Understanding Teacher Professional Commitment and School Leadership Using Hierarchical Linear Modeling

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Presenters:

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Presentation Overview

1: Introduction and Background Setting

2: Purpose of the Study & Research Questions

3: Review of Related Literature/prior research

4: Methodology (design, instrument, sampling, data analyses)

5: Results (descriptive, factor analysis, reliability analyses, HLM)

6: Discussion, Conclusions, & Implications

7: Directions for Future

Study Rationale

- 30% of novice teachers exit the profession prior to their 5th year (Darling-Hammond, 2001)

- The National Commission on Teaching and America's Future (NCTAF, 2001) reports that as many as 46% of new teachers leave the education profession after 5 years

- Retaining teachers is a far larger problem than training new ones

- This revolving door of new teacher attrition results in costs to teaching and learning

Professionalism Embedded in School Culture

What is School Climate/Culture?

- School culture and climate refers to the sum of the values, cultures, safety practices, and organizational structures within a school that cause it to function and react in particular ways (McBrien & Brandt, 1997)

- Some schools are said to have a nurturing environment that recognizes children and treats them as individuals

- Others may have the feel of authoritarian structures where rules are strictly enforced and hierarchical control is strong

Dimensions of School Culture

What is School Climate/Culture? (cont'd)

- Teaching practices, diversity, and the relationships among administrators, teachers, parents, and students contribute to school climate and have direct impact on professional commitment

- Although school climate and school culture are somewhat interchangeable, school climate refers mostly to the school's effects on students, while school culture refers more to the way teachers and other staff members work together (McBrien & Brandt, 1997)

Focus of prior pertinent studies

- School climate and teacher turn-over (Guin, 2004).

- School reforms and innovations (Cuban, 1990).

- School as learning organizations--culture and structure of schools (Fullan, 1991).

- Efficacy and Professional Learning Community (Bandura, 1997; Hoy & Miskel, 1996; Loup, 1994).

Focus of prior pertinent studies

- Professional learning environment and individual, collective and organizational efficacies (Olivier, 2001).
- Effective and ineffective schools (Teddlie & Stringfield, 1993)
- Schools as professional learning communities (Weller & Weller, 1997)
- The value-added assessment system (Sanders & Horns, 1998)
- School culture and professional learning communities (DuFour, 1998; DuFour & Eaker, 1998)
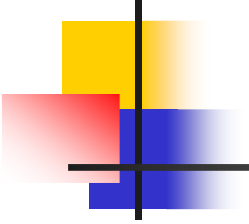
Conceptual/Theoretical Frameworks

Focus of prior pertinent studies

- Studies at individual, classroom, school and school district have emerged (advancement in statistical tools – multilevel analysis)

- Development of instruments to measure school level characteristics such as organizational and leadership structure

- Bureaucratic and professional role orientations

- Decision deprivation and work alienation

- Supervisory climate

Purpose of the Study

- To investigate whether professional commitment is related to school leadership and teaching experience

- To utilize a measure of multiple dimensions of school culture to describe the results of a study of individual and school level characteristics defined in terms of elements of school culture

Purpose of the Study (Cont'd)

Specific objectives:

- To expand and explore the structure of a measure of multiple dimensions of school culture
- To report findings of teachers and administrators' perceptions of elements of school culture
- To discuss the implications of understanding school level learning environments from a school culture perspective

Research Questions

Specific Research Questions:

- Are there differences in professional commitment scores among teachers and administrators of elementary and secondary schools in Kericho County, Kenya?

- Do school leadership and teaching experience explain the differences in mean school professional commitment scores?

