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A review of inventories for diagnosing school culture

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Abstract

Purpose – The purpose is to provide a critical review of existing school culture inventories and to provide a bibliography of questionnaires that can be used for diagnosing school culture.

Design/methodology/approach – A literature search was conducted to identify school culture questionnaires in international research indexes and educational administration abstracts. Multi-dimensional questionnaires were selected that were directed towards measuring organisational culture in schools and which were validated. Where insufficient data were available in the literature, authors were contacted for additional information and/or to check the descriptions of the instruments.

Findings – Questionnaires can be a valuable tool in diagnosing school cultures. A number of validated instruments are available for measuring cultural factors in both primary and secondary schools. School culture inventories are primarily concerned with the identification of particular cultural traits in schools.

Research limitations/implications – The validation of school culture questionnaires has been limited to the countries in which they were developed. A validation in other educational contexts and systems, therefore, is still necessary for a wider application of these inventories.

Practical implications – Researchers, consultants, school boards, principals and teachers who want to diagnose the culture of a school will find this article helpful in determining whether they are willing to use a questionnaire for that purpose, and (if applicable) which instrument suits their objectives best.

Originality/value – No similar overviews of school culture inventories are available yet.

Keywords Schools, Inventory

Paper type General review

Introduction

The culture of schools is one of the recurring themes in educational research. Its roots can be traced back to Waller's *The Sociology of Teaching*. As early as 1932, Waller noted that schools "have a culture that is definitely their own". There are, in the school, complex rituals of personal relationships, a set of folkways, mores, and irrational sanctions, a moral code based upon them (Waller, 1932, p. 103). Although the interest in school culture among educational scholars lay dormant for several decades after Waller's treatise, it gained renewed attention in the 1970s as researchers searched for persistent barriers to educational change and attempted to construct a framework to understand change processes in schools (see Goodlad, 1975; Sarason, 1971).

It was not until the early 1980s, however – at which time culture became a major theme in organization science – that culture was widely recognized as an important feature in the functioning of schools (Deal, 1985; Deal and Kennedy, 1983; Kottkamp,



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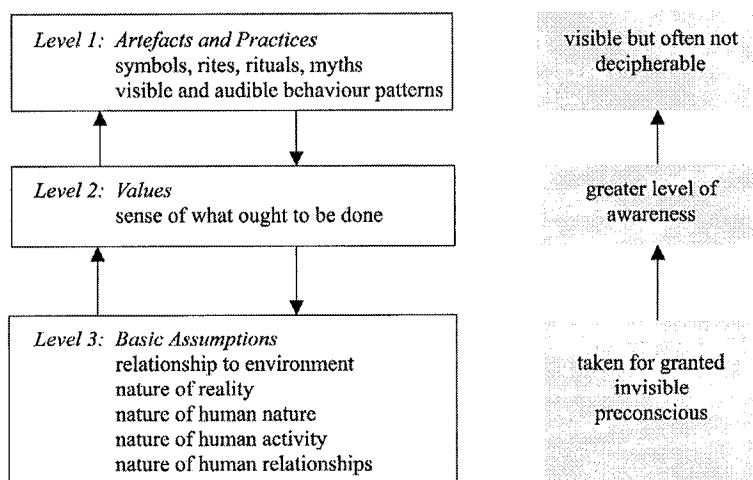
1984). This gave rise to a large number of empirical studies in the late 1980s, most of which were qualitative and interpretative in nature, collecting data from a small sample of schools (see, e.g. Kelley and Bredeson, 1991; Ortiz, 1986; Owens, 1987; Owens *et al.*, 1989; Papalewis, 1988; Rossman *et al.*, 1988; Willower and Smith, 1986). Since then, however, researchers in the field of school culture have become more amenable to large-scale surveys. Over the past decade, several questionnaires have been developed (Cavanagh and Dellar, 1996a,b; Grady *et al.*, 1996; Houtveen *et al.*, 1996; Jones, 1996; Pang, 1995) or revised (Edwards *et al.*, 1996) in order to link school culture to school effectiveness and school improvement, or simply to gain an understanding of school processes by identifying core values and beliefs that guide the behaviour of school staff.

In this article, these instruments are classified and reviewed. Six questionnaires for measuring school culture are examined in terms of their underlying conception of culture, their dimensions and scales, their format and level of analysis, and their psychometric quality. Furthermore, the focus of the inventories, in terms of the elements and aspects of school culture they attempt to measure, is discussed. Comments are made with respect to the usefulness of these questionnaires in research on organisational culture in schools.

School culture

With regard to cultural elements in schools, many scholars in the field of educational administration adopt Schein's (1985) classification of cultural levels (see Figure 1). Schein's model consists of three layers that differ regarding their visibility within schools and their consciousness among teaching staff.

The "deepest", least tangible level of culture consists of basic assumptions shared by teachers, which comprise the core of school culture. Assumptions refer to taken-for-granted beliefs that staff members perceive to be "true" (Schein, 1985). Because of their taken-for-granted nature, teachers often are no longer aware of the



Source: Adapted from Schein (1985, p. 14)

Figure 1.
Levels of culture and their
Interaction

assumptions that underlie the daily interpretation of their duties. These assumptions are likely to remain unconscious until another staff member, student or parent challenges them (Stolp and Smith, 1995). Then, teachers will reflect on their behaviour and become conscious of the basic assumptions that underlie the interpretations of what they do. As Schein (1985) argues, basic assumptions reflect the fundamental questions people face, such as the way the environment of the organisation is perceived, the nature of reality and truth, the nature of human nature, the nature of human activity and the nature of human relationships. For instance, questions concerning the nature of human nature refer to whether humans are seen as being essentially “good” or “bad”, and whether humans are believed to be predominantly “fixed at birth”, or whether they are seen to be largely “mutable and perfectible” (Schein, 1985, p. 132).

The second level consists of values and norms. Values refer to what teachers believe to be good, right or desirable. Values, therefore, are to be considered standards of desirability; they reflect what is conceived to be important to pursue or worth striving for in school (see Maslowski, 2001). Teachers, for instance, may consider respect for others important, or may value collaboration with other staff members. Although teachers are not always conscious of the values that guide their behaviour, most are able to express their core values (see Rossman *et al.*, 1988). Values like collaboration or respect are often “translated” into norms for behaviour. Such behavioural norms, in fact, are unwritten rules according to which others are expected to behave. They also reflect what is not done in school (Gonder and Hymes, 1994; Stolp and Smith, 1995).

The third level in Schein’s classification scheme consists of artefacts and practices. In cultural artefacts, the basic assumptions, values and behavioural norms of a school are “visualized”. Myths, for instance, articulate which past events have been important for members of the school (Deal, 1985). These “critical” events are rendered in stories that are frequently called upon. Myths are often centred on actions or decisions taken by the heroes or heroines of the school. These people represent certain individual characteristics that reflect what members of the school value. As such, they serve as role models for the teachers (Deal, 1985; Gonder and Hymes, 1994). A third artefact is made up of school symbols. These symbols relay compact information concerning what meaning school members ascribe to various functions or school processes.

In addition to artefacts, this third, most tangible layer of culture also consists of practices. In these practices or behavioural patterns, the underlying assumptions, values and norms come to the surface. These practices are not the result of any formal agreement or arrangement between teachers, but develop from socially accepted or reinforced behaviour of teachers (Deal, 1985). Practices essentially refer to the customs, “the way we do things around here”, or to the rituals in school. The term ritual originates from the discipline of cultural anthropology, where it refers to the social customs around a certain event that has meaning for the members of a particular group. In schools, one may think of the ceremony that takes place when a teacher retires. These events often take place according to a fixed protocol, consisting of several activities that emphasize their solemnity to the participants. Rituals, therefore, take place around events that are infused with meaning in the eyes of school members.

