AERA
SIG
Studying and Self-Regulated Learning

2023 Spring Newsletter

Previewing AERA 2023

Editors

Kendall Hartley

Anna Brady

TABLE OF CONTENTS

Connect

Online *SSRLSIG.org*

Facebook *AERASSRL*

Twitter *@AERA_SSRL*

Donate

If you are looking for organizations to donate to this year, consider our SSRL SIG. In addition to basic operating costs, we use funds to support our three awards and the Graduate Student Mentoring Program. With your help, we can continue to support initiatives like these and possibly expand them in the future. If you are interested in making a charitable donation to our SSRL SIG, follow these three steps:

- Write a check payable to "AERA" and in the notes field on the check write: "Donation to Studying and Self-Regulated Learning SIG #121"
- Include a brief cover letter explaining your intent to donate to our SIG. Also, include the address where you want AERA to send you a receipt for tax purposes.
- Send the check and cover letter to:

American Educational Research Association
Attn: Norman Tenorio, Director of Finance and Administration
1430 K St., NW, Suite 1200
Washington, DC 20005

Photo Credits

- Front & Back: Cloud Gate in City during Daytime by Christopher Alvarenga via unsplash.com

- Mouse Earth, Facebook, and Twitter - Pixabay

- Donate – PublcDomainPictures.net

LETTER FROM THE CHAIRS

Aubrey Whitehead & Abraham Flanigan

Virginia Military Institute & Georgia Southern University

Aubrey Whitehead

Abraham Flanigan

Good day, all

We're less than a month out from the 2023 AERA conference in Chicago. In a departure from prior newsletters, for this edition we elected a different approach. To get everyone prepared (and eager) for the several SSRL SIG sessions, Kendall and Anna (our newsletter co-chairs) invited extended abstracts from SIG members who have accepted meeting proposals. Within the pages of this newsletter, you will find details on 23 cutting-edge studies conducted by our colleagues. We know that reading these extended abstracts is sure to get all of us excited to come together in Chicago to learn from each other and exchange ideas! To help with your planning, you can find a consolidated list of times and locations for the SSRL SIG sessions on page 7.

Whether in-person or remotely, we look forward to seeing everyone at the 2023 AERA conference. This year's winner of the Barry J. Zimmerman Award for outstanding contributions, Steve Graham (Arizona State University), will serve as guest speaker. The title of his planned comments is, "Writing is Self-Regulation."

As always, we would like to recognize the efforts of all of those who contributed to the SSRL SIG this year and who helped with preparation for the upcoming conference; see pages 29-30.

Thank you for all you do for us!

All the best,

Aubrey & Abe

LETTER FROM THE EDITORS

Kendall Hartley & Anna Brady

University of Nevada, Las Vegas and Georgia Southern University

Kendall Hartley

Anna Brady

It is our pleasure to welcome you to the Spring 2023 Issue of the SSRL SIG Newsletter. We are trying something new this year with the issue theme being Previewing AERA 2023. We invited all of the first authors of accepted manuscripts to submit an extended abstract for inclusion in the newsletter. We were thrilled to receive 16 submissions! Our hope is that this issue can be used as a guide for SIG members to get a broad perspective on what to expect at the annual conference while also being able to dive a little deeper into each paper. We also like the idea that the presentations can be memorialized and archived on our website.

As you can see from the listing of essays, the annual conference will highlight SRL research in a broad range of contexts (e.g, continuing education, pre-service teachers, middle school, STEM) types (e.g., meta-anlyses, measurement validation, mixed-methods) and topics (e.g., goal orientation, mindsets, intersectionality, gifted, social regulation, help-seeking). It is genuinely exciting to see the breadth and depth of impact that will be on display in April.

We hope you enjoy the issue and we look forward to seeing you in Chicago!

Safe travels,

Kendall & Anna

STUDYING AND SELF-REGULATED LEARNING AERA SESSIONS

Statistical Methods for Assessing Self-regulated Learning in Context

Paper Session

Thursday, April 13, 9:50 - 11:20 AM CDT
Swissôtel Chicago, Floor: Event Centre, 1st Floor, Vevey 3
https://tinyurl.com/2qbjryjf

Self-Regulated Learning Skills, Strategies, Behaviors, and Learning

Paper Session

Friday, April 14, 2:50 - 4:20 PM CDT
Swissôtel Chicago, Floor: Event Centre, 1st Floor, St. Gallen 1
https://tinyurl.com/2hylztma

Studying and Self-Regulated Learning SIG Poster Session

Saturday, April 15, 9:50 - 11:20 AM
Hyatt Regency Chicago, Floor: East Tower - Exhibit Level, Riverside West Exhibition Hall
https://tinyurl.com/2z5p8x86

Self-Regulated Learning Development and Context

Paper Session

Saturday, April 15, 2:50 - 4:20 CDT
Swissôtel Chicago, Floor: Lucerne Level, Lucerne 3
https://tinyurl.com/2n9e48ry

Studying and Self-regulated Learning Business Meeting

Sunday, April 16, 2:50- 4:20 PM CDT
Swissôtel Chicago, Floor: Event Centre, 1st Floor, Zurich A
https://tinyurl.com/2hmytxb6

Designing Effective Digital Programs to Help Students Develop and Deploy Self-Regulated Learning Skills

Symposium

Sunday, April 16, 4:40 - 6:10 PM CDT
Swissôtel Chicago, Floor: Lucerne Level, Lucerne 3
https://tinyurl.com/2lqd26vj

Self-Regulated Learning Behaviors and Learning

Virtual Paper Session

Friday, May 5, 2:30 - 4:00 PM CDT
https://tinyurl.com/2n5fq4uv

STATISTICAL METHODS FOR ASSESSING SELF-REGULATED LEARNING IN CONTEXT

Use of a Technology-Based SRL Tool Predicts Course Performance—But Response Latency Moderates the Effect

Joseph C. Tise, Rayne A. Sperling, Jennelle L. Malcos, & Patricia Buchanan
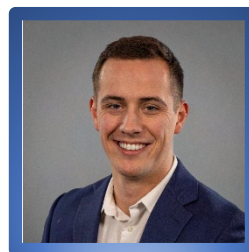
Joseph C. Tise

Students are self-regulated to the extent they engage actively in their learning through metacognitive, motivational, and behavioral processes (Zimmerman, 1986). From this definition stem many models of self-regulated learning, including the new Success through Self-Regulated Learning (StSRL) framework (Sperling, 2017). The StSRL framework was designed to connect SRL theory to practice by helping practitioners scaffold SRL through bi-directional, technology-driven supports. SRL theory and this framework undergirded the technology-based tool we investigated in this study. Our prior research indicated that higher use of the tool was positively related to course performance, but investigations about how

students use technology in authentic settings is scarce. Thus, our primary aim in this study was to determine if the way students used the tool predicted their academic performance (see Figure 1 for a depiction of the model tested). Specifically, the following research questions (RQ) were addressed: 1) Does use of the tool predict course performance after controlling for prior academic performance? and 2) Is the predictive relationship between tool use and course performance moderated by response latency?
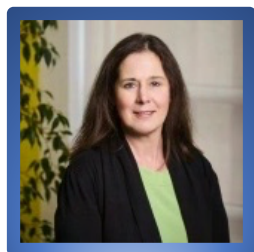
Rayne A. Sperling

Participants (n=1,134) were enrolled in one of three university courses (Statistics, n=471; Biology, n=575; Technology, n=88) in Fall 2019 and voluntarily consented to participate. Instructors in all courses utilized the same technology-based tool to create SRL scaffolds grounded in the StSRL framework and contextualized to their course content. This tool was designed to provide real-time, contextualized SRL scaffolds with which students could engage interactively by submitting responses back to the instructor via one of several formats: short-answer response, multiple-choice, yes/no, slider scale rating, or a simple acknowledgement. For example, one prompt intended to promote utility value for the course asked students to submit short-answer responses to the following: "Tell me one way in which content from this week is useful to you in life or your career." No significant data nesting by course was present, so the sample was treated
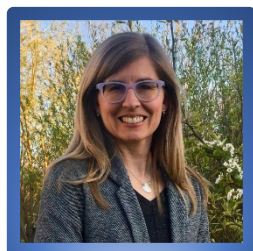
Jennelle L. Malcos

as one group within a path analysis. Importantly, since the distribution of response latencies

(across students and prompts) was non-normal (positively skewed), we tested two models that were identical in specification except for the operationalization of response latency. Model 1 considered students' median response latency across prompts, while Model 2 considered students' mean response latency.

