The international study of leadership in education: Monitoring decision making by school leaders
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Journal of Educational Administration; 2004; 42, 4/5; ProQuest Central
pg. 416

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The international study of leadership in education

Monitoring decision making by school leaders

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Keywords *Leadership, Schools, Education, Organizational restructuring, Decision making, Principals*

Abstract *School principals have difficulty embracing the competing demands of school restructuring. These demands include being accountable for the outcomes of other decision-making groups within, or external to, the school community; having strong views while making decisions collaboratively; and using group processes without wasting the time, commitment, motivation and goodwill of those involved. The three sets of tensions were named the accountability, autonomy, and efficiency dilemmas, respectively. This paper outlines the development of an instrument to determine the saliency of particular domains of decision making in which these dilemmas are experienced by school principals. The instrument was trialled in Australia and New Zealand using Rasch analysis to check the fit of items. The instrument is currently being applied in The Netherlands, Australia and Taiwan, with other countries to follow.*

Introduction

In this paper we report the development and trial of a questionnaire that is designed to elicit school principals' perceptions of decision making in their schools. We believe the questionnaire will allow for empirical, non-normative treatment of decision making by school leaders across a range of international settings. The instrument has three parts that respectively address accountability to education authorities, whether or not principals make decisions autonomously, and the efficiency of participatory decision making. The research objectives, as they relate to the three parts, are to identify for different jurisdictions the domains of school decision making in which principals perceive: influences from external education authorities are salient; they (the principals) make the decisions; and participation by staff is efficient.

We fitted the trial responses to the Rasch model for ordered response categories (Andrich *et al.*, 1997). A key assumption of the model is that all items measure a single underlying trait. Therefore, each part of the questionnaire was treated separately. A second key assumption is that items address a trait to different extents, where the extent for each item is determined by the response pattern of all respondents on all items and is indicated by location on a single scale. Hence, the modelling of the three

Journal of Educational Administration
Vol. 42 No. 4, 2004
pp. 416-430
© Emerald Group Publishing Limited
0957-8234
DOI 10.1108/09578230410544044

The authors acknowledge the collection of data by Associate Professor Jan Robertson, University of Waikato and Dr Simon Clarke, Griffith University, and the assistance with the Rasch modelling by Dr Bob Peck of the Curriculum Council of Western Australia.

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parts of the questionnaire resulted in three scales. The item-locations on the scales measure the domains of school decision making for which: external influences are most salient to least salient; the principals act most autonomously to least autonomously; and participatory decision making is most to least efficient.

We plan to implement the questionnaire on a widespread basis in countries with different accountability structures and where different pressures are experienced in education, for example, in The Netherlands and Taiwan. The research team is able to work within established research partnerships with leading researchers in the field of school leadership in those countries. Responses will be analysed by country and also according to other demographic categories. The categories are: school sector (primary, middle-school, secondary); total school enrolment; principals' sex and years as a principal; the authority to whom the school is most accountable; and socio-economic status (high, medium, low) of school families. The comparisons by category will identify, for education authorities in different jurisdictions and for the academic community, differences in principals' viewpoints on the status of decision making in schools. The study design includes feedback to participating principals, for the benefit of raising their awareness of national and international comparisons.

The study was motivated by the current rhetoric of participatory decision making in Australian schools and by observations that moves by principals to involve staff in decision making can bring about dilemmas of accountability, feelings of disempowerment and perceptions of inefficiency in terms of time and other resources. The study is grounded in research on the dilemmas that school leaders face in decision making (e.g., Wall and Rinehart, 1997; Winkler, 1993) and on the pressures being experienced, worldwide, in education (e.g., Driessen and Dekkers, 1997; Peters, 2000). This study builds on previous work by members of the research team in the field of dilemmas in the school context (e.g., Louden and Wildy, 1999a, b; Wildy, 1998; Wildy and Louden, 2000). While recent literature on school restructuring continues to refer in general to tensions, challenges, ambiguities and paradoxes inherent in the role of the school leader (for example, Datnow and Castellano, 2001; Hoy and Tarter, 1993; Johnson and Fauske, 2000; McEwen *et al.*, 2002; Wallace, 2000), we have conceptualised these as a set of complementary dilemmas. Our questionnaire focuses on the way school leaders deal with the dilemmas and the domains in which these are most salient across a range of international settings.