In addition to these layers of school culture, three aspects of culture can be identified: content, homogeneity and strength (Kilmann *et al.*, 1986; Maslowski, 2001). The content or substance of culture refers to the meaning of basic assumptions, norms

and values as well as cultural artefacts shared by the school staff. The content is often characterized by means of dimensions (see Cavanagh and Dellar, 1998; Johnson *et al.*, 1996; Pang, 1996) or typologies of culture (see Handy and Aitken, 1986; Staessens, 1991a, b). For instance, a culture can be classified as “collaborative” or “achievement oriented”.

The homogeneity of culture refers to the extent to which basic assumptions, norms, values and cultural artefacts are shared by the school staff. A culture is homogeneous if (nearly) all staff members ascribe to the same assumptions, norms and values. Different values and norms do not imply, however, that a culture is heterogeneous, as Siskin (1991) has argued. Across subject departments, subcultures may emerge, which are themselves relatively homogeneous. This is often referred to as cultural differentiation, cultural segmentation or the balkanisation of culture in schools (see Maslowski, 2001).

The strength of culture is generally defined as “a combination of the extent to which norms and values are clearly defined and the extent to which they are rigorously enforced” (Cox, 1993, p. 162). Cultural strength, therefore, refers to the extent to which the behaviour of school staff is actually influenced or determined by the assumptions, values, norms and artefacts that are shared in school. Weak cultures do not informally put great pressure on school members to behave in certain ways, but simply offer a guideline for their behaviour instead. As Kilmann *et al.* (1985, p. 4) word it, “the culture only mildly suggests that they behave in certain ways”. Stated otherwise, weak cultures do not prescribe how staff must behave, but rather how they might behave.

Although most scholars in the field of educational administration have a common, almost intuitive, understanding of the concept of school culture – more or less reflecting the elements and aspects of culture described in the preceding paragraphs – the field of education still lacks a clear and consistent definition of the term. In our view, school culture encompasses all the cultural elements discussed above, although the latent elements, i.e. the basic assumptions, values and norms, certainly can be regarded as forming the core of a school’s organizational culture. The question can be raised as to the degree to which these assumptions, values and norms have to be shared in order to designate them as being part of the culture of a specific school. We believe that this question should be answered in terms of cultural strength. We would argue that even if only part of the school staff subscribes to certain values, and even if this part is itself only a minority in school, if these values are nevertheless reinforced in the school organization, then they should be regarded as part of the school culture. Hence, the criterion for the inclusion of particular cultural elements should be their impact on the daily behaviour of the principal, teachers and other staff in school. For our purposes, therefore, school culture is defined as the system of basic assumptions, norms and values, as well as the cultural artefacts, which are shared by school members and influence their functioning at school.

Method

For purposes of this article, a search for quantitative assessments of culture was conducted, in order to find inventories that measure basic assumptions, values, norms or cultural artefacts in school organisations. The inventories were selected on the basis of five criteria, so as to meet theoretical and psychometric standards pertaining to their ability to diagnose school cultures.

First, the inventory has to be aimed at measuring basic assumptions, values, norms or cultural artefacts shared by the members of a school. Questionnaires directed at measuring organisational climate in schools, organisational health, or instruments for measuring teachers' well-being or commitment, although sometimes conceptually closely related to school culture inventories, were therefore excluded.

Furthermore, the questionnaire needs to assess different aspects or dimensions of school culture. One-dimensional school culture inventories, such as Cheng's (1993, 1996) Organizational Ideology Questionnaire, Shaw and Reyes' (1992) *Organizational Value Orientation Questionnaire*, and Smart and St. John's (1996) questionnaire for assessing organizational culture in higher education, were therefore not included.

Third, the instrument has to be explicitly developed for diagnosing the culture of schools. More general instruments for measuring organisational culture listed in Broadfoot and Ashkanasy (1994) and Rousseau (1990) were not taken into consideration, even when they, as is the case for Cooke and Lafferty's (1986) Organizational Culture Inventory, have occasionally been administered to teachers and school administrators as well (see Cocchiola, 1990; Mooijman, 1994; Rzoska, 2000).

Fourth, the instrument needs to be directed at organisational processes in schools, and therefore has to be addressed to school staff. Thus instruments primarily aimed at measuring culture in terms of normative expectations in classrooms or values teachers show in their relationship to students, such as Maehr and Fyans' School Culture Survey (Fyans and Maehr, 1990; Maehr and Fyans, 1989) and Higgins' School Culture Scale (Higgins, 1995; Higgins *et al.*, 1997), were excluded.

Finally, the instrument has to be validated. Questionnaires which were not analysed for their reliability and validity, such as Handy and Aitken (1986) Questionnaire on the Cultures of Organisations, or for which these data were not available, such as Gruenert and Valentine's (1998) School Culture Survey, Jones' (1996) School Culture Inventory, Sashkin's (1990a, b) School Culture Assessment Questionnaire and School District Culture Assessment Questionnaire, and Steinhoff and Owens' (1989) Organizational Cultural Assessment Inventory, were not taken into consideration. Questionnaires that initially appeared to qualify for inclusion in this review but which proved not to be reliable, such as Grady *et al.*'s (1996) Images of School through Metaphor questionnaire, were later excluded.

School culture questionnaires

Based on the criteria delineated above, six questionnaires were identified: the School Culture Survey (Edwards *et al.*, 1996; Saphier and King, 1985; Schweiker-Marra, 1995), the School Work Culture Profile (Snyder, 1988), the Professional Culture Questionnaire for Primary Schools (Staessens, 1990, 1991b), a questionnaire for measuring organizational culture in primary schools (Houtveen *et al.*, 1996), the School Values Inventory (Pang, 1996), and the School Cultural Elements Questionnaire (Cavanagh and Dellar, 1996a). In the following section these inventories will be described in terms of their underlying conception of school culture, their scales, their level and format, and the questionnaire's reliability and validity[1] (see Table I).

School culture survey

The School Culture Survey was developed by Saphier and King (1985) for use in seminars designed to improve school culture (Edwards *et al.*, 1996)[2]. The School

Questionnaire (authors)	Scales	No. of items	Level of analysis	Format	Reliability	Construct validity	Criterion-related validity	Settings (n = number of respondents/ number of schools)
School Culture Survey (Saphier and King, 1985; Edwards <i>et al.</i> , 1996)	Teacher professionalism and goal setting Professional treatment by administration Teacher collaboration	24	Individual and school level	Likert-scales: 1 (almost never) to 5 (almost always)	Cronbach's alpha (ranging from 0.81 to 0.92)	Moderate intercorrelations between factors/ low correlations with individual characteristics	Scales have low correlations with teacher efficacy and empowerment	Primary and secondary schools USA (n = 425/not reported)
School Work Culture Profile (Snyder, 1988)	School-wide planning Professional development Program development School assessment	60	School level	Likert-scales: 1 (strongly disagree) through 3 (undecided) to 5 (strongly agree)	Cronbach's alpha (ranging from 0.88 to 0.93)/test-retest (two week interval) (0.78)	(Partly) high intercorrelations between factors/ limited confirmation conceptual structure	Scales are correlated with gross school performance	Primary schools USA (Florida) (n = 416/100)
Professional Culture Questionnaire for Primary Schools (Staessens, 1990)	Principal as builder and carrier of the culture Degree of goal consensus Professional relationships among teachers Lack of an internal network of professional support	28	School level	Likert-scales: 1 (doesn't fit at all) to 6 (fits to a large degree)	Cronbach's alpha (ranging from 0.89 to 0.95)	Intercorrelations between factors/ comparisons of intra-school and inter-school variances/ confirmation conceptual structure	First and fourth scale are significantly correlated with school leader's style of supervision	Primary schools Belgium (Flanders) (n = 1,202/90)

(continued)

Table I.
School culture questionnaires

Table I.

