

# Mediation Effect of Reasoning Personality in the Relationship between Islamic Education Infusion Learning and Higher Order Thinking Skill

Tajul Rosli bin Shuib  
SMK Sungai Manik, Perak.  
Email: tajul\_roslie@yahoo.com

Mohd Razimi Husin, Ph.D, Nor Hasnida Che Md Ghazali, Ph.D  
Universiti Pendidikan Sultan Idris  
Email: razimi@fpm.upsi.edu.my, hasnida@fpm.upsi.edu.my

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## Abstract

The main purpose of this research is to examine reasoning personality as a mediator in the relationship of Infusion Learning in Islamic Education (IEIL) and Higher Order Thinking Skill (HOTS). This research is based on Swartz, Fischer and Parks (1999) Infusion Learning Model. A model was developed to analyse mediation effect of Reasoning Personality on IEIL-HOTS relationship. This model examined IEIL as a single construct. Interrelation between variables was validated in the first place, so that the mediation effects test could be done. This quantitative survey research was conducted with random cluster sampling technique. There were 388 respondents involved in this study from 18,137 population. Data were analysed using path analysis, Structural Equation Modelling (SEM). This research discovered that there is significant inter-relationship between three variables. Thus, the Reasoning Personality became complete mediator in the relationship of exogenous variable IEIL and endogenous variable HOTS. In conclusion, the research model fit the expected results. Hopefully there will be more research on reasoning personality in the future.

**Keywords:** Islamic Education, Infusion Learning, Higher, Order Thinking Skills (HOTS).

## Introduction

Stated in the Islamic Education Philosophy (FPI) that students are raised to become good Muslim through the formal learning environment in school. However, it does not mention about the need for soft skills so that students can compete in the working market either professional, partial professional or practical (Rahim, 2001) after graduation. To have this, students should have a set of quality thinking skills including emotional intelligence, self-management, problem solving, creativity and so on (Rajendran, 2013). Ministry of Education Malaysia (MOE) started to take the initiative to empower students' thinking ability in the school curriculum since the early 90s with infusion learning through the Primary/Secondary School Integrated Curriculum (KBSR/M) that practices Creative and Critical Thinking Skills

(KBKK) across the curriculum. Nowadays, KBSM/KBSR is improved with the new Secondary School Standard Curriculum (KSSM) with a greater emphasis on High Level Thinking Skills (KBAT) and continuous student assessment in the classroom. Thus it reduces the exam-oriented base in school learning system (Curriculum Development Section, 2016).

There were curriculum and teaching specialists from within and outside the country have been appointed to develop approaches, strategies, methods and techniques for implementing the infusion learning in Malaysia (Rajendran, 2013). In terms of implementation, teachers face variety of difficulties to vary each approach in order to meet the needs of the current education including affecting students' cognitive, affective and psychomotor aspects (Audrey, 2010). Many forms of student centered activities that may promote cooperation, leadership and speech (Mel, 2010) are suggested for teachers and students' practice in classes. Even though the student centered strategy sounds better to encourage thinking skills, most of teachers are proven more comfortable to practice conventional teaching strategies frequently (Rajendran, 2013; Azmi and Halim, 2007) as they are easier in terms of time and class control. That is not a big issue since these conventional strategies are very important in the teaching of most of the Islamic Education syllabus with in depth discussion especially deep learning (Marton & Saljo, 2005).

To encourage students' abilities to think, teachers have to understand the basic thought of their students. This reasoning personality somehow affect their higher order thinking ability (Ab. Halim et al., 2004). Students' thought are shaped by their surrounding (Fisher, 2009). So, this is the most basic thing that teachers must pay attention to. That is why teachers play one another role to students and that is socialisation agent (Rosnani, 2012). Unlike the formal learning in class to promote HOTS, this requires more like informal extra time with students, especially involving after-school activities. In Science and Mathematics subjects, normally this basic guide is usually named as Scientific Reasoning Skills using certain measurement like Lawson Scientific Reasoning checklist (Rajendran, 2013). If students have good score and strong indication in this measurement, then they have strong tendency to perform better in thinking skills (Audrey, 2010).

### **Statement of Problem**

While Malaysia has been practicing infusion learning to promote HOTS, Rosnani (2014) found that students' thinking skills are still insufficient. Both teachers and students could be the main factors. For example, Rajendran (2013) discovered that there are still less skilled teachers to practice the correct questioning techniques in the classroom. This was supported by Seman (2005) and Waheedawati (2003), which found that teachers are only using low level question while in the two-way interaction that did not work well while it is the most important element in empowering good thinking skills. Learning how to think should go with an effective questioning (dialogue). In addition, Brookfields (2015) added that teachers often ignore the HOTS-modelling when they implement the curriculum inflections and thinking skills in the classroom. Teachers should be an expert thinkers to show and model how to think and speak out systematically and critically. Unfortunately this does not happen in the way it should be Suhaimi (2014).

