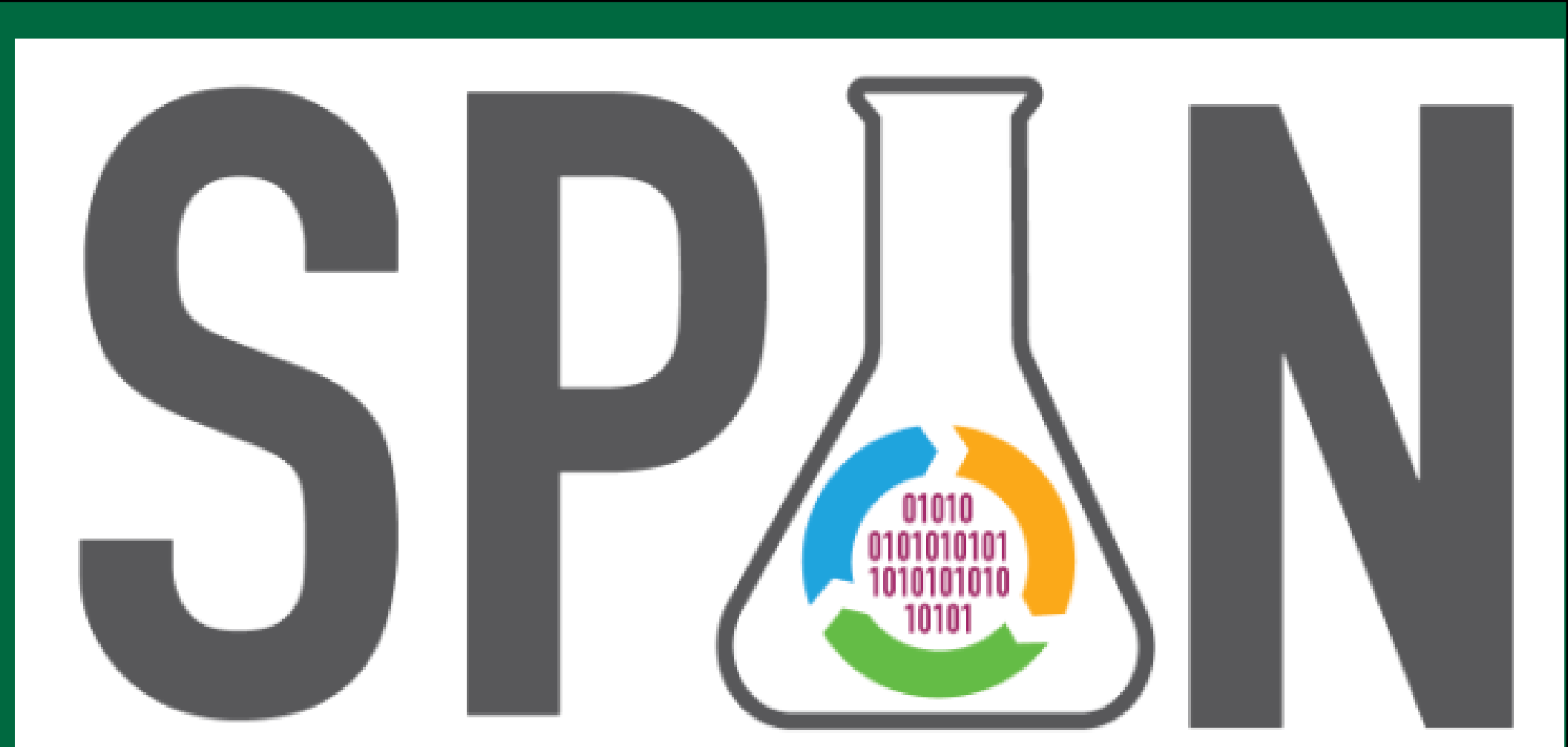


A Teacher Efficacy Scale for Infusing Self-Regulated Learning (TE-iSRL) into Lesson Plans with Varied Learning Ability Students

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ABSTRACT

Influencing both teacher and student outcomes, teacher efficacy for self-regulated learning (SRL) refers to teachers' beliefs about how capable they are at effectively infusing self-regulatory processes into their teaching. The present study focused on the development of a new instrument, the Teacher Efficacy Scale for Applying SRL (TE-iSRL), aimed at measuring teacher efficacy for infusing SRL into their lesson plans, with a specific focus on varied abilities of students (i.e. advanced versus at risk). Over a two-year time span, the TE-iSRL was administered four times to in-service, secondary science teachers (N=19). The instrument showed strong internal consistency. An one-way ANOVA revealed changes in teacher efficacy across several times. Overall, findings showed that the TE-iSRL might be an effective tool for professional development. Implications for both teacher and student success of the TE-iSRL are discussed.

