A Study of Perceived Principal Instructional Leadership and Its Relationship to Student Achievement in Private High Schools

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Abstract

This quantitative study investigated whether a relationship existed between principal's instructional leadership behavior and college readiness as measured by ACT scores in Catholic and private schools in south Louisiana. The study surveyed both teacher and principal perceptions of principal instructional leadership behaviors through the Principal Instructional Management Rating Scale (PIMRS). This survey was sent to participating school principals to complete in south Louisiana who then sent the survey out to their faculty. The data were collected and analyzed using descriptive statistics, a dependent t-test, and logistic regression. The results indicated that female principals felt they actively participated in instructional leadership more often than their male counterparts did. Teachers also perceived their female principals actively participated in instructional leadership more often than the teachers of male principals did. Finally, the research indicated that Catholic and private schools with male principals were 76% less likely to have ACT scores that were higher than the national average of ACT scores of private schools. This study may offer insight to educational leaders on how instructional leadership may relate to college readiness as demonstrated by ACT scores.

Keywords: principal, instructional leadership, ACT, student achievement

Introduction

The instructional leader is tasked with defining the mission of the school, managing the instructional time of students, and promoting a positive school climate (Hallinger, 2003). This comes at a time when competition to get into four-year universities has doubled since the 1970s (Bound et al., 2009). With such an increase in student applications, many colleges and universities rely on national standardized tests such as the ACT to help in determining whether

individual students are prepared for college (Holles, 2016). Both private and public schools must prepare their students academically for the competition they now face for acceptance into those universities and colleges. While studies on instructional leadership, an effective domain of leadership in which to improve academic achievement (Edmond, 1979; Lezotte, 1991; Weber, 1971), have ensued, little research has been done to determine if there is a relationship between the role of the principal's instructional leadership and student performance on national standardized tests such as the ACT. The present study explored the perceptions of both principals and teachers of the principal's instructional leadership, and whether there is a relationship between principals' instructional leadership and college readiness through ACT scores in Catholic and private schools in south Louisiana.

Research Objectives

The purpose of this study was to measure and examine the self-perceptions principals have of their own principal instructional leadership and the perceptions their teachers have of their principals using the Principal Instructional Leadership Management Rating Scale (PIMRS) (Hallinger, 1982). ACT scores were also utilized to determine if a relationship existed between these perceptions and school ACT scores. The research questions for the study were:

1. What are the overall principal perceptions of principal instructional leadership?
    a. What are the principal perceptions of principal instructional leadership regarding defining the school mission?
    b. What are the principal perceptions of principal instructional leadership regarding managing the instructional program of the school?
    c. What are the principal perceptions of principal instructional leadership regarding the developing learning climate?
2. What are the overall teacher perceptions of their principal's instructional leadership?
    a. What are the teacher perceptions of principal instructional leadership regarding defining the school mission?
    b. What are the teacher perceptions of principal instructional leadership regarding managing the instructional program of the school?
    c. What are the teacherperceptions of principal instructional leadership regarding developing the school learning climate?

3. How do principal evaluations compare to teacher evaluations?
4. What is the relationship between principal instructional leadership and college readiness as measured by ACT scores?

Background

Principals play a significant role in the preparation of students for the college admission process by their impact on student academic achievement (Bellibas, 2015; Hallinger & Heck, 1998; Marzano et al., 2005). While instructional leadership has been found to be a valid reflection of a principal's ability to lead and improve student academic achievement (Bellibas, 2015; Hallinger & Heck, 1998; Hallinger et al., 2013; Marzano et al., 2005), research has not sufficiently examined whether instructional leadership has any effect onnationally standardized test scores within given schools.

Role of the Principal

Principals that spend more time on instructional improvement within their schools are more effective in increasing academic success compared to those that spend their time on managerial duties such as budget, paperwork, and implementing rules and procedures (Blasé & Blasé, 1997; Hallinger, 2003, 2011; Hallinger & Heck, 1998). Goddard and Goddard's (2015) research posit that the role of the principal as an instructional leader also lends itself to the role of leader by the promotion of teacher collaboration that, in turn, engenders a culture of student learning. A principal that leads instructionally by promoting teacher collaboration can increase teacher efficacy beliefs. Goddard and Goddard (2015) used data to determine if the implementation of Mid-Continent Research for Education and Learning (McREL) International's Balanced Leadership program was effective in 93 elementary high-poverty schools. The findings indicated that principals with strong instructional leadership skills involved with the teachers in their individual classrooms providing instructional support reported schools with higher levels of teacher collaboration. Furthermore, these schools showed increased enhancement of instruction with an effect size of .70. This large effect size shows the strong interrelationship between principal instructional leadership and teacher collaboration and its effect on student instruction (Goddard & Goddard, 2015).

Principals hold their own perceptions of the characteristics that make up the componentsof principal leadership that affects student achievement (Provost et al., 2010). In

this mixed- methods study, researchers Provost et al. (2010) found principals perceived "an effective principal holds high expectations for staff performance" (p.11) as the most important(z=2.17) characteristic. Principals also thought the need to "engage teachers in formal and informal discussions" (z=1.47) (p. 11) and "help staff members improve their instructional effectiveness" (z=1.43) (p. 11) to be important. The researchers then used an open-ended questionnaire to gather qualitative data. They found that instructional leadership involved a collaborative relationship with the teachers to provide a unified conveyance of curriculum andinstruction (Provost et al., 2010).

