

# Teachers' Instructional Conceptions: Assessment's relationship to learning, teaching, curriculum, and teacher efficacy

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## Abstract

The important role of teachers' conceptions in their instructional practices has been identified. This paper reviews the literature on teacher's conceptions of assessment, teaching, learning, and curriculum, including the author's own PhD research on this topic. This paper draws on the author's PhD dissertation, an article presently being revised for *Assessment in Education*, and an Auckland UniServices technical report presented to the Queensland Department of Education New Basics and Assessment Branch. The paper eschews for this presentation methodological details and considerations which can be found fully described in the author's PhD dissertation.

The structure of the interrelationships of these conceptions among a survey population of 525 New Zealand primary school teachers was analysed using a structural equation measurement model with good fit to the data. Four main instructional conceptions were found (i.e., assessment improves education, assessment is an external imposed tool that measures surface learning, child-centred deep learning can not be assessed, teaching for society and life). Implications for professional development and assessment policy are derived from the research and discussed.

## **The Role of Teachers' Conceptions in Education**

Teachers' beliefs are understood as being organised into systems wherein some beliefs are more central or primary and others may be derived or peripherally linked to those central beliefs (Pajares, 1992; Thompson, 1992). Beliefs are the meanings connected to psychological objects or phenomena that are used as a culturally defined lens through which sense is made of events, people, and interactions (Pratt, 1992) and which are contingent upon environmental contexts that define the objects and sense makers (Ekeblad & Bond, 1994).

However, in order to more efficiently address the differences between and relationships among knowledge, beliefs, belief systems, and belief clusters and the varying terminology referring to beliefs, Thompson (1992, p. 130) invoked conceptions "as a more general mental structure, encompassing beliefs, meanings, concepts, propositions, rules, mental images, preferences, and the like". Furthermore, conceptions represent different categories of ideas held by teachers behind their descriptions of how educational things are experienced (Pratt, 1992). Thus, conceptions act as a framework through which a teacher views, interprets, and interacts, with the teaching environment (Marton, 1981). It is in this manner that a wide view of conceptions as an organising framework by which an individual understands, responds to, and interacts with a phenomenon is taken in this research. Nevertheless, the structure of teachers' conceptions is not uniform and simple; conceptions appear to be multi-faceted and interconnected. As individualistic as conceptions may appear, conceptions are socially and culturally shared cognitive configurations or phenomena (van den Berg, 2002).

The study of teachers' conceptions of assessment is important because evidence exists that teachers' conceptions of teaching, learning, and curricula influence strongly how they teach, what students learn or achieve, and how learning is evaluated (Asch, 1976; Calderhead, 1996; Clark & Peterson, 1986; Pajares, 1992; Tittle, 1994; Thompson, 1992). Further, there is evidence that the relationship of assessment practices to teaching and learning conceptions is highly eclectic and idiosyncratic (Cizek, Fitzgerald, Shawn, & Rachor, 1995; Kahn, 2000). Thus, all pedagogical acts, including teachers' perceptions of and evaluations of student behaviour and performance (i.e., assessment), are affected by the conceptions teachers have about the act of teaching, the process and purpose of assessment, and the nature of learning among educational beliefs. It is critical for professional development that the conceptions teachers have and the relationships of those conceptions among and between each other are made explicit and visible (Borko, Mayfield, Marion, Flexer, & Cumbo, 1997).

### **Four Conceptions of Assessment**

Assessment is any act of interpreting information about student performance, collected through any of a multitude of means. Researchers have suggested that there are at least three major purposes for assessment; (a) improvement of teaching and learning, (b) certification of students' learning, and (c) accountability of schools and teachers (Heaton, 1975; Torrance & Pryor, 1998; Warren & Nisbet, 1999; Webb, 1992). It is

important to understand teachers' conceptions of assessment as teaching and learning is affected by assessment systems, though perhaps more often negatively than otherwise (Crooks, 1988).

The major premise of the improvement conception is that assessment informs the improvement of students' own learning and improves the quality of teaching (Black & Wiliam, 1998; Crooks, 1988). This improvement is associated with two important caveats; (a) assessment describes or diagnoses the nature of student achievement or performance and (b) the information provided by assessment is of sufficient quality to be considered valid, reliable, and accurate description of student performance. In this view, assessment is a range of techniques, including informal teacher-based intuitive judgement of capability as well as formal assessment tools, designed to identify the architecture of student learning, including impediments to learning and unexpected strengths, with the explicit goal of improving the quality of instruction and student learning.

A second conception of assessment is that it can be used to account for a teacher's, a school's, or a system's use of society's resources. "Test scores give evidence about how well or badly ... a school, or even a country is doing" (Firestone, Mayrowetz, & Fairman, 1998, p. 97). This conception uses assessment results to publicly demonstrate that teachers or schools are doing a good job (Butterfield, Williams, & Marr, 1999; Mehrens & Lehmann, 1984; Smith, Heinecke, & Noble, 1999). Furthermore, this conception requires that there be consequences for schools or teachers for reaching or not reaching required standards (Firestone, Mayrowetz, & Fairman, 1998; Guthrie, 2002). Rationales for the school and teacher accountability conception are two-fold; one rationale emphasises demonstrating publicly that schools and teachers deliver quality instruction (Hershberg, 2002; Smith & Fey, 2000), and the second emphasises improving the quality of instruction (Linn, 2000; Noble & Smith, 1994).