Results indicated higher use of the tool did
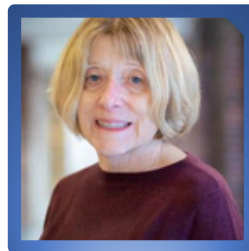
Patricia Buchanan

predict higher course performance after controlling for GPA and SAT scores. Model 1 accounted for 38.70% (p<.001) of the variance in course grade, while Model 2 accounted for 38.90% (p<.001). Regarding research question 2, results were moderated by response latencies, but only when median response latency was used (Model 1). Specifically, the power of tool use to predict course performance decreases as students take longer to respond to prompts (on average, using median). This study shows not only that students' use of this tool predict their course performance (across domains), but how students use the tool and how researchers operationalize response latency is impactful. These results provide preliminary evidence of the effectiveness of this scaffolding tool and serve as justification for further experimental testing.

Figure 1

Hypothesized Model
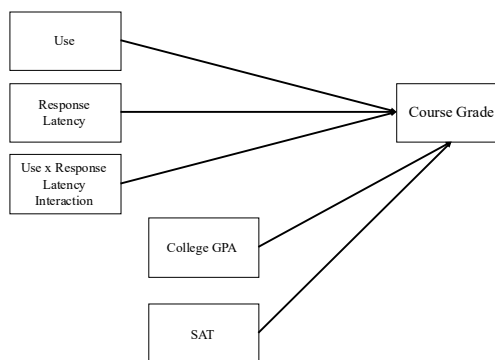
References

Sperling, R. A. (2017). *Supporting Success through Educational Technology Innovations: Prompting Students' Self-Regulated Learning.* The Center for Innovation in Online Learning (COIL).

Zimmerman, B. J. (1986). Becoming a self-regulated learner: Which are the key subprocesses? *Contemporary Educational Psychology, 11*(4), 307–313. https://doi.org/10.1016/0361-476X(86)90027-5

Development of Self-regulated Learning Skills in a Learning-to-Learn Course: A Latent Transition Approach

Huy Nguyen, August Masonheimer, Leah Janikowski, Minjung Kim, & Christopher A. Wolters

Huy Nguyen

The goal of our study was to evaluate the effectiveness of a learning-to-learn (L2L) course in promoting college students' self-regulated learning (SRL). While SRL is important to academic success, not all students enter college with proficient SRL skills and many do not develop these skills while in college (Peverly et al., 2003). L2L courses, based on SRL theory and practice, are designed to teach students these skills and have been shown to improve students' SRL strategy use and motivation (Theobald, 2021). Whereas past L2L research has mostly used variable-centered approaches (e.g., mean-level changes), we adopted a person-centered approach using latent profile analysis (LPA). We also conducted latent transition analysis (LTA; Collins & Lanza, 2009) to understand how students' SRL latent profile membership changes over time through participation in an L2L course. Our research questions were:
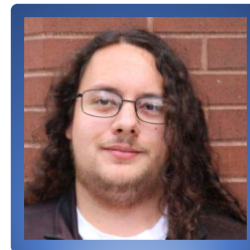
1. What profiles of SRL strategy use and procrastination emerge from the data at the beginning (T1) and end (T2) of a semester?

2. To what extent do students' profile memberships change from T1 to T2?

3. Are changes in profile membership associated with student or course characteristics?

August Masonheimer

Our sample included 260 college students (51% White; 39% female; 18% first-generation) enrolled in an L2L course (42% online). At the beginning (T1) and end (T2) of a semester, students completed the same self-report survey that assessed their use of metacognitive, motivational, and environmental regulation strategies, as well as academic procrastination.

LPA revealed three distinct SRL profiles at each time point. T1 had profiles that we titled Lower SRL, Moderate SRL, and Higher SRL, based on the mean values across the four variables relative to one another. At T2, we titled the three profile groups Moderate SRL, Higher SRL, and Highest SRL.
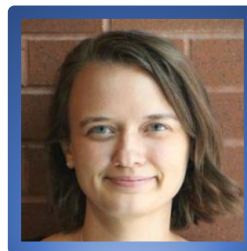
Leah Janikowski

LTA revealed profile transition patterns differed across the T1 profiles. Students in the Lower SRL profile at T1 all transitioned into more adaptive SRL profiles at T2 (Moderate, Higher, and Highest SRL). However, students who started in the Moderate SRL profile had a 36% probability of remaining in the same profile at T2; these students had a 64% probability of transitioning to a more adaptive profile at T2 (Higher and Highest SRL). Students who started the course in the Higher SRL profile had a 51% probability of remaining in the same profile at T2, a 46% probability of transitioning to the Highest SRL profile, and a 4% probability of regressing to a Moderate SRL profile. Female students had greater odds of being in the Moderate SRL profile at T1; first-generation college student status and

course format (in-person or online) were not associated with T1 profile membership.

Minjung Kim

Our findings indicate that the L2L course was relatively effective in improving students' reported SRL strategy use and reducing academic procrastination. Importantly, the course appeared beneficial for students who came in with less adaptive SRL skills and behaviors. For practitioners, it may be beneficial to identify students less proficient in SRL and encourage their participation to foster their academic success.

Christopher A. Wolters

References

Collins, L. M., & Lanza, S. T. (2009). *Latent class and latent transition analysis: With applications in the social, behavioral, and health sciences* (Vol. 718). John Wiley & Sons.

Peverly, S. T., Brobst, K. E., Graham, M., & Shaw, R. (2003). College adults are not good at self-regulation: A study on the relationship of self-regulation, note taking, and test taking. *Journal of Educational Psychology, 95*(2), 335–346.

Theobald, M. (2021). Self-regulated learning training programs enhance university students' academic performance, self-regulated learning strategies, and motivation: A meta-analysis. *Contemporary Educational Psychology, 66,* 101976.

Examining the Relationships Among Achievement Goal Orientations, Goal Management Practices, and Academic Challenges

Muqing Nie, Annie (Meng Qi) Wu, Ramin Rostampour, Allyson F. Hadwin, & Stuart MacDonald

Muqing Nie

The purpose of this study is to examine whether goal management practices (the extent to which students report engaging in practices characteristic of the goal setting and planning phase of SRL) can explain the relationship between each of the achievement goal orientations and academic challenges among undergraduate students.
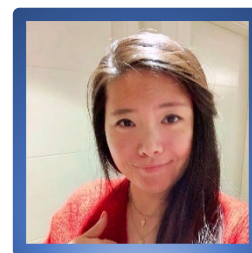
Annie (Meng Qi) Wu

Two research questions were proposed:

1. Do goal orientations predict academic challenges?

2. Do goal management practices mediate the relationship between achievement goal orientations and academic challenges?

Participants

Participants were undergraduate students (N= 213, Mage = 19.32 years, 48% female, 52% male) enrolled in a learning-to-learn course at a Western Canadian university.

Measurement

The Achievement Goal Questionnaire-Revised (AGQ-R; Ω:.79) was developed by Elliot and Murayama (2008) to measure achievement goal orientations. AGQ-R has four subscales measuring mastery-approach goal orientation (Ω: .73), mastery-avoidance goal orientations (Ω: .74), performance-approach goal orientation (Ω: .83), and performance-avoidance goal orientation (Ω: .85).

Ramin Rostampour

Goal Management Practices (GMP) subscale is a unidimensional measurement from the multidimensional SRL-Practices scale in the Self-regulated Learning Profile and Self-Diagnostic Tool (SRL-PSD-2021, Hadwin et al., 2022b). GMP subscale (Ω: .86) includes five items (e.g., "Set goals for my work").

The Academic Challenges were measured by the Self-Regulated Learning Challenges Scale (SRL-C) in the SRL-PSD-2021. SRL-C (Ω = .95) includes 31 items representing six challenges: three items measuring motivational challenges (Ω = .72), four items measuring goal and time management challenges (Ω = .86), six items measuring cognitive challenges (Ω = .87), four items measuring initiating-sustaining engagement challenges (Ω = .74), six item measuring socio-emotional challenges (Ω = .88), and eight items measuring metacognitive challenges (Ω = .90).

Allyson F. Hadwin

Analysis

First, preliminary descriptive statistics (means, standard deviation/SD, skewness and kurtosis) provided information about the distribution of the data. Second, a confirmatory factor analysis (CFA) was conducted to test the psychometric properties of achievement goal orientations given the items were reworded for this study. Third, a structural equation model (SEM) model was used to examine (a) the predictive relationships between four achievement goal orientations and motivation challenges, and (b) the hypothetical mediation effect of goal management practices using bootstrap process.
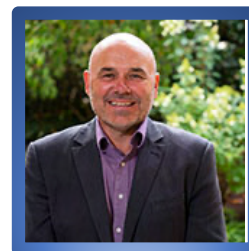
Stuart MacDonald

Findings

The findings revealed that mastery-approach goal orientation negatively predicted all academic challenges, including motivation challenges, goal and time management challenges, cognitive challenges, social and emotional challenges, initiating and sustaining challenges, and metacognitive challenges. Additionally, the study found that mastery-avoidance goals positively predicted goal and time management challenges, cognitive challenges, initiating and sustaining challenges, and metacognitive challenges. However, there was no significant predictive relationship between performance-related goal orientations and academic challenges. F Furthermore, mediation analysis showed that GMP mediated the relationship between mastery-approach goal orientations and motivation challenges, mastery-approach goal orientations and goal and time management challenges, as well as mastery-approach goal orientations and metacognitive challenges. GMP also mediated the relationship between mastery-avoidance goal orientations and goal and time management challenges, as well as mastery-avoidance goal orientations and metacognitive challenges. These results highlight the complex nature of achievement goal orientations and the crucial role of goal management practices as a mediator.

