

Emotional, interpersonal and intrapersonal intelligences: the differences between informatics and psychology students

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ABSTRACT: The research outlined below was aimed at describing and testing the differences between informatics technology (IT) students and psychology students in interpersonal, intrapersonal and emotional intelligence. Survey research was conducted to collect data through three questionnaires on emotional, interpersonal and intrapersonal intelligence. The students numbered 143 and consisted of 57 IT students and 83 psychology students. The data were analysed using descriptive statistics and a *t*-test. Descriptive statistics showed that of the three intelligences, the two student groups showed differences in mean scores on interpersonal intelligence, while the two groups showed very little difference in intrapersonal and emotional intelligence, and so could be ignored. Based on the *t*-test, it was also found that the two student groups only showed differences in interpersonal intelligence, and not in the other two intelligences.

INTRODUCTION

In this digital era, interactions among people have become more possible and easier. To facilitate such interactions, people need to consider the differences and the backgrounds of the other parties in the interactions. Each person needs to have the social and emotional skills to maintain human relations and interactions. How to interact with others reflects the interpersonal ability of a human being, and how to know and control oneself in a social context is about the intrapersonal ability of a human being. Interpersonal and intrapersonal intelligence are aspects of the social relationship of a human being. Besides these social aspects, emotions are needed to maintain relationships smoothly and to make people's interactions successful [1-3].

Some researchers have studied interpersonal, intrapersonal and emotional intelligences as related to the social and emotional abilities of a person [2][4-6]. Intelligence is needed when people solve problems or work collaboratively with others, and/or when people control themselves in a social situation. When lacking such intelligence, a person may have behavioural and social problems.

Problems, such as bullying, aggression, withdrawal behaviour, suicidal impulses, and so on, are indications of a lower intelligence. So, lack of intelligence will weaken the person's ability to interact with their environment, and also will reduce or even may destroy the person and their relationship with other people. In the end, the person may not be able to contribute positively or involve themselves totally in their social environment. Later on, the person may prefer to withdraw from a social context, and this means they may not learn from or develop, in the environment where they live [3].

In the era of Industry 4.0, the way people work, learn, communicate and interact, and even play, has changed drastically, because of the digital world [7-9]. Digital tools, such as gadgets and laptops or tablets, besides having benefits for human beings, may hinder a person to develop their social and emotional skills. For example, in a social context, it is easy for an individual to be busy with their own gadget or playing games, whereas in the past, games were not played alone.

Digital games, in the long run, may reduce the social ability of the person, because digital devices do not provide a real social context; and people who interact may not be required to adapt their social and emotional skills or manner to the cyberspace they occupy. Many people show their anger and dislike openly through social media without thinking through the consequences. This indicates a problem in interpersonal and intrapersonal skills [2][5][6].

In an Indonesian context, bullying and physical aggression are more common among vocational and engineering school students; even triggering fights. This may indicate that there are problems with the social and emotional abilities of the students. Studies showed that bullying and physical aggression are still found in certain schools, especially among vocational and engineering schools [10-15]. Many factors may contribute to the condition in these schools [16][17],

but these problems may occur if the students and other people in those schools cannot manage to control their social and emotional behaviour. The problems affect relationships and create emotional conflict.

For students in schools, it is not merely about learning how to study well to get a job and make money, but also how to think and behave in a social situation. These emotional and social problems encouraged the authors to investigate whether engineering students have lower emotional intelligence compared to students in other fields.

Digital Impact

The problems above may require more direct social interaction for students so as to learn how to develop their ability in social and emotional situations. However, this may not be achieved fully, because the curriculum focus is on blended teaching using e-material. Tests, assignments and books mostly are in the form of e-material that force the students to interact with the digital world, while at the same time reducing social interactions. These e-materials now have gradually begun to appear in primary schools.