Referents from the literature

In shared decision making, school principals face contradictory demands so that coming to a decision entails dilemmas of accountability, autonomy and efficiency (Wildy, 1998). Accountability is the obligation to account for, be responsible for, or explain, one's actions (*Collins School Dictionary*, 1990). The accountability dilemma arises when principals are accountable for the decisions made by, or with, others. So, principals are expected to involve others in decisions but the ultimate responsibility for success or failure of the decisions rests firmly with the principal (Winkler, 1993).

Conley (1993, p. 387) claims that the trends of system-level accountability and school-level decision making are locked together on "a collision course". Further, Glickman *et al.* (1994) report that all 28 principals engaged in long-term implementation of shared governance in their schools found it paradoxical to have legal and perceptual responsibility while involving staff in shared decision making

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processes. Murphy (1994) and others see the accountability dilemma as the main problem needing attention in moves to decentralised decision making.

We address the issue of accountability in our questionnaire with items that ask principals to identify the domains of decision making for which they perceive external influences affect the decisions. Our rationale is that taking into account the requirements of education agencies and authorities that are external to the school is an important aspect of being accountable to the authorities. Alternatively, ideas and initiatives originating with staff or the principal are given greater credence, and decisions can be said to be in response to local needs or pressures.

The autonomy dilemma is the issue for the principal of acting autonomously as the school's leader and also sharing decision making authority (Wildy, 1998). The two competing pressures are, on the one hand, to occupy the position of principal with its traditions and expectations of authority and, on the other hand, to participate in shared governance arrangements and shared decision making with staff. Louis and Miles (1990) summarise the potentially unstable and fragile balance between the two different aspects of the principal's work as: taking the initiative without shutting out others; supporting others' initiatives without smothering their efforts; and creating and sustaining a shared vision without stifling individual creativity and commitment. We address the issue of autonomy through items that seek principals' perceptions as to the domains in which they make the decisions and the domains in which they engage in decision making with staff.

The efficiency dilemma is the issue for principals of setting up processes that are both democratic and efficient (Wildy, 1998). Efficiency means producing a desired effect with the least effort or waste (*Collins School Dictionary*, 1990). At the heart of this dilemma is the tension between involving people in processes that encourage them to contribute to group goals, and deploying and managing time, energy, motivation, commitment as well as physical and financial resources in least wasteful ways (Weiler, 1993). Principals may have to contend with teachers who, contrary to feeling empowered, resent having their time bound up with committees, resent struggling with decisions that seem to have little to do with teaching and learning (Malen *et al.* 1990), and feel disgruntled because their input is only marginally meaningful (Wall and Rinehart, 1997).

The efficiency dilemma deals with the demand on schools to make economical use of time, energy and other resources and, at the same time, to use shared decision-making structures and processes. The present study addresses the issue of efficiency with items that ask principals to identify the domains of decision making for which benefits of participation by staff outweigh costs, and the domains where costs outweigh benefits.

The range of issues that principals confront daily is extensive. They include limited resources and economic use of available resources (Kgobe, 1997), responsiveness to local conditions (Peters, 2000); balancing education for development of the individual against education for economic goals (Peters, 2000) and responding to differences in language, culture and religion of children, especially of migrant families (Driessen and Dekkers, 1997). These are some of the topical issues around which the questionnaire was designed.

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Questionnaire design

Constructing the questionnaire involved:

(1) writing an initial bank of 130 items;

(2) designing Likert scales that would elucidate accountability, autonomy and efficiency in school decision making;

(3) selecting items from the bank;

(4) refining the questionnaire in light of in-depth interviews with three principals while they completed the questionnaire; and

(5) trialling the questionnaire with 102 principals and modifying it in light of Rasch analyses and verbal feedback from principals in the trial.

We prepared a bank of 130 items on dilemmas and issues arising in education, internationally, as reviewed above. A major referent was 95 case studies of principals' perceptions of decision making in their Western Australian schools (Wildy, 1998). Multiple items were designed to address the six domains of school decision making described by Wildy: school planning; staff management; curriculum change; student management; school and community interaction; and management of school finances and operations.

We decided on four graded response categories for each Likert scale. The even number was to force polarised responses. That is, we did not provide a category for undecided or ambivalent responses, and we were guided in this by the advice given in Andrich *et al.* (1997). Such a category in the middle of a scale does not always work as intended, for example, because the scores do not fit the continuum of scores for the construct examined.