Self-regulated Learning Skills, Strategies, Behaviors, and Learning

Self-Regulated Learning Strategies in Continuing Education: A Meta-Analysis

Yvonne M. Hemmler & Dirk Ifenthaler

Due to rapid social and technological changes, continuing education is becoming increasingly important. Self-regulated learning (SRL) is considered a key competence for continuing education (Kittel et al., 2021). However, the effects of SRL on learning outcomes in continuing education remain unclear, as previous meta-analyses on SRL primarily focus on K-12 (e.g., Li et al., 2018) and higher education (e.g., Broadbent & Poon, 2015). The present meta-analysis is the first meta-analysis that focused on learners' use of SRL strategies (i.e., cognitive, metacognitive, and resource management strategies) in continuing education. The aim of this meta-analysis is to investigate the effects of different SRL strategies on learning performance, achievement motivation, and learner satisfaction in continuing education in order to provide a sound basis for designing interventions to support SRL in continuing education.

Yvonne M. Hemmler

Method

We conducted an electronic search in the databases Educational Resources Information Center, psycArticles, psycINFO, and PSYNDEX as well as a manual search of the reference lists of selected key publications. Studies that focused on non-disabled learners in continuing education and provided quantitative measures of SRL strategies and learning performance, achievement motivation, or learner satisfaction were included in the meta-analysis. The meta-analysis comprised a total number of 36 studies (k = 336 effect sizes, N = 20,785 participants) that were synthesized using three-level random-effects models.

Results

We found positive average correlations between SRL strategies and learning performance (r =. 37, 95% confidence interval [.24, .48]), achievement motivation (r = .31, 95% confidence interval [.26, .36]), and learner satisfaction (r = .28, 95% confidence interval [.23, .33]) in continuing education. We found heterogeneity in effect sizes which could be partially explained by our moderators: Relationships between SRL strategies and achievement motivation as well as learner satisfaction were stronger for subjective measures than for objective measures of SRL strategies. The relationship between metacognitive strategies and achievement motivation was stronger in continuing education activities delivered completely online than in continuing education activities that included face-to-face sessions. Moreover, learners' use of resource management strategies had greater effects on achievement motivation in non-work-related than in work-related continuing education.

Dirk Ifenthaler

Discussion

We conclude that learners' ability to apply SRL strategies is crucial in continuing education and provide implications for designing interventions to support SRL in continuing education. The average correlation coefficients in our meta-analysis are slightly higher than in previous meta-analyses focusing on K-12 (e.g., Li et al., 2018) and higher education (e.g., Broadbent & Poon, 2015), suggesting that SRL plays a more important role in continuing education than in K-12 and higher education. Especially in online and non-work-related continuing education, SRL strategies make a critical contribution to achievement motivation, according to our moderator analyses. Our meta-analysis shows limitations, as it is based on correlational findings and no statements about causality can be made. Moreover, findings indicate heterogeneity in effect sizes which could not be fully explained by our moderators. Therefore,

future research should focus on interventions to support SRL in continuing education and identify more moderators to explain heterogeneity in effect sizes.

References

Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *The Internet and Higher Education*, *27*, 1–13. https://doi.org/10.1016/j.iheduc.2015.04.007

Kittel, A. F. D., Kunz, R. A. C., & Seufert, T. (2021). Self-regulation in informal workplace learning: Influence of organizational learning culture and job characteristics. *Frontiers in Psychology, 12*, Article e643748. https://doi.org/10.3389/fpsyg.2021.643748

Li, J., Ye, H., Tang, Y., Zhou, Z., & Hu, X. (2018). What are the effects of self-regulation phases and strategies for Chinese students? A meta-analysis of two decades research of the association between self-regulation and academic performance. *Frontiers in Psychology*, *9*, Article e2434. https://doi.org/10.3389/fpsyg.2018.02434

Measuring the Complexity of Self-Regulated Learning and Academic Challenges for Adolescents in Canada

Annie (Meng Qi) Wu, Violet Cieslik, Safoura Askari, Allyson F. Hadwin, Ramin Rostampour, & Moira Hood
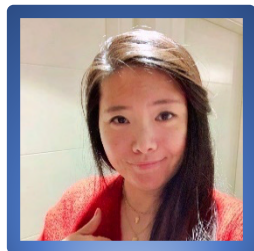

Annie (Meng Qi) Wu

During the transition from elementary education to secondary education, middle school students are expected to become independent and manage different academic tasks and challenges from multiple disciplines (Vandevelde et al., 2013). However, the unsynchronized development of cognitive control and motivational regulation during adolescence can lead to heightened vulnerability to risk-taking behaviors and challenges (Smith et al., 2013). Self-regulated learning (SRL) is essential for students' academic success as it allows learners to regulate multiple facets of learning, including (meta)cognition, motivation, and behavior in educational settings (Winne & Hadwin, 2008). Additionally, adolescents in secondary education may not know how to engage in SRL practices or select effective self-regulatory strategies, thereby resulting in more academic challenges and poorer academic performance. Yet, no existing study using self-report measures has investigated types of academic challenges and SRL practices for adolescents during their transition to middle school. Therefore, the main goal of this study is to validate a measure of adolescents' engagement in various types of SRL practices and academic challenges. Validating the measure is a critical step for future research to investigate the interactive relationship between SRL practices and academic challenges for this unique population.

Violet Cieslik

The psychometric properties of the Self-Regulated Learning Profile and Self-Diagnostic (SRL-PSD) instrument for middle school students were examined. Participants were 358 middle school students in grades six, seven, and eight from a west-coast Canadian school district. The SRL-PSD was administered to students through LimeSurvey during a 25-minute instructional session. Flexibility was allowed if a student missed a day of school and was able to complete questionnaire items within the allotted 2-week window. The New Zealand Council for Educational Researcher (NZCER)'s Me and My School survey was used to measure student cognitive and behavioral engagement. The daily school aversion was assessed by two items about how students feel – "right now" about school ("hate school" and "tired of school") over five
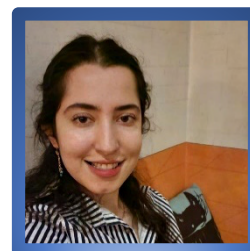

Safoura Askari

days. The fundamental academic behaviors (FAB) scale was developed and used to capture students' perceived attendance and schoolwork completion.

Allyson F. Hadwin

Results demonstrated the SRL-PSD was a reliable and valid measurement to examine middle school students' SRL practices and academic challenges. Additionally, SRL practices were found to be positively associated with students' engagement in school and negatively associated with the school aversion, whereas academic challenges were found to be negatively associated with students' engagement in school and positively associated with the school aversion. Our findings set an important stage for implementing SRL-PSD as a self-assessment for middle school students to evaluate their adaptive and maladaptive learning processes, thereby promoting the SRL capacity for middle school students. Since the SRL-PSD is designed as a therapeutic instrument to provide immediate feedback for learners to reflect on how they learn, having it validated for middle school students allows educators to incorporate it into their instructional design to teach SRL skills.

References
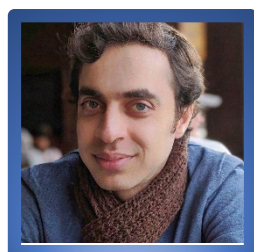
Ramin Rostampour

Smith, A. R., Chein, J., & Steinberg, L. (2013). Impact of socio-emotional context, brain development, and pubertal maturation on adolescent risk-taking. *Hormones and Behavior, 64*(2), 323-332. https://doi.org/10.1016/j.yhbeh.2013.03.006

Vandevelde, Van Keer, H., & Rosseel, Y. (2013). Measuring the complexity of upper primary school children's self-regulated learning: A multi-component approach. *Contemporary Educational Psychology, 38*(4), 407–425. https://doi.org/10.1016/j.cedpsych.2013.09.002

Winne, P. H., & Hadwin, A. F. (2008). The weave of motivation and self-regulated learning. In D. H. Schunk & B. J. Zimmerman (Eds.), *Motivation and self-regulated learning: Theory, research, and applications* (pp. 297– 314). Erlbaum.

Students' and Teachers' Mindsets about Self-Regulated Learning: Do they influence Learning Environments, Metacognitive Strategies, and Achievement?