The premise of the third conception of assessment is that students are individually accountable for their learning through their performance on assessments. This is commonly seen in the various qualifications examinations that secondary age students participate in either for graduation or for entry selection to higher levels of educational opportunity. For example, students in New Zealand schools are made accountable in secondary school for their learning through their participation in high stakes qualification or certification assessment activities (whether those are conducted internally by teachers or by external agencies) in the final three years of schooling (e.g., School Certificate, Sixth Form Certificate, Unit Standards, National Certificate of Educational Achievement, or University Bursary examination). There are many and usually significant consequences for individuals dependent on their performance on such assessments, including retention in a year or grade level, graduation, and tracking or streaming (Guthrie, 2002). Thus student accountability is largely about high stakes consequences such as graduation or selection or being publicly reported on as earning a certain grade, level, or score.

In addition to the three conceptions commonly identified in the research literature, a fourth conception has been identified (Brown, 2002); that is a rejection or disregard of

assessment; in other words the treatment of assessment as irrelevant to the life and work of teachers and students. This conception of assessment argues that assessment, usually understood as a formal, organised process of evaluating student performance, has no legitimate place within teaching and learning. Teachers' knowledge of students based on long relationship and their understanding of curriculum and pedagogy preclude the need to carry out any kind of assessment beyond the intuitive in-the-head process that occurs automatically as teachers interact with students, what Airasian (1997) called 'sizing up' assessment. Assessment is rejected also because of its pernicious effects on teacher autonomy and professionalism and its distractive power from the real purpose of teaching, i.e., student learning. Teachers of English in England welcomed a new National Curriculum in the early 1990s but rejected the associated accountability assessments because the paper and pencil Key Stage assessments were considered inimical to the learning and teaching values espoused in the curriculum (Cooper & Davies, 1993).

These purposes can lead to different practices, and often there can be tensions between the purposes. For example, the tension between externally imposed accountability requirements and the improvement conception has created difficulties for New Zealand teachers (Dixon, 1999; Hill, 2000). Brown (2002) has shown that these purposes do exist in the minds of teachers.

It should be noted that the various conceptions might interact with each other. For example, it is possible that those who see assessment as irrelevant could also believe that improvement is the legitimate goal of teacher judgement but simply reject assessment as a legitimate means of reaching that goal. On the other hand, concern for improvement may associate strongly with school self-managed accountability but less strongly with the student certification view. Awareness of measurement error in assessment may lead to an irrelevance view of assessment.

Thus, this review asserts that there are four major conceptions of assessment held by teachers; (a) assessment is useful in improving teacher instruction and student learning by providing quality information for decision-making, (b) assessment is about accountability of students through certification processes, (c) teachers or schools are made accountable through internal or external evaluations, and (d) assessment is irrelevant or pernicious to the work of teachers and the life of students.

### **Research on Teachers' Conceptions of Assessment**

Some models of teachers' conceptions of assessment have been developed that have been based on teachers' assessment practices or uses (e.g., Gipps, Brown, McCallum, & McAlister, 1995; Hill, 2000, Stamp, 1987). These models, based on types of assessment practices, tend to be based on relatively small scale samples and do not identify how the various relationships interconnect; nevertheless they represent a good beginning point to infer what teachers' conceptions of assessment may be.

Gipps, et al.'s (1995) model classified teachers by three major types of assessment users (i.e., intuitives, evidence gatherers, and systematic planners). Intuitives emphasised professional, impressionistic, memory-reliant judgement processes of assessing students'

performances intuitively without written records; a practice possibly related to the irrelevance conception. Evidence gatherers collected written evidence, usually at the end of units of work, to demonstrate students' progress relative to achievement objectives for the purpose of accountability; a practice possibly related to the school accountability conception. Systematic planners integrated systematic collection of multiple pieces of evidence of attainment of curriculum objectives with planned teaching for the purpose of shaping instruction; a practice possibly related to the improvement conception.

Hill's (2000) model of assessment practice, clearly related to the Gipps, et al. (1995) model, identified three reasonably distinct but related types of assessment use that could be used to classify teachers (i.e., unit assessment, head note assessment, and integrated systematic assessment). Unit assessors emphasised monitoring and recording, reasonably formally, students' progress on and achievement of curriculum learning objectives at the end of each unit of instruction; these teachers may conceive of assessment as primarily school or student accountability. Head note assessors, on the other hand, relied largely on their observation and memory of students' performance to occasionally record their impression of students' progression; these teachers may conceive of assessment as something irrelevant to their work of teaching. Integrated systematic assessors systematically planned and collected assessment data as part of focused teaching activities for the joint purpose of recording progress and making improvements to teaching; these teachers seem to perceive assessment for improvement of teaching and student learning. Notwithstanding the need for further research to determine how assessment practices relate to conceptions of assessment, it does seem feasible that the four-fold conceptual structure proposed could encapsulate these two different yet related models of types of assessment practice.

More clearly related to conceptions of assessment is Stamp's (1987) research into teachers' beliefs, developed with multivariate techniques, which identified three major conceptions of assessment among pre-service teacher trainees in Australia (i.e., cater for need and progress of individual pupils, assessment blocks teachers' initiative, and a more traditional-academic summative examination). The first conception used assessment in a 'formative' way to identify individual student learning needs with the purpose of catering for those individual requirements; a set of beliefs quite similar to the improvement conception discussed above. The second conception reflected the view that teachers are required to conduct assessment but that assessment gets in the way of students' creativity and intuition, which are just as important as their academic development. This pupil-centred view is similar to the irrelevance conception. The third conception revolved around the use of tests and examinations to collect 'summative' information about students partly in order to motivate them to compete for more marks. This view is remarkably similar to the student accountability conception. Thus, the four conceptions of assessment outlined earlier include Stamp's three types of assessment practice.

