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THE STYLES OF THINKING AMONG PRIMARY SCHOOL TEACHERS

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Abstract:

According to Malaysian National Philosophy, one of the main goals of education is to help students become well-rounded persons who can think critically. Being aware of how well teachers can impart knowledge and skills is vital because they are the most influential players in the educational process. In other words, the aim of this study is to see if there are any disparities in thinking abilities between male and female professors. 266 primary school teachers in Selangor completed the Teaching Skills Inventory, and the results showed that teachers use executive thinking skills. In spite of the fact that men teachers outperformed female teachers in all of Sternberg's proposed thinking types, a t-test shows that male teachers preferred executive thinking skills. The study's findings were followed up with several recommendations for further investigation.

Keywords:

Thinking Styles, Executive Style, Primary School Teachers, Mental Self-Government, Quantitative Method

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Introduction

For teaching and learning to be effective, it must be an ever-evolving process. As the economy gets more globalised, the population becomes more diverse and integrated, and technological advancement quickens, people and society face new and challenging issues. Uncomfortable because it pushes people out of their comfort zones, technology forces change. According to McCain and Jukes (2001), the mindset of those who use technology determines future success, not the technology itself. Therefore, educational systems must adapt to changes in student thinking. Higher order thinking skills like analysis, synthesis, and assessment are crucial for effective problem-solving and should be taught to students by their teachers, according to McCain and Jukes (2001). Because of this, schools must alter their curriculum policies to teach children new skills for future survival in order to meet the demand of changing instructors' mindsets and obligations.

KSSR, which began with Year One pupils in 2011, replaced Malaysia's New Primary School Curriculum (Kurikulum Baru Sekolah Rendah, or KBSR), which placed less emphasis on gaining information and more on building higher-order thinking skills (Malaysia Education Blueprint 2013-2025 p.E-4). As far as higher-order instruction goes, this appears to be positive. By creating KSSR, educators hoped to make curriculum reforms to better prepare students for 21st century demands and difficulties by providing relevant information, skills, and values (KPM, 2012). In the old primary school curriculum, KBSR, reading, writing, and arithmetic were the only three skills addressed; however, in the new curriculum, KSSR, a fourth skill is addressed: reasoning (*menaakul*). Higher-order thinking, or reasoning, is a type of thinking.

There are six areas of focus in this programme: i) communication, ii) science & technology, iii) physical & aesthetic development, iv) self-exposure and v) humanity. The goal is to build a well-rounded student who can think critically while still being creative (Malaysia Education Blueprint 2013 - 2025, 2013). One of the goals of the KSSR is to inculcate in students a passion for inquiry and lifelong learning, as well as the ability to combine diverse pieces of knowledge. Thinking skills are one of those goals (p.E-4). Cognitive talents such as reasoning, creativity, and innovation will be required of every student. As a result of the curriculum, students should be encouraged to think more critically.

Teachers are crucial since they are the main agents in the teaching process. Teachers' intellectual styles and the way they relate to students' intellectual styles are both influenced by earlier research (Zhang, 2008). Moreover, research shows a connection between the thinking styles of teachers and the creative thinking of their students (Dikici, 2014; Boroujerdi & Hasani, 2014; Betoret, 2007). Another study conducted by Chua (2011) showed Malaysian teachers are left brainers, lacking in creative abilities and thus unable to educate their students how to be creative. Similarly, Kamarulzaman (2017) found that teachers do not understand critical thinking, making it difficult for them to pass on the skills they have learned. As a result of our previous research, we observed that there is a dearth of studies on the thinking styles of teachers, particularly in primary schools, which may influence student achievement. To find out if primary school teachers' thinking differs based on gender, we are currently conducting this study on teachers' thinking styles.

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Literature Review

Thinking Style

Style refers to a method of thinking (Sternberg, 1997). A person's chosen technique of putting their abilities or skills to work is what Sternberg calls a style of thinking. In other words, ability refers to how well someone can do something, whereas style refers to their preferred method of doing it. This is a clear contrast.

This theory of mental self-government was first put forth by Sternberg (1997), who said administrations all over the world serve as a reflection of what people think internally. Because of this, various forms of government are seen as reflections of the thoughts of the people who live in them.

The executive, legislative, and judicial branches of government all have distinct roles to play in society. According to Sternberg (1997), the legislative branch enacts laws, the executive branch implements initiative, policies, and laws, and the judicial branch determines if they have been adhered to appropriately or if any violations have been enforced to connect governments around the world.

