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Mentors, Self-efficacy, or Professional Development: Which Mediate Job Satisfaction for New Teachers? A Regression Examination

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Abstract
Research has shown that new teachers have struggles in the classroom, leading to high attrition rates for this population. Factors such as job satisfaction, self-efficacy, and mentorship programs have all been found to impact teacher attrition. This study aims to examine the relationship between these variables along with another common issue teachers face: barriers to professional development (i.e., cost, time). This study utilized the Teaching and Learning International Survey of beginning teachers in the United States. Using multiple regression, results indicated there was a positive relationship between job satisfaction and self-efficacy and the presence of a mentor. There was a negative relationship between barriers to professional development and job satisfaction. Limitations, implications, and areas for future research are discussed.

Keywords: Job satisfaction, professional development, mentorship

Introduction

Schools often struggle to recruit and retain quality teachers. In the 2011-12 school year, 8% of the 3.4 million public school teachers in the United States left the profession; moreover, of the teachers with 1-3 years of experience, 7% left the profession (Goldring, Taie, & Riddles, 2014). Of those teachers who left teaching in 2012-13, over half reported that the workload in their current position was more manageable, and that they experienced better working conditions than they had when teaching (Goldring, Taie, & Riddles, 2014).

In another study, during their fifth year, 70% of beginning teachers taught in the same school as the previous year, 10% taught in a different school, 3% had returned to teaching after not teaching the previous year, and 17% were not teaching (Gray & Taie, 2015).

In addition to the lack of consistency for school programs and negative effects on morale and student outcomes (Pas, Bradshaw, & Hershfeldt, 2012), a high turnover rate disproportionately affects high-poverty schools and costs society up to $2.2 billion annually (Haynes, 2014). One possible reason for attrition may stem from preservice

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teachers' unrealistic perceptions of the teaching profession (Hong, 2010). When these high expectations are coupled with the demands of teaching, first year teachers who leave the profession have low job satisfaction rates (Chang, 2009; Fernet, Guay, Senécal, & Austin, 2012; Hong, 2010). However, research has found that the presence of a mentor (Gray & Taie, 2015), access to quality professional development (Castleberry, 2010; Coldwell, 2017), or a sense of self-efficacy (Ware & Kitsantas, 2007) may help early teachers stay in the profession. This study examined the relationship between mentorship, teachers' self-efficacy beliefs and professional development, and overall job satisfaction in a nationally representative sample of beginning teachers in the United States.

Literature Review

Previous studies and reviews of the research have indicated that teachers' emotions and self-efficacy can impact both students (Sutton & Wheatley, 2003) and teachers (Schwarzer & Hallum, 2008; Sutton & Wheatley, 2003) as can teacher induction into mentoring programs (Ingersoll & Strong, 2011) and significant professional development (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). However, little research has been done examining how all of these components may interact, especially in regard to teachers' overall job satisfaction. This study describes the literature on each of these components and tests a combined model to explore the relationships between these important areas.

Job satisfaction

Given the high cost of teacher attrition, it is imperative to investigate the factors related to teacher job satisfaction. Teacher job satisfaction has been found to increase teacher retention and teachers' level of commitment to the profession (Goldring et al., 2014). Job satisfaction refers to the sense of contentment to a profession (Locke, 1969) and the extent that one's occupational needs are met from the day to day activities of employment (Evans, 1997). Accordingly, teacher satisfaction rates have been predicted from increases in job related stress (Liu & Ramsey, 2008). For example, high levels of stress pertaining to negative student behaviors have resulted in lower teacher job satisfaction and lower levels of self-efficacy (Klassen et al., 2009; OECD, 2014a). Since unmitigated teacher stress can lead to job dissatisfaction and burnout (Yu, Wang, Zhai, Dai, & Yang, 2015), increasing teacher self-efficacy through professional development may be beneficial (Yoo, 2016).