Other empirical research gives some indication as to how the various conceptions appear to interrelate in teachers' meanings and practices. Garcia (1987) described a Spanish mathematics teacher who believed and practiced assessment for improvement,

including seeking out information about the quality of his own teaching, and who at the same time begrudgingly implemented school-sanctioned student accountability assessment that he treated as irrelevant. Philippou and Christou (1997) found, in terms of the mathematics curriculum, that Greek and Cypriot teachers strongly agreed with using assessment for improvement (i.e., diagnosing students' difficulties, and evaluating the effectiveness of instruction), but were less supportive of assessment for accountability (i.e., assigning grades to students) and disagreed with assessment having a role in modifying the centrally determined curriculum. Warren and Nisbet (1999, p. 517), in a study of Australian teachers' uses of assessment, found that "primary teachers seemed to use assessment more often to inform the teacher with regard to teaching than to inform the learner with regard to learning and that using assessment for reporting to others was not as important as informing teaching and learning". Saltzgaver (1983) found, when describing the dominant conceptions of assessment of just one Australian teacher, ten convictions that could be mapped onto two of the major assessment conceptions found in this research (i.e., improvement and irrelevance).

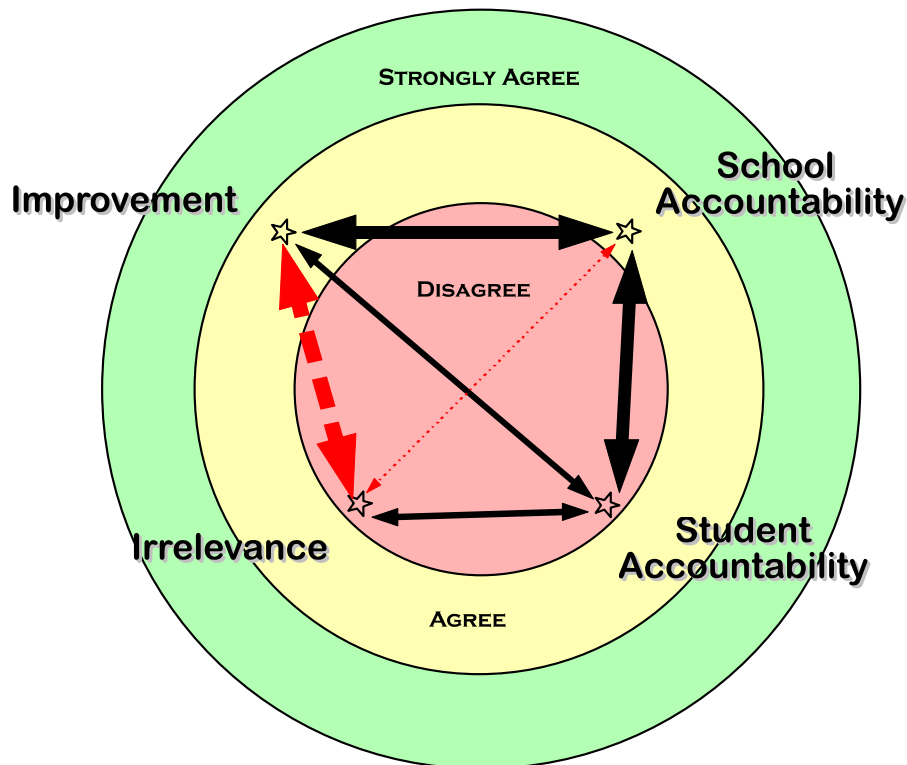
A further limitation, in addition to the small sample sizes, of the research in this field is that teachers' conceptions are described in uni-faceted terms of a predominant category. In other words, teachers are classified as having one singular conception of assessment. However, it is expected that teachers' have multiple conceptions of assessment and that these interact with each other. For example, it is probable that teachers with an improvement conception of assessment would treat as pernicious or simply ignore external accountability assessments for students, teachers, or schools. Combined with this, there has been little explicit research on how teachers' conceptions of assessment relate to their conceptions of teaching and learning. Brown (2002) has extended this research, with empirical research into New Zealand primary school teachers' conceptions, first of all with a multi-faceted model of teachers' conceptions of assessment that can describe not only how strongly teachers' agree with each conception but also show how those beliefs are related to each other. Further, he has tested that model with large-scale samples to identify the corporate structure of conceptions and has related evidence about teachers' conceptions of assessment to their conceptions of teaching and learning.

Brown (in review) clarified the meaning of teachers' conceptions of assessment by looking at the structural relationships of the four main conceptions in the model and the differing levels of agreement or support that teachers had for each conception. The strength of agreement for each of the four main conceptions and the intercorrelation between them provided the greatest insight into teachers' conceptions of assessment (Figure 1). The figure shows the mean agreement score for each conception. The concentric rings of the bull's eye show the levels of agreement with greater distance from the centre of bull's eye indicating stronger agreement. The thickness of the arrows shows the degree of inter-correlation of conceptions, while the solid lines indicate positive correlations and dashed lines showing negative correlations. Note that all correlations are statistically significant except that between Irrelevance and School Accountability

conceptions. Note also the strong inverse relationship between Irrelevance and Improvement that needs to be understood as a strong positive correlation between Improvement and **Relevance**.

Figure 1.