We decided against the graded responses of "almost always, frequently, sometimes" and "almost never". Instead we chose to identify the alternatives: "External influences" and "Internal influences"; "Me" and "Staff" (as making the decisions); and "Benefits" and "Costs" (see below). Our rationale was that presenting the alternatives would encourage more deliberate responses. Further, we chose to have two responses in each direction for the first two scales, and three in one direction (Benefits) and one in the other (Costs) for the third scale because we thought the choices would optimise the variation in responses. Finally, we included a fifth category "Question does not apply" at the end of all scales to allow for the possibility that some items would not be relevant to some school jurisdictions. The preambles to the three parts of the questionnaire, the Likert scales and sample items follow.

Sources of influence?

Requirements of external agencies strongly influence some areas of school decision making. External agencies include governments, curriculum and assessment authorities, school systems, parent and community groups. decision making in other areas is influenced most by internal influences (i.e. by you or staff) (see Figure 1).

Who decides?

These questions cover the same areas of decision making as Section B. They are about the degree to which principals share decision making with staff (see Figure 2)

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Please tick ONE box for each item to indicate what YOU perceive affects decision-making in your school.

	External influences mostly	**External** influences more than internal	**Internal** influences more than external	**Internal** influences mostly	Question does not apply
Improvement and innovation					
1. Our goals for school improvement are in response to:	☐	☐	☐	☐	☐
2. Our present priorities for school improvement reflect:	☐	☐	☐	☐	☐
3. Innovation in our school concerns:	☐	☐	☐	☐	☐

Figure 1.
Sources of influence

Please indicate WHO makes the decisions in your school by ticking ONE box for each item.

	Me mostly	**Me** more than staff	**Staff** more than me	**Staff** mostly	Question does not apply
Improvement and innovation					
35. The goals for school improvement are decided by:	☐	☐	☐	☐	☐
36. Priorities for school improvement are set by:	☐	☐	☐	☐	☐
37. Innovative programs are instigated by:	☐	☐	☐	☐	☐

Figure 2.
Decision making

Where is the benefit?

These questions cover the same areas of decision making as Sections B and C. The questions are about the benefits and costs of shared decision making. Benefits include securing commitment and motivation. Costs include wasting time and energy (see Figure 3).

The sample items illustrate three characteristics of the questionnaire. First, items are short, to minimise ambiguity; second, they are designed to elicit responses that reflect actual actions during decision making and not preferred actions. Third, items in the three parts of the questionnaire address the same issues. Matching items allow us to link the responses.

Our selection of items from the bank of items was underpinned, first, by the criterion that they would address each of the major domains of decision making identified by Wildy (1998). Second, at least two items were included for each domain, so as to avoid the questionnaire appearing fragmented. Third, there would be no negatively worded items because of the conceptual complexity these constitute and likelihood of anomalous results on them (Taylor *et al.*, 1997). Fourth, the items would allow scope for responses across the Likert scales. Accordingly, we included items that we anticipated would attract responses at one end of the scale and items that would attract responses at the other end of the scale. Fifth, the questionnaire would not be

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Please indicate the degree to which YOU find benefits outweigh costs when decision-making is shared with staff (committees with staff members or the whole staff). Please tick ONE box for each item.

	Staff participation				
	Benefits outweigh costs **almost always**	**Benefits** outweigh costs **frequently**	**Benefits** outweigh costs **sometimes**	**Costs** outweigh benefits	Question does not apply
Improvement and innovation					
69. Deciding the goals for school improvement:	☐	☐	☐	☐	☐
70. Setting priorities for school improvement:	☐	☐	☐	☐	☐
71. Deciding the proposals for innovation that will be accepted:	☐	☐	☐	☐	☐

Figure 3.
Benefits

excessively long. This was a major constraint because school decision making is complex and the scope extensive.

We selected 36 items and worded them in three different ways so that they were appropriate for each scale. All items for a domain were grouped together under a heading. For instance, "Improvement and innovation". The other headings were: Subjects/learning areas; Academic support; Computers for student use; Looking beyond the self; Teaching methods (pedagogy); Assessment; Sport; Discipline; Funding; Professional development; and Staff management. The headings were common to each part of the questionnaire and were included to provide context and to aid respondents' interpretation of the individual items.