INTRODUCTION

- Given the importance of teacher efficacy (i.e., beliefs about capability to effectively perform various teaching responsibilities) for influencing teacher instructional quality and job satisfaction (Künsting et al., 2016) and student motivation to learn (Klassen & Chiu, 2011), researchers have developed a plethora of teacher self-efficacy scales (Tschannen-Moran & Hoy, 2001; Yoon et al., 2014).
- However, few of these instruments target teacher efficacy for supporting student self-regulated learning (SRL; the degree to which students manage their affect, cognition, and behaviors in pursuit of personal goals) (Dignath-van Ewijk, 2016; Zimmerman, 2013), with none, to our knowledge, assessing teacher beliefs to implement SRL across students with varying abilities or achievement levels.

STUDY PURPOSE

The purpose of this study is to examine:

- the internal consistency of a unique efficacy tool, namely the Teacher Efficacy Scale for Infusing Self-Regulated Learning (TE-iSRL)
- the usefulness of the range-type rating scale (upper and lower range)?
- whether such ratings varied based on providing support to either academically-advanced or at-risk students over time.

METHODS

Participants

Nineteen (N= 19) in-service secondary science teachers (79% female; 89% White, 11% Asian) completed the efficacy scale four times over a two-year period.

Instrument

- TE-iSRL was developed based on Zimmerman's (2013) SRL processes (e.g., goal setting, self-monitoring, and self-evaluation).
- This scale included 10 items with the question stem, "To what extent can you develop lesson plans on self-regulated learning that enable students to successfully...(e.g., take good notes)"
- Using a 0 to 100 Likert scale, teachers are prompted to rate their self-efficacy to support and teach (a) at-risk students (lower limit) and (b) advanced students (upper limit).

Data Analysis

- Cronbach's alpha was calculated to show the internal consistency of the measure.
- A one-way repeated-measure ANOVA was conducted to examine the change of teachers' scores on this TE-iSRL Scale across four time points (Sphericity was assumed for all three tests)

RESULTS

Internal Consistency

TE-iSRL showed acceptable internal consistency across all four times (time1: $\alpha_{lower}=.97$, $\alpha_{upper}=.95$; time2: $\alpha_{lower}=.98$, $\alpha_{upper}=.91$; time3: $\alpha_{lower}=.99$, $\alpha_{upper}=.97$; time4: $\alpha_{lower}=.97$, $\alpha_{upper}=.91$).

Longitudinal Changes

- Teacher efficacy for infusing SRL into lesson plans for their at-risk students significantly changed across these four time points, $F(3, 45) = 11.37$ ($p<.001$; $\eta_p^2=.43$) with Time1 ratings significantly lower than Time2 and Time4 ($p<.05$).
- Teacher efficacy in infusing SRL into lesson plans for their most advanced students significantly changed across four time points, $F(3, 45) = 7.92$ ($p<.01$; $\eta_p^2=.35$). Teacher efficacy at Time1 and Time3 was significantly lower than teacher efficacy at Time2 ($p<.05$).
- The range of teacher efficacy in infusing SRL for advanced and at-risk students also significantly changed across four time points, $F(3, 45) = 5.34$ ($p<.01$; $\eta_p^2=.26$) with Time1 significantly greater than Time2. No significant differences were found across other times.

RESULTS

Table 1

Descriptive statistics

	T1	T2	T3	T4
N	19	16	19	19
Teacher efficacy lower (SD)	47.08 (15.84)	68.66 (13.31)	58.55 (22.53)	59.51 (19.65)
Teacher efficacy upper (SD)	78.26 (11.25)	90.47 (5.37)	84.65 (10.05)	84.47 (9.54)
Teacher efficacy range (SD)	31.18 (12.33)	21.81(10.43)	26.10(15.10)	24.96(11.57)

DISCUSSION

- Our findings show promise for using the TE-iSRL scale to assess teachers' beliefs about infusing SRL into their lesson plans in inclusive classrooms with high and low achieving students.
- TE-iSRL showed not only high inter-rater reliability but also detected differences in ratings for advanced and struggling students.
- Specifically, TE-iSRL demonstrated a more precise accounting of teacher efficacy when providing teachers with specific reference points to make such ratings which is consistent with previous findings (Bandura, 1997).
- Advanced versus struggling students exhibit different patterns in SRL (DiFrancesca et al., 2015). Therefore, this instrument contributes to the literature by distinguishing between these groups when measuring teacher efficacy to implement SRL.

Recommendations for Practice and Future Directions

- Could be used as a tool for professional development workshops to assess secondary teachers' efficacy beliefs to infuse SRL into their teaching for varied ability students.
- Future studies with the TE-iSRL should include teachers across other grade levels.
- Further validity evidence regarding the TE-iSRL scale and its proposed uses with larger samples is needed.

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