Silke Hertel & Yves Karlen

Silke Hertel

The mindsets of students and teachers are essential in everyday school life. They are related to self-regulated learning (SRL), classroom practices, and academic achievement (Burnette et al., 2013). Existing research has focused on mindsets about intelligence. Moreover, student and teacher mindsets have been examined independently. Extending previous research, we aim to examine the relationship between students' and teachers' knowledge, beliefs, and actions concerning SRL and metacognition (e.g., Martin et al., 2022). Drawing on the "Integrative framework of teachers' professional competencies and instructional practices in self-regulated learning" (Karlen, Hirt, & Hertel, 2020), we distinguish between teachers' competencies as self-regulated learners (e.g., self-concept about one's SRL, mindsets about SRL) and as agents of SRL (i.e., self-efficacy to promote SRL, pedagogical content knowledge about SRL). We assume, that teachers' professional competencies in SRL impact their instructional practices which in turn should be related to students' SRL (i.e., mindsets, self-beliefs, knowledge, and actions). Our study is one of the first to examine the complex interplay of students' and teachers' knowledge, beliefs, and

actions regarding SRL and metacognition in a multi-level classroom setting.
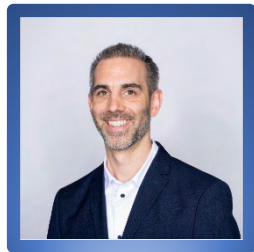
Yves Karlen

Research Questions

On the student level, we aimed to study the relation of students' metacognitive competencies, self-concept, growth mindsets about SRL and intelligence, and their perceived promotion of SRL and metacognition in the classroom with students' academic achievement and students' metacognitive competencies. On the classroom level, we examined the interplay of teachers' professional competencies in SRL with their SRL support in their lessons and students' SRL mindsets, self-concept, metacognitive knowledge, and metacognitive strategies.

Brief Methods

We collected data from N = 3251 students (51% male, 31% migrant background, mean age = 14.45 years) and N = 280 teachers (52% female, mean experience = 17.78 years) from 148 classes in 18 schools in Switzerland. We used published questionnaires, self-developed scales, and tests to collect data from students and teachers. Multilevel regression analyses were performed with Mplus 8.
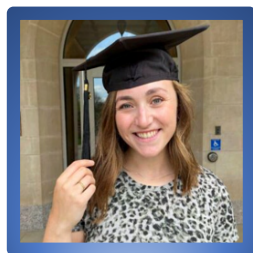
Molly L. Taylor

Results

The findings highlight the importance of students' and teachers' SRL growth mindsets and emphasize the relevance of teachers' active SRL promotion in the classroom for students' mindsets, self-beliefs, and metacognitive knowledge. Moreover, they suggest adaptive actions by teachers and students, showing higher activity levels when weaknesses are evident and withdrawing when things are going well. This may indicate contingent scaffolding activities by teachers. However, because of the cross-sectional design, we cannot draw causal conclusions.

Relevance

The results underscore the relevance of students' and teachers' growth mindsets in daily school life. Moreover, they emphasize the importance of teachers' professional competencies in SRL for SRL support in the classroom. The findings provide initial directions for the professional development of teachers and the design of SRL training programs for students.

References

Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2013). Mind-sets matter: a meta-analytic review of implicit theories and self-regulation. Psychological Bulletin, 139, 655-701. https://doi.org/10.1037/a0029531

Karlen, Y., Hertel, S., & Hirt, C. N. (2020). Teachers' Professional Competences in Self-Regulated Learning: An Approach to Integrate Teachers' Competences as Self-Regulated Learners and as Agents of Self-Regulated Learning in a Holistic Manner [Original Research]. Frontiers in Education, 5. https://doi.org/10.3389/feduc.2020.00159

Martin, A. J., Burns, E. C., Collie, R. J., Bostwick, K. C. P., Flesken, A., & McCarthy, I. (2022). Growth goal setting in high school: A large-scale study of perceived instructional support, personal background attributes, and engagement outcomes. Journal of Educational Psychology, 114(4), 752–771. https://doi.org/10.1037/edu0000682

SELF-REGULATED LEARNING POSTER SESSION

Alignment of Course Goals and Type in Higher Education: Self-Regulation as an Antecedent

Molly L. Taylor & Alison C. Koenka

Goal setting is a critical process within self-regulated learning (SRL) that influences subsequent regulatory processes (Zimmerman, 2002). In the present study, we build on prior literature and argue that students' self-regulatory capacities for goal setting act as antecedents to goal orientation (GO) by helping students set optimal goals that align closely with specific educational contexts. To understand what goals to set for specific contexts and align

these goals with one's motivation, learners may undergo motivational analysis, in addition to task analysis, for these different learning environments (Zimmerman, 2002). Here, learning environments in higher education are separated into two categories: courses that satisfy a requirement for one's academic major (major-related) and courses that are required by the institution as "core" courses (core-related). When students are aware of, and analyze their motivational beliefs for each course as a function of SRL, they may choose to adopt different achievement GOs for these courses.

We explored the following research questions.

1. Do students with greater self-regulatory skills adopt different GOs for different course types?

2. How do students' other motivational beliefs predict their GO for each course type?

3. How do students' self-regulation skills and GO relate to academic achievement within and across courses?

Participants included undergraduate students attending a small liberal arts college (N = 104). Students completed one online survey that included a demographic questionnaire and several well-established instruments (e.g., the MSLQ, Pintrich et al., 1993) to measure students' self-regulation, academic self-efficacy, intrinsic motivation, and mastery, performance-approach, and performance-avoidance GO. Students completed the GO measures twice, with one relating to their GO in a major-related course and the other relating to their GO in a core-
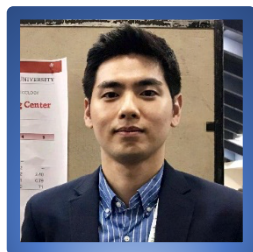

Sungjun Won

related course.

Simple linear regression analyses indicated that self-regulation significantly and positively predicted the higher adoption of performance-approach goals and mastery goals in a major-related course. In a core-related course, only self-regulation positively predicted the adoption of a performance-approach orientation.

To determine which other motivational beliefs predicted the adoption of specific GOs, another set of simple linear regression analyses were conducted with intrinsic motivation and self-efficacy as predictors of course GOs. For major-related courses, self-efficacy significantly and negatively predicted the adoption of a performance-avoidance orientation. Intrinsic motivation significantly and positively predicted the adoption of a mastery orientation in a major-related course. The same relationship held for core-related courses, in that intrinsic motivation significantly and positively predicted the adoption of a mastery orientation.

Finally, we found that a performance-avoidance orientation and a mastery orientation in a major-related course negatively and positively predicted major-related course GPA, respectively. Self-regulation did not significantly predict course GPA in this model. In the next regression analysis, self-regulation significantly and positively predicted core-related course
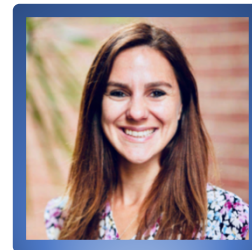
Alison C. Koenka

GPA, while core-related GOs did not predict course GPA. Lastly, only a mastery GO in a major-related course significantly and positively predicted cumulative GPA, while all other GOs and self-regulation did not predict cumulative GPA. Taken together, results revealed that self-regulation can act as an antecedent to adopting achievement GOs that align with one's contextual motivational beliefs.

Antecedents and Consequences of Academic Help Seeking in Online STEM Learning

Sungjun Won & Yujin Chang

College students often encounter challenges or ambiguity in online learning, which they cannot overcome independently, and therefore, require help. However, to date, relatively little is known about how academic help-seeking (Karabenick & Berger, 2013) can be supported in online contexts and its potential benefits. We address this gap in prior work via three research

questions. First, to what extent does undergraduate STEM students' academic help-seeking predict their choice, persistence, and performance in online STEM learning? Second, to what extent do sense of belonging (Bollen & Hoyle, 1990) and environmental entity theory (Good et al., 2012) predict academic help-seeking in online STEM learning? Third, does academic help-seeking mediate the relations of sense of belonging and environmental entity theory with STEM choice, persistence, and performance?

A total of 213 students (Mage = 19.0, SDage = 1.96) were recruited from an introductory Engineering course at a large public university located in Western Canada. This course was offered online due to the COVID-19 pandemic and consisted of lectures and labs. The majority of the students were male (70.9%) and in their first year at the university (83.1%). An online survey was administered during the spring semester of 2021, and academic record data were obtained after the semester ended.

Results of path analysis indicated that adaptive help-seeking was positively related to retention intention, whereas expedient help-seeking was negatively related to the choice of future courses. In addition, avoidant help-seeking was negatively related to retention intentions and major declaration status and positively to disorganized studying. Results also showed that sense of belonging positively predicted adaptive help-seeking and negatively predicted avoidant help-seeking, whereas environmental entity theory positively predicted expedient help-seeking. Lastly, the indirect effects of sense of belonging and environmental entity theory on educational outcomes were significant via academic help-seeking.