Questionnaire (authors)	Scales	No. of items	Level of analysis	Format	Reliability	Construct validity	Criterion-related validity	Settings (<i>n</i> = number of respondents/ number of schools)
Organisational Culture in Primary Schools (Houtveen <i>et al.</i> , 1996)	Harmony of school team Responsibility for instructional processes Appreciation of teachers' quality and capacities Emphasis on teachers' professional development Flexibility Emphasis on school growth Emphasis on public relations Ability to innovate Formality of sharing information Communication on educational matters Stability Emphasis on achievement Emphasis on reaching school objectives Efficiency Trust in own effectiveness	123	School level	Likert-scales: 1 (completely false) to 6 (completely true)	Cronbach's alpha (ranging from 0.70 to 0.89)/test-retest (four week interval) (0.89 to 1.00)	Correlations between school management scores and teacher scores/ comparisons of intra-school and inter-school variances/ confirmation conceptual structure	Scales differentiate between schools	Primary schools in The Netherlands (<i>n</i> = 882/465)

(continued)

Questionnaire (authors)	Scales	No. of items	Level of analysis	Format	Reliability	Construct validity	Criterion-related validity	Settings (<i>n</i> = number of respondents/ number of schools)
School Values Inventory Form-III and Form-IV (Pang, 1998a,b)	Formality Bureaucratic control Rationality Achievement orientation Participation and collaboration Collegiality Goal orientation Communication and staff consensus Professional orientation Teacher autonomy	61 (III)/ 64 (IV)	Individual and school level	Likert scales: 1 (very dissimilar) to 7 (very similar)	Cronbach's alpha Form-III (ranging from 0.73 to 0.92) and Form-IV (ranging from 0.73 to 0.92)	Confirmation of main conceptual structure	Positive relationship of three (out of four) theoretical constructs with teacher commitment, job satisfaction, sense of community, and order and discipline	Primary schools Hong Kong (Form IV) (<i>n</i> = 839/60)/ Secondary schools Hong Kong (Form-III) (<i>n</i> = 544/44)
School Cultural Elements Questionnaire (Cavanagh and Dellar, 1996a)	Teacher efficacy Emphasis on learning Collegiality Collaboration Shared planning Transformational leadership	42	Individual and school level	Likert-scales: 5 (strongly agree) to 1 (strongly disagree)	Cronbach's alpha (ranging from 0.70 to 0.81)	Moderate intercorrelations between factors/ similar outcomes questionnaire and interviews	Similar outcomes found for Collaboration in PISA; for emphasis on learning similar outcomes found on school culture in PISA	Secondary schools (Western) Australia (<i>n</i> = 422/8)

Table I.

Culture Survey consists of 29 teacher norms, core values, and beliefs. Rasch and exploratory factor analyses indicate that the School Culture Survey consists of three scales: teacher professionalism and goal setting; professional treatment by administration; and teacher collaboration (Edwards *et al.*, 1996).

Underlying conception of culture. School culture is conceptualised as shared beliefs about how the school should operate, core values reflecting what the school wants for its students, and behavioural norms reflecting teacher perceptions of the school environment. At the core of the inventory developed by Saphier and King (1985) are behavioural norms for teachers. In their view, "if certain norms of school culture are strong, improvements in instruction will be significant, continuous and widespread" (p. 67). These norms concern collegiality, high expectations, trust and confidence, tangible support, appreciation and recognition, involvement in decision-making, and honest and open communication, among a few other norms as well. Underlying these "strong" norms is a normative theory on what constitutes effective schools and effective teachers (see Little, 1982; Purkey and Smith, 1982; Rosenholtz, 1989). As Saphier and King (1985) argue, school improvement emerges from the strengthening of teachers' skills, systematic renovation of curriculum, improvement of organisational processes, and involvement of parents and citizens in responsible school-community partnerships. The culture of the school is believed to either facilitate or hinder such processes of school improvement.

Scales and items. The revised *School Culture Survey*, modified by Edwards *et al.* (1996), are comprised of three subscales, containing 24 items:

- (1) *Teacher professionalism and goal setting* (ten items). Teachers have a clear, collective vision of what they want for their students, and try to improve their instruction to create an optimal learning environment for their pupils. Item examples are: "Enough time is spent clarifying and understanding the goals of our school each year" and "We acknowledge our imperfections readily. No matter how good we perceive ourselves to be, we are always striving to get better. We constantly solicit input and feedback".
- (2) *Professional treatment by administration* (eight items). Administrators trust the teacher's professional judgment and show confidence in the teacher's ability to carry out his or her professional development and to design instructional activities. Item examples are: "I feel trusted and encouraged to make instructional decisions on my own . . . and my boss backs me up when I do" and "Good teaching is taken seriously here. This shows up in serious attention to teacher evaluation and letting me know clearly how I stand in relation to the expectations of the district. I get prompt and useful feedback".
- (3) *Teacher collaboration* (six items). Teachers help each other and create an open atmosphere in which problems can be discussed. Item examples are: "We talk in concrete and precise terms about things we're trying in our teaching" and "This is a curious school. We are always searching for new and improved ways to teach".

Level and format. The School Culture Survey (revised form) is a 24 item self-report scale (Edwards *et al.*, 1996). The response scale is a five-point Likert scale, ranging from "almost never" to "almost always".

Reliability and validity. Edwards *et al.* (1996) found the three scales to be conceptually coherent, with internal consistency reliabilities ranging from 0.81 to 0.91. A later analysis of post-test data revealed similar reliability coefficients, ranging from 0.83 to 0.92. The distribution for each scale was approximately normal. The scales were all significantly correlated, though at a moderate rather than high level, supporting the notion that the subscales are measuring distinct facets of school culture.

The scales were constructed using a principal components analysis with varimax rotation, showing Eigenvalues of 11.1, 2.3, and 1.4 respectively, explaining 51 per cent of the variance. Rasch analysis, using BIGSTEPS (Linacre and Wright, 1991), resulted in the definition of the same three scales as those defined in the exploratory factor analysis. This resemblance of the scale structure found in the factor and Rasch analyses further supports the conceptual structure of the inventory.

To determine criterion-related validity, correlations were computed with efficacy, using the Teacher Efficacy Scale (Gibson and Dembo, 1984); empowerment, using the Vincenz Empowerment Scale (Vincenz, 1990), and teachers' conceptual level, measured by the Paragraph Completion Method (Hunt *et al.*, 1978). Teacher efficacy, empowerment, and teachers' conceptual level are all related to effective teacher behaviours. Edwards *et al.* (1996) found that all three scales of the School Culture Survey were significantly correlated with personal teaching efficacy, indicating that the culture scales are indeed related to the belief of teachers that they can make a difference to their students. A significant relationship was also found between the three culture scales and five (of six) empowerment scales, which measure teachers' overall personal empowerment and effective involvement with their environment. These correlations, however, were all low in magnitude, suggesting that these personal characteristics do indeed diverge from the school culture variables. No significant relationship was found between teachers' conceptual level and student outcomes.

School work culture profile (SWCP)

The School Work Culture Profile was developed by Snyder (1988) and was a response to a request from superintendents in British Columbia in the early 1980s. The occasion was a workshop, designed for superintendents who wanted to develop and coach their principals. Based on the Managing Productive Schools (MPS) model (Snyder and Anderson, 1986), consisting of ten competencies for productive school management, superintendents were asked how principals might use this MPS knowledge base to work with their staffs. Using these outcomes, an initial 100-item scale was created and subsequently piloted in workshops with principals. In 1984, the revised instrument was tested in a number of school districts in Missouri, Maryland, and Florida. The instrument was edited and reorganised into a 62-item questionnaire. To determine the content validity of the instrument, this version was sent to several experts in the field. Based on their comments, a number of items were deleted, others were added, and many were reformulated for purposes of clarity. Again, this revised version was tested for its content validity with a panel of reviewers, resulting in the current 60-item questionnaire.

