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Inculcation of Values Across the School Curriculum: Development and Validation of Teachers' Orientation Scale

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Abstract: *Teacher orientation to the inculcation of values across school curriculum—a function of the teacher knowledge and attitudes—has been conceptualised as his or her (1) identification with the goals of the curriculum, and (2) conformity with the predetermined instructional behaviours. Based on this framework, the study explored the construct of teacher orientation to the inculcation of values across school subjects. More specifically, the study examined the likelihood of two underlying dimensions explaining the presence of variability in teacher orientation and the reliability of the dimensions. Using a 15-item instrument developed earlier for a descriptive inquiry, the present study measured and analysed responses from 103 secondary school teachers from two randomly selected schools. To arrive at the conclusions, the study applied principal component analysis and Cronbach's alpha procedures. The results suggested that teacher orientation to value inculcation is a multidimensional construct. The more reliable dimensions of Teacher Orientation were found to be goal identification, conformity to planning tasks, and conformity to delivery tasks. The results add new information to, and may serve as a guide for future research in this area.*

Inspired by the Islamic philosophy of education,[1] the Malaysian Ministry of Education formulated its first formal statement of National Education Philosophy in 1987. Proponents of the policy claimed that

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the national philosophy, in essence, inherited the spirit, logic, systems, structure, and implications of the philosophy of Islamic education. Consistent with that of Islamic education, the national philosophy aims at developing individuals who are balanced and integrated physically, emotionally, spiritually, and intellectually and who are also strongly grounded in their submission to their Creator.[2] Not surprisingly, however, critics were quick to argue that the formalised national philosophy was a result of socio-political concession. While sponsors of Islamic movements found that it was pale in comparison with the philosophy of Islamic education, others simply brushed it aside and labelled it as mere rhetoric.

To translate this philosophy into action, the Ministry of Education launched a nation-wide curriculum innovation in 1989, currently known as the Integrated Curriculum for Secondary Schools (ISSC). One dominant feature of the ISSC is the inculcation of values across curriculum. Regardless of content area, grade level or teacher's specialisation, the ISSC requires every teacher to instil 16 categories of universally accepted values, the breakdown of which yields about 80 distinct values. To supplement the innovation, the Ministry conducted a series of seminars and workshops, appointed and trained resource persons and key personnel, provided practising teachers with short-term in-service orientation programmes, and produced new classroom textbooks, teachers' guides and other pertinent learning resources. Accordingly, with the diversity of approaches, educational researchers and practitioners across the nation began to develop interest in evaluating the innovation.

One approach used in evaluating curriculum is to identify teachers' orientation, which comprises their knowledge in and attitudes towards the purposes, principles, and implementation of the curriculum. For this reason, teachers' orientation has been repeatedly studied as a means to evaluate the effectiveness of the ISSC.[3] To date, however, researchers are uncertain as to how this construct could be adequately conceptualised and measured. Stressing the need to address the practical concerns, previous studies were not based on, or derived from, sound theoretical underpinnings about teachers' orientation to curriculum innovation. This lack of conceptual framework created difficulties in characterising and operationalising teachers' orientation in value inculcation, and eventually researchers failed to measure the construct adequately. The literature suggests that most studies applied researcher-constructed instruments measuring multifaceted dimensions of teachers' knowledge perceptions and attitudes regarding the ISSC,

but neglected to investigate the psychometric properties of the measures. As a result, a majority of them have descriptively analysed and interpreted the issue in piecemeal. Consequently, these efforts conveyed confusing results about the effectiveness of the ISSC.