Overall, our findings suggest that academic help-seeking is critical for successful online STEM learning. Specifically, this study expands on the existing knowledge by demonstrating its potential for promoting STEM choice and persistence. Importantly, our findings suggest that students' social membership in their Engineering community and their perceptions of the community members' views on Engineering intelligence and ability could inform if and how students ask for help in their learning. Finally, this study revealed a pathway through which sense of belonging and perceived environmental entity theory were related to students' choice, persistence, and academic performance in STEM fields. Therefore, our findings support the

conclusion that fostering online learning contexts in which students perceive more sense of belonging and less environmental entity theory is crucial.

References

Bollen, K. A., & Hoyle, R. H. (1990). Perceived cohesion: A conceptual and empirical examination. *Social Forces, 69*(2), 479-504.

Good, C., Rattan, A., & Dweck, C. S. (2012). Why do
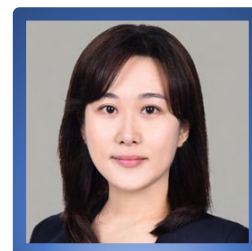
Yujin Chang

women opt out? Sense of belonging and women's representation in mathematics. *Journal of Personality and Social Psychology, 102*(4), 700–717.

Karabenick, S. A., & Berger, J.-L. (2013). Help seeking as a self-regulated learning strategy. In H. Bembenutty, T. J. Cleary, & A. Kitsantas (Eds.), *Applications of self-regulated learning across diverse disciplines: A tribute to Barry J. Zimmerman* (pp. 237–261). IAP Information Age Publishing.

Course Context and Self-Regulation in Chemistry: The Intersection of Gender and First-Generation College Student Status

Andrew H. Perry, Arianna Black, & Shirley L. Yu
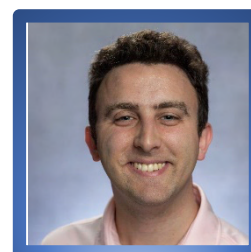
Andrew H. Perry

Individual and contextual factors contribute to students' academic outcomes in undergraduate Science, Technology, Engineering, and Mathematics (STEM) courses. Women and first-generation college students (FGS; those whose parents/guardians are not college graduates) are underrepresented in STEM settings, and nearly half of STEM undergraduates change majors or leave college. STEM learning environments can

play an important role in improving diversity/representation and reducing attrition.

Students benefit when they utilize adaptive self-regulated learning (SRL) strategies, and the learning environment can contribute to strategy use and course experience/outcomes. SRL refers to the use of strategies to monitor/control learning, such as regulating cognition, seeking help, or providing help to others. Students' SRL

Arianna Black

strategies are associated with academic outcomes; however, course context is also important to consider. This can include perceptions of how supportive the instructor is, how much instructors press students for understanding, and how much students feel like they have an individualized experience and that their unique identity matters. Students' perceptions of belonging in an academic domain

Shirley L. Yu

is likely a critical mechanism by which course context perceptions relate to SRL strategies.

Due to underrepresentation, little is known about the psychological perceptions of FGS and female STEM students, or the intersection of gender identity and generational status. The current study examines the association between course context, sense of belonging, and students' SRL strategies in a college chemistry course, while considering the role of gender and generational status. Research questions include:

RQ1 - Do perceptions of course context relate to undergraduate chemistry students' SRL strategies directly or indirectly through sense of belonging in chemistry?

RQ2 - Does the intersection of gender identity and generational status moderate the direct effect of course context perceptions on SRL strategies and the indirect effect through sense of belonging?

Participants were 693 undergraduate students (62.6% female) surveyed in an introductory chemistry course. Approximately 17% were FGS (n=118) and 83% were continuing-generation (CGS; n=575). Multiple-groups analysis in Mplus was used to examine the relations between course context perceptions, help-seeking behaviors and metacognitive regulation directly and indirectly through sense of belonging, along with the intersection of gender identity/generational status (e.g., Male FGS, Female FGS, Male CGS, Female CGS) as a moderator.

Findings indicate that male-FGS are more likely to seek and provide adaptive academic help to their peers when their perceptions of academic press are high. When they perceived greater academic press, male-FGS students reported greater metacognitive regulation and lower levels of giving a classmate the answer if asked for help (i.e., a maladaptive strategy). Instructor support positively related to experiencing belonging for CGS, which then positively related to metacognitive regulation and negatively related to help refusal. Findings for female students were non-significant.

We considered the intersection of gender and generational status in students' perceptions of course context, sense of belonging, and SRL strategies. Differential findings between male and female students and between FGS and CGS underscore the ongoing need for research examining when and in what ways underrepresented students experience the STEM course context as welcoming and supportive of their learning.

References

Corkin, D. M., Horn, C., & Pattison, D. (2017). The effects of an active learning intervention in biology

on college students' classroom motivational climate perceptions, motivation, and achievement. Educational Psychology, 37(9), 1106-1124.

Good, C., Rattan, A., & Dweck, C. S. (2012). Why do women opt out? Sense of belonging and women's representation in mathematics. Journal of Personality and Social Psychology, 102, 700-717.

Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Giffen, C. J., Blair, S. S., Rouse, D. I., & Hyde, J. S. (2014). Closing the social class achievement gap for first-generation students in undergraduate biology. Journal of Educational Psychology, 106(2), 375-389.

Effects of an SRL Program on Self-Efficacy, Self-Control, and Causal Attributions of Intellectually Gifted Adolescents

Aakash A. Chowkase, Kshama Datar, & Fabio Andrés Parra Martínez
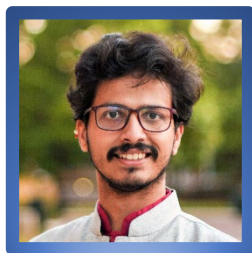
Aakash A. Chowkase

Purpose: Self-regulated learning (SRL) is central to learners' ability to direct their learning. Motivational beliefs and self-regulation influence academic performance and long-term achievement. Especially in the context of gifted education, motivational beliefs, and self-regulation are considered critical levers for unlocking the highest achievement albeit one's above-average abilities. Teaching SRL skills can be effective in helping gifted students develop their full potential; however, little research has examined the effectiveness of SRL programs for gifted adolescents. This research examined the effects of an SRL program on self-efficacy for SRL, academic self-efficacy, self-control, and causal attributions among intellectually gifted adolescents.

Methods: The program we developed was theoretically grounded in Zimmerman's three-phase cyclic model of SRL (Zimmerman, 2000; Zimmerman & Moylan, 2009). It consisted of six weekly sessions to help participants develop SRL skills. Each session of 2.5 hours emphasized one process of the Zimmerman model: task analysis, self-motivation beliefs, self-control, self-

Kshama Datar

observation, self-judgment, and self-reaction. The intervention was implemented at an out-of-school talent development program in a city in western India. Thirty-one intellectually gifted adolescents (13 girls, ages 11-13) participated in the intervention. A two-phase, sequential mixed-methods QUAN-qual design was used, which allowed for a holistic assessment of the program's effectiveness (Creswell & Clark, 2017). In the quantitative strand, we examined program effects using a repeated-measures design involving survey-based data collection at three-time points, viz, pre-intervention, post-intervention, and three-month follow-up. Later, in the qualitative strand, we employed a deductive analysis of open-ended, post-intervention, survey responses to identify participants' use of SRL strategies after the intervention. The deductive codebook was generated from the definitions of SRL categories provided by Zimmerman and Moylan (2009).

Results: Repeated-measures ANOVA revealed significant positive changes in self-efficacy for SRL and causal attributions of personal control but not in academic self-efficacy, locus of causality, and stability. The qualitative analysis expanded our quantitative findings and provided evidence of growth in several SRL dimensions. We identified 563 references to SRL processes (145 forethought, 69 performance, and 349 self-reflection) in 180 item responses. About 66% of coded references in the forethought process indicated participants' use of goal setting and strategic planning to pursue and achieve learning goals. Moreover, participants described increased confidence in planning and executing their academic work. Participants also described their use of self-instruction and time management as well as metacognitive monitoring and self-recording processes while engaging in academic tasks (performance phase). In the reflection phase, participants expressed attributing success and failure to personal,

Fabio Andrés Parra

internal, and controllable causes. Finally, participants expressed adaptive self-reactions, indicating they will continue to use the useful strategies.

Significance: A mixed-methods integration of our results shows that a short, six-week SRL program may contribute to intellectually gifted adolescents' increased self-efficacy for SRL, self-control, and adaptive causal attributions. Overall, our findings contribute to the limited literature on designing and evaluating SRL interventions for intellectually gifted adolescents and may be useful for educators and SRL researchers alike.

References

Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research* (3rd ed.). Sage publications.

Zimmerman, B. J. (2000). *Attaining self-regulation: A social cognitive perspective.* Academic Press.

Zimmerman, B. J., & Moylan, A. R. (2009). Self-regulation: Where metacognition and motivation intersect. In *Handbook of metacognition in education* (pp. 311-328). Routledge.