Professional development

Future commitment level and performance develops during the beginning years of a teacher's career (Kahrs & Wells, 2012; Swars, Meyers, May, & Lack, 2009). About 80% of teachers participate in some type of professional development each year

(Goldring et al., 2014); however, the type and quality of the professional development varies. On average, less than one-third of professional development activities include mentoring, peer observation, or coaching (Goldring et al., 2014), even though these activities have shown positive correlations to teacher job satisfaction (Kahrs & Wells, 2012; Latham & Vogt, 2007; LoCasale-Crouch, Davis, Wiens, & Pianta, 2012). Several studies point to major barriers to professional development that include not having time, too costly, conflicts with work schedules, or lack of incentives (An & Reigeluth, 2011; Joyce & Calhoun, 2015; OECD, 2014a).

Mentors

Comprehensive support that includes mentoring for new teachers has shown to mediate a teacher's desire to leave a school district or leave teaching after the first year (DeAngelis, Wall, & Che, 2013). Research suggests that beginning teachers want support from mentors, but that mentors are confused about their role. Moreover, lack of time for meaningful interactions with mentors throughout the year is a barrier for this type of professional development (Swars et al., 2009). The degree of support by mentors revealed that the more positive interaction time spent per month with mentors predicted whether they were more likely to return the following year to teach in the same school compared to those who did not receive the same support (Parker, 2010).

Self-efficacy

Low levels of self-efficacy have been associated with stress and issues with behaviors that result in lower job satisfaction (Klassen et al., 2009; OECD, 2014a). The percentage of students with behavior problems do not appear to influence teacher self-efficacy or job satisfaction, but it is the time spent handling the problems that tend to negatively affect teacher self-efficacy and job satisfaction (OECD, 2014a). Therefore, providing professional development for teachers has shown to be highly associated with teachers' efficacy of managing student misconduct (Tsouloupas, Carson, & Matthews, 2014).

Current study

Teachers who have a higher rate of job satisfaction may be less likely to leave the teaching field. If variables linked to teacher attrition can be understood, administrators and other stakeholders can improve the conditions for beginning teachers. Specifically, there are school-specific factors that may help influence young teachers' job satisfaction. This exploratory analysis investigated how barriers to professional development, presence of a mentor, and self-efficacy are related to job satisfaction for beginning teachers.

Method

Participants

This study utilized the Teaching and Learning International Survey (TALIS) 2013 data created by the Organization for Economic Cooperation and Development (OECD). The OECD created the TALIS in 2008 to understand schools and teachers on an international scale (OECD, 2014a). Each country's sample was gathered using a stratified two-stage probability sample, meaning that schools were randomly selected then teachers were also randomly selected from within those schools (OECD, 2014b). Stratification was used to gather teachers from all geographical regions, school types, and school sizes. The minimum sample was 20 teachers from each school and 4,000 individuals from each country in order to provide reliable estimation and adjust for nonresponse (OECD, 2014b).

This study utilized the United States sample from TALIS 2013 data as this data provided the most robust collection of data aligned with the purposes of this research. Each teacher completed a questionnaire with questions on topics such as feedback, training, and school leadership. Each questionnaire took roughly 45 minutes to an hour to complete. Because we wanted to examine the new teacher population specifically, all teachers with six or more years of experience and those who only work part-time with less than 70% of a teaching load were excluded, for a total sample of 226. Demographic information, including sex, status (full/part time), and age, can be found in Table 1.

Table 1.
Descriptive Statistics for Study Sample (n=226)

Variable	Mean	SD
Age	31.05	7.87
Years Taught	3.19	1.41
	n	%
Mentor		
Have mentor	68	30.09
No mentor	158	69.91
Sex		
Male	79	34.96
Female	147	65.04
Completed Teacher Training Program		
Yes	214	94.69
No	12	5.31

Data variables. The data collected for this study came from self-report instruments (OECD, 2014b). Demographic information included sex, status (full/part time), and age. The predictor variables of interest included presence of a mentor (yes/no), self-efficacy (scale score), and barriers to professional development. Barriers to professional development included seven questions asking about teachers' perceptions of issues that would prevent them from engaging in professional development, such as not having employer support or professional development being too expensive. Responses ranged on a four-point scale from "strongly agree" to strongly disagree." For the purposes of this study, these seven barriers were used to create a summative score, where a higher score indicates more barriers. As there were no possibilities to respond with "not applicable," scores range from 7 to 28.

