

# **Understanding Resignations of Science, Mathematics, and Reading Teachers (UR SMART) Phase II**

Final Report August 4, 2006

Coalition for Science Literacy, University of South Florida  
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## **Executive Summary**

A survey probing beliefs and factors that influence teachers' decision to resign, developed and used in two urban districts during Phase I, was extended to four additional largely rural districts in Phase II. In this phase, we used the same methodology to survey 221 resigned teachers and a stratified, matched sample of 223 continuing teachers from four additional districts to explore whether our findings and recommendations to schools are applicable in very different environments. The additional districts included a number of schools in three of the locales (as described by the Bureau of Census) not represented in Phase I districts.

Results from surveys in both phases show convincingly that family responsibilities were the most important factor influencing teachers' attitudes about staying or leaving the profession, regardless of whether they were stayers or leavers. Next, but significantly lower in importance, were support from/time with families, and assessment/paperwork. Administrative support and financial aspects (salaries, fringe benefits) were even less important, while intangible benefits such as the enjoyment of teaching were essentially irrelevant. There was no difference in the value leavers and stayers attached to family responsibilities or assessment/paper work. However, the other four factors were all more important to leavers than to stayers.

Inter-district comparisons showed that the relative importance (rank order) of the six factors did not change from district to district. There appeared to be a difference in importance attached to assessment/paper work between two counties (Brevard and Leon). There was a small but significant difference between Hillsborough and Pinellas County related to job satisfaction (joy of teaching). While the observed difference in the importance assigned to administrative support makes it tempting to speculate that teachers in the smallest county (Madison) are concerned least about this support, the confidence level in the difference is less than 95%. For each other factor, inter-district differences were small and not statistically significant.

Comparison by locale showed no differences in teacher attitudes even between extreme conditions, such as rural and Central City. Comparison between the two urban and four other districts showed no differences in the importance teachers assigned to the six factors. Therefore we conclude that the major concerns are universal and that intervention programs do not need to be tailored to specific demographic circumstances.

**Understanding Resignations of Science, Mathematics, and Reading Teachers (UR SMART)  
Phase II**

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**Narrative**

**Research Questions and Their Importance.**

In Phase I of this project (Meisels et al. 2005; Kersaint et al. in press), we examined the factors and beliefs that influence teachers' decisions to leave or remain employed in two large Florida school districts. We used a telephone survey methodology based on contacting all teachers who had resigned over a two-year period in Hillsborough and Pinellas County Schools, and a stratified, matched sample of continuing teachers. The survey and analysis were based on the Theory of Planned Behavior (Ajzen 1991, 2004)

A part of our analysis was an attempt to differentiate teacher responses by school location (locale). The Bureau of the Census has defined the following locales (NCES Common Core of Data):

Large Central City	LCC
Mid-size Central City	MSCC
Urban Fringe of a Large City	UFLC
Urban Fringe of a Mid-size City	UFMC
Large Town	LT
Small Town	ST
Rural Inside an MSA	RI
Rural Outside an MSA	RO

(MSA = Metropolitan Statistical Area)

Locale has been suggested as a characteristic influencing teacher attitude (NCES 1997, 2001). However, the two districts with which we worked in Phase I had no schools located in four of the eight locales, UFMC, LT, ST and RO. The two initial districts are somewhat similar and dominated by urban and suburban (commuter) environments. In addition, we found small but significant differences in teacher responses between the two initial districts. The differences suggested that the survey may reveal district practices and cultures that affect employment climates and hence teacher turnover. A better understanding would be very helpful in designing intervention programs.

The second phase of the study was therefore conducted to answer two questions:

1. Are differences between leaving and staying teachers influenced by Locales, especially those not previously included in our studies?
2. Are any of the factors that influence teachers' intent to leave the profession different between districts?

Answers to these questions are important because they deepen our understanding of why teachers resign, and how intervention programs should be customized to specific environments to enhance their effectiveness. Conversely, if differences are minimal or non-existent, it would be possible to design simpler and more generally applicable intervention programs.

## **Methodology**

The development of the survey instrument and the overall methodology has been described previously (Meisels et al. 2005; Kersaint et al. in press). Briefly, telephone surveys of all resigned teachers in the participating districts were conducted using a tightly scripted protocol based on Ajzen's Theory of Planned Behavior (Ajzen 1993, 2004). The survey included both structured questions asking for views on a Likert-like scale, and open-ended questions. Teachers were identified by school; district and publicly available data were used to assign each teacher to each of the following demographic categories:

Teacher Gender

Teacher Race (Representation other than Black, Hispanic, and White was too small to yield statistically significant results)

Teacher Years of Experience

School District

School Level

School Socio-Economic Status (SES); using the NCES Core of Common Data

School Locale, also using the NCES Core of Common Data

School Grade (Assigned by state on basis of FCAT)