This condition may create a generation that is not able to interact and play in a real social world where social and emotional skills need to be challenged and adapted, so as to allow for success in real life. If social and emotional skills are not able to develop well, these then will affect individuals' interpersonal, intrapersonal and emotional intelligence [7][8][10-12]. Hence, the authors were interested in examining whether informatics students in the digital era have intelligence problems related to social and emotional aspects of their lives.

Even though there is a problem, schools seem to be *e-schools* that force students to spend more time with electronic devices during their study. If such students discuss an assignment with a group, they may do it through social media or email, and so this condition may reduce significantly the direct, real interaction among such students. In certain professions or departments, such as psychology or counselling, students must learn how to connect with other people to increase their capabilities in understanding human beings, and also, they need to improve their skills to help others and to improve also their private lives. But for students in other departments, such as engineering, do they need more time in their study to interact directly with various people or other students, as is the case in psychology?

Especially, do informatics technology students in this digital era prefer more time to interact with people through their electronic devices or through direct and real social interaction? Based on the literature and several studies, the school environment influences people to think and behave [12-15]. So, students who study psychology and students who study engineering might have different environments. In a *different* environment, people might develop different abilities to perceive emotions in oneself and others, as well as from objects, art, stories, music and other.

Informatics students and psychology students are studying different fields of science. But the learning that is digitally based, of course, has an influence on both groups. Whether social intelligence and emotions are both affected and become the same or not, is interesting to contemplate. In the psychology department, students learn things related to the human mind and behaviour, and how to interact with people [1][12], and these should increase their social and emotional abilities. While in informatics, the content of the course material is different.

Whether the two groups of students have different social and emotional abilities is an interesting question; especially considering the many fights that erupt involving engineering students. It is important to know the differences in the abilities discussed above, especially for Malang State University, which is clear of fights. The initial research was to see whether the social and emotional aspects of engineering students are different from other students. This research is aimed at testing the differences between informatics technology (IT) students and psychology students in their interpersonal, intrapersonal and emotional intelligence.

METHOD

The survey research for this study involved collecting data about the interpersonal, intrapersonal and emotional intelligences of two groups of college student studying either psychology or informatics technology. Purposive sampling was applied to this research. The psychology group numbered 85 (57 females and 28 males), and the IT group 57 (18 females and 39 males). They were selected from students in the 2017 study year. Data were collected with three instruments based on Gardner's theory of multiple intelligences, and Goleman's theory of emotional intelligence, as well as the ability-based test, the Mayer-Salovey-Caruso emotional intelligence test (MSCEIT).

The interpersonal intelligence instruments consisted of 26 items. After being validated with the Aiken formula, the validity of items was 0.58-1.00, and based on the Aiken table with $p < 0.05$, V values were 0.75. Of the 26 items, only 23 items are valid; Cronbach's alpha = 0.746.

The intrapersonal intelligence instruments consisted of 15 items; with the Aiken formula, item validity 0.75-1.00, thus all items were accepted with the V table value of 0.75; Cronbach's alpha = 0.626.

The emotional intelligence instrument consisted of 144 items based on a standard test developed by Mayer, Salovey, and Caruso. Data collected were analysed with descriptive analysis, visual inspection and *t*-test.

RESULTS AND DISCUSSION

It can be seen in Table 1 that psychology students have a higher mean in interpersonal intelligence. For intrapersonal and emotional intelligence, the two student groups had very small differences in mean scores so that it could be concluded there were no differences between the two groups. Moreover, the variations in differences will be explained further using minimum, maximum and mean scores.

Table 1: PSY and IT student statistics.