Underlying conception of culture. Johnson *et al.* (2002) indicate that the construct of school work culture is rooted in the concept of "systems culture". This systems approach implies that all team members are seen as interrelated, each one knowing about and depending upon the work of others. For the system to work well, work cultures need to be developed from shared purpose and meaning, staff collaboration

and interdependent work units (Snyder and Anderson, 1986). Based on this principle, Snyder and Anderson developed a systems model of change that is based on four interdependent work dimensions: Organizational Planning, Developing Staff, Developing Program, and Assessing School Productivity. School work culture is directly linked to this broader model, as it “refers to the collective work patterns of a system (or school) in the areas of systemwide and schoolwide planning, staff development, program development, and assessment of productivity, as perceived by its staff members” (Johnson *et al.*, 1996, p. 140). In their view, these dimensions together provide the direction and the energy system a school needs in order to alter its programs and structures, with the goal of enhancing their effect on learning patterns.

Scales and items. The *School Work Culture Profile* consists of four scales, containing 60 items:

- (1) *Schoolwide planning* (15 items). This factor refers to partnership goals among staff, parents, students and community, and databases that guide school planning and work group efforts. Item examples are: “Work group plans are reviewed by the leadership team” and “Parents participate in identifying school goals”.
- (2) *Professional development* (15 items). This factor refers to staff working cooperatively in planning, organizing, coaching, and problem solving using multiple resources. Item examples are: “Supervision reinforces strengths in current job performance” and “Staff members provide constructive feedback to each other regularly”.
- (3) *Program development* (15 items). This factor refers to staff accountability to ensure student success through instructional programs and services. Item examples are: “School evaluation includes assessment of student achievement” and “Instructional programs facilitate student mastery of learning objectives”.
- (4) *School assessment* (15 items). This factor refers to staff development systems and how they enhance the acquisition of knowledge and skills to solve schoolwide problems. Item examples are: “Staff development programs provide opportunities to learn new knowledge” and “The staff development program builds the school’s capacity to solve problems”.

Level and format. The *School Work Culture Profile* measures work practices at the school level. The format used is a five-point Likert scale, ranging from “strongly disagree” to “strongly agree”, with a midpoint of “undecided”.

Reliability and validity. The *School Work Culture Profile* has been submitted to a series of validation studies. In addition to the use of expert panels to investigate the construct validity of the instrument, two initial reliability studies were conducted on the internal consistency and stability of the questionnaire. Cronbach’s alphas for the four subscales were found to be between 0.88 and 0.93, with an alpha for the total scale of 0.97. The test-retest design that was used on one of the sample groups to investigate the short-term stability of the instrument over a two-week interval yielded a reliability coefficient of 0.78 (Johnson *et al.*, 1994). Another reliability study was conducted on a much larger, but mixed, sample of school personnel from over 50 school districts in Florida, and resulted in Cronbach alphas that were very close to those found in the first series of studies, with a total of 0.96. Finally, a study utilizing a large sample of

teachers from Pasco County in Florida yielded a total Cronbach alpha of 0.97. Recently, Bruner and Greenlee (2004) reported total alphas for the School Work Culture Profile of 0.96 and 0.99 respectively for low-achieving and high-achieving Florida elementary schools.

Parkinson (1990) conducted a factor analysis on the School Work Culture Profile, using data from the Pasco County Study. Eight factors were identified: Instruction, Supervision, Goals/Assessment, Staff and School Development, Staff Collaboration, Community Resources, Work Groups, and Individual Assessment. Johnson *et al.* (1992) conducted a second-order factor analysis, which revealed five second-order factors: Planning, Staff Development, Personal Awareness, Assessment, and School as a System. Although these factors reflect (clusters of) School Work Culture Profile subscales to a considerable degree, the conceptual structure of the instrument was not confirmed. Later second-order (Johnson *et al.*, 1994; 1996) and even third-order factor analyses (Johnson *et al.*, 2002) lead to similar conclusions.

Criterion-related validity of the instrument was investigated in a small-scale study on differences between low-achieving and high-achieving schools (Bruner and Greenlee, 2004). Bruner and Greenlee found that these groups of schools differed with regard to their work culture.

Professional culture questionnaire for primary schools

The Professional Culture Questionnaire for Primary Schools was developed by Staessens (1990, 1991b). Three “privileged domains” were identified: the principal as builder and carrier of culture, goal consensus, and professional relationships among teachers. Items were formulated for these domains and five teachers were asked to respond to the items in think-aloud sessions. Based on these sessions, a 90-item questionnaire was constructed, which was pilot-tested with 354 teachers in 26 primary schools. Using exploratory factor analyses, a four-factor model was derived, which contained the three “privileged domains” and a fourth additional factor “Lack of an internal network of professional support”. The number of items was ultimately reduced to 53. Items were removed on the basis of their factor loadings, their conceptual similarity with other items, a similarity in wording, and the Cronbach alphas. A number of new items regarding the fourth factor were subsequently added. The revised instrument, containing 59 items, was tested with 1,202 teachers in 90 primary schools. A principal component analysis with varimax rotation confirmed the four-factor model that was found in the pilot study. A short form with seven items per scale was constructed, for which items were selected with the highest unequivocal factor loadings and the highest item-rest correlations.

Underlying conception of culture. Staessens (1991a), in her conceptualisation of culture, relies on the social psychological view of culture outlined by Schein, who defines culture as “a pattern of basic assumptions - invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration – that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (Schein, 1985, p. 9). Professional culture, therefore, is viewed as a socially constructed reality, in which the process of meaning making plays a central role. The meaning of events, activities and statements is being created, learned and transmitted in an interpretative, social process. Based on this social

constructivist approach, Staessens (1990) identifies the three domains mentioned above, in which, according to her view, culture is constructed and manifests itself in school: the principal as builder and carrier of culture, the degree of goal consensus in school, and the professional relationships among teachers.

Scales and items. The Professional Culture Questionnaire for Primary Schools consists of four scales, containing 28 items (Staessens, 1990):

- (1) *Principal as builder and carrier of culture* (seven items). This factor refers to the meaning of the principal's behaviour to teachers within the school. Item examples are: "The principal at our school is the inspirer of initiatives in school" and "The principal at our school encourages us to evolve in our work".
- (2) *Degree of goal consensus* (seven items). This factor refers to the existence of a common mission or conception of primary values within the school. Item examples are: "All teachers work in the same direction to realize the school's core objectives" and "Our school team tries to act as well as possible".
- (3) *Professional relationships among teachers* (seven items). This factor refers to teacher communication and cooperation. Item examples are: "Communicating with colleagues means a lot to me" and "As colleagues we look for new and alternative methods".
- (4) *Lack of an internal network of professional support* (seven items). This factor refers to the structural and emotional isolation of teachers in schools. Item examples are: "I hesitate to ask colleagues for advice because it is interpreted in our school as me not being able to handle my job" and "In this school, teachers feel isolated".

Level and format. The Professional Culture Questionnaire for Primary Schools measures practice statements at both the individual and school level. The format used is a six-point Likert scale, ranging from "not appropriate at all" to "appropriate to a large degree".

Reliability and validity. Staessens (1990) reports reliability coefficients for the four scales ranging from 0.89 to 0.95. Later studies in Flanders and in The Netherlands indicate, however, that the reliability of the scales may be slightly lower than the coefficients reported by Staessens. Maes (2003), for example, found Cronbach alphas of 0.78 to 0.88 for the four scales in the context of a large-scale study in primary schools in Flanders. Similarly, Kral (1997) reports Cronbach alphas of 0.76 to 0.84 for three of the four scales in her study on multigrade classes in Dutch primary schools.

