TEACHERS' ATTITUDES TOWARD INTEGRATION: VALIDATION OF A CHINESE VERSION OF THE *ATTITUDES TOWARD MAINSTREAMING SCALE* (ATMS)

Mantak YUEN and Peter WESTWOOD

The University of Hong Kong, P.R.C.

This paper discusses the importance of assessing teachers' attitudes to integration as one important step in preparing school systems for a move toward more inclusive modes of education. The *Attitudes Toward Mainstreaming Scale* (ATMS) of Berryman, Neal, and Robinson (1980) was translated into Chinese and the questionnaire completed by 310 Chinese secondary school teachers in Hong Kong. The Chinese Version of the scale (C-ATMS) was found to have adequate internal consistency. A principal components factor analysis with varimax solutions yielded three meaningful factors: 1. Presumption of Learning Capability; 2. General Integration Issues; and 3. Presumption of Limited Capacity. These three factors could reliably be reproduced in two separate sub-samples (guidance teachers and non-guidance teachers). Potential uses of the C-ATMS are discussed.

Key words: mainstreaming, integration, inclusion, students with special needs, China special education, teachers' attitudes

The worldwide movement toward inclusive schooling for all children (including those with significant disabilities) relies heavily on teachers' positive attitudes toward the concept of integration. Successful inclusion also depends upon teachers' holding positive views on the feasibility of meeting children's special needs in regular classrooms (Becker, Roberts, & Dumas, 2000; Bender, Vail, & Scott, 1995; Rose, 2001). If inclusion is to gain momentum in those countries where it is still a relatively new concept it will be necessary for teachers to:

- (i) Accept the underlying philosophy and principles of integration
- (ii) Believe in the capacity of all children to learn from appropriate instruction, and
- (iii) Believe in their own ability to adjust their approach to teaching and their classroom organisation to accommodate the differences and special needs of their students.

For a variety of reasons teachers do not always possess such beliefs or positive attitudes (Forlin, Douglas, & Hattie, 1996) and the absence of positive attitudes can seriously inhibit progress toward integrated and inclusive schooling (Smith, 2000).

In the Chinese culture, for example in Hong Kong and Mainland China, there

This research was financially supported by grants to the first author from the Sik Sik Yuen Education Foundation and from the University of Hong Kong Committee on Research and Conference Grants.

Address all correspondence to Mantak Yuen, Department of Education, the University of Hong Kong, Pokfulam, Hong Kong, People's Republic of China (E-mail: mtyuen@hkucc.hku.hk).

is a long tradition of teachers attempting to take care of individual differences among their students, with the Confucian notion of teaching according to the students' learning capacity being a principle commonly accepted by most teachers (Lee, 1996). However, the trend toward integration of students with significant disabilities and learning difficulties in regular classrooms, together with the notion of inclusive classroom practice, is a relatively new phenomenon within the Chinese school systems (Potts, 1998; Wong, Pearson, Ip, & Lo, 1999) and it does not always have the full support or understanding of the teachers.

Why are teachers' attitudes important?

Teachers' beliefs and attitudes are known to influence their classroom practices (Agne, Greenwood, & Miller, 1994; Cook, Tankersley, Cook, & Landrum, 2000). Nowhere is this more obvious than in the way in which teachers react to students with special educational needs in their classes. For example, some mainstream teachers believe they lack the necessary knowledge and skills to teach children with certain forms of disability. They would prefer to hand these children over to other teachers with special expertise, rather than retain them in the regular classroom (Brambring, 2001; Kauffman, Lloyd, Baker, & Riedel, 1995). They may consider that all children with significant disabilities lack any real potential for learning and therefore do not belong in regular classes. If such children are placed in the mainstream these teachers may make very little effort to reorganize, adapt instruction, or modify the curriculum because their expectation is that the students will not really benefit.

