 Argumentation Fallacies: Contemporary Studies

A study by Dubrovskaya, Dankova and Gulyaykina (2015) looks into the representation of the Russian judicial power in the country's print media namely *Rossijskaja Gazeta* (GZ) and *Novaja Gazeta* (NG), the governmental and the oppositional respectively, employing the Critical Discourse Analysis and pragma-dialectical perspective on argumentation. It has found the use of Hasty Generalisation fallacy in these two ideologically different media in which, the governmental daily GZ, was reported to have employed positive generalisation in its discussion on the Russian judicial power while the oppositional NG tended to have a negative generalization of the same subject. The researchers argued that "both newspapers strictly follow their strategic agendas, and the representations constructed are consistent with each newspaper's ideology" (p.308).

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In his analysis on the representation of anti-Iraq war protests in the Western opinion press, Ahmed Shahlane (2015) found the use of "veiled threat" or scare tactics in the New York Time as an attempt to discourage protesters from continuing with their plan to march near the United Nation. By implicitly threatening the peace protesters, "focusing only on the violent spectacle (e.g arrests of demonstrators)", Ahmed argued that the opinion press has "muted the anti-war voice" (p.759), showing thus the unfair treatment the Western press has given to the American Muslim demonstrators. In addition, the western opinion press also employed Ad Hominem fallacy while portraying the anti-war protesters with demonstrators labelled as "anti-globalisers", "Labor mavericks", "the usual suspects", "divergent minds", "the doubters", "tweedy old ladies" and "radical Palestinians" among many derogatory others. The protestors and anti-war movements including France and Germany being the anti-Iraqi war nations were also subjected to "Ad Hominem defamation" where the anti-war group was defamed as anti-American or anti-Semitic in their attempt to "besmirch the image of the protesters" (p.762).

3. The Study

This study examines the use of logical fallacies in a Facebook post, comments and replies on the academic fraud controversy surrounding a renowned motivator/entrepreneur, Azizan Osman. It aims to:

- 1) classify the logical fallacies used in the selected Facebook post, comments and replies
- 2) determine the types of logical fallacies mostly used in the Facebook thread

4. Methodology

This study quantitatively and qualitatively analyzes logical fallacies found in the selected Facebook post in favour of Azizan Osman (later referred to AO throughout) that has generated 613 comments and replies, 304 shares and 769 likes. Purposive sampling technique was used in selecting the FB post as the study intends to look at the critical thinking pattern of this Facebook discourse. This study was based on the main argument of the post of which comments and replies were later grouped into two (1) Argument For and (2) Argument Against (respectively referred as AF & AA throughout this study). Logical fallacies found from the two groups of argument were classified and tabulated. The frequency of the logical fallacies used by the commenters was later counted to determine the most commonly used type for both AF and AA groups. The classification of the fallacies was done based on the categorization by Bassham, Irwin, Nardone and Wallace (2011). Since the discourse was mainly held in Bahasa Malaysia, the text was translated into English. Translation here also serves as a way for researcher to anonymize the data gathered, as not to reveal "any information that could be attributed to a single individual" - an ethical consideration - proposed by Kosinski, Matz, Gosling, Popov and Stillwell who believe that participants' consent can be disregarded when their Facebook profile data are made public by the participating individuals (2016, p.3). Only comments and replies that form or imply an argumentation were individually analyzed and counted with reposted argument/claim by any individual commenter and replier counted as one. Textual analysis also elaborates on the logical fallacies found.

5. Findings and Discussion

It should be noted that, the post was created in response to the netizens' social debate over Azizan Osman's alleged misconduct. The main arguments therefore can be deduced as:

AA (from the public)	AF (from the Facebook post)
Premise: Azizan Osman uses fake PhDs	Premise: Dr. Azizan Osman is a good great man.
Conclusion: Azizan Osman lacks integrity	Conclusion : Dr. Azizan Osman should not be condemned
(See Fazlina, A. (2016); Lim, I. (2016); Madihah, A. (2006); Yet another university(2016))	(Dr. Azizan Osman, later referred as DAO throughout)

Table 3. Deduced Arguments

It is interesting to note here that the deduced arguments above show the real conflict of the argumentation. Instead of arguing on the real issue, which is – Azizan Osman's academic fraud – the main argument of the FB post diverges to a new topic irrelevant to the issue discussed. Thus, Red Herring was the first logical fallacy employed in the FB thread. This study argues that the diversionary reasoning, along with some others that will be discussed later, has led to the occurrences of logical fallacies in that post's thread. Table 4 lists down the logical fallacies found in both AF and AA groups' lines of reasoning.