To determine the construct validity of the questionnaire, Staessens examined correlations between the four scales, constructed a congruence matrix for the scales, and compared between-school and within-school variance. Staessens found that the correlations between the first three scales were all positive, ranging from 0.34 to 0.66, while the correlations between the fourth scale and the other three scales ranged in magnitude from -0.38 to -0.73 . These findings reflect the structure found in the pilot study. Moreover, the moderate to relatively large correlations support the notion that a single construct is being measured. Finally, the analysis of variance indicated that schools significantly differed from other primary schools in the sample for each of the four scales. This finding supports the discriminant validity of the instrument and indicates also that the questionnaire measures a school level construct rather than

individual constructs. The structure of four factors, in contrast, was not confirmed in Kral's (1997) study on Dutch schools. Using principal component analyses, she found a three-factor solution, in which the "Professional relationship among teachers" and the "Lack of an internal network of professional support" scales were combined.

In order to determine criterion-related validity, the Professional Culture Questionnaire for Primary Schools was compared with the Questionnaire for Assessing Principal Change Facilitator Style (Vandenberghe, 1988) that consists of three scales: people-orientation, organisation-orientation, and strategic feeling. Staessens found that relations between the scales of both instruments were in line with the conceptual framework of the Professional Culture Questionnaire for Primary Schools. For instance, in schools where a weak internal network of professional support existed, the school leader was found to be less involved in personal contacts with teachers.

Organisational culture in primary schools

Houtveen *et al.* (1996) developed an instrument for measuring organisational culture in primary schools. Based on the Competing Values Framework (Quinn and Rohrbaugh, 1983), a total of 17 scales were constructed and then tested for their content validity using expert judgements. For use in these scales, items from other culture questionnaires and from conceptually related school inventories were selected. In order to be included, items had to contain a statement on the behaviour or beliefs of school staff, had to refer to the school instead of the individual teachers' level, and had to be concerned with actual practices. The formulation of new items for each of the scales subsequently enlarged the pool of suitable items. To determine the psychometric quality, the instrument was tested using a selection of teachers and principals from 465 primary schools in the Netherlands. All respondents were requested to complete the questionnaire a second time, after a four-week time interval.

Underlying conception of culture. Organisational culture is defined as the "not always conscious and hard to communicate system of values and norms on work in its broadest sense, that is shared by the members of an organisation and colours their behaviour" (Houtveen *et al.*, 1996, p. 27). These values and norms are conceptualised using the Competing Values Framework developed by Quinn and Rohrbaugh (1983). This framework consists of four basic value models: human relations orientation, open systems orientation, rational goal orientation, and internal process orientation. The "human relations orientation" emphasizes the human side of administration and involves the belief that the fundamental concern in all organisations is the development and maintenance of dynamic and harmonious relationships. It places emphasis on a high morale amongst organizational members, a concern for people, and a commitment to the organisation. The "open systems orientation" is made up of values that relate to a responsiveness to the changing conditions of the organisation. It consequently stresses innovation and adaptation. The "rational goal orientation" emphasizes productivity and effectiveness. In order to reach these objectives, goal clarification, feedback and a rational means-ends approach are considered to be important. The "internal process orientation" is based on the premise that an organization can only operate effectively when its actions are clearly identifiable and coordinated in an efficient manner. This is best achieved by means of clear operations and a clear communication system.

Scales and items. Houtveen *et al.* (1996) constructed 15 scales containing 123 items. With respect to the Human Relations Model, four scales were constructed, containing 31 items:

- (1) *Harmony of the school team* (eight items). A high score on this scale indicates that teachers within the school form a team in which they are able to openly express their views. Item examples are: "We agree as a team on educational matters" and "Divergence of opinion is discussed openly at our school".
- (2) *Responsibility for instructional processes* (eight items). A high score on this scale indicates that school members are committed to their work in school. Item examples are: "Teachers at our school are enthusiastic about their work" and "We are proud of our school".
- (3) *Appreciation of teachers' qualities and capacities* (six items). A high score on this scale indicates that school members recognize and appreciate the qualities and capacities of their colleagues. Item examples are: "At our school the capacities of each team member are appreciated" and "Team members respect each other as a person".
- (4) *Emphasis on teachers' professional development* (nine items). A high score on this scale indicates that teachers are expected to continuously develop themselves through refresher courses. Item examples are: "In performance appraisal interviews, a lot of attention is paid to the professional development of a teacher" and "Investment in human capital is an important element within our school".

With respect to the Open Systems Model, four scales were constructed, containing 30 items:

- (1) *Flexibility* (six items). A high score on this scale indicates that the school's policy is formulated by the staff as a team and that the school team is able to change these policies when necessary. Item examples are: "Policy is formulated for the school as a whole" and "We are able to meet changes in legislation in a flexible way".
- (2) *Emphasis on school growth* (six items). A high score on this scale indicates that school growth is valued by the school team. Item examples are: "We strive for school growth" and "An increase in the number of students is interpreted as a success".
- (3) *Emphasis on public relations* (nine items). A high score on this scale indicates that the school invests in its public relations. Item examples are: "We invest time and energy in good public relations" and "We try to convince parents that our school is the best for their child".
- (4) *Ability to innovate* (nine items). A high score on this scale indicates that the school is willing and able to innovate. Item examples are: "We have a positive attitude towards educational innovations" and "Our team is able to go along with new educational trends".

With respect to the Internal Process Model, three scales were constructed, containing 23 items:

- (1) *Formality of information sharing* (five items). A high score on this scale indicates that school management decides which information is passed to teachers. Item examples are: "School management determines the agenda of team meetings" and "School management decides what information is passed on to other team members".
- (2) *Communication on educational matters* (eight items). A high score on this scale indicates that teachers have autonomy regarding educational matters in school. Item examples are: "Teachers have full discretion regarding the teaching of their class" and "Team meetings are primarily devoted to domestic business".
- (3) *Stability* (ten items). A high score on this scale indicates that the school can be characterised as stable and consistent. Item examples are: "Teachers at our school are aware of their responsibilities" and "There is little turnover in teachers at our school".

With respect to the Rational Goal Model, four scales were constructed, containing 39 items:

- (1) *Emphasis on achievement* (11 items). A high score on this factor indicates that the school emphasises student achievement. Item examples are: "During the lessons, we devote as much time as possible to reading and maths" and "We expect our students to have a good work attitude".
- (2) *Emphasis on reaching school objectives* (nine items). A high score on this scale indicates that the reaching of objectives is carefully planned in school. Item examples are: "We evaluate every year whether the school's objectives have been met" and "At our school, the subject matter that students have to master is determined for each grade separately".
- (3) *Efficiency* (ten items). A high score on this scale indicates that the school can be characterised by mutual adjustment and efficiency. Item examples are: "Decision-making in staff meetings is well prepared" and "We try to use our time as efficiently as possible".
- (4) *Trust in own effectiveness* (nine items). A high score on this scale indicates high efficacy of teachers in school, and support for teacher efficacy by principals. Item examples are: "We succeed in stimulating pupils to work as well as possible" and "School management is results-oriented".

Level and format. The questionnaire measures organisational culture at school level. Respondents were requested to score culture practices on a six-point Likert scale, ranging from "completely false" to "completely true".

Reliability and validity. The reliability of the questionnaire was investigated by examining its internal consistency and its stability. Cronbach alphas ranged from 0.70 to 0.89 for the 15 subscales. Test-retest correlations based on a four-week time interval were high, ranging from 0.92 to 1.00 for the teacher sample, and from 0.89 to 1.00 for the school principal sample.

Subsequently, the similarity between teachers' and principals' scores was examined to determine whether school staff perceived the culture of a school in more or less the same manner. Correlations between teachers' and principals' scores ranged from 0.32 to 0.72, indicating weak validity for almost half of the scales, namely for "Appreciation

of teachers' quality and capacities", "Flexibility", "Formality of information sharing", "Communication on educational matters", "Emphasis on reaching school objectives", "Efficiency", and "Trust in Own Effectiveness". Second, a one-way variance analysis was performed to determine the ratio of between-school and within-school variance. Five scales were found to have between-school variances lower than half the total variance, indicating weak validity, namely for the scales "Flexibility", "Communication on educational matters", "Emphasis on reaching school objectives", "Efficiency", and "Trust in Own Effectiveness".