Interviews with principals resulted in deletion of two of the 36 items because of unresolvable ambiguities, and other items were revised to more adequately target the focus that we intended for them. Further, we discussed with each of the three principals the domains of decision making and sought to identify any major areas that we had omitted. None were suggested.

In summary, the trial instrument comprised 34 items for each of the three scales. Because of the many pressures on principals' time, we planned to reduce the length of the questionnaire as a result of the trial so that would not take more than 20 minutes to answer. We trialled it with 102 principals drawn from Western Australia, Queensland and New Zealand, from primary and secondary school sectors.

Results of the trial

Initial analysis

All principals showed variety in their responses to the accountability part of the questionnaire, so data from all completed questionnaires were entered for the analysis. Repetition in the selection of the Likert scale response did occur in the second and third parts but the data points were removed in the course of the Rasch modelling.

We analysed the trial data using the RUMM2010 software. We fitted the responses for each of the three sets of items to single factor, polytomous unrestricted Rasch models. The separation indices (a measure of reliability based on person scores) were 0.855, 0.941 and 0.954. These indicated excellent reliability.

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Then, we used the models to identify individual items for possible removal from the questionnaire. The criteria we used were:

- chi-square probability item-fit values of less than or equal to or 0.05 (an indication that actual responses to an item do not fit the Rasch model well);
- observed mean scores with two class intervals such that the mean score for the second interval was lower than the mean for the first interval (which confirms poor fit); and
- reverse thresholds (which indicate the graded response categories were not working well for the item).

We inspected the items with responses that did not fit the models well on these bases and sought explanations for inconsistencies in the responses, such as ambiguity and contextual contingencies. We were informed in our analysis by the feedback from principals when they completed the questionnaire. As a result we made minor amendments to the wording of some items and also deleted six items from each part of the questionnaire. We deleted items under "Subjects/learning areas" about the compulsory study of a foreign language in a school because these items indicated reverse thresholds on the accountability and autonomy scales and a low chi-square probability value on the efficiency scale. It is possible that schools had different histories of teaching foreign languages and different pressures from parents about the choice of foreign languages to teach. Items on "Sport" were also deleted. The chi-square probability values on these items were generally low. It is likely that outside sports associations, not school staff, conducted at least some of the sports activities, so the responsibility for decision making was dispersed. The other category from which items were deleted was "Staff management". The items addressed the promotion and termination of staff with permanent appointments. The chi-squared probability values were almost all low. A possible explanation is that different procedures are used across jurisdictions.

The deletions served to reduce the questionnaire to what we judged would be the intended 20-minute completion time. Next, we fitted the responses to the remaining 28 items in each part to Rasch models. The separation indices were 0.853, 0.831 and 0.947, which indicated excellent, good and excellent reliability respectively. Detailed results follow.

Accountability

Figure 4 shows the person-item location distributions for the 28 items that are relevant to accountability. Table I shows the stems of the items by location (i.e. location according to the pattern of responses), and the total observed scores for persons who responded to all items. The Likert scale on the questionnaire was scored: "External influences mostly", 0, "External influences more than internal", 1, "Internal influences more than external", 2, and "Internal influences mostly", 3. "Question does not apply" was treated as missing data. (In the following analysis, the scores that are equated to location are for persons who responded to all items; the item-locations will be refereed to as constituting accountability, autonomy and efficiency scales.)

The items with lower locations (see Figure 4 and Table I) attracted high numbers of "Internal influences only" responses. The items at the top end of the location scale attracted more "External influences only" responses. The mean person-location is 0.73

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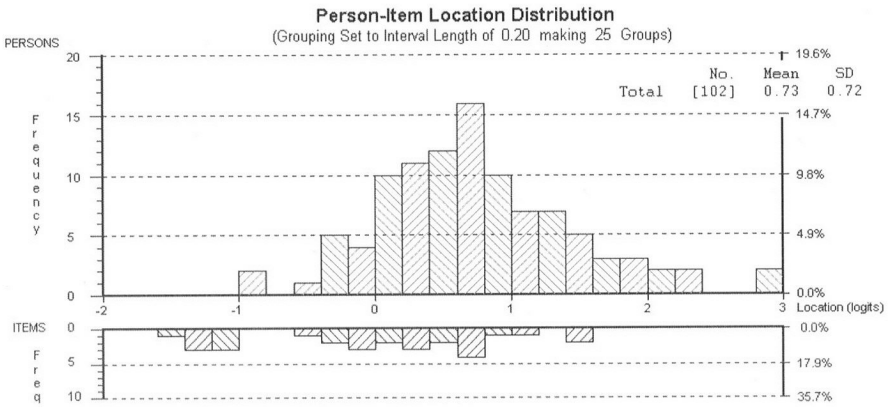