Principal's Effect on Student Achievement

There is no arguing that the principal has an effect on student achievement (Edmonds, 1979; Goddard & Goddard, 2015; Marzano et al., 2005; Weber, 1971). Examination of the effect principals have on student achievement has taken place since the 1980s (Hallinger & Heck,1998). In an empirical literature review, Hallinger and Heck (1998) found an indirect effect of principal leadership on student outcomes significant with principals' leadership aimed at "internal school processes that are directly linked to school learning" (p.38). They also noted that an indirect affect is not a reason for concern, because reaching goals through others is the purpose of leadership. The internal processes they found included school goals, instructional time, school climate, etc. Marzano et al. (2005) conducted a meta-analysis on school leadership by principals and their effect on academic achievement. Sixty-nine studies were used in the analysis. Each study used a questionnaire about teacher perceptions of principal leadership. An average score within each school was calculated and correlated with the achievement of the students within the school. This academic achievement was based on state standardized tests given within each school. These results indicated a .25 average correlation between principal leadership and student academic achievement. While the average of .25 shows a weak relationship (Salkind, 2017), Marzano et al. (2005) argue the impact is still important because of the gains found when principal leadership moved from the fiftieth percentile. For example, whenleadership moved from 50th percentile to eighty-fourth percentile, academic achievement moved from fiftieth percentile to sixtieth percentile.

While examining the role of the teacher leader as a mediator for principal leadership and student achievement, Sebastian et al. (2016) used student achievement gains and structural equation modeling (SEM) and found two statistically significant paths to student achievement

growth as measured by state standardized tests. The first path started with principal leadership that led to teacher leadership, affecting the learning climate and classroom instruction which affected student achievement and growth. The second path also started with principal leadership.The principal leadership promoted teacher professional development and program quality, which affected student achievement and growth. They found the standardized coefficients of these two paths to be 0.03 (p <.01) and 0.04 (p <.05), respectively. While these correlation coefficients show a weak relationship (Salkind, 2017), the path did exist and began with the principal in bothinstances. The researchers did note that there were multiple ways for principals to achieve the goals of the school and that limitations existed in the model they developed.

Teacher Perceptions of Principals

Teacher perceptions of principals play a large part in the educational quality presented tostudents in school. The principal's behavior towards staff and faculty, personality, attitudes, and beliefs play a crucial role on the culture and climate of the school. The climate, in turn, has an effect on teachers and their attitudes, beliefs, and behaviors in the classroom (Lee & Li, 2015; Sterrett, 2016). Teachers consider their principals to be ineffective based on multiple characteristics that include "inaccessible, inconsistent, lacking knowledge, indecisive, lacking follow-through, unsupportive, authoritarian, political, and practicing favoritism" (Blase, 1987, p.607). Leadership styles of principals also impact teachers' drive to work and the fulfillment ofteachers' psychological needs (Shepherd-Jones & Salisbury-Glennon, 2018).

Teachers' perceptions of their principal are genuine. Unfortunately, teachers' perceptions don't always align with what the principal perceives personally (Kelley et al., 2005). In a study on leadership and school climate, Kelly et al. (2005) found that the principals self-rated themselves on effectiveness and flexibility very highly. This contradicted the ratings provided by the teachers oftheir principals. The study indicated areas of weakness or "blind spots" that often occur such as inconsistency of discipline, pet projects, or lack of communication skills which can all affect the perception teachers have of their principal (Kelley et al., 2005).

ACT

With private schools offering college curriculum, standardized tests become a way to show student readiness for college but also school academic effectiveness. Academic standards and uniformity for college acceptance such as the American College Test (ACT) came into the forefront during the end of the 1960s. The idea of utilizing standardized college admissions tests came about to increase the consistency among colleges on what requirements and subjects were important in the admissions process. This inconsistency was a huge problem for high schools. With different colleges looking at so many different criteria for admission, high schools had no idea how to properly prepare students for thenext step academically (Beale, 1970).

ACT is designed using empirical data for the development of their standards and tests to have the most comprehensive testing for post-secondary education (ACT, 2017). With academics being the forefront of concerns for high school students based on the curricula they were provided in their secondary schools (Holles, 2016), the ACT can be seen as a good indicator of college preparedness. Because the ACT is a national examination, it allows for students to be looked at on an even playing field in the admissions process compared to high school quality because there is so much variance in the competitiveness of the schools (Tam & Uday, 2004).

Conceptual Framework

The role of the principal has evolved into one of an instructional leader that has an effect on student achievement (Edmond, 1979; Goddard & Goddard, 2015; Marzano et al., 2005; Weber, 1971;). As instructional leaders, principals are tasked with involvement and communication of school goals, managing instruction and curriculum, and encouraging a positive school climate (Hallinger, 2012). Hallinger and Murphy first looked at principal instructional leadership behaviors, functions, practices, and patterns in 1984. After continuing to revise his work, Hallinger (2012) introduced his most recent revision of instructional leadership. that consisted of three dimensions. These dimensions made up the conceptual framework for hisPrincipal Instructional Management Rating Scale (PIMRS). Hallinger (2012) developed the PIMRS to determine to what degree principals are instructional leaders within each dimension of instructional leadership Hallinger (2012) defined. The three dimensions include: Defining the School Mission, Managing the Instructional Program, and

Promoting a Positive School Climate. Each domain is broken down into multiple functions.

