

THE IMPACT OF ONLINE INSTRUCTION ON FOURTH GRADE STUDENTS' READING SELF- EFFICACY AND ACHIEVEMENT

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Problem and Purpose

- Declining self-efficacy and achievement
- Introduce extended and purposeful online delivery of instruction
- Identify the extent of MobyMax[®]'s effect on reading self-efficacy
- Identify the relationship to participants' reading achievement

Literature Review

- Foundational work in self-efficacy (Bandura, 1977)
 - Self-efficacy defined (Bandura)
- Self-efficacy and achievement
 - Success led to enhanced self-efficacy (Barkley, 2006; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Pajares & Schunk, 2002)
 - Failure led to decreased levels of self-efficacy (Bandura, et. al.).

Research Question One

1. To what extent is the students' overall reading self-efficacy level increased by the implementation of an online reading instruction delivery intervention as compared to the non-intervention group?

Research Question Two

2. To what extent is the students' overall reading achievement level increased by the implementation of an online reading instruction delivery intervention as compared to the non-intervention group?

Research Question Three

3. To what extent did each subscale within the RSPS—progress, observational comparison, social feedback, and physiological states—contribute to students' overall reading achievement?

Research Question Four

4. To what extent does reading self-efficacy and reading achievement vary between male and female students?

Research Question Five

5. To what extent does reading self-efficacy and reading achievement vary by ethnicity (including White, Black, Hispanic, and other)?

Significance

- Research
 - Adds to self-efficacy and achievement research
 - Adds to limited research on MobyMax®
 - Online intervention

Research Design

- Questions one, two, four, and five were quantitative, quasi-experimental design
 - Each contained multi-level independent variables and a dependent variable
 - Random assignment was not used
 - Pre-/Post- tests were conducted
- Question three was quantitative, quasi-experimental design as well as correlational
 - Multi-level independent variables and a dependent variable
 - Random assignment was not used
 - Pre-/Post- tests were conducted

Data Collection

- Participants
 - District in Midwest
 - 4th grade
 - Three classes
 - Sample size
 - Participants

Data Collection

- Instruments
 - Reader Self-Perception Scale (RSPS) (Henk & Melnick, 1995)
 - Northwest Evaluation Association Measure of Academic Progress (NWEA MAP)
 - Normed Assessment
 - RIT Score (NWEA, n.d.)
 - District level mandatory assessment

Analytical Methods

1. To what extent is the students' overall reading self-efficacy level increased by the implementation of an online reading instruction delivery intervention as compared to the non-intervention group?

- Quantitative, quasi-experimental design
- Independent variable
 - Control group and the experimental or intervention group
- Dependent variable
 - Reader Self-Perception Scale RSPS pretest and posttest outcomes.
- Mixed factorial Analysis of Variance (ANOVA) or the One-Between-One-Within Subjects ANOVA (Yockey, 2011)

Findings

- Interaction between time and condition
 - $F(1, 56) = 1.76, p = .19, \text{partial } \eta^2 = .03$
- Main effect for condition
 - $F(1, 56) = .02, p = .89, \text{partial } \eta^2 = .00$
- Main effect for time
 - $F(1, 56) = .38, p = .54, \text{partial } \eta^2 = .01$

RQ1 Descriptive Statistics

	Intervention			Non-intervention (Control Group)		
Time	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
Pre-test	26	132.76	11.45	32	130.38	15.25
Posttest	26	131.18	20.34	32	134.68	22.13

Analytical Methods

2. To what extent is the students' overall reading achievement level increased by the implementation of an online reading instruction delivery intervention as compared to the non-intervention group?

- Quantitative, quasi-experimental design
- Independent variables
 - control group and the experimental or intervention group
- Dependent variable
 - reading achievement pretest and posttest outcomes.
- Mixed factorial Analysis of Variance (ANOVA) or the One-Between-One-Within Subjects ANOVA (Yockey, 2011)

Findings

- Interaction between time and condition
 - $F(1, 73) = 2.37, p = .13, \text{partial } \eta^2 = .03$
- Main effect for condition
 - $F(1, 73) = 1.66, p = .20, \text{partial } \eta^2 = .02$
- Main effect for time
 - $F(1, 73) = 23.87, p = .00, \text{partial } \eta^2 = .25$

RQ2 Descriptive Statistics

	Intervention			Non-intervention (Control Group)		
Time	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
Pre-test	30	189.63	16.29	45	192.71	16.58
Posttest	30	193.20	16.81	45	199.56	15.32

Analytical Methods

3. To what extent did each subscale within the RSPS—progress, observational comparison, social feedback, and physiological states—contribute to students' overall reading achievement?