Strength & inter-correlations of COA-III conceptions of assessment



Teachers agreed with the Improvement and School Accountability conceptions and disagreed with the Irrelevance and the Student Accountability conceptions. Note that the average agreement for any conception did not reach strong agreement. If teachers think assessment is about Improvement then it is unlikely they will consider assessment as Irrelevant ( $r = -.69$ ) and they are likely to believe that assessment is connected to School Accountability ( $r = .58$ ). This unexpected relationship may be because of the impact of self-management of New Zealand schools wherein teachers are accountable for the effectiveness of their work in changing student learning outcomes to their colleagues and to a school-based Board of Trustees made up of parents of pupils. Teachers who conceive of assessment as Improvement tended to have just moderate likelihood of agreeing that assessment is about Student Accountability (i.e., certifying student performance or achievement). This may be because of the impact of student-centred philosophies or conceptions.

If teachers think assessment is about School Accountability, then they may or may not believe that assessment is Irrelevant; belief in one is independent of belief in the other. Teachers who believe in assessment as School Accountability are highly likely to

also conceive of assessment as a process of Student Accountability and Improvement. This suggests a nexus of conceptions around the idea that assessment for school accountability may lead to a raising of educational standards that will in turn lead to improved ability of students to receive qualifications and recognition of achievement. This is what some advocates of high-stakes accountability testing have argued would and should happen (e.g., Resnick & Resnick, 1989). However, it is worth noting that this effect is found in the New Zealand context where there are no externally mandated national tests, just a program of school-based policies on assessment for school-based management and information.

When teachers think assessment is about Student Accountability, it is moderately likely they will also consider assessment to be Irrelevant, because it is bad for students or inaccurate, such that they can safely ignore it. It is possible that this conception is related to strong student centred learning beliefs or humanistic curriculum or nurturing teaching beliefs. Teachers who conceive of assessment as Student Accountability are likely to have only a weak relationship to Improvement. In other words, assessment of students is likely to be Irrelevant when it is connected to Student Accountability but is more likely to be acceptable if it is related to Improvement of teaching and learning.

When assessment is considered Irrelevant, it is highly likely to be disconnected from the goal or improving instruction or learning. This discontinuity may be driven by a rejection of Student Accountability uses of assessment, whereas it does not appear to be related at all to the conception of using assessment to evaluate the quality of schools or teachers.

The data analysed by Brown (2002) support a view that teachers' conceptions of assessment are multi-faceted and inter-related.

### **Teachers' Conceptions of Learning, Curriculum, and Teaching**

Understanding teachers' conceptions of assessment isolated from their conceptions of learning, curriculum, and teaching is only a partial understanding of teachers' significant educational beliefs. How assessment is conceived, and how those conceptions relate to conceptions of teaching, curriculum, and learning is relatively unexplored (Dahlin, Watkins, & Ekholm, 2001). However, recent research has identified that lecturers' and teachers' conceptions of assessment impact on their understandings about student motivation, curriculum content, student ability, and student learning strategies (Brown, 2002; Dahlin, Watkins, & Ekholm, 2001; Delandshere & Jones, 1999). It may be that teachers' responses to assessment relate to their conceptions not only of what the purpose of assessment is but also to their understandings of what learning, curriculum, and teaching are. This section reviews the literature on teachers' conceptions of these instructional conceptions.

### **Conceptions of Learning**

A powerful model for understanding how teachers conceive of learning is the surface-deep continuum developed (Biggs, 1987; Entwistle, 1997; Marton & Saljö,

1976). A taxonomy of learning views was developed that took account of the various surface and deep ways people had of understanding learning. The surface approaches or conceptions included (a) remembering things, (b) getting facts or details, and (c) applying information. In contrast, the 'deep' approach to "learning is a qualitative change in one's way of understanding some aspect of reality" (Marton, 1983, p. 291). The deep views included (d) understanding new material for oneself without reference to rewards, (e) perceiving or understanding things in a different and more meaningful way, and (f) developing or changing as a person. Biggs' (1987) 3P (i.e., presage, process, product) model of learning described two major kinds of learning purposes: surface purposes involved accurate reproduction of material; and deep purposes emphasised making meaningful connections.

The negative impact on teachers and students of over-emphasis on surface learning approaches has been noted in New Zealand secondary and tertiary contexts (Anthony, 1994, 1997; Brown, 2002; MacKechnie & MacKechnie, 1999). The difficulty with an over-emphasis on surface approaches to learning is that learning is often a '*less-structured*' task that "cannot be broken down into a fixed sequence of subtasks or steps that consistently and unfailingly lead to the desired end result" (Rosenshine, Meister, & Chapman, 1996, p.18). However, just as surface approaches alone cannot ensure learning takes place, deep approaches alone cannot guarantee learning. Learning at all levels requires active mental processing of information, the making of meaningful connections between and among ideas and information, and repetition, practice, and memorisation (Howe, 1998). Successful learners seem to understand that both surface and deep processes are legitimately involved in learning and are able to select and implement appropriate strategies (Purdie & Hattie, 1999).

Brown (2002) analysed New Zealand teachers' conceptions of learning using a surface-deep model and found that teachers' learning conceptions loaded onto two different uncorrelated factors. The surface learning conception was strongly associated with a view that assessment makes schools, teachers, and students accountable. Brown (2002) argued that this association could best be understood to mean that teachers believed that assessment used in accountability measures only surface learning of facts and information. In other words, external accountability assessments don't measure deep transformative learning. In contrast, the deep learning conception associated with student focused conceptions of instruction in which the deep view of learning (e.g., learning something for oneself, or understanding things in a new way) loaded on the same factor as a caring approach to helping students develop as whole people. The deep transformational child-centered learning conception was independent of any of the assessment conceptions. Brown (2002) suggested that this was so because true student centred learning and teaching is so intangible and wrapped up in the subjectivity of teacher-student relationships and modelling that it cannot be measured or assessed at all.