At the same time, the literature shows that curriculum orientation has been a major concern in other educational systems, particularly the American educational system. Crystallised definitions of teachers' orientation have been worked out, the categorisations of which have been spelled out, and have resulted in the development of sound measures for the construct. One conception of teachers' orientation, for example, treated it as a three-dimension construct, comprising intellectual traditionalists, social behaviourists and experimentalists.[4] Cunningham on the other hand, considered technology, critical consciousness or social reconstruction, personal relevance, cognitive process, and academic rationalism as the latent variables for teachers' curriculum orientation.[5] Smith and Neale revealed four different orientations to science curriculum among elementary school teachers, which they labelled as the discovery, processes, and didactic and conceptual change.[6] However, for several reasons, the conception and measurement of curriculum orientation as modelled in the literature do not fit the local context. Unlike the more liberal system that prevails in the States which allows teacher far more freedom to set curricular goals, choice of content knowledge, application of instructional strategy, and evaluation procedures, the curriculum development and implementation in Malaysia are centrally regulated and highly structured.[7] The ongoing in-service programmes, in effect, serve to familiarise Malaysian teachers with the nature and the requirements of the national curriculum. Thus, the Malaysian system leaves very little room for local teachers to subscribe to some particular philosophical orientations as done by teachers in the West.

The purpose of this study was to survey secondary school teachers' orientation in the inculcation of values across subject matter, and in doing so, to clarify the meaning of the construct itself. Thus, the study addressed the following research questions: (1) What are the dimensions of teachers' orientation in value inculcation? and (2) What is the reliability of the orientation measure? More precisely, the study concerned the development and validation of a scale to measure teachers' orientation in value inculcation across secondary school curriculum.

Conceptualising Teachers' Orientation in Value Inculcation

Orientation refers to the frame of reference that predisposes one's

reactions to certain stimuli in the environment. It serves as a general viewpoint about particular stimuli that activates the choice of behaviours. Based on this premise, therefore, orientation antecedes behaviours. Shaped by personality variables, intertwined with one's system of values and with environmental social-contextual variables, orientation can be described as an intrinsic construct that goes beyond the level of knowing about something.[8] Distinctively, orientation comprises both the cognitive and affective elements of personality. As a cognitive element, working knowledge about what, how and when to react, accounts for the variability in performing particular behaviors.[9] On the other hand, the affective component of one's orientation, being evaluative in nature, determines preferences in making a choice of what, how, and when to act. To recapitulate, an orientation one holds is a function of one's knowledge and attitudes.[10]

It is important to note that the conceptualisation of teachers' orientation calls for specific contextual referent, without which its definition lacks substantive components.[11] In the present study, the contextual referent for orientation to curriculum innovation relates to the course of actions to initiate teachers to the objectives, principles, and tasks in the light of its goals as prescribed by the Ministry of Education, Malaysia. Among other things, the in-service programmes organised by the ministry attempted to "orientate"—sensitise, familiarise and develop teachers' competency in implementing the ISSC. A teacher's orientation to the ISSC, therefore, necessitates his or her (1) identification with the goals of the new curriculum, and (2) conformity with the predetermined instructional behaviours. Thus, this study defines teacher orientation as a two-dimension construct comprising goal identification and task conformity. Goal identification means the degree to which a teacher supports or associates his or her personal objectives, norms, and expectations with those of the new curriculum. Task conformity means the extent to which a teacher reports practices in applying teaching techniques, procedures, approaches, and methods congruent with those of the ISSC. Together, these two dimensions explain the variability in teachers' orientation to the inculcation of values across school subject.

Components of Goal Identification

Goal identification implies the extent to which a teacher personalises the goal, objectives, and principles entailed in the ISSC. One major goal of the ISSC is to instil 16 categories of values in all subject matter, at each grade level, by all secondary school teachers.[12] The

way in which teachers understand and value the goals may differ. While some may strongly support the integration of these 16 categories of value with content knowledge, others may concentrate only on a limited number of values. Obviously, there are some teachers who may not to be concerned with the ISSC goals, and accordingly keep focussing on value-free instructions. Also, instead of the 16 categories of value, some teachers may prefer to be associated with moral and religious values, to the degree of reciting verses of al-Qur'ān and Ḥadīth to drive home a point.