Teachers' general attitude toward children with disabilities is highly influential in determining the success or lack of success in integration and inclusion programs in schools (Deisinger, 2000; Giangreco, 1996; Minke, Bear, Deemer, & Griffin, 1996; Odom, 2000; Rose, 2001; Scruggs & Mastropieri, 1996). For this reason, assessment of teachers' current beliefs and attitudes toward students with special needs should be a component in any school's preparation for integration and inclusion. Such assessment is not always clearly embedded within the conceptual framework of many of the instruments designed in recent years to gauge a school's depth of commitment to inclusive practice (e.g. Ainscow, 1998; Becker, Roberts, & Dumas, 2000). There is a need to have a convenient instrument that can be used specifically to assess teachers' attitudes.

Assessing attitudes toward integration

Many previous attempts have been made to design appropriate instruments to determine teachers' attitudes toward integration of students with disabilities (e.g. Centre & Ward, 1987; Horne, 1985; Larivee & Cook, 1979; Westwood, 1984). Typical instruments contain a set of statements concerning students with various forms of disability, or with emotional and behavioural problems, and teachers are required to rate the significance of such a handicap in terms of potential success for the student in a regular classroom. Berryman, Neal, and Robinson (1980) for example, developed the *Attitudes Toward Mainstreaming Scale* (ATMS) comprising eighteen

statements and a 6-point rating scale. A review of the literature indicates that the ATMS has been among the most widely researched instruments for assessing attitudes towards integration (Wilczenski, 1992).

Even given the limitations of such instruments in terms of validity (e.g. can we be sure that teachers' responses really reflect their true beliefs?) the scales have still been of some value in detecting broadly positive or negative attitudes among teachers and principals. It is likely that such instruments will continue to yield useful information, over and above the detailed assessment of classroom practices contained in recent instruments such as the *Inclusion Inventory* (Becker et al., 2000).

Integration and inclusion in Hong Kong

The assessment of teachers' attitudes is of particular relevance in the Hong Kong education system at this time due to the recent strengthening of interest in integrated and inclusive schooling (Education Commission, 2000). In Hong Kong the term 'integration' is still currently used in government documents (e.g. Education Commission, 2000; Hong Kong Education Department, 1997) despite most countries now referring to the process of educating children with special needs in the mainstream of education as 'inclusion' (e.g. Avramidis, Bayliss, & Burden, 2000). Although it has been official policy in Hong Kong for many years to educate students with special needs in the mainstream wherever possible, the policy was not very actively pursued or promoted until 1997, so the reality of attempting integration is relatively new for teachers in ordinary schools.

In Hong Kong, teachers tend to face a societal demand for students' high academic achievement, but at the same time they face large class sizes, heavy administrative and teaching workload, low motivation in some students, and have inadequate special education training to enable them to effectively support students with special needs (Biggs, 1996; Hui & Chan, 1996; Yuen & Westwood, 2001). Based on the presence of these adverse factors it might be anticipated that the attitude of Hong Kong teachers toward integration would not be entirely positive.

Since 1997 the Education Department in Hong Kong has very actively encouraged more and more mainstream primary and secondary schools to enact the policy of integration and to accept students with disabilities. The response from schools to date has not been overwhelming, although some 65 schools are now listed as being involved in integration.

As part of the approach to integration it has become increasingly necessary to try to design an instrument that will allow schools (and researchers) to assess the readiness of any particular school to move in the direction of integration and inclusion. Research into the extant literature failed to reveal any attitude assessment instruments specifically designed for use in Chinese contexts, or any translations of existing questionnaires from other countries. There had never been any attempt, for example, to translate the *Attitudes Towards Mainstreaming Scale* (Berryman, Neal, & Robinson, 1980) into Chinese and to examine its validity in a Chinese context, even though it had been a popular, useful and convenient measure in research overseas.

The aims of the present study were therefore to:

1. Develop a Chinese version of the *Attitudes Towards Mainstreaming Scale* (C-ATMS).
2. Examine the factor structure of the translated version.
3. Investigate the reliability (internal consistency) of C-ATMS and the intercorrelations of its sub-scales.