- Defining the School Mission
    - Frames the School Goals
    - Communicates the Schools Goals
- Managing the Instructional Program
    - Coordinates the Curriculum
    - Supervises and Evaluates Instruction
    - Monitors Student Progress
- Promoting a Positive School Climate
    - Protects Instructional Time
    - Provides Incentives for Teachers
    - Provides Incentives for Learners
    - Promotes Professional Development
    - Maintains High Visibility

As the principal works through the functions within the domains, they have perceptions of the job they are doing as do their teachers. Teachers' perceptions of the job the principal performs, as well as the perception the principal have of themselves, is important to teacher self-efficacy (Ham et al., 2015). This self-efficacy of teachers is one of the strongest predictors of teacher impact on students (Mehdinezhad & Mansouri, 2016).This impact will ultimately affect student academic achievement and college readiness (Sebastian et al., 2016).

Methods

Before the study took place, the researcher obtained permission to use the PIMRS through email from the developer, Dr. Philip Hallinger. The researcher conducted a pilot study at a private college preparatory high school in the Greater Baton Rouge area. Informed consent was obtained from the participants by voluntary participation of the survey. The pilot study allowed the researcher to ensure the quality of the online survey and data collection. After completion of the pilot study, the PIMRS (Hallinger & Murphy, 1986) was sent to principals and teachers in each of the Catholic and private schools (n =18) in South Louisiana. Once the surveys were sent, 11 principals completed the principal survey and then sent the teacher survey out to their faculty. Informed consent was obtained from each participant through voluntary participation. The data from 140 teacher respondents was then matched to

the data of the principal from their 11 schools. The PIMRS survey asks participants demographic information and to rate their perceptions of principal instructional leadership through the use of a Likert-type scale. The scale breakdown is as follows: 1 = Almost Never; 2 = Seldom; 3 = Sometimes; 4 = Frequently; and 5= Almost Always. The PIMRS consists of ten functions within its three dimensions. Each function of the PIMRS survey was made up of five questions. The principal form begins each portion of the survey in the following: "To what extent do you…" For the teacher form, the portions of the survey begin as follow: "To what extent does your principal…" with questions following such as "Develop a focused set of annual school-wide goals," Communicate the school's mission effectively to members of the school community," and "Ensure that the classroom priorities of teachers are consistent with the goals and direction of the school" (Hanllinger, 2010). Once the surveys were returned, the researcher collected the data from the PIRMS. Statistical analyses were then run through the use of Jamovi software (2019) Version 0.9. These analyses included descriptive statistical analyses for research questions 1 and 2, a dependent *t*-test for research question 3, and a logistic regression for research question 4.

Results

For research questions 1 and 2, descriptive statistical analyses were used because a descriptive cross-sectional research design was utilized. This included descriptive data on principal instructional leadership that make up part 1 of the survey and demographic data that make up part 2 of the survey. Based on Hallinger's (2010) scoring recommendations, the descriptive statistics the researcher utilized were item averages for a mean score calculation, item distribution for general patterns and trends, subscale averages, and distributions and standard deviations. The main focus was on scaled averages and scaled distributions. This allowed for the analysis of patterns, trends, and variations in areas such as years of experience as a principal/teacher at the school and years of overall experience as a principal/teacher. It also allowed the researcher to determine patterns, trends, and variations based on gender.

For research question 1, the overall principals' perceptions of their instructional leadership were high, falling into the category of "Frequently" (M=4.01, SD=.42). When breaking that down into the three dimensions of Hallinger's model (2005, 2008, 2010, 2011), all three were rated highly by principals with ratings falling in the category of "Frequently" or just below "Frequently" with high values in the category of "Sometimes" (*Defining the School*

Mission: $M = 4.17$, $SD = 0.48$; *Managing the Instructional Program*: $M = 3.93$, $SD = 0.57$; *Developing the School Learning Climate*: $M = 3.99$, $SD = 0.38$). An analysis was then run of the ten functions in the PIMRS for the principals (see Table 1). The principals ranked *Maintaining High Visibility* the lowest ($M = 3.69$, $SD = 0.66$) and ranked *Promoting Professional Development* as the highest ($M = 4.44$, $SD = 0.54$).

Table 1

Mean and Standard Deviation of Functions for Principals

	FSGHp	CSCp	SEIp	CTCp	MSPp	PITp	MHVp	PIFTp	PPDp	PIFLp
Mean	4.36	3.96	4.04	4.04	3.71	4.20	3.69	3.71	4.44	3.91
(SD)	(0.48)	(0.64)	(0.58)	(0.70)	(0.60)	(0.51)	(0.66)	(0.66)	(0.54)	(0.92)

Note. FSGp = Framing School Goal principal; CSGp = Communicate School Goals principal; SEIp = Supervise and Evaluate Instruction principal; CTCp = Coordinate the Curriculum principal; MSPp = Monitor Student Progress principal; PITp = Protect Instructional Time principal; MHVp = Maintain High Visibility principal; PIFTp = Provide Incentive for Teachers principal; PPDp = Promote Professional Development principal; PIFLp = Provide Incentives for Learners principal.