People who want to do things their own way are more likely to be legislators, according to this notion. These people decide for themselves what they will do in their work and how they will do it. When faced with a task, they prefer to set the rules rather than follow them. Politicians tend to be innovative because they could come up with new ideas, but they also have the motivation to do so. Legislators favour vocations like scientist, cover artist, policy banker, and architect.

The legislative mindset is distinct from the executive mindset. Because they like to obey the rules, executives choose challenges that are pre-structured or pre-made. They prefer to use an existing framework to fill in the blanks rather than come up with new structures or standards. Decision-makers favour solving mathematical problems, applying rules to complex situations, and making sure regulations are enforced. Executives are also valued both at school and at business since they are willing to carry out instructions. They like to follow instructions and commands, and if asked to appraise their own performance, they will do so based on how well they follow instructions, much like the system will. This means that smart kids who think in executive style are more likely to thrive in school, while brilliant kids who think in legislative style are more likely to be labelled as disobedient and even rebellious by their teachers and classmates.

The judicial, on the other hand, differs from executive officials in that it prefers to evaluate rather than just follow laws and regulations. Judicial people also focus more on analysing and evaluating current issues and ideas than legislators who prefer to create new policies and fix pre-existing issues. Some of the careers judicial people prefer are those of judges, consultants, system analysts, and admission authorities.

It was found that those who think in a judicial style are constantly re-evaluating and prioritising items in order to make acceptable decisions, according to Zhang (2003). Moreover, they are more likely to carry out jobs requiring evaluation and analysis (Zhang, 2003). It took Zhang (2004) an additional year to conduct another mental-government study in which he found an

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association between analytical ability and judicial style, with the former requiring the latter. As a result of Abdi's (2012) research, he believes that Sternberg's (1997) thinking styles and critical skills have a connection. He also believes that the judicial style of thinking involves both evaluative and analytical thinking.

Teachers' Thinking Style

It has been suggested by Zhang (2002) that analytical thinking style has a strong connection to executive thinking style, and this is supported by Dikici (2014), who claims that people with executive thinking styles are left brainers who are skilled at processing information in a piecemeal, analytical, and sequential fashion. According to the results of a study done on mathematics professors, their thinking styles were rather similar (Deringol, 2019). According to Deringol (2019), teachers approach mathematical issues in similar ways regardless of whether they're analytic or holistic thinkers. Nevertheless, Canbolat et al. (2016) found that mathematics teachers preferred the executive thinking style, which loves to deal with procedures and has a higher level of topic mastery, above judicial and legislative thinking types. Sarıçoban and Kırmız (2020) found that teachers favoured executive thinking style, which is a strong indicator of knowledge as well as cognitive control. When it comes to problem-solving, they abide by the debate's norms and regulations and employ the most appropriate ways.

Teachers' thinking styles were also studied in depth to see how they related to other qualities. One of them looked at the connection between thinking styles and attitude and found that executive thinking styles have a substantial relationship with values, love, and teaching attention, but legislative thinking types were chosen by the majority of participants (Uygun & Kunt, 2014). That teacher with executive thinking styles is more confidence in their communication abilities and provides convincing explanations when making judgments, according to Şen (2018), is supported by this research. According to Chang (2013), executive thinking style is linked to helpful, understanding, and freedom features, allowing students to study more freely because of these characteristics. This group of teachers, on the other hand, favoured strong leadership and a strict approach to interpersonal interactions. Teachers who use the executive thinking style lecture and require students to produce what they have learned in detail, whereas teachers who use the legislative and judicial thinking style give students liberty and opportunities to make their own decisions (Zhang, 2001). Researchers found that educators who teach students of varying grade levels tend to favour a variety of thinking styles; for example, teachers of upper grades may favour an executive thinking style, as well as legislative and judicial thinking styles, because they have more teaching experience (Dikici, 2014). Thinking styles, as demonstrated, have an impact on a wide range of characteristics and variables.

There were some variations between the thinking styles of male and female teachers when comparing them. According to Zhang and Sternberg (2002), male teachers had a higher executive thinking style score and also had more freedom in deciding their lesson plans' content. Despite the fact that female teachers scored higher in executive thinking style, a more recent study by Betoret (2007) found no significant difference in thinking styles preference between genders. While both genders' thinking styles were similar, Qummer and Zamir (2020) found that female teachers scored higher in executive style. In contrast to Çenberci and Yavuz (2018), Ozan (2019) found that female teachers preferred executive thinking style much more

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than male teachers (2018). According to the studies we looked at, female teachers favour executive thinking styles over male ones.