Table	4.	Red	Herring	Fallacy
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	Examples		Frequency
AF	 1-AO is a good great man (main premise) 2-Azizan Othman is still the best because of his willingness to share his knowledge and he wants many to succeed and become wealthy. 3-Do not simply judge people by the one mistake they have done and disregard their many contributions. 4-He has produced a lot of entrepreneurs and helped them. 5-AO's fraud is an issue between him and god. 6-The more important is the invaluable knowledge that he has shared. 	 7-It doesn't matter if one doesn't have a [dr] title [if] compared to the one with the title who doesn't want to help his own people. Forever, a keyboard warrior. 8-I prefer to look at the impact he brought us. Not his weakness. 9-The more important is his knowledge. He has shared more than enough. 10-There must be reasons he did what he didWe challenge those with a PhD, see if they could do things the way he does. 	10
AA	 1-One's end does not justify one's meansif people were attracted to attend his seminar because of his fake titlewhat about the profit that he has madehalal or not 2-Are the knowledge shared and profit made, blessed? 	 3-It is not just about his PhD. We should also look at Richwork companies' loss. 4-Ask him to pay the tax first. 5-Pity yousupporting a <i>munafik</i>. This <i>munafik</i> cheats to earn money. Do you think his earning <i>halal</i>? 	5

Text analysis has shown that the AF group employed the Red Herring fallacy 10 times throughout the FB thread against 5, used by the AA group. It began with the original post's diversionary argument that did not discuss the issue in hand – Azizan Osman's fraud (read lack of integrity). The thread instead diverged to the other matters such as AO's (i) social contribution, (ii) invaluable knowledge and (iii) fraud to be left judged by god. Besides, other irrelevant issues were also forwarded by this group which were (iv) the PhD holders, allegedly not contributing to the society and (v) a challenge to the PhD holders to do what AO has done to the entrepreneurs and society in whole. The AA group meanwhile, resorted to three diversionary themes namely (i) the *halal/barakah* status of the profit gained through AO's use of fake credentials, (ii) AO's company loss and (iii) his tax pay. Regardless of the group, the use of Red Herring fallacy such these is diversionary as a way "... to avoid the key issues, often by avoiding opposing arguments rather than addressing them" (AOL Purdue Online, 2016, p. 2). The argument on AO's questionable academic integrity therefore left unaddressed with the introduction of some other topics irrelevant to the original proposition.

Table 5. Tu	QuoQue/Look	Who's Talking Fallacy
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	Examples		Frequency
AF	1- You toohave you ever lied?	5 -Because, we are not infallible (<i>maksum</i>)	6
	2- I just want to stress here. Do not		
	humiliate others. You too are not that	6-Has the one blaming him looked at	
	good.	himself? Are you that perfect?	
	3-Who has never sinned?		
	4-Everyone has his own weakness That		e e e e e e e e e e e e e e e e e e e
	could be Dr. Azizan's weakness He is		
	wrong there. Only if this case is true.		
AA	NIL	50°	0

Researcher's quantitative analysis has found 6 occurrences of Tu QuoQue/Look Who's Talking fallacy, committed by the AF group. The fallacy attempts to evade the oppositional argument – AO lacks integrity – by proposing that: Since we too (i) have lied (ii) are not that good (iii) have sinned and (iv) are not that perfect, we should not condemn Azizan Osman. Again, the issue argued upon would not be dealt with simply because others too have committed an equally the same or worse mistake. This faulty line of reasoning decides on whether the argument proposed is good or bad, based not on the argument itself but the people proposing it. This fallacy was however absent from the AA group.