The outcome of job satisfaction (scale score) was determined through the teacher job satisfaction scale. This scale measures teacher satisfaction through ten questions relating to satisfaction with current work environment (e.g., "I enjoy working at this school") and profession ("If I could decide again, I would still choose to be a teacher"). All items also have the four-point "strongly agree" to "strongly disagree" options. The reliability of scores for the teacher job satisfaction scale were above .70 for all countries.

The teacher self-efficacy score was also a scale score. This scale came from three self-efficacy scales- one on classroom management, instruction, and student engagement. Each scale had four questions measured on a four-point scale from "not at all" to "a lot." Using a three-factor confirmatory analysis model, the overall self-efficacy scale was found to fit the model well (OECD, 2014b) and have the reliability of the scale score is above .70 for all but a few of the countries in the TALIS study. The final scale includes the composite score of the three subscale scores. Variable names, descriptions, and percentage of missing data per variable can be found in Table 2.

Table 2.
Names, Descriptions, and Percentage of Missing Information for Study Variables

Variable type	Variable name	Description	% of missing data
Demographic	TT2G05b	Year(s) working as a teacher in total	.00
	TT2G01	Gender	.00
	TT2G06	Job status	.00
	TT2G02	Age	.88
	TT2G11	Completion of a teacher training program (Y/N)	.00
Predictor	TSELEFFS	Self-efficacy scale score	6.63
	TT2G27A-G	Barriers to professional development	6.19
	TT2G20A	Involved in mentoring activities	2.65
Outcome	TJOBSATS	Job satisfaction scale score	7.08

Inspection. The public-use data files from the OECD were downloaded for SPSS (IBM, 2014). In SPSS, all missing data values for the variables in this study were changed to "99" for consistency. After limiting the sample to specified sample, this data was imported into R (R Core Team, 2016).

Missing Data. Using R, missing data was assessed using Little's Missing Completely At Random (MCAR) test. Results indicated that the data was not missing completely at random. However, given the inability to examine whether the data were missing at random (MAR), the missing data were then imputed using multiple imputations of fifty replications. Multiple imputations produce unbiased parameter estimates when the data are MAR, making this method more informative than traditional methods such as deletion or single imputation (Baraldi & Enders, 2010).

Assumptions. Assumptions of multiple regression include normality of residuals, linearity between the predictors and outcome of interest, observation independence (Cohen, Cohen, West & Aiken, 2003). To determine whether the data adhered to these assumptions, we inspected the data using q-q plots, Lowess lines, and histograms. Visual inspection of all graphs indicated that the data generally adhered to these assumptions. Using DFFITS, DFBETAS, and hat values, one observation appeared as an outlier in the data. Upon further inspection, this observation had higher than average self-efficacy and a lower than average job satisfaction score. Given that this observation was an outlier due to plausible scores and not because of data error, this observation was kept.

To assess for multicollinearity, we calculated the variance inflation factor (VIF) using R. None of the variables had values above 2, indicating multicollinearity did not appear to be an issue. Correlations between all study variables can be found in Table 3.

Table 3.
Correlations Between Study Variables

	Age	Mentor	Sex	Job Satisfaction	Training	Years Taught	Barriers (Centered)	Self-Efficacy (Centered)
Age	1.00	.11	.04	.16	-.04	.22	-.15	.08
Mentor	.11	1.00	.02	-.10	-.08	.42	.10	.00
Job Satisfaction	.16	-.10	-.09	1.00	-.01	.02	-.37	.29
Training	-.04	-.08	.18	-.01	1.00	-.22	.04	-.07
Barriers (Centered)	-.15	.10	.08	-.37	.04	.00	1.00	-.23
Self-Efficacy (Centered)	.08	.00	-.02	.29	-.07	.10	-.23	1.00

Note: Correlations calculated with only complete observations.