We discovered a dearth of study on the thinking patterns of primary school teachers in Malaysia based on the available literature. Accordingly, we hypothesised in the current research that teachers preferred executive thinking style and that thinking styles differ significantly between male and female teachers.

Method

Sample

A total of 266 participants were purposefully selected to answer the questionnaire. They were primary school teachers from around five schools in Selangor area.

Measure

Thinking Styles Inventory (TSI) updated questions where only mental self-government functions were employed from questionnaires by Sternberg and Wagner (1991). Teachers' thinking styles will be assessed through the use of a survey. The redesigned questionnaire assesses three different ways of thinking: legislative, executive, and judicial. Each construct has a reliability value of 0.78, 0.95, and 0.83, respectively, and a combined reliability score of 0.90. (Gelen et al., 2016). Table 1 shows some examples of the questionnaire:

Table 1: MSG TSI Sample Items

Styles	Items
Legislative	1. When making decisions, I tend to rely on my ideas and ways of doing things 2. When faced with a problem, I use my own ideas and strategies to solve it
Executive	1. When discussing or writing down ideas, I will follow formal rules or presentation 2. I like to figure out how to solve a problem following certain rules
Judicial	1. When discussing or writing down ideas, I like criticising others' way of doing things 2. When making a decision, I like to compare the opposing points of view

Data Collection and Analysis Technique

226 teachers from five public schools participated in the study, which required permission from the Ministry of Education, the State Department of Education, and the District Education Office. We went to every school and asked the principal for permission to conduct the survey. Once we had permission, we handed out paper copies of the questionnaire to the teachers, asking them to complete them. We returned to the schools a month later to collect the results of the survey.

The quantitative information gathered was calculated using the questionnaire's items. When analysing the results of the survey, the researchers used the Sternberg MSG Interpretation table (1998) by Michael Sternberg. Likert scales from 1 to 7 were utilised in the survey. Each

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thinking style has its own set of eight assessment statements, which are interpreted differently. The data was analysed using descriptive analysis and t-tests.

Ethical Consideration

In the research process, ethical consideration is critical, and the highest standards should be used in the work that is produced as a result. All components of the research endeavour must take ethics into account in order to maintain objectivity, avoid bias, and eliminate any potential conflicts of interest. In this study, every attempt was taken to conduct research in the most ethical manner feasible, even if it couldn't be avoided altogether.

Informed Consent

The study's outline was explained to all participants, and their participation was entirely optional.

Harm and Risk

The risks of participating in this study are extremely minimal, and it is highly unlikely that anyone will suffer injury as a result of doing so. Participants had the opportunity to decline or withdraw at any time because participation is completely voluntary.

Privacy, Confidentiality, and Anonymity

The participants' identities were determined using their gender, marital status, age, and teaching experience. On the other side, authentic names are concealed. As a result, others will be unable to access the participants.

Results

Demographic Information

Table 2: Demographic Information

		Frequency (N=266)	Percent
Gender	Male	60	22.6
	Female	206	77.4
Race	Malay	235	88.3
	Chinese	5	1.9
	Indian	24	9.0
	Others	2	.8
Age Range	Less than 35 years old	72	27.1
	35-44 years old	138	51.9
	More than 45 years old	55	20.7
	NA	1	.4
Teaching Experience	Less than 5 years	32	12.0
	Between 5-10 years	85	32.0
	Between 11-15 years	77	28.9
	More than 15 years	72	27.1

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Level of Education	Diploma	22	9.0
	Bachelor's degree	224	84.2
	Master's degree	18	6.8

The demographic information summarised in Table 2 shows that female participants outnumber male participants by 77.4 % to 22.6 %, respectively. 88.3 % were Malay, 5% were Chinese, 24% were Indian, and 2% were of other races. 52% of participants are between the ages of 35 and 44. The majority of participants (32%) had 5-10 years of teaching experience and a bachelor's degree (84%).

Teachers' Thinking Styles

The following table, Table 3, compares the three modes of thought and the differences between male and female teachers. For both genders, the comparison is conducted by examining the high and low columns. When the styles are compared, it is discovered that the majority of male teachers favour the executive style (53%), while 33% prefer the legislative thinking type. Similar findings apply to female teachers, with 38% preferring executive style and 37% preferring legislative style the least.

