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Source	*ERA-AME-AMIC Joint Conference, Singapore, 4-6 September 2000*
Organised by	Educational Research Association of Singapore (ERAS)

TEACHERS' THINKING STYLES AND CREATIVITY FOSTERING BEHAVIOURS

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Abstract: R. Sternberg (1997) posits the basic thinking styles, namely, the executive style, the legislative style, and the judicial styles. Each of these styles describes a tendency for a person to think in one way more than the other that predisposes the person to be more suited for one kind of thinking task than the others. Sternberg's scales for the three styles were completed by a group of 144 teachers who also responded to the Flexibility, Opportunities, and Independence sub-scales of the Creativity Fostering Teacher Behaviour Index (Soh, 2000). Correlations among the measures that can be meaningfully interpreted were found. The study also compares the *normative* and *ipsative* scoring of the thinking styles responses. Implications are discussed.

Introduction

Styles, as a psychological construct, has been given much attention by the research community since the late seventies, beginning with Wilkin's (1978) *Cognitive Styles* of field-dependent and field-independent styles. More familiar to educationists is Kolb's (1978) *Learning Styles* which include the converging, diverging, assimilating, and accommodating styles with which students learn. Somewhat later, Henson and Borthwick (1984) proposed six *Teaching Styles* (namely, task-oriented, co-operative planner, child-centred, subject-centred, learning-centred, and emotionally exciting) in which the teachers emphasise the different elements in a teaching-learning situation. Then, there is the much used, and perhaps also misused, *MBTI* (Myers-Briggs Type Indicator, Myers and Myers, 1980) that is more popular with management people than educationists. MBTI covers four bipolar traits (extraversion-introversion, intuitive-sensing, thinking-feeling, and perceptive-judging) giving rise to 16 types. Robert Sternberg's (1997) *Thinking Styles* could well be the latest addition to the field.

Admitted, Sternberg's is a complex theory as it positing various facets of the styles, including *functions* (legislative, executive, and judicial), *forms* (monarchic, hierarchic, oligarchic and anarchic), *levels* (global and local), *scope* (internal and external), and learning (liberal and conservative).

Although there is a proliferation of styles theories over the past three decades, *Styles*, as used in the literature and variously defined, refers to preferred modes of processing in-coming information, learning, or thinking. The present paper concerns itself with Sternberg's *Thinking Styles* and only its facet of *functions* at that. Sternberg (1997) sees the functions of thinking styles being an analogue of the functions performed by all governments:

> *They need to legislate; they need to execute the legislation the pass; and they need to Judge whether the legislation is consistent with their principles, and if it is, whether people are acting in accord with the legislation.* (p.27)

With this conception, Sternberg describes the characteristics of the three thinking styles and the preferred mode of behaviours on the job, among others, thus:

Legislative style	Executive style	Judicial style
Characteristics Legislative people like to do things their own way. They like creating, formulating, and planning.	Characteristics Executive people prefer to be given guidance as to what to do or how to do what need to be done.	Characteristics Like to evaluate rules and procedures. Prefer problems in which they can analyse and evaluate things and ideas.
Likes Deciding on what work to do Giving orders Deciding on policy Deciding systems for getting work done	Likes Preferring given and structured problems Willing to work within the system Being evolutionary rather than revolutionary	Likes Evaluating a plan Judging the quality of a subordinate's work Analysing the strengths and weakness of something done

It is of both practical interest and theoretical significance to find out the prevalence of the three thinking styles among teachers. In the school context, it takes a balanced combination of the different styles for the school's effective functioning. An effective school needs creative and innovative ideas of the legislators, the efficient and effective implementation of the executives, and, for proper review, the insightful and critical evaluation of the judges. At the theoretical level, of particular to the present paper is the relationship between the styles and teacher creativity.

The importance of teacher creativity in cultivating student creativity cannot be overemphasised. However, research on teacher creativity has not made much progress, partly due to the lack of suitable measures of teachers' creativity fostering behaviours.

Using Cropley's (1997) list of broad description of such behaviours, Soh (2000) developed and validated the Creativity Fostering Teacher Index (CFTI), which has nine sub-scales for Independence, Integration, Motivation, Judgement, Flexibility, Evaluation, Question, Opportunities, and Frustration. Based on the response of teachers (N=117), Cronbach's alpha coefficients varying from .74 to .90. were obtained for the nine sub-scales and .96 for the CFTI as a whole. All sub-scales correlates significantly with an adapted scale of Domino's (1970) Creativity Scale.