## Conceptions of Curriculum

Studies have explored how teachers conceive of teaching various subjects, including mathematics, English, reading, language, history, and social studies (Calderhead, 1996; Clark & Peterson; Thompson, 1992). They have shown that the way teachers understand their subject affects the way they teach and assess. For example, in the field of mathematics, different major conceptions of the subject (i.e., relational understanding and instrumental understanding) are claimed to be “at the root of disagreements about what constitutes ‘sound’ approaches to the teaching of mathematics and what constitutes ‘sound’ student assessment practices” (Thompson, 1992, p. 133). In particular, those who conceive of mathematics in relational terms appear to emphasise authentic, problem-solving process-focused forms of assessment, while those who conceive of mathematics in instrumental terms seem to emphasise correct answer-focused forms of assessment.

However, primary school teachers are not subject specialists for the most part; they are generalists charged with responsibility for teaching all essential learning areas. This indicates that examining how teachers conceive of the totality of school curriculum instead of the separate subjects taught in classrooms is important. Curriculum has to do with the answers to such commonplace questions as “what can and should be taught to whom, when, and how?” (Eisner & Vallance, 1974). Furthermore, where teachers are concerned with curriculum-based assessment, as they are in the New Zealand context of curricula defined by eight levels of achievement objectives and legislation that requires them to monitor student progress against such objectives and levels, the orientation teachers have to curriculum may impact on what they believe about and how they use assessment. For example, teachers who believe curriculum is about transmission of traditional academic knowledge may well believe assessment is about student accountability and, thus, tend to agree with the use of surface-oriented, factual-recall, high-stakes, externally referenced, and objectively scored assessments.

At least five major orientations to curriculum have been found in a review of the literature on what students should be taught (Eisner & Vallance, 1974). Cheung (2000) found in a review of orientation to curriculum models that there were common elements in the various models. Specifically, they were (a) cognitive processes or skills, (b) the role of technology, (c) society and social change, (d) humanistic concern for individual development, and (e) academic knowledge or intellectual development. Like other research into teachers’ beliefs, Cheung (2000) has argued that these orientations to curriculum (a) explain why teachers emphasise certain topics, (b) clarify the real meaning or intent of curriculum documents, and (c) influence both teacher professional and curriculum development.

Brown (2002) found that a technological curriculum conception was connected to an external accountability conception, suggesting that teachers could meet accountability assessment requirements though a focus on finding and using systematic, efficient technologies and means to a set of predetermined, specific, and unambiguous subject-based learning objectives. He also found that two of the curriculum conceptions (i.e.,

academic and humanistic) loaded strongly on a student centred learning factor to which teachers were positively agreed. The classic primary school teacher caring approach of helping students develop as whole people was associated with an academic approach to curriculum that stressed developing students' intellectual, rational, and cognitive skills and their learning of important subject knowledge. Brown (2002) found that New Zealand teachers were opposed to a social reconstruction conception of curriculum. He argued that this would not be unexpected given the socially conservative role of schools as agents of social reproduction not transformation (Bourdieu, 1974; Harker, 1982).

### **Conceptions of Teaching**

A number of independently developed models of teachers' conceptions of teaching (e.g., Gow & Kember, 1993; Pratt, 1992; Samuelowicz & Bain, 1992; Trigwell & Prosser, 1997) have been compared (Kember, 1997) and show that three major approaches to teaching were found. The first is teacher-centred transmission of content (i.e., knowledge or information), while the second is a student-centred conceptual learning process. The complexity of teachers' mental realities, however, means that many teachers' conceptions of teaching lay between, as much as at either end of, the more surface-like first approach and the deeper second approach. The third approach is a bridging one that involves student and teacher interaction or apprenticeship.

Thus, teachers have differing conceptions of teaching and this may make a difference to how they conceive of assessment (Gow & Kember, 1993; Kember, 1997; Samuelowicz, 1994). Other evidence exists that teachers who shift to a more student-centred approach to teaching improve the quality of student learning (Ho, Watkins, & Kelly, 2001; Jensen, Kauchak, & Rowley, 2001).

Brown (2002) found that New Zealand primary school teachers agreed strongly with student-oriented conceptions of nurturing, apprenticeship, and developmental teaching; had only a moderate level of agreement for a social reconstruction perspective, and only gave slight agreement to the teacher-centred transmission perspective. These results are consistent with Pratt and Collins' (2001) reported results for teachers-in-training of whom nearly 70% had nurturing perspective as dominant and only six percent had transmission as their dominant perspective. Teachers conceive of their job and agree with nurturing and apprenticeship processes such as encouraging expressions of feeling and emotion, building self-confidence and self-esteem in learners, and linking content with real settings of practice or application. Since these approaches are associated with a non-assessable deep, child-centred learning conception it could be assumed that primary teachers' own natural methods of teaching will not lend themselves readily to adopting methods that focus more on real life skills that teachers themselves don't have. Notwithstanding the relative similarity of the transmission approach to teaching and the technological approach to curriculum, teachers disagree with the transmission approach to teaching, while being committed to a technological curriculum be it in the context of external accountability assessment.

### **Conceptions of Efficacy**

Teacher efficacy refers to teachers' conviction or belief in their own ability to influence how well students learn or perform. Self-efficacy, from Bandura's social cognitive theory, is belief or confidence in one's own ability to organise and take action in order to reach a goal. It is a conviction that one can successfully do what is necessary to achieve or produce a desired set of outcomes. High levels of self-efficacy impact positively on cognitive, motivational, selection, and affective processes individuals need to reach goals. It is also considered that self-efficacy is specific to a domain of goals rather than generalised to all possible situations or goals. The consequence of positive self-perception (i.e., self-efficacy) is effort to achieve goals, persistence when confronting obstacles, and resilience in face of adverse situations (Pajares, 1996).