## **Participating Districts**

Fourteen districts (Table I) with largely rural and small community characteristics were invited to participate. A number of conditions relating to Institutional Review Board Requirements, availability of data such as contact information, and confidentiality, were posed. A majority of the districts did not respond to repeated inquiries, or declined. Districts that agreed to participate had previously collaborated with CSL on one or more projects. Further attempts to secure participation of 15 other small districts were not successful. Districts that agreed to participate included schools in locales not represented in Phase I: Urban Fringe of a Midsize City, Small Town, and Rural Outside a Metropolitan Statistical Area (RO). There were no schools in a Large Town locale while teacher resignations in RO locales were too small to allow analysis.

## Data Collection and Analysis

A team of experienced staff and graduate students attempted to contact each resigned teacher by phone. This proved to be a difficult task. In many instances, contact information was incomplete, inaccurate or no longer valid, or without forwarding information

**Table I. Status of Invitations**

District	Status	Comment
Brevard	Active partner	
Citrus	Declined	
DeSoto	Declined	Hurricane damage to central office and records
Gadsden	No response	
Glades	Active partner	
Hardee	No response	
Hendry	No response	
Hernando	Declined	Other project demands on HR staff
Highlands	Declined	New MIS and HR personnel overloaded already
Leon	Active partner	
Madison	Active partner	
Okeechobee	Declined	Other research data commitments
Polk	Active Partner	
Seminole	Declined	Decision of Superintendent's Council

One district, for example, decided that privacy considerations did not allow sharing of telephone numbers, and the local telephone books had to be used to obtain needed information. Just as in phase I, even when districts provided contact information a substantial portion of teachers were unreachable in person or did not return phone calls. Overall, 35% of resigned teachers were reached. Of these, 31% declined to participate. Of the 922 teachers who left teaching in these four districts in 2003-2004, 221 teachers (24%) completed the survey during a telephone interview. There were 9105 teachers who continued to teach during the 2004-2005 school year. We identified a stratified random sample of 488 teachers who matched the demographic characteristics of those who resigned. The survey ended when 223 of these individuals in proportion to the pre-determined demographic distribution had completed the survey.

The survey was constructed so that each belief was associated with two survey items, each with a 1 to 7 on a Likert type scale with 7 being most positive. For each respondent, an initial belief score was calculated by multiplying the responses to the two items together, thus creating a score for each belief with a range of 1 to 49. The square root of this score (taking the square root ensures uniform variance across the range of scores) provided the actual belief score. Seven of the eighteen beliefs (see Table II) were worded to describe a belief that may discourage a return to teaching. These beliefs were reverse scored so that a 1 was most positive and a 7 least positive.

Some of the 18 belief scores correlated closely with each other and could be grouped together using a factor analysis (Tabachnick 1989). Doing this assists in creating greater focus on important distinctions and reduces the total number of statistical tests. Factors were extracted from the 18 beliefs using a principal axis factor method and rotated with the orthogonal equamax procedure, which minimizes the number of factors and the number of beliefs associated with each factor (Tabachnick 1989). The extraction and rotation resulted in six factors with an Eigen value greater than one (Tabachnick 1989) and accounted for 61.0% of the overall variance. For further analysis, factor scores for each respondent were estimated using the basic variable estimates procedure (Rummel 1970). This approach considers each factor as a simple arithmetic function of the beliefs that it loads upon and allows the factors to be easily related directly back to the beliefs.

Table II. Beliefs and Their Combination into Factors

<b>Code</b>	<b>Description of Belief</b>	<b>Associated Factor</b>
PB1	Allows joy of teaching	Teaching as Joy
PB2	Hinders ability to care for children	Family Responsibility
PB3	Provide financial benefits	Financial Benefits
PB4	Helps school children grow	Teaching as Joy
PB5	Allows more time with family	Family Support
PB6	Hinders ability to care for elderly / ill family members	Family Responsibility
NB1	Administrators encourage return	Admin. Support
NB2	Colleagues encourage return	Admin. Support
NB3	Family would like me to return	Family Support
CB1	Paperwork / non-teaching responsibilities discourage return	Admin. Support
CB2	Support by school administrators encourage return	Admin. Support
CB3	Opportunity to teach part time would encourage me	Financial Benefits
CB4	Financial responsibilities do not allow a return	Admin. Support
CB5	Emphasis on assessment discourages a return	Family Support
CB6	Benefits (health insurance / pension) encourage my return	Paperwork/Assessment
CB7	Family responsibilities do not allow me to return	Paperwork/Assessment
CB8	Return would increase my personal stress	Family Responsibility
CB9	Support by district administrators encourages my return	Paperwork/Assessment