However, teachers also might face difficulties to understand their students reasoning personalities. This affects strategies to be implemented in their class. Students will not able to learn how think of they are shaped to negative and unhealthy way of thinking. This determine how they think about this world and affect the way they make decision now and

in the future (Ellen, 2014). In this study it is called Reasoning Personality; the basic daily reasoning comes from their environment. For example, if they are shaped to think negative about A person, then there will be always negative decision for that A person while there would be another thing to consider. Students must be understood personally and socially other than formal interaction in classroom. Since studies about reasoning personalities (Scientific Reasoning Skills) in Social Science are still lacking, it should be enriched to assist teachers to understand better the situation of their students and to determine the best way to socialize with their students inside and outside class. Teachers may reshape students' social personality in order to reshape their reasoning personality.

### Research Objectives

The main objective of this study is to identify whether or not there is a significant mediation effect of Reasoning Personality in the relationship of Infusion Reasoning and HOTS. This is important to understand the role of the personality to enhance students thinking skills.

### Study Hypotheses

$H_{a01}$  Reasoning Personality is a significant mediator in the relation of Islamic Education Infusion Learning (IEIL) and Higher Order Thinking Skills.

### Research Methodology

This is a survey quantitative research. Data were collected with questionnaire. All constructs have been tested for their validity and reliability. Reasoning Personality construct is based on M. Neil and Stuart's (2007) list while IEIL construct is based on some previous references (Rajendran, 2008; Mayer et al., 2009; Braun et al., 2015; and Fisher, 2007). Higher order thinking skills instruments were adapted from the Rosnani (2014) and Rajendran's research instrument (2008). There were 388 respondents involved in this study from 18,137 population using purposive and random sampling technique. To test the hypotheses, data were analysed using path analysis, Structural Equation Modeling (SEM).

### Findings

#### Mediation effect of Reasoning Personality in the relationship of Islamic Education Infusion Learning and Higher Order Thinking Skills.

Based on path analysis (SEM) using AMOS 4.0, Reasoning Personality completely mediates the relation of Islamic Education Infusion Learning and Higher Order Thinking Skills. Thus it met Baron and Kenney's (1986) requirements to test mediation effects. Variables should have significant interrelationship between one to another; IEIL should give significant effect to Reasoning Personality and HOTS. Reasoning Personality also must have significant effect to HOTS. Basically, IEIL was proven to give significant direct effect to Higher Order Thinking Skills ( $\beta=0.864$ ) as shown in figure 6.1. After the mediator variable Reasoning Personality came into the model, the beta coefficient value for IEIL reduced. In other words the direct effect IEIL to HOTS will reduce as the mediator entered the model. The result shows that beta coefficient value in the relation of IEIL and HOTS was reduced from 0.864 to 0.155.

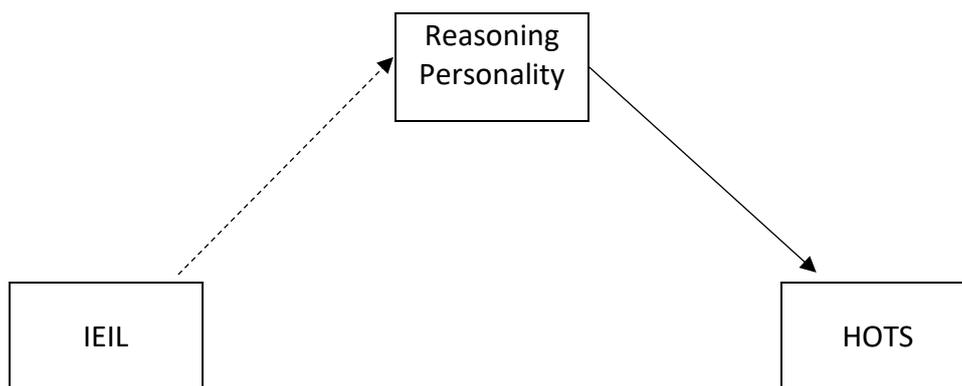
**Step 1: Direct effect.**



Islamic Education Infusion Learning (IEIL)	→	Higher Order Thinking Skills (HOTS)	0.864***
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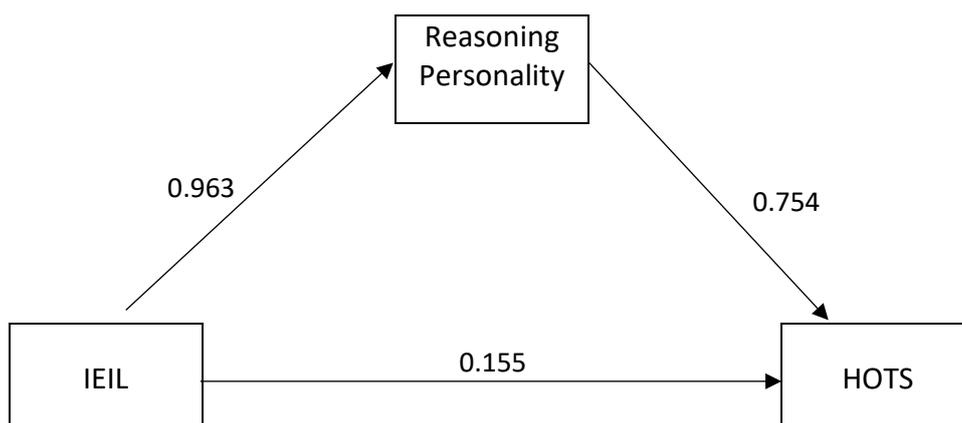
**Step 2: Indirect Effect**