Based on eight scales that were found to be valid in previous analyses, a confirmatory factor analyses, using LISREL, revealed three factors: the team or professional-oriented school, containing the scales "Harmony of the school team", "Responsibility for instructional processes", and "Emphasis on teachers' professional development"; the innovation-oriented school, containing the scales "Emphasis on school growth", "Emphasis on public relations", and "Ability to innovate"; and the results-oriented school, containing the scales "Stability" and "Emphasis on achievement". This three factor models reflect the four models of the Competing Values Model, with the results-oriented school as a combination of the Internal Process model and the Rational Goal model.

School values inventory Form-III and Form-IV (SVI)

The School Values Inventory was developed by Pang (1995) to assess the organisational values in schools that are espoused by teachers and principals, and to assess the degree to which these values are shared in school. The initial version of the School Values Inventory comprised 104 value statements covering a broad range of managerial practices in schools. Given the length of the questionnaire, the original version was split into two separate instruments, the SVI Form-I (54 items) and Form-II (50 items) (see also Pang, 1996). These two forms were submitted to Hong Kong secondary schools, and a subsequent exploratory factor analysis revealed ten joint subscales for Form-I and Form-II, in total containing 69 items. The reliability and validity of these subscales was tested using reliability analysis and multiple regression (Pang, 1995). The School Values Inventory Form-III was derived from this pilot study by combining the value statements from both Form-I and Form-II and adding five new statements. Teachers from 44 Hong Kong aided secondary schools responded to this new version of the inventory. Based on a principal component analysis, ten moderately reformulated subscales were identified containing 61 items (Form-III) (Pang, 1998a)[3]. Using this form, Pang (1998b) also developed a Chinese version for use in primary schools (Form-IV), consisting of the same ten subscales but containing 64 items.

Underlying conception of culture. Pang (1998a) argues that values are at the core of organisational culture, as they represent "the forces and processes through which organizational participants are socialised into organizations" (p. 315). Moreover, Pang believes staff members will be more productive if they get a clear sense of direction from values that orient towards organisational goals, and if these values are shared by the members of the organisation. Sharing values, in Pang's view, signifies "the binding forces that hold an organization together" (Pang, 1998a, p. 315). In his conceptualisation of these binding forces, Pang relies on the bureaucratic versus cultural linkage, and tight versus loose coupling in schools. Referring to earlier work by Firestone and Wilson (1985), Pang describes bureaucratic linkage as an enduring

framework that is formal and prescriptive in nature and embraces roles, rules, regulations, and procedures that rigidly control the behaviour of staff members. Cultural linkage, on the other hand, refers to the mechanism through which work becomes meaningful for employees. Tight coupling is concerned with the “pull” which firmly draws employees towards the school organisation’s goals, mission, philosophy, and core values, whereas loose coupling emphasizes autonomy and discretion of individual staff members.

Dimensions and items. The SVI Form-III and Form-IV consist of ten scales, containing 61 and 64 items respectively:

- (1) *Formality* (six/five items)[4]. This scale indicates the degree to which the school has a well-established system of super-ordinate and subordinate relationships, and the degree to which the school is formalised and centralised. Item examples are: “Teachers should be subordinate to the administrative system in the school” and “Teachers must always get their orders from higher up”.
- (2) *Bureaucratic control* (five/five items). This scale indicates the degree to which school administrators rigidly control staff behaviour in school. Item examples are: “Quality education is a management problem that can be solved by tight control” and “Regular checks on teachers for rule violations can prevent wrongdoing”.
- (3) *Rationality* (five/six items). This scale indicates the degree to which school administrators are rational in the running of the school. Item examples are: “It is important that duties and responsibility of all school personnel are clearly defined” and “School administrators should make decisions based on facts, not feelings”.
- (4) *Achievement orientation* (five/five items). This scale indicates the degree to which the school places emphasis on the academic achievement of students. Item examples are: “The school should have high expectations for student achievement and behaviour” and “The school should reinforce high expectations by establishing academic standards and incentives”.
- (5) *Participation and collaboration* (eight/seven items). This scale indicates the degree to which the school has a spirit of collaboration among teachers, administrators and principals, and the degree to which the sharing of leadership and decision-making is emphasized. Item examples are: “Teachers should have participation in decision making” and “Both teachers and principal should be partners, rather than super-ordinates and subordinates, who work together”.
- (6) *Collegiality* (five/six items). This scale indicates the degree to which staff members in school have a strong collegial relationship. Item examples are: “Teachers and administrators should provide constructive feedback to each other regularly” and “Teachers should meet together to share their knowledge and experiences”.
- (7) *Goal orientation* (seven/six items). This scale indicates the degree to which goals are made explicit in school, and the degree to which staff members know these goals. Item examples are: “At the beginning of school year, the school’s general goals should be explained to the new teachers” and “A work plan which gives an overview of the school goals should be written down”.

- (8) *Communication and staff consensus* (nine/ten items). This scale indicates the degree to which staff members in school are informed on school policies. Item examples are: "Teachers should be kept well informed on matters of importance to them" and "The principal should always explain clearly why a decision has been made".
- (9) *Professional orientation* (five/seven items). This scale indicates the degree to which staff members in school are engaged in their professional development. Item examples are: "Teachers should be a very highly trained and dedicated group of professionals" and "Administrators should encourage teachers to set goals for their own growth".
- (10) *Teacher autonomy* (six/seven items). This scale indicates the degree to which teachers have discretionary power and autonomy in their work. Item examples are: "The organizational structure should give considerable autonomy to the departments within schools" and "Teachers should have the freedom to engage in a variety of practices they think important".

Level and format. The SVI Form-III and Form-IV consist of value statements concerning how a school should be operated, measured at both the individual and school level. Respondents have to indicate the degree to which the values are similar to their own values, and to the values espoused by the school in its daily managerial practices. The format used is a seven-point Likert scale, ranging from "very dissimilar" to "very similar".

Reliability and validity. Reliability coefficients (alphas) for Form-III of the School Values Inventory range from 0.73 to 0.92, based on a study in 44 aided secondary schools in Hong Kong and involving 554 teachers (Pang, 1998a). Similar results were found for Form IV, although pertaining to different scales: a study in 60 Hong Kong primary schools involving a sample of 839 teachers revealed Cronbach alphas ranging from 0.73 to 0.92 (Pang, 1998b).

The conceptual structure of the inventory was assessed using principal components analysis for both Form-III and Form-IV. In addition to these exploratory factor analyses, confirmation for the structure of the ten subscales with the four theoretical constructs – bureaucratic and cultural linkage, and tight and loose coupling – was sought using LISREL analysis (Pang, 1998a). For this purpose, a structure was modelled in which each of the subscales was related to one of the four latent variables. This hypothetical model was not confirmed, but, based on the outcomes of the analysis, an alternative model was constructed. An examination of this alternative model – in which a few subscales were allowed to be linked to two latent variables – indicated good overall fit. In this alternative model the subscales "Rationality" and "Achievement Orientation" were related to both Bureaucratic and Cultural Linkage, "Collegiality" to both cultural linkage and Tight Coupling, and "Communication and Consensus" and "Professional Orientation" to both Tight and Loose Coupling. Moreover, the analysis indicated that the latent variables Bureaucratic Linkage and Tight Coupling (0.66), and Cultural Linkage and Loose Coupling (0.69), are strongly correlated.