Likewise, strong goal identification manifests itself in a teacher's support for value-laden instructions. Such a teacher may express agreement with the idea that developing a student's value system is one role every teacher should accept. Strong goal identification may prompt the teacher to accept the new goals, procedures, and rules without finding them an additional burden; he or she may not agree that the innovation is a barrier to effective delivery of lessons. Also, teachers may value the new goals so highly that they refute the suggestion that value inculcation should be limited to those who specialise in moral or religious education only.

Components of Task Conformity

Task conformity means willingness to adapt new teaching techniques, procedures, approaches, and methods as required by the goals of the ISSC.[13] Teachers who are more likely to conform to the tasks may plan their lessons accordingly. Such teachers most probably would identify the kind of values suitable for each lesson. They may also plan for the method of applying appropriate strategy or technique to go with the set of identified values. For example, strong task conformity motivates the teacher to adopt the technique of story telling to infuse social or moral values. Concerned with students' needs, teachers with strong task conformity would grab whatever opportunity exists during classroom interactions to discuss and clarify context-specific values. These teachers are more likely to offer evaluative comments regarding students' social and moral behaviours in their lessons.

METHOD

Participants

Participants were 103 teachers from two schools selected randomly from a list of schools that participated in an earlier nation-wide survey.[14] They were experienced teachers ($M=12$ years); 34% were males; 85.4% were Muslim Malays; 90% had attended at least one

inservice course on the ISSC. Distribution of the sample indicated that these teachers, diverse in content specialisations, taught students a wide range of school subjects at all grade levels. A preliminary analysis found that there were no serious departures of sample characteristics from the population of secondary school teachers in Malaysia, hence the sample can be as representative of much of the population.

To satisfy the requirement for an adequate sample size, the study subscribed to the principle derived from Guadagnoli and Velicer.[15] In a Monte Carlo study on principal component analysis—a data reduction scheme used in the present study—the authors recommended that, regardless of sample size, the analysis should retain only those dimensions with four or more loadings above .60 in absolute value. Accordingly, given the small sample, the following rules were observed: (1) the minimum number of variables per dimension was four, (2) the minimum absolute magnitude of the loadings for a four-variable dimension was .60, and (3) dimensions loaded with three or fewer variables were not retained. This somewhat strict procedure, however, enhances the reliability and interpretability of the dimensions.

Instrument

Since 1991 members of a research team at the International Islamic University Malaysia have been developing a 50-item instrument measuring teachers' perceptions toward four aspects of the inculcation of values. The four aspects are: the aims of the new curriculum, lesson planning, methods of value inculcation, and self-evaluation of instructional effectiveness. The instrument was first used in a survey on teachers' perceptions in 30 systematically selected schools in the central zone of Peninsular Malaysia. However, neither the reliability nor the results of item analysis were available.

The present study used the theoretical framework for teachers' curriculum orientation presented in the preceding section as the substantive criterion to select items. Using the inclusion criterion, 15 items representing the two dimensions of teachers' orientations, goal identification and task conformity were included in this analysis. The researchers named the final version of the instrument, "Value Inculcation Orientation Scale" (VIOS). Each item, suggestive of goal identification or task conformity, to which the participant is required to indicate her disagreement or agreement on a 6-category response scale, represents an observed variable. Theoretically, the underlying

dimension for the first seven variables was goal identification, while the rest of the items were expected to load significantly on task conformity. The rate of response for the study was 85%.

Analysis

To identify the underlying dimensions measured by the variables, a principal component analysis was first conducted on the inter-variables correlation matrix. Second, the factor loadings were estimated, and to increase the interpretability of dimensions, the initial factors were then subjected to direct oblimin rotation.[16] The approach is consistent with the assumption that the underlying constructs are conceptually related, and with the need to arrive at the simplest factor structure. Third, the Kaiser's criterion for important factors, Catell's scree test, significance test on factor loadings,[17] and the interpretability of the extracted factors were used to decide the number of dimensions to be retained. Finally, to estimate the internal consistency of the retained dimensions, the study applied the Cronbach's alpha formula.