Models. To determine model fit, multiple models were assessed using AIC, AICc, and AIC weight values. The baseline model included the predictor of barriers to professional development with the outcome of job satisfaction. The full model included the barriers to professional development, teacher self-efficacy with presence of a mentor predicting job satisfaction. Additional models with their fit statistics can be found in Table 4. Results indicated that the hypothesized model without the presence of interactions should be used. The path diagram for the final model can be found in Figure 1.

Table 4.
Model Descriptions with Model Fit Information

Model	K	AICc	Delta AIC	AICcWt
All without interaction	5	928.07	.00	.63
Barriers & self-efficacy	4	929.27	1.20	.35
Barriers & mentor	4	936.69	8.62	.01
Only barriers	3	937.51	9.44	.01
Int barriers & mentor	4	937.64	9.57	.00
Int barriers & self-efficacy	3	938.21	10.14	.00
Mentor & self-efficacy	4	946.59	18.52	.00
Int mentor & self-efficacy	4	947.19	19.12	.00
Only self-efficacy	3	948.41	20.34	.00
Only mentor	3	963.24	35.17	.00

Note. AIC= Akaike Information Criteria; Barriers= Barriers to professional development; Mentor= Presence of a mentor; Int = Interaction between

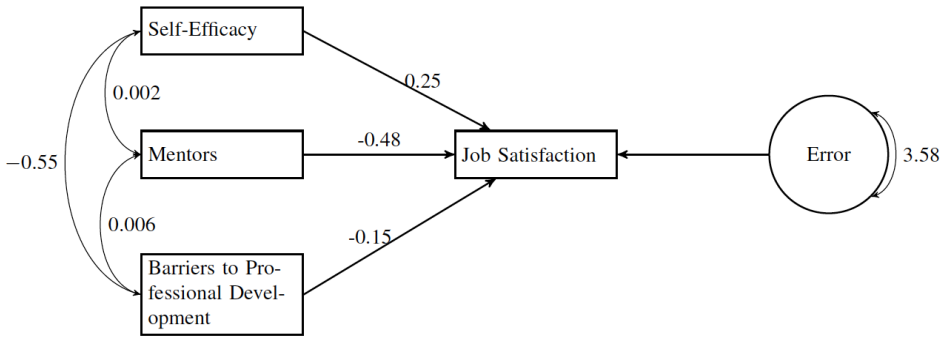

Figure 1. Path diagram of final model

Regression. Since the variables of self-efficacy and barriers to professional development had no meaningful 0 point, these variables were mean-centered to ease interpretation. The variables of self-efficacy, barriers to professional development, and the presence of a mentor were regressed onto job satisfaction using the lavaan package in R (Rosseel, 2012). These observations were not cross-validating another model nor was this sample used to cross-validate the final model.

Results

For the final model, standardized regression coefficients, unstandardized coefficients, confidence intervals for the unstandardized coefficients, and standard errors can be found in Table 5.

Table 5.
Results from Regression Model Predicting Job Satisfaction from Self-efficacy, Barriers to Professional Development, and the Presence of a Mentor

				95% Confidence Interval for Unstandardized Coefficients	
Variable	*b*	SE	*b**	LB	UB
Intercept	13.31	.96	.17	7.89	11.68
Mentor	-.48	.27	-.24	-1.02	.04
Self-efficacy	.24	.07	.21	.097	.39
Barriers	-.15	.03	-.29	-.22	-.09

Note. *b**: Standardized coefficients. LB: Lower bound of confidence interval. UB: Upper bound of confidence interval. Multiple R^2: 0.173. Adjusted R^2: 0.161.