Table 6. Straw Man Fallac	У
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	Examples			
AF	1-Do not look at an individual's bad side. Look at the good side. There are many good sides of him, have you studied that?	4-Many tend to look at the negative rather than the positive	6	
	Or you are just fault-finding?	5-Only those who cannot value and envious of someone else' success see		
	2 -AF: It is knowledge that we want, not the title if it is the title being in question, it	him as a liar.		
	is stupid then. Knowledge is far more	6-The world today really looks up to		

	 valuable and everlasting. Title is not. AA: This is not about the title. This is about him lying to people. 3-What is it with a PhD? With or without it, it is the knowledge in depth that we need. It is useless if you have a PhD without it [knowledge in depth]. 	(the people) holding degree, master, PhD to the extent that those without it being simply disregarded, regardless of the knowledge they possess and what they say.	
AA	1-What are you trying to say, Devil? Lying is	honorable?	1

Some misrepresentation was done by the AF group when they resorted to Straw Man fallacy. This fallacy occurred 6 times in the AF's reasoning compared to the 2 occurrences in the oppositional discourse. AA's argument on AO's questionable academic integrity was misrepresented as being (i) a fault-finding (ii) an over emphasis on academic titles and (iii) one's envy of someone else's success. From the oppositional view, AF's support of AO was misrepresented by the AA as "that lying (read, faking one's academic certification) is honorable". This misrepresentation, according to the OWL Purdue Online (2016, p.2) "... oversimplifies an opponent's viewpoint and then attacks that hollow argument". By oversimplifying the issue as being the insignificant issue of people's envy, for instance, the AF group did not refute the AA's position that AO has committed academic fraud. Thus, the question of whether AO commits fraud/ is a liar/ lacks integrity was not at all answered.

Table 7. T	wo Wrongs	Make a	Right F	allacy
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	Examples		Frequency
AF	 1-Do not punish DAO. If it is true that he lie, how sure can you be that your teachers at school have never lied? 2-Don't tell me that you have never cheated in exam. Everyone cheats these days. 	3-Like you have never been cheated by your close friends.	3
AA	NIL		0

This fallacy was employed thrice by the AF group in the FB thread. The arguers here implied that: You should not condemn DAO because (i) your teachers (ii) everyone and (iii) your friends lie, too. It is fallacious to argue based on this weak reasoning as irrelevant points (others too making mistake) are put forward to support the conclusion. This faulty reasoning suggests that just because others cheat, it is therefore assumed that, it is acceptable for AO to cheat. The attempt to rationalize the obvious misdeed here is done because of the insufficient justification offered by the arguer (Bassham et al, 2011) and this can weaken his argument. This fallacy however was not found in the AA's reasoning.

Table	8.	Scare	Tactic	Fallacy	
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	Examples	Frequency
AF	1 -AF: Do not humiliate him. When the time comes, god will do the same to us. AA: This is not about disgracing people. It is he disgracing himself	1

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AA	1-One's end does not justify one's means, brohaaa (you) jump into the hell with	1
	him.	

In Scare Tactic fallacy committed once by each group, the arguers placed a fear of god's retribution as a reason that people should either (i) no longer question the matter or (ii) should not stick to their original argument/claim. The AF's argument that the AA should no longer question AO's fraud case (seen as embarrassing the motivator), reasoning that god will humiliate him back attempts to cut the line of reasoning forwarded by the opposing AA group. On the same line, the AA's argument employed the same tactic – using fear of god's retribution – as to divert the AF from his original claim, if not shaking his stand. This is in line with the findings from Ahmed (2015) who argued that the Scare tactic used by the Western opinion press, particularly the New York Time has suppressed the anti-Iraq war voice among the American Muslims and their fellow demonstrators.

	Examples		Frequency
AF	1 -Those condemning (AO), When I look at you, your life isn't that good. Negative.	2 -Those condemning do not want to learn from him. Such a basher .	2
AA	 AAi: You are the best, Bro. They (AF) cannot answer your question on why should he fake his PhD. 1-AAii: Bro (name anonymized). DAO got a D in algebra. 2-What a diehard <i>macai</i>I was hoping for the response on the PhD issue [in the Richwork press statement] 	 14-A diehard butt licker 15- Lick as much as you like 16-Lick as much as you likeyou are the best, Bro. 18- You really adore himnever enough. Lick as much as you like. 	28
	 3-There are so many <i>macai</i> here. 4-Macai detected 5-Losing my mood there is always a <i>macai</i>. 	 19-Such an idiot. Ignore him. 20- You look more stupid when making this kind of statement. 21- What an idiot. 	
	6 -This is what we call a diehard butt licker what a pity.	22- You stupid . You relate it to everything.	
	7-Macai detected8-Gullible (<i>Dedak</i>)	23- You want to look wise but you show your stupidity, instead.24-Your stupiditywhich level is it?	
	 9-Why must he (AO) lie? Only the brainwashed people can defend a liar. 10-This is an example of attention-seeking 	25 -Another stupid Malaythis is about integrity, you Devil.	
	Malay. Posting a senseless thing with a hope to be bashed and posting shared, while	26 -Ignore these stupid people. Such a waste of time.	