The data reported in this paper were based on a study primarily designed to investigate secondary teachers' attitudes towards integrated education, with the C-ATMS as one of the survey instruments. Analysis of the teachers' attitudes has been reported elsewhere (Yuen & Westwood, 2001). The present paper reports only the psychometric properties of the C-ATMS.

METHOD

Participants:

The participants were drawn from 50 typical secondary schools located in various parts of Hong Kong. The respondents initially comprised 345 teachers. Due to missing information on some questionnaires the usable data set was eventually reduced to 310 teachers (119 male; 182 female; 9 no information on gender). Of this group 113 respondents were classified as guidance teachers and 197 were non-guidance teachers. It should be noted that in Hong Kong secondary schools, 'guidance teachers' are full-time teachers who are also responsible for managing and delivering the school counseling and guidance services to students. They are often involved in working with students who have behavioral, emotional and learning difficulties. Non-guidance teachers are other full-time teachers who are not members of the school's guidance team.

Procedures:

Questionnaires and letters were sent to each school inviting 10 teachers to participate in the survey. A total of 39 schools returned completed questionnaires (response rate: 62%).

The Instrument:

The 18-item *Attitudes Towards Mainstreaming Scale* (ATMS) (Berryman, 1989; Berryman & Neal, 1980; Berryman, Neal, & Robinson, 1980) was translated into Chinese by the principal researcher, and then translated back into English by an independent translator to ensure accuracy of meaning. Any items where clarity was questioned were then modified. The term "integrated education" is used more commonly in Hong Kong than is the term "mainstreaming". For this reason the translated Chinese term meaning "integrated education" was substituted for mainstreaming throughout the C-ATMS. The draft questionnaire was then piloted with a group of in-service teachers enrolled in a university postgraduate education course. Based on feedback from this pilot administration the wording of some items was further refined for clarity.

The questionnaire required respondents to register their level of agreement with each statement. A 6-point, Likert-type scale was provided for each item, with 1 representing *strongly disagree*, 2 representing *disagree*, 3 representing *slightly disagree*, 4 representing *slightly agree*, 5 representing *agree*, and 6 representing *strongly agree*. The total raw score for the 18-item C-ATMS might therefore range from 18 to 108.

The original ATMS had been administered to several different populations, including pre-service education students, in-service teachers and the general public (e.g. Berryman, 1989; Berryman & Neal, 1980; Wilczenski, 1992, 1993). From their initial research Berryman et al. (1980) reported that the ATMS had acceptable internal consistency. Subsequent studies have confirmed the overall reliability of the scale (e.g. Berryman, 1989; Berryman & Neal, 1980).

Analysis of Data:

A total score for C-ATMS was calculated by summing the scores across all 18 items. Sub-scale scores were calculated by summing the relevant scores of the items loading on each factor (see below).

To explore the factor structures of C-ATMS and to compare it with the factor structure reported for the original ATMS a series of principal component factor analyses were performed, first using data from the whole group, and then data from two separate sub-samples (guidance teachers and non-guidance teachers). The principal researcher conducted the statistical analyses using the SPSS 9.0 (SPSS Inc., 1998). To examine the relationships among the C-ATMS sub-scales and the total score, correlation analyses were performed.

RESULTS

Principal Components Analysis

A principal components factor analysis was conducted on the C-ATMS. Five factors were extracted with eigenvalues equal to or greater than 1.00, together accounting for 60.46% of the total variance. To avoid over-factoring, a one-factor solution with varimax-rotated factor solutions for two to five factors were carefully examined for simple structure and interpretability. Among the factor solutions, the varimax-rotated three-factor solution yielded the most meaningful and distinct dimensions of attitudes towards integration, and most items loaded highly on only one out of the three factors (see Table 1).

Table 1 presents the varimax-rotated factor structure of the C-ATMS. The three factors identified (accounting for a total variance of 49.49%) could be interpreted in the following way.