The intercept indicates that for a teacher with a mentor and average scores on self-efficacy and barriers to professional development, she/he will have a job satisfaction score of 13.31. Self-efficacy and job satisfaction are positively related; with a one unit increase in self-efficacy, there is a .24 unit increase in job satisfaction for those teachers with a mentor and an average barriers score. There is also a positive relationship between the presence of a mentor and job satisfaction. For those without a mentor and average self-efficacy and barriers to professional development, they have a job satisfaction score decrease of .48. On the other hand, having barriers to professional development is negatively related to job satisfaction for teachers with average levels of self-efficacy. For every one increase in barriers to professional development, teachers have an average decrease in job satisfaction of .15 controlling for mentor status and self-efficacy. Overall, self-efficacy, barriers to professional development, and the presence of a mentor explain 16% of the variance associated with job satisfaction in teachers with fewer than five years of experience.

Discussion

These results help elucidate the relationship between important retention variables for teachers. Namely, both self-efficacy and presence of a mentor positively related to job satisfaction while barriers to professional development were negatively related to job satisfaction for teachers with fewer than five years of teaching. These relationships

support the theory indicating their relationship.

However, these relationships cannot be said to be causal; theory suggests self-efficacy, barriers, and mentors improve job satisfaction, but the statistical results here cannot confirm the direction of the relationships. Other studies have indicated stronger relationships between study variables in other international contexts. Researchers have found a correlation of .5 between self-efficacy and job satisfaction in the beginning of a teacher's first year with the correlation decreasing to .39 over time (Richter et al., 2013).

The current study aimed to consider how teacher self-efficacy, mentors, and barriers to professional development affect job satisfaction for teachers who have 5 or fewer years of teaching experience. Even though the overall effects of the variables in this study are small in size (according to oft-referenced social science standards such as Cohen (1992)), beginning teachers are exposed to numerous stressors, especially during the first few years of teaching; building interpersonal relationships through mentoring during these first few years may help alleviate some of the stressors teachers face (Chang, 2009). Formal induction programs for beginning teachers have indicated increases in teachers' feelings of self-efficacy (OECD, 2014a). Research suggests that one-on-one mentoring relationships should be included in new teacher induction programs so that teachers may experience connectedness and a sense of accomplishment that may lead to increases in job satisfaction and teacher retention (Kent, Green, & Feldman, 2012; Ingersoll & Strong, 2012). 25% of countries that have mentoring programs showed a link to higher job satisfaction (OECD, 2014a) and other studies have shown larger increases in teacher self-efficacy through increased time with mentor and formal teacher induction programs (LoCasale-Crouch, 2012; Ingersoll & Strong, 2012). The overall effects of increased self-efficacy, positive mentoring, and fewer barriers to professional development may help some beginning teachers to stay in the profession.

Practical implications of these findings include helping the conditions of new teachers' experiences. By providing supports for new teachers in regards to self-efficacy and mentorship, this could possibly help retain new teachers. Furthermore, by eliminating some of the barriers to professional development, such as the lack of time, money, or relevance, this could encourage new teachers to participate. The first few years of a teacher's career impact their later commitment, making these initial supports important for consideration in a field where turnover is high.

Limitations of this study include no variable to control for the makeup of the school where the teachers work. Given previous research that indicates the importance of school-level characteristics (Haynes, 2014), variables should be used in future research to account for characteristics such as socioeconomic status or percentage of students that qualify for free and reduced lunch. Furthermore, this study did not have a measure to look at the quality of mentor relationships. Simply having a mentor would

not solve many issues, as some teachers may have absent, busy, or unhelpful mentors. While some studies (i.e., Richter et al., 2013) have used frequency or mentoring type to account for this, further research should specifically examine the quality of mentorship that teachers receive. By using the quality of mentor relationships as a control, that would help to better explain the impact of mentors on job satisfaction and self- efficacy. Other research (Bota, 2013) has also found gender and age differences in job satisfaction, but additional research examining the mechanisms around this should be done to support these claims. The relationships examined here may only occur like this in the United States; incorporating this theoretical framework using data from around the globe would help uncover the relationships between these variables and different contexts. Considering this model only explained 16% of the variance associated with job satisfaction, more research should build theoretical and statistical models with accompanying datasets to better understand what keeps teachers satisfied. Finally, researchers should consider a larger sample that includes more than just new teachers as the demands of teaching change with new reforms and changing workplaces.

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