Mindsets about Intelligence, Self-regulation and Failure and Their Effects on Parenting Behaviors and Children's Self-regulation

Maren Stern & Silke Hertel
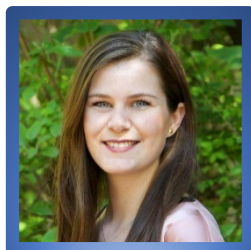
Maren Stern

Mindset theory assumes that growth mindsets are relevant antecedents of learning- and performance-related behavior. They are belief systems that human attributes are rather stable (fixed mindset) or malleable (growth mindset). Research so far has especially focused on the ability mindsets of learners, whereas the mindsets of pedagogical agents such as parents have been less explored. As parenting behaviors play a significant role in early childhood, parents of preschoolers should be addressed. However, most studies have focused on intelligence mindsets in parents of school-age children. These studies have found that parents with fixed mindsets show more unconstructive and performance-oriented parenting behaviors compared to parents with growth mindsets

Silke Hertel

(Moorman & Pomerantz, 2010). Individuals can hold mindsets on different domains, and, depending on the context, mindsets of different domains are better suited to predict specific behavior. Besides ability mindsets, parents' failure mindsets have been identified as related to parenting behavior and seem more visible for children (Haimovitz & Dweck, 2016). In addition, parents' self-regulation mindsets should be relevant when predicting how parents support their children's self-regulatory processes (Stern & Hertel, 2020). Therefore, we aimed to address these research gaps and examined 1) the differential effects of mindsets from different domains (intelligence, failure, self-regulation) on parenting behaviors and 2) asked whether parenting behaviors mediate the link between mindsets and self-regulation in preschool children.

Brief Methods

Extending the experiment of Moorman and Pomerantz (2010), mindsets from three domains (intelligence, failure, self-regulation) were explored, resulting in six mindset conditions: 1) intelligence-is-malleable, 2) intelligence-is-stable, 3) failure-is-enhancing, 4) failure-is-debilitating, 5) self-regulation-is-malleable, 6) self-regulation-is-stable. Mother-child-dyads (N=177, child age: M=4.80, SD=0.56) were randomly assigned to one mindset condition.

Maternal mindsets were induced using cover stories. The children worked on multiple problem-solving tasks, first on mother-child interaction and then independently. The whole procedure was video-recorded. Parenting behaviors (autonomy support, intrusiveness, scaffolding means) were coded during mother-child problem-solving. Children's (cognitive, metacognitive, motivational) self-regulatory strategies were observed during child-alone problem-solving. For the manipulation check, mothers completed mindset questionnaires.

Results

The experimental manipulation was successfully induced. Planned contrasts revealed that mothers in the intelligence-is-stable (vs. intelligence-is-malleable) condition showed more autonomy support. Mothers in the failure-is-debilitating (vs. failure-is-enhancing) condition showed less autonomy support and used more scaffolding means. No significant differences were found in the domain of self-regulation. Children's self-regulatory strategies differed by mindset conditions with children in the failure-is-enhancing (vs. failure-is-debilitating) condition showing more motivational strategies. Mothers' use of scaffolding means fully mediated the link between mothers' failure mindsets and children's motivational strategies. In summary, the findings suggest that mindsets from different domains may foster different parenting behaviors and outcomes in child self-regulation. Mothers' failure mindsets seem to indirectly contribute to child self-regulation. As making mistakes and experiencing failure is part of children's development, caregivers' beliefs about failure become relevant when they co-regulate their children. Hence, interventions and training should address the failure mindsets of pedagogical agents and teach them to view failure as enhancing in order to create an autonomy-supportive learning setting and foster children's motivation and self-regulation.

References

Haimovitz, K., & Dweck, C. S. (2016). Parents' views of failure predict children's fixed and growth intelligence mind-sets. *Psychological Science, 27*(6), 859–869. https://doi.org/10.1177/0956797616639727

Moorman, E. A., & Pomerantz, E. M. (2010). Ability mindsets influence the quality of mothers' involvement in children's learning: An experimental investigation. *Developmental Psychology, 46*(5), 1354–1362. https://doi.org/10.1037/a0020376

Stern, M., & Hertel, S. (2020). Profiles of parents' beliefs about their child's intelligence and self-regulation: A latent profile analysis. *Frontiers in Psychology, 11*, 610262. https://doi.org/10.3389/fpsyg.2020.610262

Professional Learning for Preservice Science Teachers: Shifts in Teachers' Self-regulated Learning Practice and Questioning Skills

*Hong H. Tran, Timothy J. Cleary & Daniel K. Capps*
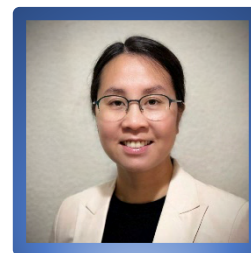
Hong H. Tran

Questioning is an important skill of effective teaching. Teachers who ask good questions typically understand the purposes of teacher questioning and are able to monitor to ask planned questions. Unfortunately, there is a lack of learning opportunities for science teachers that leverage self-regulated learning (SRL) practice to optimize questioning. Thus, we propose a novel approach to increase the number of high-level cognitive questions preservice science teachers (PSTs) ask during student teaching. In the context of professional learning and coaching, we aimed to answer the following research questions:

1. How does the quality of PSTs' SRL practice in planning and enacting questions change during student teaching?

2. How do the ratios of PSTs' question types change during student teaching?

This study distinguishes itself from previous studies because it focuses on understanding the process of change in PSTs' SRL practice and questioning (self-regulation of teaching). Science teachers should ask a diverse range of questions, from recalling questions to thought-provoking questions and metacognitive questions. However, given the lack of thought-
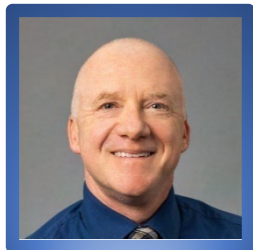
Timothy J. Cleary

provoking questions in science classrooms, fostering PSTs' ability to ask high-level cognitive questions is a good place to start aligning science teachers' questioning practice and the science education standards.

This study is framed by three theoretical frameworks: the Interactive, Constructive, Active, and Passive (ICAP) framework of cognitive engagement (Chi & Wylie, 2014), Zimmerman's cyclical phases model of SRL, and Zimmerman's development of self-regulatory skill model (Zimmerman, 2002). Those three frameworks inform both the professional learning and coaching design as well as the research design. This research is a multi-case study using multiple analysis methods. The research design was chosen because it allows investigating phenomena in depth and with real-world context. To represent variance among PSTs, three participants were purposefully selected from 18 PSTs enrolled in a certification program for teaching secondary science. The participants represented low, intermediate, and high self-regulated PSTs. Research data came from classroom materials, semi-structured interviews about planning classroom questions, classroom observations, classroom audio recordings, and semi-structured interviews about enacting questions.

The analyses focus on changes in SRL practice and teacher questioning within each case over time. Three coding cycles were used to analyze SRL practice (goal setting, self-monitoring, and self-evaluation): two rounds of a priori coding followed by pattern coding. Question types were

Daniel K. Capps

coded as either interactive, constructive, active, or passive according to a coding scheme developed based on the ICAP framework. Findings show that even though the changes that happened in each case had some unique characteristics, the quality of PSTs' SRL practice and questioning all increased. The research elicits PSTs' SRL practice in the context of planning and enacting classroom questions and suggests implications to optimize PSTs' questioning skills.

References

Chi, M. T., & Wylie, R. (2014). The ICAP framework: Linking cognitive engagement to active learning outcomes. *Educational Psychologist, 49*(4), 219-243.
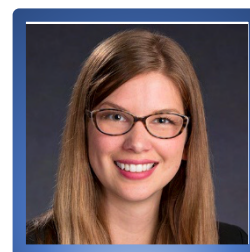
Zimmerman, B. J. (2002). *Achieving self-regulation: The trial and triumph of adolescence.*

Students Can (Mostly) Recognize Effective Learning, So Why Don't They Do It?

Stephany Duany Rea, Lisi Wang, Katherine Muenks, & Veronica X. Yan
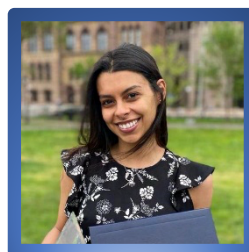

Stephany Duany Rea

Katherine Muenks

Although learning is something that we have all been doing our whole lives, being able to effectively and efficiently manage our learning is not an obvious or easy task. Learners are often misled by a sense of ease during learning or high performance, thinking that if initial learning feels easy, then it must mean that they are learning. On the contrary, effective strategies for long-term retention—spacing, retrieval practice, interleaving, self-explanation—are often ones that require more effort and can lead learners to make more mistakes early on (Yan et al., 2016). Cognitive psychologists who study these "desirably difficult" strategies have long pointed out the discrepancy between what empirical studies show to be good for learning and people's metacognitive judgments about what is good for learning (Bjork, Dunlosky, & Kornell, 2013).
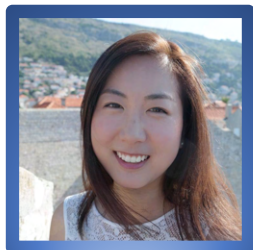
Lisi Wang

In the series of studies described in Rea and colleagues (2022), we use a mixed-methods approach and challenge the rhetoric that students are entirely unaware of effective learning strategies. Our first research question was whether students could describe and identify effective learning strategies. We examined this in two ways—by asking participants to describe the strategies that low-, average- and high-achieving students would use (Study 1, between-participants design), having participants read vignettes about students using different types of strategies (passive, active, metacognitive; Study 2, within-participants design), and asking them to rate the resultant learning of these presented learners. We found; in fact, in Studies 1&2, that participants perceived the high-achieving students and active strategies as the most effective for learning. However, participants in Study 2 reported their own study strategies to be the most similar to the passive strategies and the least similar to the active strategies (either for the most cared or least cared class). In other words, knowledge of effective strategies and being motivated about the course content were not enough.