The three dimensions were then examined by gender of principal. The results showed that female principals in the sample rated themselves higher than their male counterparts in all three dimensions, which can be seen in Table 2, with a much larger difference of perceptions between the female and male principals in the dimension of *Managing the Instructional Program* compared to the other two dimensions. Examination of the dispersion of the dimension scores showed that while females ranked themselves higher in each category, they also had slightly higher standard deviations than the male principals, indicating greater differences in the way the females ranked themselves compared to the males. It is important to note that there were more female principals (n=8) than male principals (n=3) that participated in the study.

Table 2

Mean and Standard Deviation for Principal Dimensions by Principal Gender

Gender	DSMp	MIPp	DSLCp
Female	4.18(.52)	3.98(.60)	4.00(.43)
Male	4.13(.42)	3.78(.54)	3.96(.26)

Note. DSMp = Defining School Mssion principal; MIPp = Managing Instructional Program principal; DSLCp = Developing School Learning Climate principal.

The researcher then examined the means and standard deviations of the ten functions by gender of principal (see Table 3). Females consistently ranked themselves higher within the functions with only three exceptions (*Coordinate School Curriculum, Maintain High Visibility, and Provide Incentives for Learners*). Females ranked *Maintaining High Visibility* as their lowestfunction while males ranked it as their highest. *Monitoring Student Progress* and *Provide Incentives for Teachers* were the two lowest functions for males and were also the next two lowest functions for females after *Maintaining High Visibility*.

Table 3

Mean and Standard Deviation for Principal Functions by Principal Gender

Gender	FSGp	CSCp	SEIp	CTCp	MSPp	PITp	MHVp	PIFTp	PPDp	PIFLp
Female	4.40	3,94	4.10	4.10	3.75	4.40	3.40	3.80	4.55	3.85
	(0.50)	(0.71)	(0.60)	(0.76)	(0.66)	(0.30)	(0.45)	(0.80)	(0.45)	(1.01)
Male	4.27	4.00	3.87	3.60	3.67)	3.67	4.47	3.47	4.13	4.07
	(0.50)	(0.53)	0.61	(0.53	(0.61)	(0.61)	(0.46)	(0.12)	0.76)	(0.81)

Note: FSGp = Framing School Goal principal; CSGp = Communicate School Goals principal; SEIp = Supervise and Evaluate Instruction principal; CTCp = Coordinate the Curriculum principal; MSPp = Monitor Student Progress principal; PITp = Protect Instructional Time principal; MHVp = Maintain High Visibility principal; PIFTp = Provide Incentive for Teachers principal; PPDp = Promote Professional Development principal; PIFLp = Provide Incentives for Learners principal.

For research question 2, means and standard deviations were calculated based on the results of the PIMRS survey. Teachers' (n=140) overall perceptions of their principal's instructional leadership scores fell between "Sometimes" and "Frequently" (M = 3.88, SD = 0.73). When breaking that down into the three dimensions of Hallinger's model (2005, 2008, 2010, 2011), *Defining the School Mission* (M = 4.18, SD = 0.80) was rated in the "Frequently" category while *Managing the Instructional Program* (M = 3.76, SD = 0.84) and *Developing the School Learning Climate* (M = 3.83, SD = 0.74) fell between "Sometimes" and "Frequently." Note that the values for standard deviation indicate there is a large amount of variance on how the teachers ranked their principals. An analysis was then run on the ten functions in the PIMRSfor the teachers (see Table 4). Something to note is that two of the three highest functions, *Framing School Goals* and *Communicating School Goals*, both come from the same dimension, *Defining the School Mission,* and had similar variabilities. Also, both the overall lowest function, *Maintain High Visibility*, and the overall highest function, *Promote Professional Development*, come from the final dimension, *Developing the School Learning Climate*. The functions within this dimension also saw the largest range in variability amongst ranging from 0.81 to 1.07.

Table 4

Mean and Standard Deviation of Functions for Teachers

FSGt	CSGt	SEIt	CTCt	MSPt	PITt	MHVt	PIFTt	PPDt	PIFLt
4.20	4.17	3.72	3.84	3.71	3.95	3.46	3.51	4.26	3.98
(0.85)	(0.86)	(0.92)	(0.94)	(0.95)	(0.81)	(0.97)	(1.07)	(0.86)	(0.90)

Note. FSGt = Framings School Goals teacher; CSGt = Communicate School Goals teacher, SEIt = Supervise and Evaluate Instruction teacher, CTCt = Coordinate the Curriculum teacher; MSPt = Monitor Student Progress teacher; PITt = Protect Instructional Time teacher; MHVt = Maintain High Visibility teacher; Provide Incentive for Teachers teacher; PPDt = Promote Professional Development teacher; PIFLt = Provide Incentives for Learners teacher.

The three dimensions were then examined by teacher gender, showing female teachers consistently rated their principals lower than their male counterparts which can be seen in Table 5. The male teachers also saw lower variabilities than the female teachers in all three

dimensions. Both female and male teachers ranked *Defining the School Mission* highest, but the variability isvery different between the female and male teachers with males having less variability in their perceptions. It is important to note that there were more female teachers (*n* = 96) than male teachers (*n* = 44) that participated in the study.