Teachers' confidence in their own ability creates initiation of and persistence in courses of action that are capable of creating learning in students (Gibson & Dembo, 1984). Teachers' sense of their own efficacy as teachers has been related not only to positive teaching behaviours (e.g., lower stress levels, willingness to remain in teaching, and willingness to implement innovations), but also to increased student achievement, student self-efficacy, and motivation (Henson, Kogan, & Vacha-Haase, 2001; Tschannen-Moran et al., 1998).

Research has identified two major dimensions of teacher efficacy; external beliefs and internal beliefs. Internal self-efficacy focused on statements related to personal responsibility and ability in shaping student learning and behaviour, whereas external factors prevent the teacher from being efficacious. Tschannen-Moran, et al. (1998, pp. 231-232) argued that the external belief factor is "a measure of optimism about the abilities of teachers in general to cope with adverse circumstances such as an unsupportive home environment or unmotivated students" and that it "taps teachers' tendencies to blame the home and the students for student failure". Other external factors, such as quality of curriculum resources, school leadership, school culture, and so on, may also affect external factor judgements. For example, Delandshere and Jones (1991) argued that their three mathematics teachers took the view that students' socio-economic conditions and students' fixed level of ability in the subject absolved the teachers from responsibility for student failure to achieve expected outcomes.

Tschannen-Moran et al. (1998) further argued that internal factor statements about self-perception of teaching competence are a poor measure of teacher efficacy because the items mix present and future or hypothetical conditions; violating the assumption that self-efficacy is context specific. Thus, the present set of instruments available to measure teacher efficacy are limited and further empirical and theoretical work is needed to improve instrumentation of this construct.

### **Instructional Conceptions**

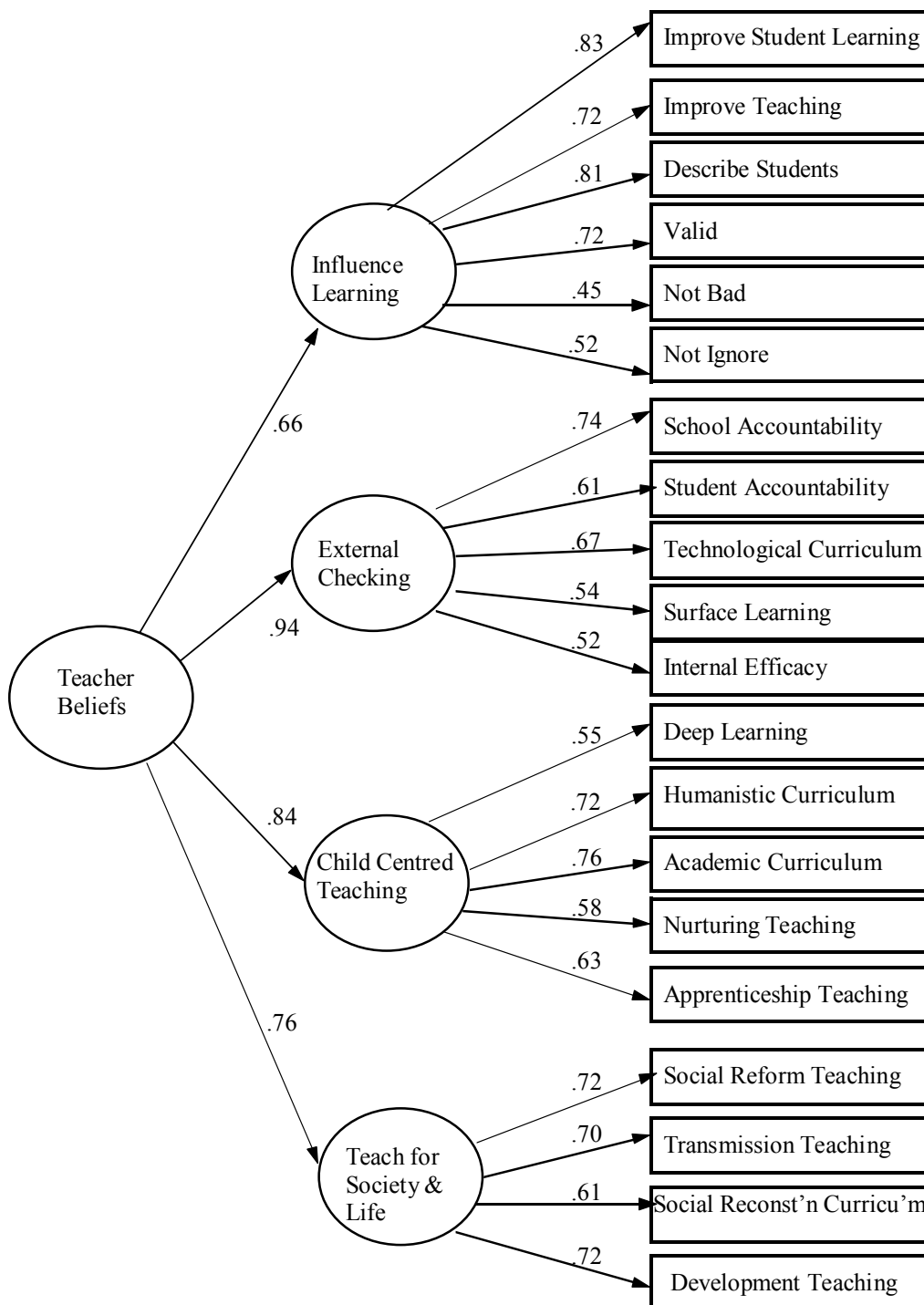
Data from Brown (2002) showed that a four factor model, having good fit ( $\chi^2 = 823.262$ ;  $df = 166$ ;  $RMSEA = .086$ ;  $TLI = .968$ ) to the data, expressed these complex inter-relationships adequately (Figure 1). Teachers' instructional conceptions were

modelled as four major conceptions; assessment that influenced learning, student centred teaching, external checking of teachers and students, and teaching for society and life. Teachers moderately agreed with the assessment influences learning factor, slightly agreed with the external checking and student centred learning factors, and disagreed with the teaching for society and life factors.