RESULTS

Table 1 summarises the correlation matrix and the descriptive statistics. The degree of intercorrelation among these variables justified the use of principal component analysis; Bartlett Sphericity Test was statistically significant, $\chi^2(105)=609.68$, $p<.001$. To obtain factor solution, the analysis used maximum likelihood procedure followed by the oblimin method of axis rotation. Table 2 reports the rotated component matrices.

The results of the analysis showed that there were four latent variables measured by the data. The reproduced correlation matrix appeared to "best fit" the intercorrelation among variables with a four-dimension structure, accounting for 63% of the total variance. This indicates that four underlying dimensions explain more than 60% of the variance among the 15 variables. The variance of the first component, the largest eigenvalue was 5.39, while the other subsequent eigenvalues were 1.59, 1.42, and 1.04, respectively. Inspection on the scree plot also pointed out that the 15-item instrument measured four factors. All estimated factor loadings were large enough to be of practical significance; even the weakest loading (.531) was statistically significant, at $p < .01$. In addition, the analysis produced loadings, all of which were in the same positive directions, and solution that was free from variable-specific factor.

Table 1: Correlation Matrix and Descriptive Statistics

	Items														
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Item 1															
Item 2	.355														
Item 3	.199	.207													
Item 4	.231	.416	.227												
Item 5	.246	.341	.029	.465											
Item 6	.204	.183	.080	.206	.350										
Item 7	.064	.305	.037	.271	.523	.500									
Item 8	.046	.200	.001	.211	.515	.402	.650								
Item 9	.116	.158	.075	.381	.555	.330	.489	.685							
Item 10	.139	.228	.228	.270	.394	.545	.461	.389	.492						
Item 11	.172	.309	.019	.241	.337	.428	.391	.292	.432	.602					
Item 12	.080	.294	-.007	.327	.398	.346	.264	.325	.453	.478	.564				
Item 13	.104	.313	.183	.401	.452	.231	.448	.297	.531	.563	.333	.398			
Item 14	-.077	.256	-.064	.232	.252	.259	.384	.272	.171	.216	.147	.214	.247		
Item 15	-.044	.349	.012	.216	.254	.216	.433	.282	.195	.240	.170	.150	.372	.614	
Mean	5.04	4.57	5.68	3.68	4.71	5.00	5.12	5.03	4.76	5.33	5.02	4.83	5.31	3.22	4.04
SD	1.94	2.03	1.02	2.26	1.81	1.69	1.54	1.65	1.78	1.30	1.79	1.93	1.58	2.63	2.66

However, the solution was contaminated with two major noises. First, the four-factor solution carried factorial complexity. More precisely, item 13, "I emphasise moral values in classroom instructions," was significantly loaded on two factors, factors 2 and 3. Second, the solution produced a two-variable factor; the variables were item 14 and item 15. Since the sample size was relatively small, a two-variable factor may affect the stability of the solution and the reliability of the loadings. Evidently, there was a need to search for an alternative model. Also shown in Table 2 are the loadings for a three-factor solution which are the results of an additional analysis on the data. Excluding the three variables from the four-factor solution, the analysis extracted a somewhat comparable fitting solution; the 12 variables measured three underlying dimensions, accounting for 60% of the total variance. The eigenvalues for the factors were 6.63, 1.50 and 1.10, and visual inspection of the scree plot supported the retention of the three factors. The estimated loadings are significant and substantially large, the minimum being .60. The solution, free from factorial complexity and variable-specific factor, extracted positive loadings. These results enhance our confidence that we are dealing with non-chance loadings.