**Step 3: Indirect Effect**



Islamic Education Infusion Learning	→	Reasoning Personality	0.975***
Reasoning Personality	→	Higher Order Thinking Skills	0.815***

**Step 4: Complete mediation**



- 1) Indirect Effect =  $0.963 \times 0.754 = 0.726$
- 2) Direct Effect = 0.155
- 3) Both indirect effects (IEIL to Reasoning Personality and Reasoning Personality to HOTS) are significant.
- 4) Oleh kerana, Kesan Tidak Langsung > Kesan Secara Langsung, pengantara berlaku
- 5) Jenis pengantaraan di sini adalah **Pengantaraan Lengkap** kerana Kesan Secara Langsung tidak signifikan selepas konstruk pengantara memasuki model

Islamic Education Infusion Learning (IEIL)	→	Reasoning Personality	0.963***
Reasoning Personality	→	Higher Order Thinking Skills (HOTS)	0.754***
Islamic Education Infusion Learning (IEIL)	→	Higher Order Thinking Skills (HOTS)	0.155

Figure 6.1. The role of Reasoning Personality as a Mediator in the IEIL-HOTS relationship.

Table 6.1 shows the “*Standardized Regression Weights*” to measure the effect of IEIL to HOTS as 0.081, while the “*Standardized Regression Weights*” for IEIL to Reasoning Personality is 0.580. This model shows all “*fitness indexes*” are satisfactorily met. Even though the GFI is less than 0.9, however it is still acceptable (Baumgartner and Homburg, 1995). Thus, the structure model is considered reasonable and acceptable. “*Fitness indexes*” for the model is as shown on the table 6.1:

Table 6.1.  
“*Fitness Indexes*” for the Model Structure

Category name	Name in index	Index	Note
Absolute fit index	RMSEA	0.060	Meet the required level
	GFI	0.808	Meet the required level
Incremental fit index	CFI	0.914	Meet the required level
Parsimonious fit index	Cmin/ df	2.410	Meet the required level

## Discussion

This study has shown the importance of Reasoning Personality to enhance students’ thinking skills. Students are believed to have a clear thought and positive reasoning in their life as well as in academic discussion. This could be an opportunity for teachers to give great emphasis in affective aspect (*rohani*) in the classrooms other than cognitive and psychomotor. Besides, this scenario also indicates that students are able to learn contextually. Thus teachers must vary contextual learning environment to meet 21st century learning aspiration. It should be done continuously since personality is changeable especially when is related to youngsters. Other than that, this study also proved that there are good teachers’ effort to have a good rapport to their students. It is because reasoning personality is more about socially-emotionally connection between people. In Islamic Education, this rapport plays importance role to shape students’ spiritual identity. Reasoning personality role as mediator can be tested to other models with another elements of Infusion Learning.

Result of this study supported Primi, Morsanyi and Chiesi (2014) and Gerber, Marek (2001) who discovered that scientific reasoning skills (reasoning personality) variable as a significant mediator in the relation of students’ learning and their academic performance. Even though those studies were in Science and Mathematics perspectives, it depicted the same scenario to explain the strong interrelation between discussed variables. The significance of reasoning personality was also explained by Hassan, Eizuan, Shah & Uzi (2012) with extended research to prove the effect on students’ thinking ability provided that the infusion learning is practiced

continuously in an systematic order. These studies also show us that the reasoning personality is discussed globally to ensure that our young generation live in healthy mental-reasoning environment.

State Education Department and teachers should collaborate together to cope with reasoning personality issue. Teachers are encouraged to prepare comprehensive modules which include reasoning personality to their assessments. This is to make sure that all teachers have a standard focus and strategies to approach students in order to get them closer to Islamic thinking. This will help them to understand Islam better and become good Muslims as Malaysia future leaders. Other than that, students will be able to learn Islamic Education willingly without the feeling of coercion since learning will only be effective when students learn Islamic Education willingly and sincerely.

### Conclusion

The result of this study has met the research expectation. Reasoning personality plays its significant roles to support students thinking skills development. Further research on reasoning personality should be done widely especially in Islamic Education perspective since it is still lacking. Hopefully this study could provide some ideas to teachers and education administrators in Malaysia to pay better attention to students' reasoning health. Teachers will be a good socialization agent if they understand their students socially instead of just academically.

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