PB: Personal Belief; NB: Normative Belief; CB: Control Belief

For this procedure, factor scores were calculated by adding the belief score for any belief with a loading over 0.3, which is considered a positive loading ( $\text{trait\_score}_{\text{positive}}$ ), and subtracting the belief score for any belief with a loading less than  $-0.3$ , which is considered a negative loading ( $\text{trait\_score}_{\text{negative}}$ ). The resulting value was divided by the difference between the number of factors with a positive loading and the number with a negative loading to put the factors on a similar scale. Symbolically the factor scores can be represented as:

$$\text{factor\_score} = (\sum \text{trait\_score}_{\text{positive}} - \sum \text{trait\_score}_{\text{negative}}) / (n_{\text{positive}} - n_{\text{negative}})$$

The result of the basic variable estimates procedure was the creation of a set of factor scores for each respondent.

Respondents' factor scores for each of the six factors were evaluated by ANOVA with follow-up Tukey comparisons (overall alpha of .05) (Stevens 1999) for differences between leaving and staying teachers and for overall differences within demographic groups. Finally, a MANOVA analysis (Hatcher 1994) with follow-up Tukey comparisons (overall alpha of .05) was done in order to determine whether or not there were significant differences in factor scores between leavers and stayers within demographic groups. For example, did male leavers consider the same factors important as the male stayers?

Participant responses to the open-ended questions were transcribed and then coded with the use of HyperRESEARCH software (Research Ware Inc. 1988).

## **Findings**

Six factors emerged from the analysis procedure described above. A low score for a particular factor reflects that it is of high importance in shaping teachers' decision not to return to teaching. In short, considering an overall goal of increasing teacher retention and facilitating the return of former teachers to the classroom, low factor scores signal issues that require attention. A description of each factor is presented below in terms of the traits that were used to determine the score on that factor for each respondent.

1. Administrative support: This factor is related to the support and encouragement by administrators and colleagues for a possible return to teaching.
2. Financial benefits: This factor addresses financial incentives that would attract a former teacher to return to the classroom or encourage a continuing teacher to stay. It includes items such as health insurance and retirement plans.
3. Paperwork/assessment: This factor is related to the volume of paperwork that must be completed and/or the additional stress that is associated with high stakes accountability or other assessment measures.
4. Family responsibilities: This factor is related to influence of family responsibilities, such as caring for children or elderly family members, on a teacher's ability to return to teaching.
5. Intrinsic rewards ("joy" of teaching): This factor reflects the perception of teaching as an enjoyable occupation and teachers' ability to help school children learn.
6. Support by and time with family: Low scores indicate that is important to the teacher for his or her family to support a return to teaching. Within this category, returning to teaching is associated with spending less time with family.

Table III shows that there are no significant differences in responses between the two urban districts and the four other districts. Differences between stayers and leavers are significant in four of the factors, albeit not those most important to teachers. These observations suggest general concern of all teachers for their personal responsibilities and frustration with assessment, paperwork, and other non-teaching obligations that accompany their working lives. The

significant differences in the other factors identify support by teachers' families and financial considerations as the "tipping points" in the decision-making process. These observations together are valuable in designing intervention strategies to reduce teacher turnover.

Table III. Factor Scores Differences between Urban and Other Districts

Districts	Family Resp.	Family Support	Paperwork/ Assessment	Financial	Admin Support	Joy of teaching
Hillsb & Pinellas	3.1	4.4	4.7	5.1	5.3	6.2
Other four distr.	3.2	4.4	4.7	5.2	5.3	6.2
All districts	3.1	4.4	4.7	5.1	5.3	6.2
All Leavers	3.2	4.0	4.7	4.7	5.0	6.0
All Stayers	3.0	5.3	4.7	5.6	5.6	6.5

Highlighted vertical cell pairs indicate a statistically significant difference with  $\alpha=0.05$

We present further information addressing the two major questions asked in this study.

### 1. Differences between Locales

There are no significant differences in the importance teachers assign to each factor between locales (Table IV). Numbers of responses from each locale were sufficient to have shown a small size effect for three locales (LCC, MSCC, and UFLC, and a medium size effect for two (RI and UFMSC) had they been present. Representation from RO and ST were too small to detect significant differences. This outcome is gratifying because it emphasizes the commonality in teachers' concerns across a variety of locales. It allows development of intervention strategies that should be useful in all locales, and thus simplifies the development of programs.