Hence, our second research question then focused on the perceived barriers to using effective strategies. In addition to Study 2 which explored this question, Study 3 examined this question with a sample of undergraduate students enrolled in a course that taught about effective learning strategies and applied these

strategies in the classroom. At the end of each exam in this course (a total of 4), in the format of bonus questions, students reported the barriers they faced while trying to incorporate these strategies. Our results for Studies 2 and 3 showed that time, anxiety, effort, and lack of self-efficacy were the most common barriers students faced while trying to incorporate these strategies into their studying habits. Anxiety and lack of self-efficacy, however, decreased over time (Study 3), suggesting that the more students practiced these strategies the less nervous they felt about

using them, and the more confident they felt in doing so. Our findings suggest that interventions to improve learners' strategy use might focus less on teaching them about what is effective and more on increasing self-efficacy, reducing perceived costs, and establishing better habits.

References

Bjork, R. A., Dunlosky, J., & Kornell, N. (2013). Self-regulated learning: beliefs, techniques, and illusions. *Annual Review of Psychology, 64*, 417–444. https://doi.org/10.1146/annurev-psych-113011-143823

Rea, S. D., Wang, L., Muenks, K., & Yan, V. X. (2022). Students Can (Mostly) Recognize Effective Learning, So Why Do They Not Do It? *Journal of Intelligence, 10*(4), Article 4.

Veronica X. Yan

https://doi.org/10.3390/jintelligence10040127
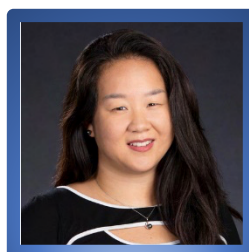
Yan, V. X., Clark, C. M., & Bjork, R. A. (2017). Memory and metamemory considerations in the instruction of human beings revisited: Implications for optimizing online learning. J. C. Horvath, J. Lodge, & J. A. C. Hattie (Eds). *From the Laboratory to the Classroom: Translating the Learning Sciences for Teachers.* Routledge, pp 61-78. https://doi.org/10.4324/9781315625737

What is the Relationship between Self-Regulated Writing and Writing Self-Efficacy?

Michelle Taub, Joel Schneier, Lindsey Olivera, Allison M. Banzon, Sierra Outerbridge, & Marissa Salas

Writing in college is a key skill for students across disciplines to develop, and many programs emphasize fostering students'


Michelle Taub

metacognitive awareness of their writing skills and practices (Downs & Wardle, 2007). However, students often lack confidence in their writing skills as well as their abilities to use effective strategies during writing (Graham et al., 2018).

The goal of this study was to better understand the relationship between students' self-efficacy about their writing and their perceptions about their use of self-regulated writing strategies as elicited from a self-reflective writing prompt. The study's main research question asks: Is there a significant relationship between writing self-


Joel Schneier
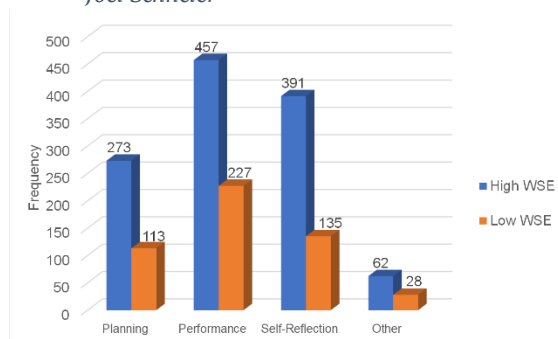
efficacy and reported use of self-regulation strategies in a writing prompt?

Methods. We used a mixed-methods approach and examined 62 college students' responses to a writing prompt during a 30-minute writing session: Describe in as much detail the step-by-step process of how you complete a formal writing task. We used students' reported self-efficacy of their past writing (e.g., I feel I was good at writing [n = 39] or I did not feel I was good at writing [n = 23]) as our independent variable. We coded students' written responses by developing a coding scheme, based on Greene & Azevedo's (2009) framework of self-regulated learning, and identified 4 macro-level self-

regulated writing processes (planning, performance, self-reflection, [and 'other']), which we used as our dependent variable.

Results. A chi-square test of independence demonstrated a significant relationship between students' self-reported writing self-efficacy and the frequency of coded reported use of self-regulated writing strategies; χ^2 (3, N=1686
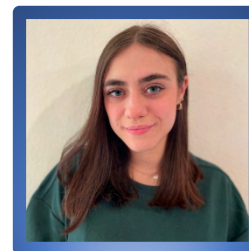
Lindsey Olivera

sentences) = 8.2, p < .05. Students with high reported writing self-efficacy had higher frequencies of self-regulated writing processes than students with low reported writing self-efficacy.

Allison M. Banzon

Additionally, students with low writing self-efficacy recounted more on performance (45%) than on planning (22%) and reflection (27%). This contrasts to those with high writing self-efficacy, reporting more evenly on performance (39%), reflection (33%), and planning (23%).

We further examined this difference by qualitatively comparing 1 student with high self-reported writing self-efficacy and 1 student with low self-reported writing self-efficacy. The general distinction between these 2 students is between the quantity for these groups of students. For example, students like PA014 reported low writing self-efficacy, did compose reflective sentences (e.g., noting that their understanding of the topic can affect their motivation to write), they simply did not write as many sentences like this. This is in contrast to PA018 (high self-reported writing self-efficacy) who wrote the same nature of sentences, only more of them. Therefore, it appears all students

reported engaging in all stages of self-regulation, students with high self-reported writing self-efficacy just did so more evenly, or at least report they do in this reflection prompt.

Significance. Findings reveal the need to understand the connection between self-regulated writing strategies and students' writing self-efficacy to ensure we are providing effective instruction to students across all disciplines and career paths because as instructors, we need to focus on alleviating low writing self-efficacy because writing is required across all careers.

References

Downs, D. & Wardle, E. (2007). Teaching about
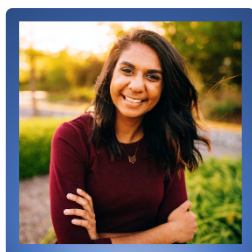
Sierra Outerbridge

writing, righting misconceptions: (Re)envisioning "first-year composition" as "introduction to writing studies". *College Composition & Communication, 58*(4), 552-584.

Graham, S., Harris, K. R., MacArthur, C., & Santangelo, T. (2018). Self-regulation and writing. In D. H. Schunk & J. A. Greene (Eds.), *Handbook of self-regulation of learning and performance* (2nd ed., pp. 138-152). Routledge.

Greene, J. A., & Azevedo, R. (2009). A macro-level analysis of SRL processes and their relations to the acquisition of a sophisticated mental model of a complex system. *Contemporary Educational Psychology, 34*(1), 18-29.
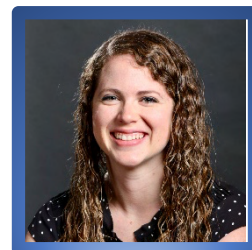
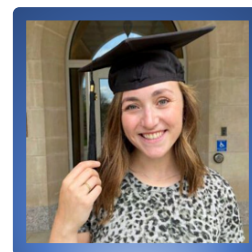## SELF-REGULATED LEARNING DEVELOPMENT AND CONTEXT

Christine Bae

Describing Self-Regulated Learning and Social Regulation of Learning in Science Classrooms