Figure 4.
Person-item location distributions on the accountability scale

Location	Person score	Stem of the item
1.5		Performance management (appraisal) procedures are in place as a result of:
1.4	60	Capital outlays (e.g. buildings) are determined by:
1.1	55	New staff appointments are determined by:
		Changes in teaching method have been introduced across the school in recent years because of
		Computers have been introduced for student use as a result of:
0.7	50	Procedures in place for school tragedies originate in:
		Operational funds are distributed according to:
		Our students sit optional external-assessments because of:
		Support for students whose first language is not the language in which lessons are taught is due to:
		Sanctions for extreme student misbehaviour reflect:
0.4	45	With computers for students, allocation of the budget amongst hardware, software, professional development and technical support reflects:
		What is taught in core subjects can be traced to
		The ways we assess student progress reflect:
		The approaches to teaching that teachers use reflect:
0.1	40	The degree of emphasis given to core subjects is attributable to:
		Our goal to raise awareness of environmental issues originated in:
		Extension programs for high-achieving students are available because of:
		Extra support for underachieving students is possible because of:
−0.2	35	Our policy on student discipline originated in:
		The assessments included on reports to parents reflect:
−0.6	30	Priorities for the purchase of teaching resources reflect:
−1		Our goals for school improvement are in response to:
		Our present priorities for school improvement reflect:
		Innovation in our school reflects:
		Our goal to develop social conscience resides in:
		The topics addressed in professional development for the whole-staff reflect:
		The professional development that is funded by the school for individual teachers relates to:
−1.4		Our goal that students are considerate of others resides in:

Table I.
Items by location and person's total score on the accountability scale

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and the value signifies that, in general, the principals indicated high internal influence on more items than the number of items for which external influence is high. The outcome is consistent with devolution of authority to schools in Australia and New Zealand (e.g., Peters, 2000) and we expect a different pattern of responses from principals in countries where educational administration is more centralised.

The range of the possible total scores over all 28 items was 0 to 84. The lowest observed score was 28 (location −0.83) and the highest was 76 (location 2.99). The standard deviation of person-locations was 0.72. Hence, for the trial group, there was a reasonable spread of total scores. This outcome is illustrated by the person-location distribution in Figure 4 and suits our purpose of distinguishing between groups from various school sectors and countries in the future wide implementation of the questionnaire.

Furthermore, the item-threshold distribution indicates the items discriminate between persons across the continuum of perceptions (see Figure 5).

Regarding individual items, internal influences appear to be most salient for decisions relating to:

- "Our goals for school improvement ...", "Our present priorities for school improvement ..." and "Innovation in our school reflects" (see Table I) which were all grouped under the heading "Improvement and innovation"' in the questionnaire;
- "Our goal to develop social conscience ...", and "Our goal that students are considerate of others ...", which were grouped under the heading "Looking beyond the self"; and
- "The topics addressed in professional development ..." and "The professional development that is funded ...", which were grouped under the heading "Professional development".

In summary, the results indicate that principals as a group perceive school members' ideas (their ideas and ideas of staff) are most influential in three domains of decision making (out of the 11 domains reflected in the headings of the trial questionnaire). Furthermore, it can be inferred that the principals tend to feel less constrained by external influences and/or less accountable to external agencies for decisions in the