Factor 1: This factor (with loadings from 7 items) could be labeled '*Presumption of Learning Capability*'. It appears to reflect reasonably positive attitudes that a student's disability might not necessarily interfere with his or her capacity to learn and to benefit from instruction. This factor explained 25.53% of the total variance. This finding is entirely consistent with Berryman et al.'s (1980) earlier discovery that a main factor within the original ATMS had loadings from items related to attitudes toward physical handicap, health problems, speech problems, and mild sensory problems. It contained no loadings from items related to severe sensory problems, behavioral problems or intellectual problems. The emergence of this factor suggests that teachers tend to consider the benefits or risks associated with integrated education in relation to the effects of a disability on classroom learning and teaching. Berryman et al. (1980) remarked that teachers who scored high on this factor "...would be willing to make modifications in teaching techniques for those students believed capable of learning" (p. 201).

Factor 2: This factor (with loadings from 7 items) accounted for 15.58% of the total variance. This factor might be labeled '*General Integration Issues*' and emerges from items dealing with general principles of mainstreaming, together with items relating to integration of students with behavioral disorders or mild mental handicap. This concurs with Berryman and Neal's (1980) original result in which their *General Mainstreaming Factor* "...includes statements on the general topic of mainstreaming as well as statements on the disability categories of educable mentally retarded and social-emotional problems" (p. 471). This suggests that teachers' views on the feasibility of integration are influenced by their expectation that additional demands

will be placed on them if integration of students with behaviour disorders occurs. They may anticipate, for example, greater need for management of behavior problems and more time spent in attempting to deal with the learning difficulties of these students. The belief that they will be unable to teach these children because they

Table 1. Varimax-Rotated Three-Factor Item Loadings for the C-ATMS used with Secondary School Teachers in Hong Kong

Item no. & topics		Whole Sample (n = 310)			
		F1	F2	F3	
Factor Loading					Communality
Factor 1: Presumption of Learning Capability					
15	Integrate students with diabetes	.80	-.01	-.14	.657
10	Integrate physically handicapped, not confined to wheel- chairs	.79	-.11	.02	.634
12	Integrate students who stutter	.72	.10	.15	.549
14	Integrate students with epilepsy	.71	.17	.04	.537
9	Integrate physically handicapped students, confined to wheelchair	.70	-.02	.10	.507
13	Integrate students with speech difficulties	.42	.17	.18	.243
5	Integrate students with visual impairment (can read stan- dard printed materials)	.44	.12	.36	.337
Factor 2: General Integration Issues					
17	Integrate students with persistent discipline problems	.18	.74	-.01	.587
16	Integrate students with significant behavioral problems	.11	.74	.06	.565
1	Integrated education is a desirable education practice	.06	.68	.29	.554
18	Integrated education will prove to be successful in practice	.03	.71	.29	.591
3	It is feasible to teach the gifted, normal, and mentally retarded in the same classroom	-.09	.58	.33	.452
2	Every student's right to be in a regular classroom	.14	.43	-.43	.387
4	Integrate students with mild mental handicap	-.01	.46	.43	.394
Factor 3: Presumption of Limited Capacity					
6	Integrate students with visual impairment (can't read regular standard printed materials)	.03	.23	.76	.634
8	Integrate students with deafness	.02	.21	.65	.464
11	Integrate students with cerebral palsy	.31	.20	.53	.420
7	Integrate students with hearing problems (not deaf)	.30	.06	.55	.396
Eigenvalues		4.596	2.804	1.509	
Variance (%)		25.531	15.575	8.383	

Note: Total % of variance = 49.489%. The item number of each statement indicates the item order in the original *Attitudes toward Mainstreaming Scale* (Berryman, Neal, & Robinson, 1980).

cannot easily control them or overcome their learning difficulties may exert an influence on the way teachers respond to other items relating to the general desirability of mainstreaming. A recent study by Croll and Moses (2000) in Britain adds support to this interpretation. They reported that the primary school principals and teachers interviewed in their survey judged the feasibility of inclusion on the absence or presence of students with emotional and behavioural disorders. While believing in the basic principles of inclusion they did not feel that inclusion could or should apply to students with very challenging behaviour.