Table 5

Mean and Standard Deviations for Principal Dimensions by Teacher Gender

TeachGender	DSMt	MIPt	DSLCt
Female	4.08 (0.88)	3.62 (0.90)	3.75 (0.74
Male	4.40 (0.56)	4.04 (0.64)	4.01 (0.73)

Note. DSMt = Defining School Mission teacher; MIPt = Managing Instructional Program teacher; DSLCt = Developing School Climate teacher.

Table 6 examines the three dimensions by both teacher and principal gender. In all three dimensions, female teachers rated both female and male principals lower than the male teachers did. Female teachers also showed the largest difference of variability amongst their perceptions of both female and male principals compared to the perceptions of the male teachers. An examination of the male teachers' ratings indicated that they also rated female principals higher than they rated male principals across all three dimensions. Male teachers rating male principals also had the lowest and most consistent variabilities in all three dimensions compared to the other teacher groups. Both female and male teachers rated *Managing Instructional Program* the lowest for their principals with the exception of male teachers rating female principals. They rated this category only slightly higher than *Developing School Learning Climate*, but with a smaller variance. It is important to note that there were fewer teachers with male principals, especially male teachers with male principals.

Table 6

Mean and Standard Deviation for Principal Dimensions by Principal and Teacher Gender

PrinGender	TeachGender	*n*	DSMt	MIPt	DSLCt
Female	Female	80	4.18 (0.84)	3.71 (0.83)	3.80 (0.71)
	Male	30	4.47 (0.54)	4.10 (0.65)	4.05 (0.74)
Male	Female	15	3.55 (0.94)	3.14 (1.09)	3.51 (0.87)
	Male	5	3.92 (0.50)	3.61 (0.47)	3.70 (0.59)

Note. DSMt = Definishing School Mission teacher; MIPt = Managing Instructional Program teacher; DSLCt = Developing School Learning Climate teacher.

An analysis of the responses on the ten functions by gender of teachers and by gender of principals was run (see Table 7). The male teachers consistently ranked their female principals higher than the female teachers ranked the female principals. The male principals were ranked lower than female principals in most categories by both male and female teachers, with male teachers generally ranking the female principals higher than the male principals. Both female and male teachers ranked the functions of *Framing the School Goals* and *Communicating School Goals* as two of the three highest ranking functions. Both functions make up the dimension *Defining the School Mission*. The standard deviations were large on all the functions for both genders with the largest variability found for female teachers' perceptions of their male principals. For both male and female teachers rating female principals, *Maintaining High Visibility* was ranked the lowest with both groups having very similar high variabilities.

Male principals on the other hand, were rated lowest in the function of *Coordinate the Curriculum* by female teachers and *Provide Incentives for Teachers* by the male teachers. Interestingly, the variability of *Coordinate the Curriculum* was found to be the highest for female teachers rating male principals and the variability of *Provide Incentives for Teachers* was found to be the highest for male teachers rating male principals compared to the other functions'variabilities within the same groups. Both female and male teachers rating male principals saw their highest variabilities with their lowest rated functions. In general, male teachers tended to see lower variability rates than the female teachers for both female and male principals. The one exception to this was the function *Provide Incentives for Teachers*. For both

female and male principal groups, the male teachers' variability was higher than the female teachers.

Table 7

Mean and Standard Deviation for Principal Functions by Principal and Teacher Gender

PrinGen	TeachGen	FSGt	CSGt	SEIt	CTCt	MSPt	PITt	MHVt	PIFt	PPDt	PIFLt
Female	Female	4.20	4.17	3.63	3.84	3.66	3.99	3.26	3.50	4.29	3.95
		(0.91)	(0.86)	(0.93)	(0.87)	(0.94)	(0.71)	(0.97)	(1.03)	(0.81)	(0.90)
	Male	4.49	4.44	4.00	4.19	4.10	4.08	3.70	3.82	4.42	4.21
		(0.55)	(0.67)	(0.76	(0.73)	(0.79)	(0.87)	(0.90)	(1.04)	(0.73)	(0.83)
Male	Female	3.57	3.52	3.35	2.96	3.11	3.48	3.91	3.03	3.60	3.51
		(0.87)	(1.03)	(1.17)	(1.28)	(1.11)	(1.07)	(1.02)	(1.10)	(1.20)	(1.08)
	Male	3.84	4.00	4.00	3.64	3.20	3.56	3.52	2.76	4.44	4.24
		(0.57)	(0.45)	(0.51)	(0.71)	(0.63)	(0.71)	(0.48)	(1.22)	(0.62)	(0.60)

Note. FSGt = Framings School Goals teacher; CSGt = Communicate School Goals teacher, SEIt = Supervise and Evaluate Instruction teacher, CTCt = Coordinate the Curriculum teacher; MSPt = Monitor Student Progress teacher; PITt = Protect Instructional Time teacher; MHVt = Maintain High Visibility teacher; Provide Incentive for Teachers teacher; PPDt = Promote Professional Development teacher; PIFLt = Provide Incentives for Learners teacher.

For research question 3, since a comparative research design was used in the study, the researcher utilized a dependent *t*-test for statistical analysis. These roles of principal and teachers were the independent variables in research questions 3 and consisted of two levels. The levels were (1) the principal and (2) the teacher. The dependent variables for were the individual scoreson each dimension and function of the PIMRS. Prior to the *t*-test, assumptions were checked. Normality was violated on some scales (see Table 8).