In light of the three-factor solution, the results showed that the first rotated factor has significant loadings on four variables. Each of these variables suggested the existence of one common aspect of value

infusion across school curriculum, that is the goal of ISSC. The empirical clustering of variables loaded on this factor perfectly matches the logical grouping of items. These variables, in essence, measure the degree to which a teacher values the aims, objectives and principles derived from the ISSC. High scores on this dimension suggest that the teacher may have personalised the values, norms, and expectations in terms of allocating time, setting priorities, role playing, and implementing value-laden instructions. Thus, this first rotated factor appears to be a goal identification dimension.

Table 2: Loadings for Four-and Three-Factor Rotated Solutions

	Item	*Four Factor Sol.*	*Three Factor Sol.*
1	Value inculcation does not affect time allocated for content delivery. (1)	.688	.694
2	Value inculcation should be given priority in classroom instruction. (1)	.670	.721
3	Every teacher plays an important role in shaping students' moral behaviours. (1)	.620	.600
4	Every lesson should be loaded with values. (1)	.640	.649
5	In lesson planning, I think of the values to be infused. (2)	.774	.782
6	I Seize every opportunity during a lesson to infuse value. (3)	.676	.691
7	I make sure that I inculcate values in every lesson. (2)	.764	.801
8	For each lesson I reflect on focussing on social values. (2)	.855	.864
9	For each lesson I plan the inculcation of citizenship values. (2)	.846	.793
10	I relate students' good behaviours with moral values. (3)	.835	.840
11	In class I point out students' misbehaviours. (3)	.855	.850
12	I use examples and story telling techniques to infuse values. (3)	.762	.750
13	I emphasise moral values in classroom instructions. 3 (2)	.564	.531
14	I use verses of al-Qur'an, al-Hadith, and the prophet's life history for value inculcation. (4)	.857	-
15	I find value inculcation effective through the use of verses of al-Qur'an, and the history of the prophet. (4)	.882	-

The four strong and significant loadings on the second rotated factor represent performance verbs "think of," "reflect on," "inculcate," and "plan to" in delivering value-laden instructions. These actions represent a teacher's mental activity, which must take place before a lesson is delivered if he or she is committed to the task of inculcating noble values. It is, therefore, reasonable to categorise this interpretation as a dimension of task conformity in lesson planning. High scores on this dimension portray teacher's adherence to the tasks of identifying and selecting appropriate social and citizenship values that match the objective and the contents of a lesson. Finally, variables representing tasks related to lesson delivery dominated factor 3. The

factor is highly loaded with a teacher's actions to "seize every opportunity," "relate students' good behaviours," "point out misbehaviours," and "use examples and story-telling." High scores on these variables illustrate the teacher's high conformity to methods of value inculcation as prescribed by the ISSC. In short, this factor measures task conformity in lesson delivery. The oblique rotation indicated that all factors are moderately correlated (Table 3).

Table 3: Factor Correlation and Internal Consistency Index

	Cronbach's Alpha	*Goal Identification*	*Planning Conformity*
Goal Identification	.60		
Planning Conformity	.84	.18	
Delivery Conformity	.78	.509	.258

The second concern of the study was to estimate the reliability of the 15-item instrument (Table 3). Using Cronbach's alpha formula, the internal consistency indices for the sub-scales were .60 for goal identification, .84 for task conformity in lesson planning, and .78 for task conformity in lesson delivery. Thus, there is some concern regarding to the reliability coefficient for goal identification since it falls short of the acceptable standard of .70.

CONCLUSION

Confined within the limitations of the study, the present results confirm and add new information to current understanding on curriculum innovation. Our findings go hand in hand with earlier works on curriculum orientation.[18] Clearly, teacher orientation is a multidimensional construct. While earlier studies examined the multifaceted dimensions of teachers' philosophical orientation to curriculum, our concern however, was more on how to assess teachers' orientation towards the goal and tasks rooted in value-laden instructional philosophy as prescribed by the ISSC. The researchers postulated that teachers' orientation in the inculcation of values across school curriculum is a two-dimension construct, consisting of goal identification and task conformity.