It is noted from Table 1 that Item 2 dealing with the attitude toward the statement "every student's right to be in a regular classroom" loaded on Factor 2 positively (.43) and on Factor 3 negatively ($-.43$). It is more logical to include Item 2 in Factor 2 as it is clearly describing a general principle of integration. However, in Table 2, where the responses of guidance teachers are compared with those of non-guidance teachers, it can be seen that Item 2 clearly associates with Factor 2 for guidance teachers, but with Factor 3 for non-guidance teachers. This may suggest that non-guidance teachers are more likely to consider that students of limited capacity do not have an equal right to be in a regular classroom.

It must also be noted from Table 1 that Item 4 relating to integration of students with mental handicap, loaded almost equally on this factor and on the third factor. This almost certainly reflects a belief on the part of teachers that mental handicap also implies limited capacity to learn.

Factor 3: The third factor (with loadings from 4 items) accounted for 8.38% of the total variance. It might be termed '*Presumption of Limited Capacity*' and appears to relate to teachers' beliefs that certain types of disability might very seriously limit a student's success if he or she is placed in a regular classroom. This is consistent with Berryman et al.'s (1980) finding that items related to blindness, deafness and cerebral palsy (i.e. *severe* disabilities) emerged as a separate factor in the original ATMS. Berryman et al. (1980) considered that teachers in ordinary schools were not familiar with these severe forms of disability and tended pessimistically to associate them with lack of any possibility of improvement.

Cross-Validation

To investigate further the stability of the factors extracted in the initial analysis, the total sample was split into two sub-samples. Sub-sample 1 comprised teachers identified in the returns as 'guidance teachers' ($n=113$). Sub-sample 2 were the teachers who were not members of a school guidance team ($n=197$). Identical factor analytic procedures were then carried out to assess the stability of the factor structure across these two groups (Gorsuch, 1974; Harman, 1976). Table 2 shows the varimax-rotated factor structure of the C-ATMS for the two groups. The results indicated that factors extracted from the two sub-samples resembled closely those extracted from the total sample, with high coefficients of congruence found among the factors derived from the two sub-samples (Presumption of Learning Capability = .99; General Integration Issues = .96; Presumption of Limited Capacity = .99).

Table 2. Factor Item Loadings for the C-ATMS within Guidance Teacher Sub-Sample and Non-Guidance Teacher Sub-Sample

Item no.	Guidance Teacher (GT) Sub-Sample (<i>n</i> = 113)			Non-Guidance Teacher (NGT) Sub-Sample (<i>n</i> = 197)		
Factor Loading	F1	F2	F3	F1	F2	F3
15	.80	.05	.02	.78	−.08	−.21
10	.83	−.10	.00	.78	−.07	−.02
12	.84	.09	.09	.67	.13	.20
14	.75	.26	.12	.68	.10	.03
9	.72	−.11	.14	.71	.06	.00
13	.30	.07	.40	.47	.14	.14
5	.37	.01	.42	.49	.19	.25
17	.11	.74	.04	.19	.74	−.03
16	.03	.70	.25	.11	.71	.01
1	.08	.61	.49	.04	.73	.14
18	−.05	.56	.49	.06	.78	.12
3	−.21	.44	.40	−.03	.63	.30
2	.05	.58	−.18	.15	.32	−.58
4	−.11	.28	.50	.05	.55	.35
6	−.03	.00	.82	.06	.32	.73
8	.04	.21	.62	.02	.24	.66
11	.32	.03	.64	.29	.24	.48
7	.19	.01	.63	.37	.08	.44
Eigenvalues	4.64	1.55	3.08	4.54	2.76	1.53
Variance (%)	25.79	8.62	17.11	25.21	15.34	8.51

Note: Coefficients of Congruency: F1 (Presumption of Learning Capability) = .99; F2 (General Integration Issues) = .96; F3 (Presumption of Limited Capacity) = .99.