Table 9. Ad Hominem/Personal Attack Fallacy

in fact it is rubbish. 11-Macai DAO	27- What an idiot. We don't question his contribution and all	
12-#macai	28- Reading his first paragraph, I can tell that he's stupid.	
13-Butt licker	ten indene s stupid.	
17-Lick as much as you like. Do you use your brain?		

The analysis on Ad Hominem/ Personal Attack fallacy posits that the one arguing against AO mostly committed this fallacy. There were 28 occurrences of it against 2, employed by the AF group. The former's use of derogatory words/phrases like (i) *macai*, (ii) butt licker/lick, (iii) brainwashed people, (iv) stupid/ idiot, (v) gullible and (vi) attention-seeking Malay, attacked the person making the claim, not the argument forwarded. The name-calling used to "forestall disagreement" (Ahmed, 2015:p.762) can weaken the AA's reasoning, implying that: since the arguer is a *macai*/ butt licker/ brainwashed, an idiot etc, his claim therefore should be disregarded. The AF in contrast resorted to Ad Hominem fallacy by calling the AA (i) negative and (ii) basher. This fallacy is "... an irrelevant attack on the arguer and suggests that this attack undermines the argument itself" (Internet Encyclopedia of Philosophy, 2016). It simply disregards the oppositional argument in whole, leaving a hollow reasoning as no solid point was given to reject the AF/AA group's claim.

Table 10. Attacking the Motive Fallacy

	Examples	Frequency
AF	1- Many people ask why he lied. But what I want to know more is why do people want to humiliate him?	1
AA	1-This guy (name anonymized) is his (Azizan Osman's) kin.	1

The study has also found Attacking the Motive fallacy, used once by both groups. The oppositional claim that says – AO lacks integrity – was overruled by questioning the motive of those making the claim, instead. In the second example, the assumed motive that the Facebook owner is Azizan's kin (implying that therefore his claim is to be disregarded) also makes it fallacious as it is "criticizing a person's motivation for offering a particular argument or claim, rather than examining the worth of the argument or claim itself" (Bassham et al., 2011, p.123).

	Examples		Frequency
AF	AA: (You) can be easily duped. 1 -AF: You are a liar too. You should use your real name. You use a picture of a chicken, instead.	2 -You don't mind it being overcharged when buying something.	2
AA	1- Supporting AO using a fake PhD is equal to accepting a fake physician giving	9 -Would you go to a clinic if the clinic was not operated by a [certified]	16

Table 11.	Weak/	False	Analogy	Fallacy
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treatment at a private clinic.	doctor?
2 -It is the same with those getting a job with a fake SPM.	10 -[It is like] the uncertified dentist running a clinic
3 -Wellsimple analogyeven if your boyfriend is a good man and he keeps on saying that he is single, I bet you would not	11 -People are angry because he (AO) lied. The same goes with Najib
want him [upon knowing the truth that he is not]	12 -A <i>munafik</i> is a <i>munafik</i> . If he raped your wife and (at the same time) give you knowledgelegally, he would
4 -You would be easily duped by your husband/boyfriend then.	still be a rapist.
AF: If we don't humiliate people, Allah will do the same to us.	13 -It is something like robbing to help the poor. No matter how good the intention is at the beginning, he is still
5- AA: Say, someone robbed you. Would you report it? You surely won't as you	a liar.
don't want to humiliate him. AF: Making a police report and humiliating people are two different things.	14- Wait for the <i>dajjal</i> arrival. He (the <i>dajjal</i>) would claim the title. He (the dajjal) is the same – helping people to be rich. Wait
6 -Say I robbed a bank, then I donated the robbed money to the poor, would I be charged of that?	15 -Najib contributes too by giving us BR1M but he is a liar.
7-It is the same with Najib cheating the people to get votes.	16 -Bro, if you cleanse (<i>sertu</i>) a pork and cooked a pork <i>asam pedas</i> and feed your wife and kids – a Muslim
8 -It is like a thief using the stolen things to feed others.	family – it is still <i>haram</i> , BroThis analogy (<i>qiyas</i>), do you get it?