Table 8

Tests of Normality

Test	FSG	CSG	SEI	CTC	MSP	PIT	MHV	PIFT	PPD	PIFL
Shapir-Wilk	.94***	.95***	0.98	0.97*	.97*	.97***	.99	.98	.95***	.98*
Kolmogorov-Smirnov	.14*	.13*	0.07	0.09	.09	.12*	.07	.07	.15*	.06
Anderson-Darling	2.40***	2.32***	.58	.88*	1.03*	1.33***	.51	.55	2.39***	.60

Note. FSG = Framing School Goals; CSG = Communicating School Goals; SEI = Supervise and Evaluate Instruction; CTC = Coordinate Curriculum; MSP = Monitor Student Progress; PIT=Protect Instructional Time; MHV = Maintain High Visibility; PIFT = Provide Incentives for Teachers; PPD = Provide Professional Development; PIFL = Provide Incentives for Learners.

*$p < .05$, **$p < .01$, ***$p < .001$.

The researcher examined the results of the dependent t-test to determine the difference in overall perceptions of principals and teachers. These results showed $t(139) = -3.16$, $p = .002$, $d = .27$ that, overall, principals had higher perceptions of their own instructional leadership than did their teachers ($M = -0.22$, $SD = 0.82$), which was a small 135 effect. Then the researcher examined the three dimensions of instructional leadership. The results of the dependent *t*-test showed that there was a significant difference between the perceptions of principals and the perceptions of their teachers in all three principal instructional leadership dimension scores (see Table 9).

Table 9

Paired Samples t-test for Principals and Teachers of Each Dimension of the PIMRS

					95% Confidence Interval		
Domain	*t*	*p*	Mean difference	SE difference	Lower	Upper	Cohen's *d*
DSM	-3.31	.001	-0.22	0.07	-0.35	-0.09	-0.28
MIP	-3.56	<.001	-0.29	0.08	-0.44	-0.13	-0.30
DSLC	-2.43	.016	-0.18	0.07	-0.32	-0.03	-0.21

Note. DSM = Defining School Mission; MIP = Managing Instructional Program; DSLC = Developing School Learning Climate

For research question 4, a correlational design was used in the research and a multiple regression analysis was utilized. Because the researcher examined teacher perceptions and their relationship with ACT scores, a multiple regression was appropriate. However, the ACT scoresfor each case were clustered by school. Data therefore were structured more as a categorical outcome than a continuous outcome; therefore, the researcher chose to use a logistic regression. A logistic regression is defined as a form of a multiple regression in which the outcome is a categorical variable (Field, 2016). The independent variables were the scores obtained for the three dimensions for teacher surveys. The dependent variable was the mean ACT score of each school. A hierarchical logistic regression was done. The first block contained the gender variables, and the second block had the dimensions for a total of five predictor variables.

Assumptions were checked with no violations. Each observation was independent with categories of the outcome variable mutually exclusive. Linearity was met with each interaction term having *p* values greater than .05. Multicollinearity was met for each (see Table 10) with all Variance inflation factor (VIF) values under five. Finally, the ratio of cases to predictors was met with 140 teachers participating and only five predictor variables. Statistical significance was determined usng an alpha level set at .05. Practical significance was determined using a Nagelkerke R^2.

Table 10

Multicollinearity of Logistic Variables

	VIF
Principal Gender	1.12
Teacher Gender	1.05
Defining School Mission teachers	4.10
Managing the Instructional Program teacher	4.14
Developing the School Learning Climate teachers	2.89

Once the assumptions were checked, the hierarchical logistic regression was conducted topredict ACT scores with the three dimensions of instructional leadership while controlling for principal and teacher gender. The results showed that the model with principal and teacher gender only was statistically significant, X^2 (2) = 10.45, p = .01, Nagelkerke R^2 = .10. After adding in the three dimensions, the model was still significant, X^2 (5) = 13.66, p = .02, Nagelkerke R^2 = .13. However, the change from gender only model to the full model was not significant, X^2 (3) = 3.21, p = .36. This means the significance did not come from any of the three dimensions themselves, but the gender. Results of the full model are presented in Table 11.

Due to the results, the researcher shifted the focus to gender. When controlling for the three dimensions, principal gender was significant, but teacher gender was not. These results indicated that male principals were less likely to be principal of a school with an above average ACT score. Male principals' odds of being an above average ACT school were 76% lower than femaleprincipals. It is important to note the overall effect size for the overall model was small.