Inter-correlations and Reliability

The inter-correlations, means, standard deviations, and reliabilities (alpha) of the factor and total scale scores are reported in Table 3. The results show that the factors were not highly correlated in the two sub-samples. Correlations between Factor 1 and Factor 2 = .160, .246; correlations between Factor 2 and Factor 3 = .441, .408; correlations between Factor 1 and Factor 3 = .419, .319.

Results from reliability analyses in the two sub-samples showed that all factors had adequate internal consistency. Factor 1: alpha coefficients = .79, .78; Factor 2: alpha coefficients = .75, .77; Factor 3: alpha coefficients = .73, .64; and Total Scale: alpha coefficients = .82, .81.

DISCUSSION

In the original study by Berryman et al. (1980) it was suggested that *four* factors

Table 3. Intercorrelations, Means, Standard Deviations, and Reliability Coefficients for Factors and Total Scores for the Whole Sample, Guidance Teacher Sub-Sample (GT), and Non-Guidance Teacher Sub-Sample (NGT)

	Whole Sample				Sub-Sample 1 (GT)				Sub-Sample 2 (NGT)			
	F1	F2	F3	Total	F1	F2	F3	Total	F1	F2	F3	Total
Intercorrelations												
F1	1.000				1.000				1.000			
F2	.228*	1.00			.160	1.000			.246*	1.000		
F3	.364*	.428*	1.00		.419*	.441*	1.000		.319*	.408*	1.000	
Total	.727*	.768*	.723*	1.00	.706*	.746*	.769*	1.000	.732*	.772*	.692*	1.000
Alpha	.79	.77	.68	.82	.79	.75	.73	.82	.78	.77	.64	.81
Mean	30.58	22.20	11.93	64.61	31.25	23.09	12.46	66.64	30.20	21.7	11.62	63.45
SD	4.87	5.13	3.27	9.87	4.59	4.80	3.41	9.45	4.99	5.25	3.16	9.95

* $p < .01$

Note: F1 = Factor 1 (Presumption of Learning Capability); F2 = Factor 2 (General Integration Issues); F3 = Factor 3 (Presumption of Limited Capacity)

were intrinsic to the ATMS, namely (i) *Learning Capability*, with loadings from items related to types of disability that do not impair an individual's ability to learn (e.g. physical disability or speech problem), (ii) *General Mainstreaming*, with loadings from items related to beliefs about the general principles and philosophy of integration (e.g. a belief that mainstreaming is desirable), (iii) *Severe Disability*, with loadings from items related to beliefs about greatly reduced capacity to learn in cases of severe impairment (e.g. deafness, blindness, cerebral palsy), and (iv) *Social Behavior*, with loadings from items related to beliefs about behavior disorders and difficult discipline problems. However, in another study, Berryman and Neal (1980) identified only three significant factors (i) *Learning Capability* (ii) *General Mainstreaming*, and (iii) *Traditional Limiting Disabilities*. In the present study, factor analysis of the Chinese version of the *Attitude Toward Mainstreaming Scale* (C-ATMS) supported this view that three meaningful factors could be extracted, named here as: Factor 1. *Presumption of Learning Capability*; Factor 2. *General Integration Issues*; Factor 3. *Presumption of Limited Capacity*. These same three factors also emerged in the cross-validation analysis using two sub-samples of teachers, thus suggesting stability of this factor structure.

The three factors identified in this study demonstrated high reliability coefficients for internal consistency. The mainly slight-to-moderate inter-correlations among the three factors suggested that they are reasonably independent. The overall results are consistent with the findings of Berryman and Neal (1980) who explored the factor structure of the original ATMS using an American sample.