- Quantitative, correlational, quasi-experimental design
- Independent variables
 - The four contributing sources of self-efficacy as predictors
- Dependent variable
 - Reading Achievement difference score (posttest minus pretest scores)
- Multiple linear regression
 - Individual contribution of the four predictors or independent variables to overall reading growth (Yockey, 2011)

Findings

- Overall regression
 - $F(4, 62) = .99, p = .42, R^2 = .06$
- Subscales
 - Progress – $\beta = -.29, t(62) = -1.87, p = .07$
 - Observational comparison – $\beta = .11, t(62) = .77, p = .44$
 - Social feedback – $\beta = .10, t(62) = .66, p = .51$
 - Physiological states – $\beta = .11, t(62) = .77, p = .44$

RQ3 Descriptive Statistics

	<i>N</i>	<i>M</i>	<i>SD</i>
Reading Growth	67	5.28	9.15
Progress	67	38.13	4.95
Observational Comparison	67	20.45	4.46
Social Feedback	67	34.21	4.71
Physiological States	67	33.45	4.24

Analytical Methods

4. To what extent does reading self-efficacy and reading achievement vary between male and female students?

- Quantitative, quasi-experimental design
- Independent variables
 - Gender – female and male
- Dependent variable
 - RSPS and Reading Achievement pretest and posttest outcomes
- Independent *t*-tests (Yockey, 2011)

Findings

- Self-efficacy
 - Pretest – $t(66) = 1.03, p = .31, d = .18$
 - Posttest – $t(62) = 1.67, p = .10, d = .30$
- No statistical significance
- Small effect size (Yockey, 2011)

RQ 4 Descriptive Statistics – Self-Efficacy

Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Pretest results for Female	30	132.43	13.61
Posttest results for Female	29	138.47	13.88
Pretest results for Male	38	128.91	14.41
Posttest results for Male	35	129.97	24.32

Findings

- Reading Achievement
 - Levene's was $p < .05$ for both the pretest and posttest
 - equality of variance was not assumed
- Pretest reading mean differences
 - $t(66.23) = 3.07, p < .01, d = .53$
- Posttest reading mean differences
 - $t(68.92) = 2.57, p < .02, d = .44$

RQ 4 Descriptive Statistics – Reading Achievement

Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Pretest results for female	35	197.23	11.48
Posttest results for female	35	201.83	12.21
Pretest results for male	40	186.45	18.48
Posttest results for male	40	192.80	18.01

Analytical Methods

5. To what extent does reading self-efficacy and reading achievement vary by ethnicity (including White, Black, Hispanic, and other)?
 - Quantitative, quasi-experimental design
 - Independent variables
 - Ethnicities– White, Black, Hispanic, other as predictors
 - Dependent variable
 - Reading Achievement and RSPS pretest and posttest difference scores or growth scores
 - Between-subjects, one-way ANOVAs (Yockey, 2011)

Findings

- Self-efficacy across ethnicities
 - $F(3, 54) = 1.94, p = .13, \eta^2 = .10$.
 - The effect size was medium (Yockey, 2011)
 - Differences not statistically significant
 - sample size contributed to the absence of statistical significance rather than a lack of meaningful difference
- Reading achievement's mean difference across ethnicities
 - $F(3, 71) = .99, p = .40, \eta^2 = .04$.
 - Small effect size (Yockey, 2011)
 - Differences were not statistically significant

RQ 5 Descriptive Statistics – Self-Efficacy

Ethnicity	<i>N</i>	<i>M</i>	<i>SD</i>
Black	17	-3.82	20.72
White	23	7.15	12.24
Hispanic	9	4.04	13.04
Other	9	-4.36	19.85

RQ 5 Descriptive Statistics – Reading Achievement

Ethnicity	<i>N</i>	<i>M</i>	<i>SD</i>
Black	20	3.05	9.99
White	34	5.56	9.66
Hispanic	11	7.18	7.81
Other	10	8.60	6.02

Conclusions

- Self-efficacy
- Reading Achievement
- Impact of MobyMax[®]
- Self-efficacy's contributing sources
- Gender differences
- Ethnic variance

Implications

- MobyMax[®] had no significant impact
- Reading achievement was significant
- Previous Research (Barkley, 2006; Bandura, et. al., 1996; Pajares & Schunk, 2002)
- Gender results and interventions
- Opportunities for success
- Additional intervention research needed
- MobyMax[®] was limited

Limitations

- Missing data on RSPS
- Convenience sample (Salkind, 2012)
 - No random assignment
 - Uneven groups
- Inconsistent application or attention to the intervention
- Time constraints
- Unable to replicate previous findings

Recommendations

- Survey Monkey settings
- Mixed method approach to MobyMax[®] research
 - Correlational
 - Qualitative
- Longitudinal Study
- Random Assignment
- Self-efficacy and achievement research
 - Interventions
 - Improved self-efficacy

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