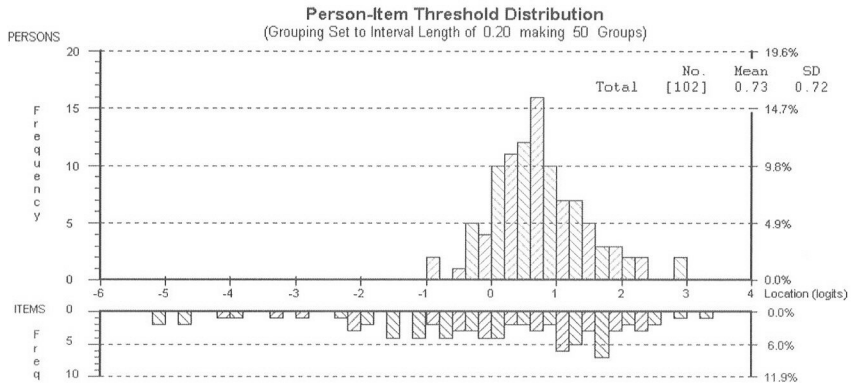

Figure 5.
Person-item threshold distributions on the accountability scale

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three domains than in the other domains. The item on "environmental issues" has a higher location than the others grouped together under "Looking beyond the self" but responses to it indicate perceptions of internal influence are still highly pertinent to it.

The results indicate also that decisions about "Performance management (appraisal) procedures ...", "New staff appointments ..." and "Capital outlays ..." (see Table I) are the most subject to external influences. The Western Australian principals who participated in the trial are required to implement performance management strategies in their schools, and many of them are handed the decisions on "New staff appointments" and "Capital outlays", which we suggest is what the questionnaire responses captured.

The high ranks of the items "Changes in teaching method..." and "Computers have been introduced ..." are consistent with education policies that currently affect many of the trial cohort. Namely, initiatives by the Western Australian state school education authority require a process-outcomes focus in teaching and assessment and this central authority funds the provision of computers for students.

Autonomy

Figure 6 shows the person-item location distribution for the set of 28 items relating to autonomy or "Who decides". Table II shows the items by location and by total observed scores for persons who responded to all items. The Likert scale was scored "Me mostly", 0, "Me more than staff", 1, "Staff more than me", 2, and "Staff mostly", 3.

The items at the top end of the location scale (see Figure 6 and Table II) attracted relatively high numbers of "Me mostly" responses. The items at the bottom end of the location scale attracted more "Staff mostly" responses. Disregarding outliers (i.e., the extreme cases that are omitted in the production of the Rasch model), the mean person-location is 0.54. The value signifies that, in general, the principals were likely to choose "Staff more than me" or "Staff mostly" on three-quarters of the items, the items below 0.54 on the location scale. The outcome is consistent with the moves in the 1990s to participatory decision making in New Zealand and Australian schools (Peters, 2000; Wildy, 1998).

The range of observed total scores was 20 (location − 1.96) to 60 (location 2.49). The possible total score range was again [0, 84], and the standard deviation of