This study provides evidence to support a view that the translation of the ATMS into Chinese, and the use of the translated version in Chinese contexts, is valid. The C-ATMS would be useful for both practitioners and researchers of integrated education in Chinese communities. Potential uses include the assessment of teachers'

readiness for implementing integrated education, the evaluation of attitude change in pre-service and in-service teacher preparation programs for integrated education, and to monitor change in teachers' attitudes as they gain more experience with integrating students with special needs in the regular classroom.

Limitations of this study must be acknowledged. The sample consisted only of secondary school teachers in Hong Kong. Data need to be collected from additional samples of primary school teachers and teachers in different Chinese communities before the results reported here can be interpreted more widely. Further studies might also be conducted to investigate the concurrent and construct validity of the scale.

The results of the present study indicate that the C-ATMS is internally consistent and has a factor structure stable enough to justify its use in studies of teachers' attitudes toward students with disabilities and integration in a Chinese context. In view of the lack of research data on attitudes among teachers in the Chinese context, and the importance of assessing teachers' attitudes in relation to integration, the present data make a unique contribution to the literature.

REFERENCES

- Ainscow, M. 1998. Exploring links between special needs and school improvement. *Support for Learning*, 13, 70-75.
- Agne, K. J., Greenwood, G. E., & Miller, L. D. 1994. Relationships between teacher belief systems and teacher effectiveness. *Journal of Research and Development in Education*, 27, 141-152.
- Avramidis, E., Bayliss, P., & Burden, R. 2000. A survey into mainstream teachers' attitudes towards the inclusion of children with special educational needs in the ordinary school in one local education authority. *Educational Psychology*, 20, 191-211.
- Becker, H., Roberts, G., & Dumas, S. 2000. The Inclusion Inventory: A tool to assess perceptions of the implementation of inclusive educational practices. *Special Services in the Schools*, 16, 57-72.
- Bender, W. N., Vail, C.O., & Scott, K. 1995. Teachers' attitudes toward increased mainstreaming: Implementing effective instruction for students with learning disabilities. *Journal of Learning Disabilities*, 28, 87-94.
- Berryman, J. D. 1989. Attitudes of the public toward educational mainstreaming. *Remedial and Special Education*, 10, 44-49.
- Berryman, J. D., & Neal, W. R. 1980. The cross validation of the Attitudes Toward Mainstreaming Scale (ATMS). *Educational and Psychological Measurement*, 40, 469-474.
- Berryman, J. D., Neal, W. R., & Robinson, J. E. 1980. The validation of a scale to measure attitudes toward the classroom integration of disabled students. *Journal of Educational Research*, 73, 199-203.
- Biggs, J. 1996. Western misperceptions of the Confucian-heritage learning culture. In D. A. Watkins, & J. B. Biggs (Eds.) *The Chinese learner: Cultural, psychological and contextual influences* (pp. 45-67). Hong Kong: Comparative Education Research Centre / Melbourne: Australian Council for Educational Research.
- Brambling, M. 2001. Integration of children with visual impairment in regular preschools. *Child Care, Health and Development*, 27, 425-438.
- Centre, Y., & Ward, J. 1987. Teachers' attitudes toward the integration of disabled children in regular schools. *The Exceptional Child*, 31, 41-56.
- Cook, B. G., Tankersley, M., Cook, L., & Landrum, T. J. 2000. Teachers' attitudes toward included students with disabilities. *Exceptional Children*, 67, 115-135.
- Croll, P., & Moses, D. 2000. *Special needs in the primary school: One in five?* London: Cassell.
- Deisinger, J. A. 2000. Promoting acceptance of persons with disabilities in inclusive communities. In F.