Objectives

The present study is an attempt to ascertain the construct validity of Sternberg's functions of thinking styles. The second objective of the study is to compare two different ways of scoring, original and ipsatised, for the three thinking styles. And, the third objective is to find out the thinking styles of teachers with different years of teaching experience and academic qualifications.

Method

Measures. The scales for the functions of thinking styles were taken from the Sternberg-Wagner Thinking Styles Inventory (1997). They purportedly measure the behavioural tendencies reflective of the three thinking styles described above. For each function, there are eight items each with a scale varying from 1 (Not at all) to 7 (Extremely well). The scale score is the sum of item scores. No reliability and validity indices are not available..

Three sub-scales selected from the CFTI (Soh, 2000) were used. The three CFTI sub-scales (Flexibility, Opportunities, and Independence) were chosen with the belief that these are likely more reflective of the behavioural characteristics of the thinking styles. The reliabilities originally reported are .78, .83, and .76 respectively. Their correlations with the creativity scale for creativity personality are .40, .36, and .39, respectively.

Respondents. The three Sternberg-Wagner scales and the three CFTI sub-scales were administered to 145 teachers who attended a lecture on creative teaching given by the present writer. The demographic profile of these teachers is shown in Table 1. As can be seen therein, there is an obvious preponderance of female primary school teachers among the respondents. There is also somewhat greater proportion of teachers with more than 15 years of teaching experience and non-degree teachers.
This being a captive sample of teachers, no claim is made as to its representation of the population.

Table 1
The Respondents

Demographic variables		Percentage (N=145)
School	Primary	72.4
	Secondary	27.6
Sex	Male	26.2
	Female	73.8
Years of teaching	Up to 15 years	42.8
	More than 15 years	57.2
Qualification	Non-degree	55.2
	Degree	44.8

Results

Table 2 shows the descriptive statistics for the six scales together with their reliabilities. As can be seen therein, with the exception of the Judicial scale which has an unexpectedly low reliability of .16, all the other five scales have respectable reliabilties varying from .47 (Flexibility) to .89 (Opportunities).

Table 2
Descriptive Statistics and Reliabilities

	LEG	EXE	JUD	FLX	OPP	IND
LEG	1.000	.303**	.154	.297**	.469**	.170*
EXE		1.000	-.100	.292**	.275**	.064
JUD			1.000	-.092	-.123	-.148
FLX				1.000	.516**	.159
OPP					1.000	.352**
IND						1.000
Mean	43.86	45.08	38.86	28.47	30.89	28.81
SD	8.17	8.86	9.98	5.32	4.21	6.27
Reliability	.733	.514	.163	.467	.892	.501

Note: LEG Legislative; EXE Executive; JUD Judicial; FLX Flexibility; OPP Opportunity; IND Independence

It is interesting to note the significant though low correlation of .30 between Legislative and Executive styles, although Sternberg (1997) stated that the Executives' pattern of likes and dislikes is essentially the opposite of that of legislative people (p.36). At the same time, as expected, the Judicial style is independent of the other two thinking styles.

Both Legislative and Executive styles have significant correlations with Flexibility and Opportunities, but only Legislative style correlates with Independence. Moreover, the correlation between Legislative style and Opportunities is much greater. In substantive terms, these means that teachers with stronger Legislative style, compared with those stronger in Executive style, are more likely to give their students the opportunities to try out their own ideas and to allow students to go beyond what the teachers have taught. Legislative teachers are also more likely to leave the students to find out more after being taught the basics and to leave them with open-ended questions for further exploration.

These patterns of inter-correlations suggest that the functions of the three thinking styles have some degree of construct validity, and that Legislative style has an element of creativity.

The secondary objective of the study is to compare two methods of scoring the three Sternberg-Wanger scales. The original scoring method treats summated scores of the three scales as if they are independent of one another. This does not give due consideration that styles are conceptualised as preferences, which by definition, are

relative rather than absolute. In other words, it would be more consistent with the conception of styles to talk about a person's score for one style while taking into consideration his scores for the other two styles.