Pang (2003) examined the relationship between the four latent culture variables and four school life variables: teacher commitment, job satisfaction, sense of community, and order and discipline. Cultural linkage in schools had positive effects on all school life variables, directly and indirectly. Loose coupling had a positive effect on sense of

community, job satisfaction, and teacher commitment, while tight coupling had positive effects on sense of community and job satisfaction, but a negative effect on teacher commitment. Bureaucratic linkage, on the other hand, had a positive effect on teacher commitment, but a negative effect on sense of community and job satisfaction. In terms of criterion-related validity, this indicates that cultural linkage, tight coupling, and loose coupling are to be considered as “strong forces that bind people together within schools”, while the effect of bureaucratic linkage is more controversial (Pang, 2003, p. 312).

School cultural elements questionnaire (SCEQ)

The School Cultural Elements Questionnaire was developed by Cavanagh and Dellar (1996a) and consists of two parts. The first part of the questionnaire is concerned with what actually takes place in school (Actual Form). The second part contains a number of statements that refer to what the respondents would prefer their school to be like (Preferred Form). The initial, original version of the SCEQ comprised 64 school practices in the Actual Form, and 64 values in the Preferred Form of the questionnaire. This initial version contained eight scales: teacher efficacy, teachers as learners, collegiality, mutual empowerment, collaboration, shared visions, school-wide planning, and transformational leadership. Factor analyses were used to select the items for forming coherent scales, based on the results of a pilot study with 422 teachers in Australian schools. The results of these analyses led to the final version of the SCEQ, consisting of 42 practice (Actual Form) and 42 value (Preferred Form) statements in six scales.

Underlying conception of culture. Schools are conceived of as learning communities (Cavanagh, 1997; Cavanagh and Dellar, 1997a). As Cavanagh (1997) notes: “The culture of a learning community is manifested by the sharing of values and norms amongst teachers resulting in commonality of purpose and actions intended to improve the learning of students” (p. 184). It comprises of “beliefs, attitudes, values and norms about the education of children and the social interaction within school” (Cavanagh and Dellar, 1997a, p. 4). Based on this view, which focuses on the learning process and learning outcomes of students, school culture is related to school improvement. Teacher efficacy, an emphasis on learning, collegiality, collaboration, shared planning, and transformational leadership are identified as factors that will contribute to the enhancement of student learning in school. According to Cavanagh and Dellar (1997a), these six factors are closely interrelated and together form the culture of the school.

Dimensions and items. The SCEQ consists of six scales, containing 42 items (Dellar, 1996):

- (1) *Teacher efficacy* (seven items). Teacher efficacy refers to the belief in the application of pedagogical principles and practices to effect changes in the development of children. Item examples are: “We believe that every child can learn” and “Individual differences between students are not catered for” (reverse scored).
- (2) *Emphasis on learning* (seven items). Teachers who are learners have a commitment to their own learning and professional growth. Item examples are: “I am receptive to advice from colleagues about my teaching” and “The principal and deputies do not encourage the professional growth of teachers” (reverse scored).

- (3) *Collegiality* (seven items). Collegiality is interaction between individuals resulting from a need to maintain or develop interpersonal relationships. Item examples are: "Teachers do not make an effort to maintain positive relationships with colleagues" (reverse scored) and "We are willing to help each other when problems arise".
- (4) *Collaboration* (seven items). Collaboration refers to the interaction between teachers as a consequence of organizational needs. Item examples are: "Items for discussion at meetings always come from the same people" (reverse scored) and "There is little debate in meetings" (reverse scored).
- (5) *Shared planning* (seven items). Shared planning refers to the commonly developed, accepted and implemented expressions of the future direction of the school, and the process of school improvement in response to the needs of the school and the educational system. Item examples are: "We have not developed a common vision for the school's future" (reverse scored) and "Teachers are not unified in working towards the school's future vision" (reverse scored).
- (6) *Transformational leadership* (seven items). Transformational leaders share power and facilitate a school development process that harnesses the potential and commitment of teachers. Item examples are "Members of the administration generate a personal commitment from teachers that ensures the success of innovations" and "The school administration does not encourage others to take control of new projects" (reverse scored).

Level and format. The SCEQ consists of school practices, measured partly at the individual and partly at school level. The format used is a five-point Likert scale, ranging from "strongly agree" to "strongly disagree".

Reliability and validity. Reliability coefficients for the six scales of the SCEQ Actual Form range from 0.70 to 0.81 (Cavanagh and Dellar, 1997b, 2001a; Dellar, 1996).

To determine the construct validity of the questionnaire, Cavanagh and Dellar (1997b) examined correlations between the six scales, which ranged from 0.12 to 0.84. Mean correlations of each of the scales with the remaining scales ranged from 0.35 to 0.55, with most of these close to 0.49. These moderate correlations can be interpreted as indicating that one single construct is indeed being measured by the six scales identified.

The questionnaire was also administered to two schools one year later. In addition to the administration of the questionnaire, about one third of the teachers in the English, Mathematics, Science and Social Studies departments in these schools were interviewed. A comparison of the responses to the questionnaire over a one-year interval revealed that the scores on the culture scales in one school were relatively stable, with the exception of the results for the transformational leadership scale in that school. For the other school, however, large differences were found between the two measurements with the questionnaire. A subsequent analysis of the interviews revealed similar patterns. Staff in the first school expressed that hardly anything had changed in school, whereas teachers in the second school pointed out changes that were in a similar direction as the outcomes of the questionnaire. This indicates that the changes in culture can be validly detected using the SCEQ.

Although Cavanagh and Dellar (2001a) did not explicitly intend to determine the criterion-related validity of the instrument, they did find similar outcomes on scales of the SCEQ and the Parental Involvement in Schooling Questionnaire (PISQ) (Cavanagh and Dellar, 2001b). Most notably, this concerned the scales of "Collaboration" in the SCEQ and PISQ, and the scales of "Emphasis on Learning" in the SCEQ and "School Culture" in the PISQ.

Discussion

Six inventories for diagnosing organisational culture in schools were characterised in the preceding section. School practitioners and researchers will, of course, only make use of these inventories measuring the culture of a school when they believe that this culture can indeed be adequately described using quantitative techniques. A number of scholars, however, have challenged the purpose of survey techniques in school culture research (see also Steinhoff and Owens, 1989). Before we discuss the similarities and differences between the school culture inventories reviewed so far, these critical comments will be addressed, as they emphasise the significance and scope of questionnaires in diagnosing school culture.

Critics have argued, among other things, that questionnaires are not suited for identifying the more deeply hidden underlying aspects of culture. In Schein's (1985) view, basic assumptions comprise the core of school culture – reflecting the organisation's relationship to its environment, as well as their beliefs concerning the nature of reality and truth, the nature of human nature and human activity, and the nature of human relationships. The school culture questionnaires discussed in our review are most certainly not conducive to directly investigating latent assumptions or the sense-making meaning of events in school. It can even be questioned whether or not these questionnaires are suited for measuring values in schools, although Pang's (1998a, 1998b) efforts certainly can be regarded as a successful attempt to do so. Most school culture inventories in our review clearly aim at investigating 'the way we do things around here' – at measuring staff behaviour or school practices.

Often this focus on behavioural aspects and school practices is implicitly based on the argument that a strong relationship exists between basic assumptions and values, and that values are closely related to the actual behaviour of staff in school. There are, however, indications that such a relationship between layers of culture is less straightforward than one might assume. Maslowski and Dietvorst (2000) argue that it is sometimes difficult to specify how values and norms in school are related to the actual behaviour of teachers. Behaviour is not only influenced by what teachers think is important, but also by the specific situation they face in their classroom or in school. In some situations, or when confronted with certain persons, teachers will act differently than in other situations, although they are relying on the same values. Furthermore, behavioural patterns in school may gradually change, while school staff keeps expressing the same values. Values tend to alter, to use Maslowski and Dietvorst's phrase, by "leaps and bounds". Values persist until the contrast with changed practices becomes too large, or when staff is confronted with inconsistencies in the values they express and in their daily behaviour.