The results of data analysis are not inconsistent with our own expectations about teachers' orientation. The latent variables—goal identification and task conformity—jointly explain why a substantial

proportion of variances exists in teachers' responses to the selected items. As expected, goal identification measures the extent to which a teacher subscribes to the goal, objectives and principles of value inculcation as predetermined by the Malaysian Integrated Curriculum for Secondary School. Nevertheless, the structure of the observed data suggested that there are two moderately correlated dimensions of task conformity, conformity in lesson planning and conformity in lesson delivery. These two sub-constructs of task conformity respectively assess a teacher's reported practices in planning and in implementing value-laden instructions. In summary, the study yielded a finding that teacher's orientation to value-laden curriculum comprises of three relatively independent scales.

Since orientation to value-laden instruction is a multidimensional construct, researchers should not make the mistakes of using composite scores to assign teachers to levels of orientation. Rather, the results suggested that researchers use three separate scores—goal identification, conformity in lesson planning, and conformity in lesson delivery. A teacher who scores high on goal identification may perform poorly on task conformity in lesson delivery. Such a teacher may strongly value the goal, objectives, and principles of ISSC, but he may find it difficult to execute instructional tasks deemed necessary by the curriculum developer. In this respect, unless we examine each dimension of teacher's orientation on its own interpretation, we may overlook some important relationships.

The analysis on 15 items first selected for this study suggested the presence of another significant underlying factor. It was a two-variable factor, which was excluded from the final analysis in order to avoid capitalizing on chance. A close look at the variables showed that both of them are statements suggesting the use of holy verses in value inculcation. In fact, these are the only items on the original instrument that explicitly identify sources of Islamic values. In most likelihood, the study may extract a reliable factor had there been more items that deal with Islamic sources as the term of reference. Future efforts should verify such a possibility by adding comparable items in their analysis.

The current results have created new paths for research on the Integrated Curriculum for Secondary School in general, and teachers' orientation in value-laden instructions in particular. First, there is a need to refine the conception of teachers' orientation to value-laden curriculum. Second, further research is necessary to validate and

refine the Value Inculcation Orientation Scale (VIOS). Third, it is important to examine factors that influence variability in teachers' orientations. Finally, research should establish evidence to verify the effects of teachers' orientation to value-laden instructions on student learning. In a summary, for a value-laden curriculum to achieve its aims of developing integrated and well-balanced personality, concerted efforts in research and educational practices are called for.

Notes

1. The writings of Syed Muhammad Naquib al-Attas have been particularly influential in Malaysia and other parts of the Muslim world. See his edited book, *Aims and Objectives of Islamic Education* (Jeddah: King Abdul Aziz University, 1979).

2. Curriculum Development Centre, *The National Education Philosophy and the Integrated Secondary School Curriculum* [Falsafah Pendidikan Negara dan Kurikulum Bersepadu Sekolah Menengah] (Kuala Lumpur, Malaysia: Misnistry of Education, 1988).

3. See for example R. Hashim, "Penyerapan nilai-nilai murni dalam aspek Pengajaran dan pembelajaran KBSM dari perspektif guru" [Inculcation of noble values in the teaching and learning of ISSC from teachers' perspectives]. Paper presented at the Seminar Kebangsaan Penilaian KBSM; Sri Layang, IAB Malaysia, September 1996; I. Jusoh & Z. Ismail, "The Understanding and Implementation of Values Education: Perceptions of Student Teachers," *Jurnal Pendidik dan Pendidikan 13* (1994): 86-98; M. Mantrak, "Moral Values in the Malaysian Integrated Secondary School Curriculum," Unpublished doctoral dissertation submitted to the University of South Dakota 1993; T.A. Nordin, & A. Kurais, "KBSM dari pandangan kita" [ISCC from our perspectives], *Jurnal Pendidikan Islam 6* (1987): 44-73.