Table 11

Results of Logistic Regression of PIMRS Dimensions, Principal Gender and Teacher Gender

						95% Confidence Interval	
Variable	*B*	*SE*	Wald	*p*	Odds ratio	Lower	Upper
Intercept	0.51	1.11	0.45	.65	1.66	0.19	14.66
PrinGen Male-Female	-1.42	.54	-2.62	.01	.024	0.08	0.70
TeachGen Male-Female	0.88	0.47	1.86	.06	2.41	0.95	6.10
DSMt	0.35	0.48	0.74	.46	1.421	0.56	6.62
MIPt	-0.78	0.47	-1.67	.10	0.46	0.18	1.14
DSLCt	0.49	0.45	1.10	.27	1.63	0.68	3.90

Note. DSMt – Defining School Mission teachers; MIPt = Managing Instructional Program teachers; DSLCt = Developing School Learning Climate teachers

Major Findings

Research Question 1

While research question 1 addressed the overall perceptions of principals and their perceptions within the three domains of the PIMRS, the researcher also disaggregated the results and examined the perceptions of the principals within the ten functions. Both the overall lowest function, *Maintain High Visibility*, and the overall highest function, *Promote Professional Development*, come from the same dimension, *Developing the School Learning Climate*. The ranking of *Maintaining High Visibility* as the lowest function matches similar finding from Gurley, et al. (2016), whose study results also ranked this function as the lowest by their principals. While principals ranked *Maintaining High Visibility* as their lowest function, a study by Gentilucci and Muto (2007) found that students felt high visibility along with high principal approachability directly and positively influenced their academic success. This ethnographic study examined student beliefs of principals' roles to affect academic achievement. The researchers determined that approachable visibility was highly rated amongst these students as a means of academic success. Therefore, while principals see

Maintaining High Visibility as a low-ranking area, students see it as a direct form of increasing their academic achievement. Because of this low ranking by principals and its obvious importance to student success, *Maintaining High Visibility* is an area where principals can target improvement. The researcher then chose to examine how principals perceived their instructional leadership based on gender. In all three domains, the female principals ranked themselves higher than the male principals. The researcherthen examined how principals ranked themselves by gender within the ten functions. The female principals ranked themselves higher than the male principals in every function except for one. Interestingly, the exception was *Maintaining High Visibility*. The ranking by female principals as being higher than their male counterparts matches research found by Hallinger et al.(2016), who conducted a meta-analysis on studies that utilized the PIMRS in studying gender and instructional leadership. The results indicated that female principals performed more functional instructional leadership activities than their male contemporaries.

Research Question 2

While research question 2 addressed the overall perceptions of teachers concerning their principal's instructional leadership and the teachers' perceptions within the three domains of thePIMRS, the researcher also disaggregated and examined the perceptions of the teachers within the ten functions. Within the table for the functions, the teachers ranked *Maintaining High Visibility* the lowest and ranked Promoting Professional Development as the highest.

Maintaining High Visibility was also the lowest ranked function and *Promoting Professional Development* was the highest ranked function for the principals, thus indicating similar perceptions of these two functions between the principals and their teachers. Teachers indicated that their principal "Frequently" performed some of the functions: *Framing School Goals, Communicate School Goals, and Promoting Professional Development. Furthermore, Framing School Goals and Communicate School Goals* also were ranked as some of the highest functions in Gurley et al. (2016). However, they did indicate that they perceived their principals falling between "Sometimes" and "Frequently" on majority of the functions. Teachers rated theirprincipals lower than the principals rated themselves. These results fall in line with previous studies that have found that principals rate themselves substantially higher than their teachers rate them (Hallinger et al., 2013). This indicates that while principals

perceive themselves performing principal instructional leadership activities, there is room for improvement as far as their teachers are concerned. This is also an area in which future research can expand from looking at just the perceptions of principal instructional leadership to measuring the actual activity of principal instructional leadership. This would then allow a comparison between the perception and actual practice itself. The researcher then examined the dimensional breakdown of teacher perceptions of their principal based on teacher gender. The results showed that female teachers consistently ranked their principals lower than did the male teachers. The researcher then examined the ten functions by gender of teacher and gender of principal. Female teachers ranked their female principals lower than the male teachers ranked their female principals. This could very well be due to the Queen Bee Syndrome. The Queen Bee Syndrome was defined by Staines et al. (1973) and describes situations where a female manager poorly or more critically treats junior female employees compared to their male contemporaries (Blau & DeVaro, 2007). This critical treatment of females may explain why female teachers rank their female principals lower than male teachers do. However, female teachers still ranked female principals higher overall than male principals, which again agrees with the research that female principals are seen more often actively participating in principal instructional management compared to male principals (Hallinger et al., 2016). The function in which female and male teachers ranked their female principals lowest was *Maintaining High Visibility*. The highest-ranking function for female teachers with female principals was *Promoting Professional Development*. The highest- ranking function for male teachers with female principals was *Framing School Goals*. Male teachers ranked female principals higher than male principals again agreeing with the research offemale principals actively performing instructional leadership more overtly than male principals (Hallinger et al., 2016). Still, male teachers ranked their male principals higher than female teachers ranked their male principals in all but two functions. The fact that male teachers ranked both female and male principals higher than female teachers ranked them may coincide with research from Tran's (2015) study comparing female and male teachers in secondary schools on perceptions of school environment, teaching efficacy, teacher stress, and job satisfaction. Tran's (2015) results indicate that male teachers with positively high perceptions of their school surroundings had greater job satisfaction, whereas female teachers with positively low perceptions of school surroundings had lower job satisfaction. This greater overall job

satisfaction may help to explainwhy male teachers ranked principals higher than female teachers ranked them.