Weak/ False Analogy fallacy was mostly used by the AA group, with 16 occurrences against the 2 employed by the AF group. The former equated AO's use of fake postgraduate credentials to (i) the one using a fake SPM (ii) bank robbing (iii) Najib's alleged cheating (iv) stealing (v) fake physician (vi) fake dentist (vii) rapist (viii) dajjal (ix) cooking and eating a cleansed-pork asam pedas and (x) a disloyal lover. In addition, the act of supporting AO was equated to (i) accepting a fake physician (ii) being easily cheated by husband/ lover and (iii) not reporting a robbery. The AF group retaliated by proposing that the use of fake online identities (profile name and picture) by one of the AA commenters was equal to the AO's use of fake degrees. A contrast was also made between (i) AA's not minding being overcharged while shopping with (ii) AA's concern over AO's academic fraud, thus proposing that AA should not mind the academic fraud the way AA does not mind being cheated by sellers. The attempt to provide clearer views on the matter using analogies such these is not acceptable in the critical thinking sphere as the matters compared are dissimilar in nature, despite the presence of shared characteristics between them. For instance, equating the use of (i) fake academic credentials with (ii) fake medical certification - despite them being both academic fraudulence - is fallacious as it "... ignores an obvious difference between the things being compared" (Bassham et al, 2011, p.152). In this case, the difference between the two lies in the degree of risk a fake PhD holder like AO might have inflicted on his followers could be relatively lower to the one inflicted by a fake physician. While AO might risk the followers' financial health, the latter might risk people's lives with his fraudulent medical certification.

6. Conclusion

The study has found that both groups of arguers resorted to logical fallacies while forwarding their arguments. Table 12 summarizes the findings.

	Logical Fallacy	Argument For	Argument Against
1	Red Herring	10	5
2	Tu Quoque/Look Who's Talking	6	0
3	Straw Man	6	1
4	Two Wrongs Make a Right	3	0
5	Scare Tactics	1	1
6	Ad Hominem/Personal Attack	2	28
7	Attacking the Motive	1	1
8	Weak/False Analogy	2	16
	Total	31	52

Table 11. Logical Fallacies in AF and AA Groups

There were 8 types of fallacies found in the selected FB thread. The most commonly used fallacy was Ad Hominem/ Personal Attack (30 occurrences), followed by Weak/False Analogy (18) and Red Herring (15). The least used was Attacking the Motive fallacy. Those arguing against AO's case committed the most fallacies (52) with fallacy of Ad Hominem/Personal Attack being the one mostly used by this group (28). In contrast, the AF group mostly employed the Red Herring fallacy (10). The occurrence of many fallacies in the FB thread thus compromises the critical thinking standards, particularly 'relevance' as 7 out of 8 types of fallacies found in this FB thread, fall under Bassham et al (2011) Fallacies of Relevance.

In order to conform to the critical thinking standard, this study suggests that both groups should focus on the real argument forwarded by the netizens/AA which reads:

Premise 1:	University of Malaya denies conferring Azizan Osman with a PhD.
Premise 2:	National University Malaysia denies conferring Azizan Osman with a PhD.
Premise 3:	Infrastructure University of Kuala Lumpur denies conferring Azizan Osman
	with a PhD.
Premise 4:	University of Hertfordshire denies conferring Azizan Osman with a PhD.
Conclusion:	Azizan Osman uses fake PhDs.

Argument: Therefore, Azizan Osman lacks integrity.

This instantly rejects all the irrelevant points like misrepresentation, name-calling etc as to achieve good reasoning. Instead of diverging from the real argument forwarded by the netizens, the argument for him should perhaps be:

Premise 1:	Azizan Osman has never claimed having the doctorates.								
Premise 2:	Azizan Osman has been misled by irresponsible individuals.								
Premise 3:	Azizan	Osman's	firm	admits	shortcomings	in	the	operation	procedures
	regarding his academic credentials.								

Conclusion: Azizan Osman's integrity should not be questionable.

Argument: Therefore, Azizan Osman should not be condemned.

The study reiterates the significance of good reasoning and critical thinking in Malaysians, regardless of their social background. The researcher also admits the truth in Morris' writing on the necessity of social critic Henry Giroux's serious take on:

"... the political and moral work of the critical public intellectual...in a world of barbarous profit-seeking, eco-calamities, and savage military violence in which humanity and the future are increasingly reduced to expendables, where billionaire-funded authoritarian spectacles pose as democracy while faith in the public is drowned in a sea of cynicism and despair, and where truth is seldom distinguished from disingenuous rants and uninformed bloviating." (2012, p. 647).

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