4. W.M. Carrol, "Technology and Teachers' Curricular Orientations," *Educational Horizons 75* (1997) 2: 66-72.

5. R. Cunningham, "Curriculum Orientations of Home Economics Teachers," paper presented at the American Vocational Association Convention, St. Louis, MO, December 1992. [ERIC Reproduction Service No ED356368].

6. D. Smith, & D.C. Neale, "The Construction of Subject Matter Knowledge in Primary Science Teaching," *Teacher and Teacher Education 5* (1989)5: 1-20.

7. This is manifested in the *Education Act 1995* (Malaysia) (Kuala Lumpur, Malaysia: MDC Publisher, 1996).

8. D.M. Kagan, "Implications of Research on Teacher Belief," *Educational Psychologist 27* (1992): 65-90; Also see, M.F. Pajares, "Teachers' Beliefs and Educational Research: Cleaning up a Messy Construct." *Review of Educational Research, 62* (1992): 307-332.

9. E.D. Gagne, *The Cognitive Psychology of School Learning* (Boston: Little, Brown, 1985).

10. M. Rokeach, *Beliefs, Attitudes, and Values* (San Fransisco: Jossey-Bass, 1968).

11. In this regard see P.L. Grossman, "What we are Talking About Anyway? Subject-Matter Knowledge of Secondary English Teachers," paper presented at the annual meeting of American Educational Research Association, San Fransisco, March 1989; P.L. Peterson, E. Fennema, T.P. Carpenter, & M. Loef, "Teachers' Pedagogical Content Beliefs in Mathematics," *Cognition and Instruction, 6* (1989): 1-40; S.M. Wilson, & S.S. Wineburg, "Peering of History Through Different Lenses: The Role of Disciplinary Perspectives in Teaching History," *Teachers College Record 89* (1988): 525-539; G. Basri, "Moral dan Etika: Huraian Konsep dan Permasalahan Dalam Konteks Pelaksanaan Nilai-nilai Murni Sekolah-sekolah" [Moral and ethics: The explanation of the concept and its implementation problems in schools], *Jurnal Pendidikan Islam 3* (1990): 47-56.

12. For a description of these values, see Curriculum Development Center, *The National Education Philosophy.*

13. Nordin & Kurais, "KBSM dari pandangan kita"; Basri, "Moral dan Etika."

14. Department of Education, "Kajian keberkesanan strategi pengajaran dan pembelajaran dalam penyerapan nilai-nilai murni dalam KBSM" [A study on the effectiveness of teaching and learning in value inculcation in ISSC], unpublished manuscript, International Islamic University Malaysia, 1998.

15. E. Guadagnoli & W. Velicer, "Relation of Sample Size to the Stability of Component Patterns," *Psychological Bulletin 103* (1988): 265-275.

16. For a description of this procedure, see for instance J. Stevens, *Applied Multivariate Statistics for Social Sciences* (Hillsdale, NJ: Lawrence Erlbaum, 1992).

17. For Kaiser's criterion for important factors, see H.F. Kaiser, "The Application of Electronic Computers to Factor Analysis," *Educational and Psychological Measurement 20* (1960): 141-151; for a description of scree test, see R.B. Cattell, "The Meaning and Strategic Use of Factor Analysis," In R.B. Cattell (ed.) *Handbook of Multivariate Experimental Psychology* (Chicago: Rand McNally, 1966), 174-243; and for a description of significance test on factor loading, see N. Cliff & C.D. Hamburger, "The

Study of Sampling Error in Factor Analysis by Means of Artificial Experiments," *Psychological Bulletin 68* (1967):430-445.

18. See for example W.M. Carrol, "Technology and Teacher Curricular Orientation," *Educational Horizon 75* (1997): 66-72; and D. Smith & D.C. Neale, "The Construction of Subject Matter Knowledge in Primary Science Teaching," *Teacher and Teacher Education 5* (1989)1: 1-20.