		Interpersonal PSY	Interpersonal IT	Intrapersonal PSY	Intrapersonal IT	Emotional intelligence PSY	Emotional intelligence IT
N	Valid	85	57	85	57	85	57
	Missing	0	28	0	28	0	28
Mean		77.13	68.51	55.36	54.67	38.88	40.86
SD		10.67	7.73	5.57	5.75	7.23	7.22
Minimum		35	53	41	36	21	26
Maximum		98	87	68	64	59	56

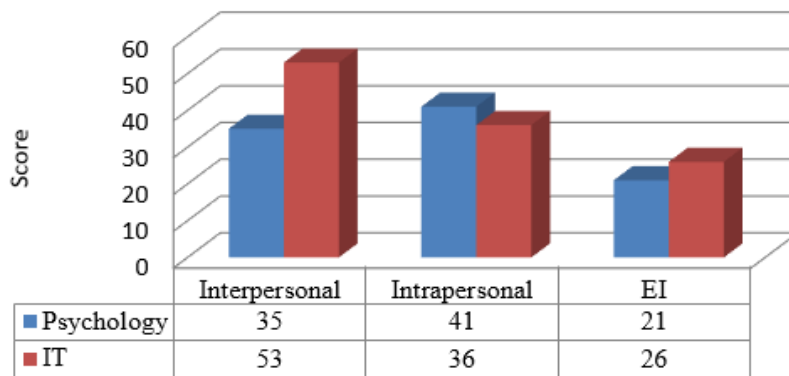


Figure 1: Minimum scores.

Figure 1 shows that the minimum scores of the IT students in interpersonal and emotional intelligence were higher compared with the minimum scores of the psychology students. The scores for interpersonal intelligence had the biggest difference.

The results show that those who study psychology may not have a better ability socially and emotionally. There are many reasons why people choose to study psychology. In Indonesia, psychology may not be a student's first choice, but maybe the third choice; perhaps entrance examination scores did not meet the first-choice criterion. So, when studying psychology, such a student may not be involved or engaged actively in class. Overall, the results may not be strong enough to be described as a *difference*, except for interpersonal intelligence.

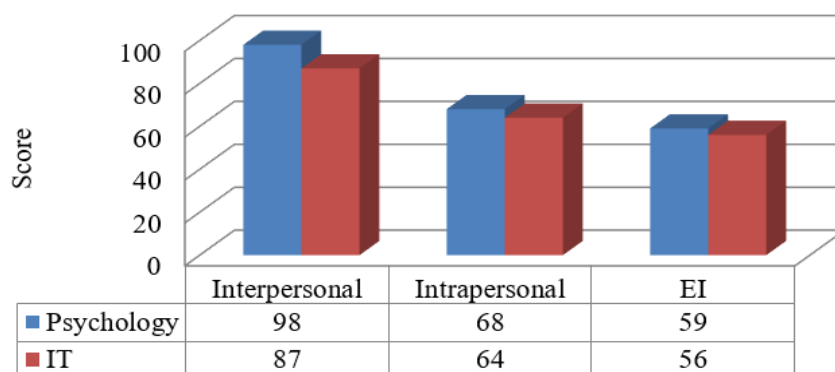


Figure 2: Maximum scores.

Figure 2 shows that the maximum scores of psychology students in interpersonal, intrapersonal and emotional intelligences were higher than those for the IT students. The biggest difference is in interpersonal intelligence; while in the other two intelligences, intrapersonal and emotional, there are small differences. The results are not surprising because, in psychology, students learn about the social and emotional aspects of human beings. This experience may help and influence them to achieve scores higher than those for the IT students. However, the graph shows that the differences were not significant, especially for intrapersonal and emotional intelligences.

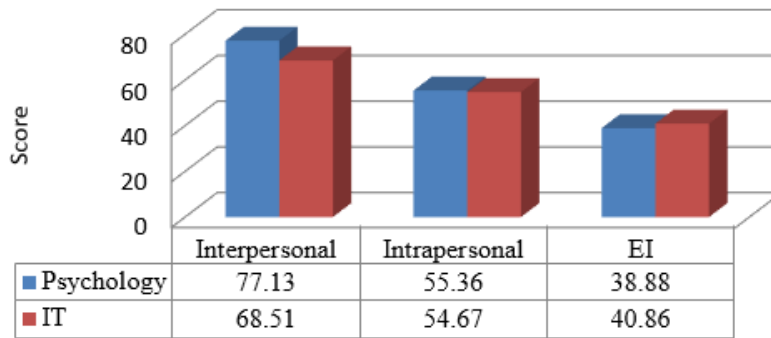


Figure 3: Mean scores.