Table IV. Factor Scores of All Respondents by Locale

Locale	%	Administrative Support	Assessmnt/ Paperwork	Financial Benefits	Enjoy Teaching	Family Resp.	Support from Family
LCC (n= 367 )	17.1%	5.3	4.5	5.2	6.3	3.1	4.4
MSCC (n=467)	21.8%	5.2	4.7	5.2	6.2	3.1	4.4
RI (n=218)	10.2%	5.4	4.6	5.2	6.3	3.1	4.4
UFLC (n= 874)	40.7%	5.3	4.8	5.1	6.2	3.2	4.5
RO (n=2)	0.1%	5.9	4.8	5.2	5.5	3.5	3.7
ST (n=11)	0.5%	5.6	4.6	5.5	6.3	3.4	4.5
UFMSC (n=208)	9.7%	5.4	4.8	5.2	6.2	3.2	4.5

### 2. Differences between School Districts

Only two factors showed significant differences in the importance teachers assign to them. For each, the differences are between non-overlapping pairs of districts (Table V). The most striking difference is in teachers' concern with paperwork and assessment. One can speculate that this may be related to district priority or pressure on teachers exerted by district administrators.

Table V. Factor Scores of All Respondents by School District

School District	%	Admin. Support	Assessmt/ Paperwork	Financial Benefits	Enjoy Teachig	Family Resps	Support from Family
Hillsborough (n=1071)	47.8%	5.4	4.6	5.2	<b>6.3</b>	3.1	4.4
Pinellas (n= 728)	32.5%	5.2	4.8	5.1	<b>6.1</b>	3.0	4.4
Leon (n=96)	4.3%	5.2	<b>4.3</b>	5.1	6.2	3.1	4.3
Madison (n=13)	0.6%	5.6	4.8	5.3	6.2	3	4.4
Brevard (n=138)	6.2%	5.4	<b>5.1</b>	5.2	6.2	3	4.4
Polk (n=197)	8.8%	5.3	4.7	5.2	6.2	3.1	4.5

Highlighted cell pairs indicate a statically significant difference with  $\alpha=0.05$

We conclude that teachers’ beliefs that lead them to stay or leave are universal and essentially independent of any detailed demographic characteristic, such as locale, school size, race or gender. Family-related issues are of principal concern for ALL teachers. All other factors that show a difference in responses from stayers and leavers are a distant second. Previous administrative interventions to reduce resignation have focused on these secondary parameters. While these secondary considerations may be the “tipping points”, our results clearly indicate that greater effort to address the general, underlying issue of family pressures through administrative responsiveness should receive greater attention.

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## **Recommendations**

Efforts to reduce teacher resignations should place much more emphasis on providing teachers with support and administrative practices that reduce the conflict between job and family. The development of specific action plans that have the support of school- and district-based administrators and can secure implementation requires extensive involvement of such administrators.

The development of such training materials is beyond the scope of this investigation. It is clearly time consuming and demands inclusion of talent not represented among the principal investigators. The next step should be the formation of a team, and a search for funding to develop a first-class program. Once such a program is available, it can be offered to a wide range of districts. While all districts are concerned with this issue, it is not high on their priority list for action given the more pressing issues arising from a number of sources.

## **Action Plan for Implementing Recommendations**

Apprising districts of issues and concerns has little impact. However, district leadership was receptive to the idea of allowing some parts of their regular meeting time with principals to be dedicated to a presentation of strategies to increase teacher retention and reduce costly and time consuming turnover.

District members of the team are advising their leadership of the conclusion and key results of these studies. However, to date we have not been able to schedule presentations to district-wide leadership meetings. It is an avenue we continue to pursue. Part of the reason for the modest interest is that we do not have a simple prescription to present, no “silver bullet.” Therefore we are attempting to identify a team as noted above that can develop specific action recommendations and short workshops for school administrators. These findings and outcomes will also be shared with appropriate education leadership faculty in Florida because retention training should be part of the curriculum. Again, the availability of a simple set of specific action items would immensely aid reception of these recommendations

## **Lessons Learned**

In addition to lessons outlined in the report on the first phase of this project and reported there, we learned that details and sophistication of creation, maintenance, and accessibility of district records are highly variable and that in general the smaller districts operate in a much more informal manner than larger ones. Smaller districts also find it difficult to allocate the staff time necessary to access their data bases, and most don't want to be bothered with matters that do not have a foreseeable impact on their own efforts on the short run. Districts are very sensitive to confidentiality and security matters.

One of the underlying issues may be that smaller districts do not have the same working relationships with university faculty as larger ones. This is not only a result of distance but also of interpersonal complexity. Each district has its own personality, values, and priorities and effective collaboration and trust requires that the university faculty, who are outsiders, understand both culture and personalities. That is much more difficult with the complexity of a greater number of small districts than with one or two larger ones, especially if they are not geographically close. All districts that agreed to collaborate had some pre-existing relationship with the Coalition for Science Literacy and its director from joint projects or program development efforts, which resulted in greater personal trust.

### **Measurement Instruments**

Survey Instruments and interview protocols are included in the report of Phase I and in the publication (Kersaint et al 2006)