- E. Obiakor, S. A. Burkhart, A. F. Rotatori, & T. Wahlberg (Eds.) *Intervention techniques for individuals with exceptionalities in inclusive settings* (pp. 299–326). Stamford: JAI Press.
- Education Commission of Hong Kong 2000. *Reform proposals for the Education System in Hong Kong*. Hong Kong: Education Commission.
- Forlin, C., Douglas, G., & Hattie, J. 1996. Inclusive practices: How accepting are teachers? *International Journal of Disability, Development and Education*, **43**, 119–133.
- Giangreco, M. F. 1996. What do I do now? A teacher's guide to including students with disabilities. *Educational Leadership*, **53**, 56–59.
- Gorsuch, R. L. 1974. *Factor analysis*. Philadelphia: Saunders.
- Harman, H. H. 1976. *Modern factor analysis*. Chicago: University of Chicago Press.
- Hong Kong Education Department. 1997. *Pilot project on integration of children with special needs in ordinary schools: An operation guide*. Hong Kong: Education Department Services Division.
- Horne, M. D. 1985. *Attitudes toward handicapped students: Professional, peer and parent reactions*. Hillsdale, NJ: Erlbaum.
- Hui, E. K. P., & Chan, D. W. 1996. Teacher stress and guidance in Hong Kong secondary school teachers. *British Journal of Guidance and Counselling*, **24**, 199–211.
- Kauffman, J. M., Lloyd, J. W., Baker, J. & Riedel, T. M. 1995. Inclusion for all students with emotional or behavioral disorders? Let's think again. *Phi Delta Kappan*, **76**, 542–546.
- Larivee, B., & Cook, L. 1979. Mainstreaming: A study of the variables affecting teacher attitude. *Journal of Special Education*, **13**, 315–324.
- Lee, W. O. 1996. The cultural context for Chinese Learners: Conceptions of learning in the Confucian tradition. In D.A. Watkins, & J.B. Biggs (Eds.), *The Chinese learner: Cultural, psychological and contextual influences* (pp. 25–41). Hong Kong: Comparative Education Research Centre / Melbourne: Australian Council for Educational Research.
- Minke, K. M., Bear, G., Deemer, S. A., & Griffin, S. M. 1996. Teachers' experiences with inclusive classrooms: Implications for special education reform. *Journal of Special Education*, **30**, 152–186.
- Odom, S. L. 2000. Preschool inclusion: What we know and where we go from here. *Topics in Early Childhood Special Education*, **20**, 20–27.
- Potts, P. 1998. 'A luxury for the First World': a Western perception of Hong Kong Chinese attitudes towards inclusive education. *Disability & Society*, **13**, 113–124.
- Rose, R. 2001. Primary school teacher perceptions of the conditions required to include pupils with special educational needs. *Educational Review*, **53**, 147–156.
- Scruggs, T. E., & Mastropieri, M. A. 1996. Teacher perceptions of mainstreaming and inclusion, 1958–1995: A research synthesis. *Exceptional Children*, **63**, 59–74.
- Smith, M. G. 2000. Secondary teachers' perceptions toward inclusion of students with severe disabilities. *NASSP Bulletin*, **84**(613), 54–60.
- SPSS Inc. 1998. *SPSS survey tips*. Chicago: SPSS Inc.
- Westwood, P. S. 1984. Attitude change in second-year teacher education students following an introductory special education course. *South Pacific Journal of Teacher Education*, **12**, 57–61.
- Wilczenski, F. L. 1992. Re-evaluating the factor structure of the Attitudes Toward Mainstreaming Scale. *Educational and Psychological Measurement*, **52**, 499–504.
- Wilczenski, F. L. 1993. Changes in attitudes toward mainstreaming among undergraduate education students. *Educational Research Quarterly*, **17**, 5–17.
- Wong, D., Pearson, V., Ip, F., & Lo, E. 1999. A slippery road to equality: Hong Kong's experience of unplanned integrated education. *Disability & Society*, **14**, 771–789.
- Yuen, M. T., & Westwood, P. 2001. Integrating students with special needs in Hong Kong secondary schools: Teachers' attitudes and their possible relationship to guidance training. *International Journal of Special Education*, **16**, 69–84.

(Manuscript received December 26, 2000; Revision accepted January 28, 2002)