Hence, the original styles scores were ipsatised. Ipsatisation was achieved by expressing the three original scores in terms of percent scores of the total of the original scores. This simple transformation takes into account the strengths of the other two styles when a particular style is being considered.

As shown in Table 3, there are high correlations between each pair of original and ipsatised scores, as would be expected. Comparison made between the two triangles of correlations in Table 4 reveals a clearer pattern supporting the construct validity of the functions of thinking styles. For the original scores, the small but significant correlation between Legislative and Executive styles is not consistent with Sternberg's conception that the likes of one tend to be the dislikes of the other, although, consistent with the concept, Judicial style is independent of the other two. For ipsatised scores, Legislative and Executive styles correlate negatively and significantly, and Judicial styles correlates negatively and significantly with the other two. These latter findings are more consistent with Sternberg's conception of the three functions of the thinking styles.

Table 3
Original and Ipsatised Scoring

	Original scoring			Ipsatised scoring		
	LEG	EXE	JUD	LEG2	EXE2	JUD2
LEG	1.000	.303**	.154	.749**		
EXE		1.000	-.100		.711**	
JUD			1.000			.795**
LEG2				1.000	-.174*	-.545**
EXE2					1.000	-.731**
JUD2						1.000

Note: LEG Legislative; EXE Executive; JUD Judicial; LEG2 Ipsatised Legislative; EXE2 Ipsatised Executive; JUD2 Ipsatised Judicial;

Table 4
Correlations between Styles and Creativity

	Legislative style		Executive style		Judicial style	
	Original	Ipsatised	Original	Ipsatised	Original	Ipsatised
Flexibility	.297**	.222**	.292**	.206**	-.092	-.330**
Opportunity	.469**	.423**	.275**	.177*	-.123	-.444**
Independence	.170*	.235**	.064	.087	-.148	-.236**

The third objective of the study is to find out whether teachers with different years of teaching experience and academic qualifications have different thinking styles. As Table 5 shows, teachers with more years of experience tend to be stronger in Executive style while those with less years of experience tend to be stronger in Judicial style, although they do not differ in Legislative style. And, as shown in Table 6, teachers who are degree holders are weaker in Executive style but stronger in

Judicial style when compared with teachers without a degree. However, the two groups do not differ in Legislative style.

Table 5
Comparisons by Years of Experience

	15 years or less (N=61)		16 years or more (N=82)		p for
	Mean	SD	Mean	SD	F-test
LEG2	33.89	5.15	34.63	4.00	.322
EXE2	33.69	6.05	36.33	4.48	.003
JUD2	32.44	7.56	29.04	5.11	.002

Table 6
Comparisons by Qualification

	Non-degree (N=79)		Degree (N=64)		p for
	Mean	SD	Mean	SD	F-test
LEG2	34.89	3.52	33.61	5.47	.101
EXE2	36.03	3.99	34.18	6.55	.040
JUD2	29.11	5.03	32.20	7.59	.004

Discussion and Conclusion

By an large, the pattern of correlations among the measures provide some evidence of the construct validity investigated, although the correlation between Legislative and Executive styles, when the original scoring was used, seems to be inconsistent with the conception. However, these two styles became more distinct and hence more consistent with their conceptualisation when the original scores were scaled or ipsatised to take into account scores for all three styles. The validity of the functions is further supported by the correlations of the three styles with measures of self-reported creative personality in an interpretable manner.

Years of teaching experience and academic qualification do make a difference in Executive and Judicial styles, though not in Legislative style. Notwithstanding these, as the data are cross-sectional, it is not possible to say with any degree of certainty whether the differences are developmental or situational.

Although teachers of different years of experience and academic qualifications are equally Legislative (or creative), it is of note that the more experienced older teachers are, more Executive (hence, conforming and practical in outlook) whereas the less experienced and younger ones are more Judicial (hence, critical). At the same time, teachers who hold a university degree are found to be more Judicial (critical) while those who do not are more Executive (conforming and practical). Such findings have implication for school administrators when they interact with teachers of varied experiential and academic backgrounds, especially when seeking the teachers views and assigning them responsibilities. Thus, it would be useful if measures of thinking styles could be obtained for the information of the school administrators and for self-understanding of the teachers because, as the Chinese strategist says, “Know thy enemy, a hundred battles a hundred victories,” although school administrators and teachers work best as partners.

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