Teachers agreed that assessment was something that influenced their teaching and student learning and which could improve both. Teachers agreed, albeit less strongly, that assessment makes schools, teachers, and students accountable. That conception, however, is associated strongly with conceptions that learning is surface, that curriculum is a technological means to an end, and that teachers are capable of achieving student learning outcomes. This was interpreted to suggest that the assessment used in accountability measures surface learning of facts and information and that teachers accept it as a means of accountability because surface learning and its assessment are things that teachers believe they are able to do through the application of a systematic technological approach. Perhaps, this is a reflection of the 'tick, cross, slash' approach described as so prolific among New Zealand primary school teachers documented by Mary Hill (2000).

Teachers also slightly agreed with student focused conceptions of humanistic and academic conceptions of curriculum, nurturing and apprenticeship perspectives of teaching, and deep views of learning. This factor associated a deep view of learning (e.g., learning something for oneself, or understanding things in a new way) with a caring approach to helping students develop as whole people. It is worth noting that the student-centred philosophy here is not anti-intellectual in its understanding of what student development means, since it is associated with an academic approach to curriculum that stresses (a) refinement of intellectual abilities, (b) the development of cognitive skills that can be applied to learning virtually anything, (c) the transmission of the best and the most important subject content, (d) students' acquiring the most important products of humanity's intelligence, and (e) developing students' rational thinking. This factor was independent of any of the assessment conceptions found in the external checking and influences learning and teaching factors. Perhaps this was so because true student centred learning and teaching is so intangible and wrapped up in the subjectivity of teacher-student relationships and modelling that it cannot be measured or assessed at all.

Figure 2.  
Four Factor Teachers' Instructional Conceptions Measurement Model



The fourth branch to this model of teachers' conceptions was one that they disagreed with. It was expected that primary teachers would disagree with the transmission or banking (Barnes, 1976) type of teaching. It is also not unexpected that teachers would not conceive of primary schooling as a method of reconstructing or

reforming society. What is surprising is the association of an intellectual development perspective on teaching being associated negatively with transmission and social reconstruction. It was anticipated that the cognitive development statements (i.e., challenging familiar ways of understanding subject matter, helping people develop more complex ways of reasoning, and developing qualitative changes in thinking) would associate with the deep learning conception. It can only be assumed that to teachers these statements seemed too much like the negatively perceived social reform or reconstruction statements (e.g., helping people see the need for changes in society, fostering students' ability to critically analyse societal problems, understanding societal problems, and taking action to establish a new society). This socially conservative position is reminiscent of claims that schools are agents of social reproduction not transformation (Bourdieu, 1974; Harker, 1982).

The structure of this measurement model has another striking characteristic, that is, the separation of assessment for external checking versus influence learning purposes. This dichotomy reflects other research, among which are Carr's (2001) accountability-oriented folk model of assessment versus an improvement-oriented alternative model, Torrance and Pryor's (1998) accountability-oriented convergent assessment contrasted with teaching-improvement or divergent model of assessment, and Philipp, Flores, Sowder, and Schappelle's (1994) evaluation for reporting contrasted with assessment used to inform teaching. These models are themselves reflections of the discredited false dichotomy between 'summative bad' and 'formative good' models of conceiving assessment. Most importantly, this model is not framed around a simple dichotomy; it is multi-dimensional. Simple opposites do not explain how teachers conceive of assessment or, for that matter, how teachers believe how assessment, teaching, learning, and assessment meld into the professional practice of instruction.

Two-fold models of how teachers' conceptions of assessment, learning, teaching, and curriculum are not uncommon (e.g., Delandshere & Jones, 1999; Kember & Kwan, 2000). Those models tend to propose a negative content-centred (material oriented, transmissive teaching, summative assessment) contrasted with a learning centred (student oriented, facilitative teaching, formative assessment) approach to teaching. This four-facet model is an advance on those two-fold models of teachers' conceptions of learning, teaching, curriculum, and assessment. This data supports a four-facet view that (a) assessment improves the quality of teaching and learning, (b) external checking is something that teachers associate with their own efficaciousness, perhaps because it measures surface learning, (c) student-centred deep learning is not associated directly with assessment, and (d) the transmission view of teaching does not associate with the accountability view, but rather with a changing society and cognitive development approach.

There is greater similarity to the model of professional competence in Dwyer and Villegas' (1993) description of four broad domains of teacher life. The domain of teaching for student learning is quite similar to the assessment influences learning factor while the domain of creating an environment for student learning is significantly more

like the student-centred learning factor. Less similar, though potentially linked, are the domains of teacher professionalism, perhaps related to the external accountability factor and the organising content knowledge for student learning which may be equivalent to the transmission teaching dimension in the telling for change factor.