Others, like Houtveen *et al.* (1996), base their choice for school practices on theoretical rather than methodological considerations. They argue that the functioning of schools is not primarily affected by the beliefs of teachers, or espoused values of school staff, but rather by what they do, and how their actions are perceived by others

in school. Critics of this approach have claimed that these questionnaires are not directed towards the diagnosis of school cultures, but measure school climate instead. This criticism certainly has some merit, as the dimensions or scales used in school culture inventories are more or less comparable to those used in school climate questionnaires (see, e.g. Halpin and Croft, 1963; Hoy and Clover, 1986). Strikingly, although the constructs of organizational culture and climate are generally considered to be conceptually distinct constructs with well-understood meanings (see Maxwell and Thomas, 1991), this difference sometimes becomes blurred in an operational sense. Climate is commonly defined in terms of “shared perceptions” as opposed to “shared meanings” in the conceptualisation of culture. This difference is not only rooted in theoretical differences, but also in different methodological traditions. The adoption of a more quantitative approach to measuring organizational culture in schools consequently demands that scholars in this field substantiate that they are actually measuring organizational culture in schools. In the inventories discussed so far, however, the difference between school culture and school climate is either not mentioned or only addressed in a normative sense. Based on similar observations in organization science, Denison (1996) has argued that the difference between the two constructs is in essence artificial. According to his view, the two research traditions “should be viewed as differences in interpretation rather than differences in the phenomenon” (p. 645), with culture and climate both addressing the creation and influence of social contexts in organizations. This is certainly a challenging view for future research into the culture of schools.

It can be argued, however, that the use of items that reflect staff behaviour or school practices does not necessarily have to be an impediment for school culture research. Based on an explicit conceptual framework or theory of organisational culture, these behavioural aspects can be interpreted in terms of values and norms. In principle, this is not different from qualitative studies where observations, conversations, interviews and document analyses are subsequently analysed and interpreted to depict the culture of a school. As noted before, interpreting staff behaviours and statements certainly is a complicated and challenging endeavour, but this applies equally to quantitative and qualitative studies on school cultures. In most instances, qualitative researchers may well find it easier to interpret their data, as they are more familiar with the context and the staff of a particular school. On the other hand, given the underlying theoretical constructs and the often extensive validation process of the instruments, the interpretation of data from quantitative studies is guided by an a priori conceptual framework. This suggests that these data can more easily be understood and used, not only by researchers but also by consultants and, most importantly, principals, teachers and other staff in schools.

Related to the above argument is the contention that questionnaires, in contrast to more interpretative approaches of diagnosing school culture, are too narrow in scope to capture the cultural meanings that are at the heart of a specific school (see Henry, 1993). Although these comments are certainly valid, one should bear in mind that school culture questionnaires usually are not designed to depict a detailed and comprehensive profile of a school’s culture. Questionnaires rather aim at characterizing schools on certain dimensions that are considered relevant for specific purposes, such as the enhancement of a school’s effectiveness. As such, these inventories are basically directed at schools interested in what cultural elements need to be improved, or are developed for comparative studies across schools.

A comparison of the inventories in our review indicates that most demonstrate a normative approach to organisational culture in schools. Saphier and King's (1985) School Culture Survey, Snyder's (1988) School Work Culture Profile, Cavanagh and Dellar's (1996a) School Cultural Elements Questionnaire, and Houtveen *et al.*'s (1996) school culture inventory, are all based on school improvement or school effectiveness models. As a consequence, these instruments contain more or less similar scales, reflecting teacher collaboration, collegiality, efficacy, professional development, and an academic orientation towards student learning. Interestingly, although Pang (1996) bases his instrument on more general theoretical ideas concerning linkages and coupling in school organisations, the School Values Inventory nevertheless covers comparable items and scales.

Despite this common core, notable differences are present between inventories. The School Culture Survey (Saphier and King, 1985), for instance, chiefly focuses on perceptions of individual teachers instead of shared values and norms within the school. Where more general features are concerned, these were directed at cultural manifestations in schools, such as events and ceremonies. Other instruments differ in scope and variety of scales. Most encompassing, without any doubt, is Houtveen *et al.*'s (1996) questionnaire based on Quinn's (1988) competing values framework. In addition to a number of scales that are related to the achievement orientation of the school, the professional development of teachers, and the relationship between staff, aspects of the internal, formal functioning of schools and their relationship with the environment are also included. Questionnaires like Snyder's (1988) School Work Culture Profile, Cavanagh and Dellar's (1996a) School Cultural Elements Questionnaire, and Pang's (1996) School Values Inventory cover only part of these issues.

Staessens' (1990) questionnaire, on the other hand, focuses primarily on process factors that enhance a professional culture in school, such as the role of the principal and the existence of a professional network within the school. Her developmentally oriented approach reveals the extent to which certain practices are adopted by the school staff, and whether staff deals with these issues in a constructive manner. As such, her inventory is less concerned with the substance of culture or cultural traits, but rather touches on aspects of homogeneity and cultural strength in schools. Related to aspects of homogeneity and strength is the concept of cultural fit, which refers to the relationship between the values of individual staff members and the school values. Business administration studies have shown that the values of some employees tend to be closely aligned to the culture of the organisation, whereas other employees strongly embrace different values (see O'Reilly *et al.*, 1991). A close alignment of personal values and organisational values is likely to be related to the motivation and commitment of employees. Furthermore, collaboration in organisations and participation in the decision-making process are considered to lead to a better fit between personal and organisational values. With respect to schools, this concept of fit is certainly interesting for research on the functioning of school organisations. In this respect, cultural fit can be considered a proxy concerning whether or not staff members have a "constructive attitude" towards their school. It may indicate whether or not staff members are willing to reflect on their actions, and whether they are willing to change their practices.

Conclusion

School culture inventories are best suited, for reasons of efficiency and standardisation, for diagnosing specific cultural elements (e.g. culture of "effective schools"), or for

comparing cultures across schools. In other cases, both in research and consulting, questionnaires can be used along with other, more qualitative methods to study school culture. Such a triangulation of methods compensates for the weaknesses inherent in any single method and generates data that are sensitive to the more latent aspects of culture (Cooke and Szumal, 1993).

Our review of school culture questionnaires reveals that a number of validated instruments are available for measuring cultural factors in both primary and secondary schools. Most instruments were found to be reliable in several studies, often demonstrating stable reliability coefficients. Despite these replication studies, however, the use of these questionnaires has been limited mainly to the countries in which they were developed. A validation in other educational contexts and systems, therefore, is still necessary for a wider application of the inventories reviewed here.

School culture inventories are primarily concerned with the identification of particular cultural traits in schools. Other aspects, such as the homogeneity and strength of culture, are hardly addressed in these instruments. In the literature on school improvement and school effectiveness, shared values and cohesiveness are often referred to as effectiveness-enhancing factors at school level (e.g. Levine and Lezotte, 1990; Sammons *et al.*, 1995). An exploration of the concepts of homogeneity and strength, and how these are to be measured through questionnaires, therefore deserves further attention.

Notes

1. A more extensive review of these inventories can be found in a longer unpublished version of this article. This version is available from the author.
2. Schweiker-Marra (1995) constructed a 12-item version of the School Culture Survey, using Saphier and King's cultural framework (modifying an earlier questionnaire developed by Sagor, 1992). Due to the fact that this questionnaire is less validated than the revised version of Edwards *et al.* (1996), it is not discussed in this review.
3. In a later article, Pang (2003) refers to a final version of the SVI consisting of eight of the original ten subscales and containing 51 value statements, but does not provide further details.
4. The number of items for each of the subscales differs for SVI Form-III and Form-IV. The first figure represents the number of items in Form-III, the second the number of items in Form-IV. The formulation of the items for each subscale is based on Form-III.

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