Figure 3 shows that the mean scores of psychology students were higher in interpersonal and intrapersonal intelligences, but lower in emotional intelligence, compared with IT students. However, the differences in intrapersonal and emotional intelligences were small and could be ignored. This indicates that, generally, there were no differences in intrapersonal and emotional intelligences between psychology students and IT students. The only differences in the mean scores that were found in this research were in interpersonal intelligence, but to ensure statistically whether there are differences in aspects of interpersonal intelligence, the researchers conducted a *t*-test to ascertain whether or not the two groups were different.

Table 2: Independent samples test.

		Levene's test for equality of variances		<i>t</i> -test for equality of means						
		F	Sig.	<i>t</i>	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
									Lower	Upper
Interpersonal	Equal variances assumed	1.459	0.229	5.24	140	0.000	8.62	1.65	5.37	11.87
	Equal variances not assumed			5.58	139.12	0.000	8.62	1.55	5.57	11.68

An independent samples test (Table 2) result showed the significance value (0.229) was greater than 0.05. This means that the variability in the two groups is about the same. But, based on the results for the *t*-test, the Sig.(2-tailed) value in the box is 0.00 ($p < 0.05$), and this showed there is a statistically significant difference between the mean of the two groups.

The results, furthermore, show that the intelligences of the two groups were equal in intrapersonal and emotional intelligence. This indicates that the background in psychology was not a guarantee for the students to be more capable than IT students. But this result does not reject the theory that environment and background influence people to think and behave, because the IT Department requires their students to take one subject course strongly related to social and emotional aspects; and also, the students have a tradition to support each other. This makes the IT programme and its culture equip the IT students to be capable in social and emotional aspects [12][15][18].

In this research, only the interpersonal intelligence of the two groups differed statistically. This difference might be caused by the focus on providing services. In psychology, the students are encouraged to understand humans and build rapport; later on, this will affect their ability in the interpersonal area. In contrast to informatics engineering students, had a mean that was lower than the mean of psychology students. This may occur, because the fields they study are different, and their tasks are not always directly related to humans. So, the differences may be more to do with different environmental factors between psychology and informatics engineering. In short, this showed that intelligence is contextual [5][18]. Related to the aggression among the engineering and vocational students in Indonesia, the results might be attributed to the lack of the interpersonal intelligence that is needed when interacting with others.

Moreover, the intrapersonal and emotional intelligence of the two groups that did not show differences was striking in the context of Indonesia. Both intelligences determine how to respond in a social environment, because both are related to social ability and pro-social behaviour [18]. Specifically, the intrapersonal intelligence showed that engineering students, if given the right social environment, will develop good intrapersonal abilities. Therefore, the culture of lectures and student collaboration in the IT Department of the State University of Malang may stimulate the development of student intrapersonal abilities.

In terms of emotional intelligence, the results of the MSCEIT test did not show differences between the two groups. This shows that the emotions of the students are still evolving. Even though the development of digital technology can

separate a person from direct involvement with the social world, the culture of lectures in the IT Department and Psychology helps mitigate this. Also, it shows that those who choose engineering and vocational courses do not have low emotional and social abilities.

CONCLUSIONS

From the results of the study it can be concluded that a) based on descriptive statistics there was no difference in the means between the two groups of students (psychology and informatics engineering) in emotional intelligence and intrapersonal intelligence; and b) the only difference in mean scores between the groups of students was in interpersonal intelligence; and further with the *t*-test c) there were significant differences between the means of the two groups of students in interpersonal intelligence.

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