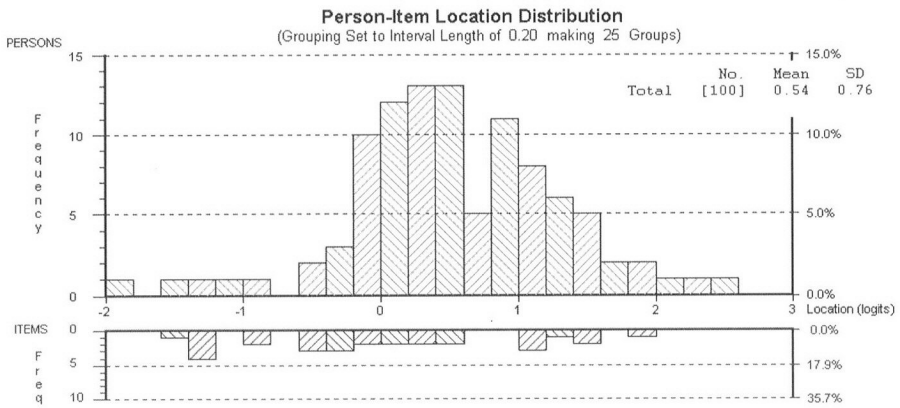

Figure 6.
Person-item location distribution for the autonomy scale

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Item location	Person score	Stem of the item
1.9		Priorities for capital outlays (e.g., buildings) are decided by:
		Sanctions for extreme misbehaviour on an individual student basis are decided by:
1.4	55	New staff are chosen by:
		Responses to school tragedies are decided by:
		The way performance management is implemented was decided by:
1.1	50	The adoption of new teaching approaches across the school in recent years has been led by:
		The ways operational funds are spent are decided by:
0.6	45	
		Action related to the results of external assessments is instigated by:
		Major decisions about the introduction of computers for student use were made by:
		The budget for computers for student use is allocated amongst hardware, software, professional development and technical support by:
		Teachers' applications for funds for professional development are decided by:
0.1	40	The type of support that is available for students whose first language is not the language in which lessons are taught was decided by:
		The school policy for student discipline was designed by:
		The ways student progress is assessed (e.g., testing) were decided by:
		The scope of the extension program for high-achieving students was determined by:
		Innovative programs are instigated by:
		The topics for professional development attended by the whole-staff are decided by:
−0.4	35	The support program for underachieving students was decided by:
		Structures to recognise students' service and consideration of others were instigated by:
		The assessments included on reports to parents were decided by:
		The goals for school improvement are decided by:
		Priorities for the purchase of teaching resources are decided by:
−1.0	30	New approaches to teaching in our school are decided by:
		The degree of emphasis given to core subjects is decided by:
		School activities aimed at developing social conscience are put in place by:
		Priorities for school improvement are set by:
		School activities aimed at raising environmental awareness are instigated by:
−1.4		What is taught in core subjects is set by:

Table II.
Items by location and person's total score for the autonomy scale

person-locations was 0.76. Thus the spread was reasonable. In addition, the item-locations as shown in Figure 6 cover the spread of person-locations well and we confirmed this with inspection of the thresholds.

In relation to individual items, the domains of decision making in which the principals perceive staff have a major role are numerous (see the bottom of Table II). The questionnaire responses indicated also that principals as a group perceive they play the major role in decisions pertaining to "Priorities for capital outlays", "New staff

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[appointments]" and "The way performance management is implemented" (see Figure 6). The principals nominated external influences as relevant to these decisions in the corresponding items in the first scale. Thus, the results for the first two parts of the questionnaire, taken together, are consistent with autonomous decision making in the presence of accountability to external authorities. As well, the principals, overall, indicated that they take major roles in decisions on "Sanctions for extreme misbehaviour ..." and "Responses to school tragedies ...".

Efficiency scale

Figure 7 shows the person-item location distribution for the set of 28 items relating to efficiency scale. Table III shows the items by location, and by total observed scores for persons. The Likert scale was scored "Benefits outweigh costs almost always", 0, "Benefits outweigh costs frequently", 1, "Benefits outweigh costs sometimes", 2 and "Costs outweigh benefits", 3.

The items at the top of the location scale (see Figure 7 and Table III) attracted the most "Benefits outweigh costs almost always" responses. The items at the lower end of the scale attracted some "Costs outweigh benefits" responses. The mean person-location was −1.66, and the value indicates that principals, in general, perceive the benefits of shared decision making outweigh costs "almost always" or "frequently", in all the specified domains. The result is consistent with valuing participatory decision making.

The result implies also the items failed to discriminate adequately at one end of the scale. The range of item locations as illustrated in Figure 7 highlights this limitation. Inspection of the thresholds confirmed the problem: the lowest threshold value was −3.1 so that all persons at locations below −3.1 were, according to the Rasch model, likely to select "Benefits outweigh costs almost always" on all items.

The parameters (locations, threshold values etc.) determined by the modelling are explained by repetition in questionnaire responses, which could be due to the principals simply responding at the "Benefits outweigh costs almost always" end of the scale without deliberately considering each item. The chi square value of 57.2 (df 28)