Research Question 3

Research question 3 compared the perceptions principals had of their own instructionalleadership with the perceptions of their teachers. The results from the dependent *t*-test showed there was a statistically significant difference for each of the three dimensions of the PIMRS when comparing principal and teacher perceptions with principals ranking themselves higher; however, each of these dimensions showed a small effect size. These results agree with the findings of Hallinger et al. (2013), whose meta-analysis determined "that researchers consistently report significant differences between teacher and principal perceptions of the principal's instructional leadership" (p. 277), with principals rating themselves higher than teachers rate them. However, not all studies found that principals self-rated higher compared tothe ratings by their teachers. Gurley et al. (2016) found teachers rated their principals similarly to how their principals rated themselves.

Research Question 4

Research question 4 examined the relationship between principal instructional leadership and college readiness as measured by ACT scores through a binomial logistic regression. The ACT scores were put into two categories. Average ACT scores and Above Average ACT scores. The results from the regression showed statistical significance did not exist in the full model that included principal and teacher gender along with the three dimensions of the PIMRS. However, statistical significance was found for the model with principal and teacher gender. Because of theresults, the researcher shifted focus to gender. When controlling for the three dimensions, the results indicated that principal gender was significant and teacher gender was not. These results indicated that male principals were less likely to be principal of a school with an above average ACT score. Male principals' odds of being an above average ACT school were 76% lower than female principals. It is important to note the overall effect size for the overall model was small.

Discussion and Conclusion

The principals that participated in this study had an overall perception of "*Frequently*" performing tasks of instructional leadership. These results are similar to results found by Gurley, et al. (2016) when examining the principals' perceptions of their own instructional

leadership in the southeastern Unites States. Their study also found principals rated themselves as "*Frequently*" performing tasks of instructional leadership. The researcher's results again mirrored the results of Gurley, et al. (2016) when disaggregating the data into the ten functions and finding Maintaining High Visibility ranked the lowest. The researcher then chose to examine how principals perceived their instructional leadership based on their gender. In all three domains, female principals ranked themselves higher than male principals. Female principals also ranked themselves higher than male principals in all the functions, except for Maintaining High Visibility. This corroborates research found by Hallinger et al. (2016), in which the results of a meta-analysis indicated that female principals performed more functional instructional leadership activities than their male counterparts.

Teachers on the other hand did not find their principals performing instructional leadership tasks quite as often as their principals did. Teachers found their principals performed instructional leadership tasks "*Sometimes*" to "*Frequently*". These results also match the meta-analysis performed by Hallinger et al. (2016) which found principals self-rate higher than their teachers rate them. These results contradict a study by Gurley et al. (2016) however, that found teachers rated their principals very similarly to how principals rated themselves. When disaggregating the data for teachers, teachers did agree with their principals that Maintaining High Visibility was the lowest ranking of the ten functions. The research then examined data based on teacher gender and principal gender. Both female and male teachers ranked the female principals higher than male principals with female teachers consistently ranking female principals lower than male teachers. This could be due to the Queen Bee Syndrome. The Queen Bee Syndrome was defined by Staines et al. (1973) and describes situations where a female manager poorly or more critically treats junior female employees compared to their male contemporaries (Blau & DeVaro, 2007). This critical treatment of females may explain why female teachers rank their female principals lower than male teachers do.

While each of the three dimensions showed statistically significant differences when comparing principal and teacher perceptions, the effect size was small. However, when breaking down the dimensions into the ten functions, *Protect Instructional Time* represented a medium effect size. This agrees with years of studies that indicate that more instructional time leads to higher academic achievement (Dreeben & Gamoran, 1986, Karweit & Slavin, 1981; Rivkin & Schiman, 2015; Wiley, 1976).

When examining principal instructional leadership and college readiness as measured by ACT scores, the researcher utilized a binomial logistic regression. The ACT scores were put into two categories: Average ACT scores and Above Average ACT scores. The results showed statistical significance did not exist in the full model that included principal and teacher gender along with the three dimensions of the PIMRS. However, statistical significance was found for the model with principal and teacher gender. When controlling for the three dimensions, the results indicated that principal gender was significant and teacher gender was not. These results indicated that male principals were less likely to be principal of a school with an above average ACT score. Male principals' odds of being an above average ACT school were 76% lower than female principals. It is important to note that overall effect size for the overall model was small. While no significance was found for instructional leadership itself, it was found based on principal gender with a small effect size. If female principals more actively engage in instructional leadership (Hallinger, et al., 2016) and the principal has an effect on student achievement (Edmonds, 1979; Goddard & Goddard, 2015; Marzano et al., 2005; Weber, 1971), then results of the current study agree with previous research in that female principals are perceived to actively engage in principal instructional leadership more often than male principals.

Limitations did exist in the current study. Not enough schools or principals participated in the study. The PIMRS itself requires self-evaluation which cannot be verified by the researcher. Biases such as selective recall, inaccurate memory of timeframe of events, answers based on participant agenda or embellishments (Sacred Heart University Library, 2018). Participants were also volunteers and may not fully represent the norm for all private and Catholic school teachers and principals.

Future research can be done on this study. The researcher recommends replicating this study using a cross-case comparison of public high achieving schools with low achieving schools in order to aide district leaders when making principal appointment decisions. The study could also be replicated and expanded using larger samples of private and Catholic schools in the recruitment of qualified leadership. Finally, college readiness as an outcome could be studied specifically. A study using a larger sample size would allow for a multiple regression analsyis instead of a logistic regression.

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