Methodology

Research Design

- Combined multiple designs elements
- It was cross-sectional because participants were surveyed at a specific point in time
- It was a survey research because teachers and school administrators were requested to respond to the survey items

Methodology

Measures

- Instrument used in the study was a revised (Olivier, Bobbett, Ellett, & Rugutt, 1998) of original School Culture Elements Questionnaire (SCEQ) developed by Cavanagh (1997) for use in Australian Schools and later in the US

- The Revised School Culture Elements Questionnaire (RSCEQ) comprised two sections: *actual* and *preferred*

Methodology

Measures

- The ***actual*** survey addresses "<u>how I and my school actually are</u>" and requires participants to respond to statements according to how they see factors, events, and conditions actually occurring in their schools

- The ***preferred*** survey measures teachers' perceptions of <u>how they would prefer things to be in a school in which they "wish" to work</u>, thus detailing their preferences for characteristics of an ideal school

Methodology

Measures (cont'd)

- The response format is a four-point, forced-choice Likert scale (1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree)
- The study reported here reflects revisions of the original school culture measure (referred to as the Revised School Culture Elements Questionnaire [RSCEQ])
- A list of the 23 items comprising RSCEQ used for this particularly study is included in the final manuscript

Methodology

Sampling

- RSCEQ was administered to 1600 of seven school divisions (districts) schoolteachers and administrators

- The central office personnel (district education office personnel) spread throughout the seven school divisions administered the surveys

- All data was collected using the guidelines provided by the Institutional Review Board (IRB) -- voluntary and anonymity of respondents were maintained

Methodology

Sampling (Cont'd)

- Complete and useable surveys were received from 537 teachers and administrators, yielding an overall response rate of 33.6%

- This sample was 61% male, 33% female; 84% were classroom teachers, 16% school administrators; 95% were elementary school teachers and administrators, 5% secondary school teachers and administrators

Methodology

Variable	N*	Percent (%)
Gender		
Male	327	60.9
Female	177	33.0
Position		
Classroom Teacher	453	84.4
Deputy/Head Teacher	84	15.6
School Level		
Elementary	508	94.6
Secondary	29	5.4
Education Division		
Ainamoi	128	23.8
Belgut	93	17.3
Chilchila	120	22.3
Kipkelion	6	1.1
Londiani	149	27.7
Sigowet	29	5.4
Soin	1	0.2

Methodology

Data Analyses—4 kinds for the instrument used

- Descriptive statistical summaries for instruments items and subscales of the total sample

- A series of exploratory principal components analyses with orthogonal rotation (varimax) procedure to identify latent constructs measured by survey items

Methodology

Data Analyses—4 kinds for RSCEQ survey

- Alpha reliabilities of the factored dimensions to explore internal consistency of the three subscales used in this study

- Hierarchical linear modeling (HLM) analyses to assess individual and school level effects on teacher professional commitment

Results

Factor Analysis and Reliability Analyses

- The factor analysis results for the total sample (n = 537) supported a two-factor solution accounting for 40.92% of the item variance that best represented the 23-item measure

- The solution and an accompanying set of decision rules retained all the 23 items

Results (cont'd)

Basic Decision Rules for Retaining an item on an identified component were

- An item loading (component/item correlation) of at least 0.33 (Test 1)

- A difference between square loadings of at least 0.20 for items loading on more than one factor (Test 2).

Results (cont'd)

Factor Analysis Decision Rules

- The eigenvalue-one criterion (Keiser criterion).

- The scree test—plotting the eigen values associated with each component and looking for a "break" between components.

- Proportion of variance accounted for— retained components that accounted for at least 5% of the total variance.

Factor Analysis Decision Rules (cont'd)

Factor Analysis Decision Rules (cont'd)

- The interpretability criteria (most important in solving the "number of components" problems

a) Are there at least three variables (items) with significant loadings on each retained component?

b) Do the variables that load on a given component share the same conceptual meaning?

c) Do variables that load on different components seem to be measuring different constructs?