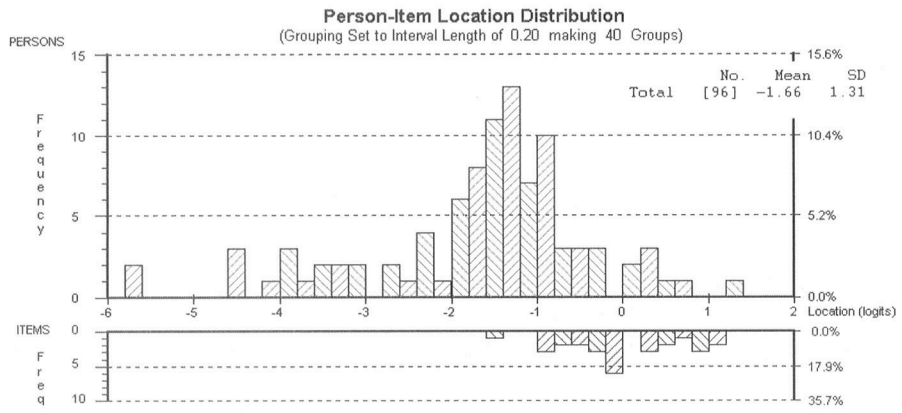

Figure 7.
Person-item location for the efficiency scale

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Item location	Person score	Stem of the item
1.19		Designing the school policy on student discipline:
1.10		Selecting new teaching approaches to implement:
0.96		Deciding the proposals for innovation that will be accepted:
0.95		Deciding the priorities for the purchase of teaching resources:
0.95		Nominating the topics for professional development attended by the whole-staff:
0.71	50	Choosing which applications for professional development will be funded:
0.59		Deciding the structures to recognise students' service to others:
0.58		Deciding how operational funds will be spent:
0.32		Deciding the goals for school improvement:
0.30	45	Setting priorities for school improvement:
0.28		Deciding school-wide changes in teaching approach:
−0		Deciding the degree of emphasis on core subjects:
−0.04		Setting what is taught in core subjects:
−0.09		Deciding ways to assess student progress:
−10		Deciding the support program in the school for underachieving students:
−0.12		Choosing the assessments to report to parents:
−0.13		Planning the school program to raise awareness of environmental issues:
−0.22		Selection of speakers and activities to develop social conscience:
−0.26		Deciding the range of extension activities:
−0.29		Deciding how to incorporate student use of computers:
−0.36	40	
−0.42		Determining the support program for students whose first language is not the language in which lessons are taught:
−0.49		Formulating the action when school tragedies happen:
−0.61		Deciding sanctions for individual students for extreme misbehaviour:
−0.76	35	
−0.77		Deciding the action to be taken in relation to results of external assessments:
−0.90		Designing the performance management policy:
−0.96		Allocating the budget for computers for student use amongst hardware, software, professional development and technical support:
−1.0		Deciding the priorities for capital outlays:
−1.2	30	
−1.6	25	
−1.53		Selecting new staff:
−2.0	20	

Table III.
Items by location and person's total score for the efficiency scale

for the set of items, which measures such item-trait interaction, is significant and is consistent with such repetition.

Our initial response to the problem was to refit the data to the Rasch model with "Costs outweigh benefits" rescored as 2. The chi square value (39.1) was not significant at the 5 per cent level but the range of item locations was still a problem.

Consequently, we decided to change the Likert scale to "Benefits outweigh costs almost always", "Benefits outweigh costs sometimes", "Costs outweigh benefits sometimes" and "Costs outweigh benefits almost always". This allows more

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opportunity for recognition of the costs of participatory decision making. Another approach would have been to change the items, but we wished to maintain the matching items in the three parts of the questionnaire and not to introduce new types of decision and more complexity.

Conclusion

In this paper, we have described the development of an instrument to measure principals' perceptions of the extent to which: external influences and internal influences affect decisions; the principal and staff make decisions; benefits of shared decision making outweigh costs (or vice versa). These aspects pertain to the elusive notions of accountability, principals' autonomy, and efficiency in the use of resources.

A key criterion for the items on the instrument was that they would address the major domains of school decision making. We based the items on understandings from our previous work in the field, our reading of the literature and interviews with principals. We suggest the coverage is comprehensive.

The Likert scales are innovative. Our intention with them is to force deliberate responses. We also intend that the items allow scope for responses across the scales. The distributions of person and item locations that resulted from fitting the trial responses to the Rasch model for ordered response categories indicate these intentions were met in the first and second parts of the questionnaire, for the trial cohort. Moreover, the interpretations the ordered item-locations allowed portend well for identification of decision making in different countries. Larger samples will also allow analysis by school-sector and other groupings.

The trial responses on the third, efficiency, part of the questionnaire tended to be at one end (the benefit end) of the Likert scale, indicating that the items did not discriminate across the scale and the scale was less satisfactory than the other two. As a result we redesigned the Likert categories.

In conclusion, the instrument introduces the notion of sharing decisions to greater or lesser degrees, depending on the domain. The revised instrument is currently being implemented on a widespread basis in The Netherlands and Australia. Implementation in Taiwan and other countries will follow. Comparisons of results by country will inform the school leadership movement. In particular, the results will indicate: principals' perceptions of decisions for which external influence is salient, in systems that proclaim decentralised decision making; domains in which principals perceive they act autonomously when the rhetoric is a culture of collaboration; and domains in which collaboration is costly.

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