### **Implications**

A number of implications can be drawn from this research related to assessment policy implementation and the design of teacher professional education and development. Those implications depend on the underlying psychological theory of self-regulation. Self-regulation theory (Zimmerman, 2001) argues that strategy control depends on declarative knowledge of multiple strategies, procedural ability to operate various strategies, and meta-cognitive control, awareness, and monitoring of strategy use and effectiveness. The model of teachers' instructional conceptions developed here suggests that having differing conceptions may be appropriate contingent on varying conditions of accountability and improvement in the educational setting. It may be useful for teachers to be able to choose or emphasise a different conception depending on factors influencing teacher work. In order to select another conception of assessment it would be necessary, according to self-regulation theory, for teachers to have knowledge about the different conceptions, their own conceptions, and the appropriate grounds for different conceptions. With this type of knowledge, and meta-cognitive control teachers may be better positioned to achieve desired educational outcomes.

### *Policy Initiatives*

There is an opportunity to utilise the structure of teachers' conceptions of assessment in policy contexts. This research showed that teachers agreed with the conception that assessment improves teaching and learning and rejected assessment's irrelevance in this context. Further, this positive attitude to improvement was simultaneously paralleled with the conception that making students accountable only assessed surface learning. This suggests that the introduction of assessment innovations should be done in such a way as to minimise association with external accountability dimensions (especially those at the student level) and instead maximise association with teachers' individual capability to improve their own instruction and the learning of their own students—at least if the aim is to improve student learning outcomes.

The rejection by teachers of the student accountability conception suggests that externally mandated assessment projects or programs, if divorced from student-centred development, learning, or educational growth, will be perceived as irrelevant, perhaps because they are associated with external control or lack of profound meaningful learning. If those associations are demonstrated, it would suggest that the legally mandated introduction of national assessments could result in teachers being able to ensure most students achieve but that teachers would continue to believe those assessments were divorced from the essence of a humanistic, cognitively challenging curriculum and approach to teaching. New Zealand already has externally mandated checking of student performance, required by national educational goals and

administrative guidelines, against curriculum objectives and levels. This has led teachers to develop accountability conformity systems and procedures that promote their continually generating accountability data rather than the use of assessment to raise standards and improve student achievement (Hill, 2000). The research reported here reinforces the conclusion that externally mandated assessments could be implemented but, should such assessments be implemented, teachers would not believe that the assessments would relate to the improvement of learning and teaching and development of the whole student. Disassociating assessment systems from accountability purposes may be the approach most likely to be effective in raising standards and performance.

Because New Zealand has no externally mandated assessments for primary school students in place, there exists the possibility of improving teachers' assessment literacy through the implementation of an assessment innovation. By helping teachers implement an improvement practice of assessment and by associating that with the deep learning, student-centred philosophy and by making teachers accountable for the process within their own institutions rather than to some outside agency, it may be possible to connect with teachers' dominant conceptions effectively. Emphasis on a school-based, and managed process of improvement-oriented evaluation of student assessment results, is likely to result in educational improvement in the quality of teaching and the quality of student learning outcomes (see for example the SEMO model, Timperley & Robinson, 2002). The implication of this research is that the focus in assessment policy should not be on compulsion but rather on identifying and responding to teachers' conceptions because no matter what policies are put in place unless teachers' conceptions are addressed the policy change will be ineffective.

### *Professional Development*

Further, this model of teachers' conceptions of assessment could be put to use in teacher professional development and policy contexts. The implementation of any new assessment policy, tool, or practice, whether at the national or local school level, needs to take account of the complex structure of teachers' conceptions of assessment to ensure success. Kahn (2000) pointed out that teachers appeared to assimilate new assessment practices (e.g., constructivist, deep) into long-standing transmission, teacher-oriented, accountability type assessment and learning frameworks. Certainly, the implementation of new standards from professional bodies or state authorities, while well intentioned, may be reduced in effectiveness if teachers' conceptions of assessment remain unchanged or unchallenged, or if teachers remain unaware of their own conceptions. Likewise, teacher professional pre-service preparation and in-service development in the area of assessment needs to take account of teachers' pre-existing conceptions, if it is to be effective in moving teachers toward a preferred structure of conceptions.

As a case in point, there was a marked difference in emphasis on differing conceptions of assessment between the principal and several of the teachers in one small school of ten teachers including the principal that participated in the development of the Conceptions of Assessment questionnaire. In that school, the principal agreed strongly

with the improvement conception and disagreed with the accountability conception. In contrast, three of the teachers had much higher agreement on irrelevance and accountability conceptions and disagreed with the improvement conception. Fundamentally, despite talking about the common word ‘assessment’ these teachers were talking past each other. A new improvement-oriented assessment policy or practice in that school, without explicit attention to the inappropriate accountability and irrelevance conceptions of the teachers, would likely be adopted and assimilated into a traditional model of assessment as something to be used but ignored.

In terms of professional development of teachers’ conceptualisation of assessment, there is a need to make explicit the different understandings teachers may have of assessment to ensure that participants do not miscommunicate. Brown’s (2002) *Conceptions of Assessment* instrument may be useful in disrupting the tendency to simply adopt and adapt rather than actually change practices because it could be used to make more explicit the conceptions teachers have about assessment and trigger discussions and change. Pre-service instruction in assessment should make explicit varying conceptions of assessment, their rationales and consequences, and attempt to move future teachers and managers away from a simplistic dichotomy of formative good—summative bad.

Research into teachers’ instructional conceptions give researchers, policy makers, and teacher educators interesting insights into mechanisms that may interact or interfere or increase the probability of using assessment to improve the quality of teaching and raise the standards of student learning.

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