Table 3: Types of teachers thinking styles

	Male (%)			Female (%)		
	Low	Middle	High	Low	Middle	High
Legislative	33	54	13	37	59	3
Executive	0	47	53	2	60	38
Judicial	17	55	28	29	43	28

Our descriptive analysis reveals comparable findings, as illustrated in Table 4. Executive thinking style had the highest score ($\overline{x}$=41.1, sd = 6.97), followed by legislative thinking style ($\overline{x}$=38.5, sd = 6.86), and judicial thinking style ($\overline{x}$=37.6, sd = 7.3), indicating that teachers prefer executive thinking style.

Table 4: Descriptive Analysis

	N	Mean	Std. Deviation
Legislative	266	38.4549	6.86142
Executive	266	41.0755	6.97194
Judicial	266	37.5602	7.29889
Valid N (listwise)	266		

Additional study was conducted to assess whether there is a significant variation in teachers' preferred thinking methods between genders. Table 5 illustrates the results, which suggest that male teachers favour legislative (t=3.145, df=264, p=0.02), executive (t=1.979, df=264, p=0.49), and judicial (t=2.359, df=264, p=0.19) thinking styles much more than female teachers. Despite this, we were unable to reject our null hypothesis because both sexes prefer executive thought.

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Table 5: Gender Difference in Thinking Styles

Style	Male			Female			t	df	p
	n	$\bar{x}$	sd	n	$\bar{x}$	sd			
Legislative	60	40.9	6.93	266	37.8	6.69	3.145	264	0.02
Executive	60	42.6	6.35	266	40.6	7.09	1.979	264	.049
Judicial	60	39.5	6.89	266	37.0	7.33	2.359	264	.019

Discussion

The purpose of this study is to examine primary school teachers' thinking styles and to establish whether there are any differences between male and female teachers. According to our findings, teachers preferred executive thinking. Canbolat et al. (2016) discovered that, when compared to judicial and legislative thinking styles, mathematics teachers favoured executive thinking, which is more comfortable with procedures and demonstrates a greater level of topic understanding. Sarıçoban and Kırmız (2020) discovered similar findings, concluding that teachers who preferred executive thinking styles were ultimate predictors of both knowledge and cognitive control. They adhere to the discussion's rules and regulations and, for the most part, use the most acceptable methods of problem solving. Additionally, executive thinking style is associated with analytical mode of thought, which is specialised in the piecemeal, analytic, and sequential processing of information (Zhang, 2002). On the other hand, other studies indicates that executive thinking style impairs students' creativity (Chua, 2011). According to Sternberg's theory of mental self-government, executive style individuals like to adhere to norms and organisation. Although this may appear to be counterproductive to students developing higher order thinking skills, they are superb implementers and action takers (Sternberg & Grigorenko, 1995). They are competent of professionally fulfilling the tasks of a teacher as required and directed by the Ministry of Education. According to Sternberg (1997), individuals who prefer executive thought are best suited for schools and the federal government.

Another discovery from our study is that, while there is a considerable difference in gender preference for all thinking modes, male and female teachers had the same preference for the executive style. Simply put, men teachers exhibited a greater variety of thinking styles than female teachers, yet both sexes scored highest in executive style. This contrasts with a study conducted by Betoret (2007), who found no significant difference in preferred thinking patterns between genders, despite the fact that female teachers scored higher on executive thinking. Similarly, Qummer and Zamir (2020) discovered that, while male and female teachers had similar thinking styles, female teachers scored higher on executive style. Our investigation discovered that none of the male participants had low executive characteristics scores.

Conclusion and Recommendation

The purpose of this study is to examine the thinking styles of primary school teachers in Selangor, as well as the disparities in thinking styles between males and females. Only the functions domain of the mental self-government theory was evaluated, and 266 instructors were randomly selected to complete an updated MSG TSI questionnaire. According to our statistics, teachers chose the executive thinking style, which is regarded to be the most suited for teachers and federal government officials. Additionally, we discovered that teachers have a shared preference for thinking styles, despite the fact that each thinking style is significantly different, with male teachers scoring higher in all styles than female teachers. The executive thinking

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style is thought to be the best fit for teachers since they are good implementers and action takers who will adhere to the Education Ministry's ideas and guidelines on how to educate pupils higher order thinking abilities efficiently.

After identifying teachers' preferred thinking styles, future study could examine the association between the style and other variables such as teaching style, student academic performance, teacher attitudes, and job satisfaction.

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