Results (from prior research)

Five Factor Solution, Number of Items Retained,
Alpha and Variance Explained (n=395 teachers)

Factor		# of Items Retained	% Variance Explained	Alpha Reliabilities
I	VL	20	19.74	0.92
II	CTL	14	7.31	0.88
III	PC	9	5.31	0.82
IV	OC	6	4.51	0.72
V	PRINT	5	4.11	0.55
	Totals	**54**	**41.0**	

V/L: Vision and Leadership
CT&L: Collegial Teaching and Learning
PC: Professional Commitment
O/C: Openness and Collaboration
PR/INT: Professional Relations/Interactions

Results

Two-Factor Solution, Number of Items Retained, Alpha and Variance Explained (n=537 teachers and administrators)

Factor		# of Items Retained	% Variance Explained	Alpha Reliabilities
I	SL	15	31.60	0.91
II	PC	8	9.32	0.66
Total		**23**	**40.92**	

SL: School Leadership
PC: Professional Commitment

Results

Multilevel Analysis (HLM)

- To answer the study's research questions, a two-level hierarchical linear model (HLM) with individual - level variables at the first level, and school-level variables at the second level was used

Results

Multilevel Analysis (HLM)

- Research Question 1:

Are there differences in professional commitment scores among teachers and administrators of elementary and secondary schools in Kericho County, Kenya?

- HLM model without L1, L2 predictors:

$$\text{Professional\_commitment} (Y_{ij}) = \beta_{0j} + r_{ij}$$

Results

Multilevel Analysis (HLM)

- The HLM results indicate significant differences among schools, ($x2$ = 227.68, df = 66, p<0.001)

- The HLM results indicate an intra-class correlation of 0.2738 indicating that 27.38% of variance in professional commitment (PC) was among schools

Results

Multilevel Analysis (HLM)

■ This shows variation among schools in their PC and suggests that the school-level (L2) variables might have accounted for the differences in PC.

Results

Multilevel Analysis (HLM)

- A L1 predictor, teaching experience was then introduced to the HLM model

$$\text{Professional\_commitment}(Y_{ij}) = \beta_{0j} - \beta_{1j}(\text{teaching\_experience})_{ij} - r_{ij}$$

- The number of years employed as a professional educator, including current year. Teachers and administrators indicated the number of years by responding to one of the demographic variables in the survey

Results

Multilevel Analysis (HLM)

- Teaching experience introduced as L1 predictor was not significant and was dropped from the HLM model in the subsequent analyses

Results

Multilevel Analysis (HLM)

- <u>Research Question 2</u>: Does school leadership explain the differences in mean school professional commitment?

Results

Multilevel Analysis (HLM)

- When school leadership variable was used as a level 2 predictor with no level 1 predictors, the school variability in PC dropped from 2.15677 to 1.59552 indicating that 26% of variance in school professional commitment was due to school leadership development ($x2$ (65) = 187.02, p<0.001).

Discussion and Implications

- Results provide continuing support for the usefulness of the RSCEQ as a measure of multiple dimensions of school culture

- Differences between preferred and actual elements were slightly larger for elementary than for high school teacher group… school size, and cohesiveness of cultural beliefs among teachers is important

- These findings echoes concerns expressed by those writing about school change and reform and the need to better articulate a more open and collaborative environment in schools that foster professional commitment, and to establish a vision (leadership) as well

Discussion and Implications

Factor Analyses of teacher groups partitioned by school level (elementary, high school)

- Elementary teachers operationalized dimensions of school culture with different RSCEQ items than high school teachers

- For instance, the RSCEQ SL factor for elementary teachers is defined in terms of personal commitment and involvement in establishing school outcomes-collective, shared elements of leadership, than in terms of administrative leadership (a more traditional bureaucratic view).

Discussion and Implications

- There was greater variation among teachers in their views of preferred elements of school culture…results suggest greater cohesion in beliefs about preferred school culture among teachers across schools in this sample

- The findings raise important issues about the genesis of school culture, its understandability and communication between teachers and administrators, and perhaps the development of preferred elements of school culture as well

- Intercorrelations among RSCEQ subscales for actual perceptions of culture varied from .316 to .645…thus teachers see actual elements of school culture in the same way

Questions?

Thank You !