Lauren Cabrera, Molly Taylor, & Christine Bae

Lauren Cabrera

Molly L. Taylor

Science is a social endeavor that requires both strong independent and collaborative working skills (Lobczowski et al., 2020; Sinatra & Taasoobshirazi, 2018). This dynamic, complex work in classroom spaces is only possible if students regulate themselves, both individually and in collaborative groups. However, little is currently known about the social nature of regulatory processes in classrooms. This mixed methods case study addresses this gap by systematically documents and describes student SRL and soRL in six middle school science
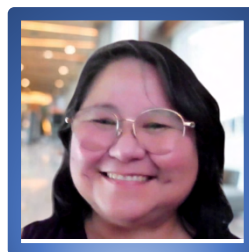
Marissa Salas

classrooms from classroom video observations and field notes. Analysis began with transcribing the data and applying regulation codes where applicable. Quantitative analysis consisted of frequencies for both self- and social

regulation codes and the percentage of class time in which self- and social regulation were detected. Qualitative themes related to the nature of self- and social regulation were generated through deductive and inductive codes that accounted for emergent findings (Saldana, 2014). Results from this study show that student SRL emerges from whole class and one-on-one conversations. Behavioral regulation often appeared before cognitive regulation. That is, students and teachers were focused first on what the students should be doing during the activity (e.g., where students should be sitting, who they should be working with). Then students' content understanding, or cognitive regulation was addressed. The most salient SRL theme in these science classes centered around laboratory equipment. Teacher modeling and explicit directions allowed students to interact with the equipment safely. Students expressed "being careful" during experiments, "being afraid" to touch heat lamps, and conserving materials by asking if they were allowed to run extra trials. SoRL emerged from purposeful small group work. Typically when the small group activity started, behavioral regulation was displayed first, similar to SRL. Teachers and peers would use visual cues (e.g., seeing if students had materials out and set up) or verbally check-in with student groups or the teacher to ensure the students got started, and use verbal redirections when necessary. In turn, students would display behavioral regulation, if they were not already. After student groups were set up in their activities, cognitive regulation was more present. Teachers were asking probing and prompting questions to ensure students were observing the intended phenomena and thinking through the science concepts. Overall, soRL mostly manifested in student groups procedures, such as completing the science tasks correctly, with little time left to focus on understanding concepts. The interplay between SRL and soRL is also documented and described. Questions surrounding science concepts showed moments of student SRL becoming soRL. Students would use help-seeking strategies and teachers would talk longer with the student(s) and initiate teacher-led co-regulation to help

them process the information and work through the misconception. This study contributes to the theory of regulation by examining SRL and soRL simultaneously, allowing us to see the effects of co-regulation transitioning between SRL and soRL. Finally, our findings inform practice, by presenting detailed cases of how teachers' can support both SRL and soRL through specific questioning, scaffolding, and monitoring strategies in science classrooms.

References

Lobczowski, N. G., Allen, E. M., Firetto, C. M., Greene, J. A., & Murphy, P. K. (2020). An exploration of social regulation of learning during scientific argumentation discourse. *Contemporary Educational Psychology, 63*, 101925. https://doi.org/10.1016/j.cedpsych.2020.101925

Saldaña, J. (2014). *Thinking qualitatively: Methods of mind.* SAGE publications.

Sinatra, G. M. & Taasoobshirazi, G. (2018). The self-regulation of learning and conceptual change in science: Research, theory, and educational applications. In P. A. Alexander, D. H. Schunk, & J. A. Greene (Eds.), *Handbook of self-regulation of learning and performance* (pp. 153-165). Routledge. https://doi.org/10.4324/9781315697048-10

Examining Students' Help-Seeking When Learning From Multiple Texts

Hye Yeon Lee & Alexandra List
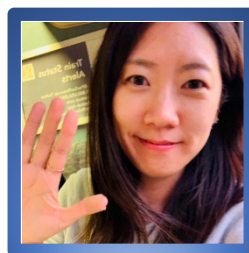
Hye Yeon Lee

Students commonly use informational help-seeking resources (e.g., Wikipedia, consulting other websites) to support comprehension, when completing academic assignments. However, there is a dearth of research on how students use informational help-seeking resources and the extent to which this is associated with their self-regulation. Guided by models of learning from multiple texts (Rouet & Britt, 2011) and help-seeking (Karabenick & Newman, 2006), we examine how students' propensity to self-regulate guides their use of informational help-seeking resources and the extent to which

engagement in help-seeking is associated with multiple text task performance.

Participants were 320 post-secondary students in the United States, recruited from *Prolific*. First, students were asked to complete a variety of individual difference measures, that is, prior knowledge, vocabulary knowledge, and self-regulation, as an individual difference factor (SR-I), were assessed; with vocabulary knowledge assessed after task completion. Then, they were asked to read three texts addressing the urban housing crisis in the United States. While accessing texts, students were able to access two types of informational help-seeking resources: vocabulary aids (i.e., a definition or a synonym for difficult vocabulary words, e.g., *usurious*) and conceptual aids (i.e., elaborative descriptions of key concepts, e.g., *upzoning*). Students were also asked to self-rate comprehension after reading each text (i.e., to capture comprehension monitoring). Students' use of informational help-seeking resources and comprehension monitoring were considered to be indicators of self-regulation during processing (SR-P). After reading all three texts, students were asked to report strategy use and complete measures of task performance. A model linking individual difference factors (i.e., prior knowledge, vocabulary knowledge, SR-I) to processing indicators (i.e., SR-P) and task performance was assessed, using a two-step structural equation modeling approach. See Figure 1.

Key findings were as follows. First, prior knowledge had both a significant direct effect and an indirect effect, via comprehension monitoring, on integration performance. Second, vocabulary knowledge was a significant direct predictor of comprehension performance and integration performance. Third, students' self-regulation as an individual difference factor (SR-I), had an indirect effect on comprehension performance and integration performance, via students' comprehension monitoring. Fourth, students' accessing of help-seeking resources had a significant direct effect on comprehension performance and integration performance and an indirect effect on these outcomes via comprehension monitoring. As such, links between individual difference factors and multiple text task performance were found to be mediated through self-regulation during processing (SR-P) variables, including both students' comprehension monitoring and accessing of informational help-seeking resources.

This study contributes to prior work in a number
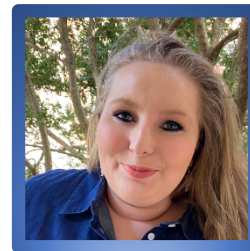
Alexandra List

of ways. First, to our knowledge, this study is among the first to comprehensively examine students' use of embedded, informational help-seeking resources when learning from multiple texts. Second, we demonstrate that help-seeking is both valuable in providing students with supplemental information to support multiple text comprehension and as a behavioral manifestation of self-regulatory processing. Third, this study documented an important link between the availability of embedded, informational help-seeking resources and students' comprehension monitoring and task performance, to holistically understand students' self-regulated learning from multiple texts.
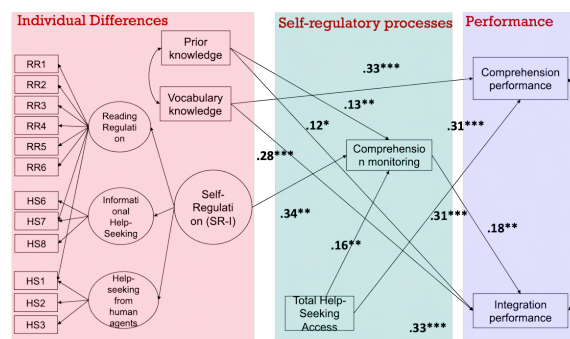
Note: Model fit, $X^2(115) = 143.87$ ($p = .04$), RMSEA = 0.03 (90% CI: 0.01, 0.04), CFI = .97, SRMR = 0.05.

References

Karabenick, S. A., & Newman, R. S. (2009). Seeking help: Generalizable self-regulatory process and social-cultural barometer. In M. Wosnitza, S. A. Karabenick, A. Efklides, & P. Nenniger (Eds.), *Contemporary motivation research: From global to local perspectives* (pp. 25–48). Hogrefe & Huber Publishers.

Rouet, J. -F., & Britt, M. A. (2011). Relevance processes in multiple document comprehension. In M. T. McCrudden, J. P. Magliano, & G. Schraw (Eds.),

Text relevance and learning from text (pp.19–52). Charlotte, NC: Information Age.

Assessing College Students' Perceived Utility Value of Learning Strategies in Gateway Biology and Statistics Courses

Ying Wang & Rayne A. Sperling

The expectancy-value theory suggests that learners' perceived utility value or usefulness of a task is a critical component of academic motivation, which affects learners' choices and academic achievement (Wigfield & Eccles, 2000). Notably, the conceptualization of utility value can be applied in increasing learners' strategy motivation. Additionally, the motivational perspective of self-regulated learning (SRL) suggests that learners must realize the usefulness of varied strategies in order to learn and execute strategies effectively (Winne & Hadwin, 2008). Therefore, in the present study, we developed an instrument that assesses undergraduate students' perceived utility value of varied strategies, the Perceived Utility of Learning Strategy Scales (PULSS). Specifically, we conducted two studies to develop and validate the PULSS.
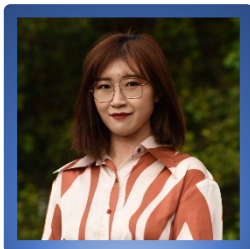

Ying Wang

We had three research questions:

1. How well does the factor structure of the PULSS fit the hypothesized model and does the PULSS show sound psychometric properties (Study 1)?

2. How well does the three-factor solution of the PULSS perform with a different sample (Study 2)?

3. How well does the three-factor solution of the PULSS hold measurement invariance between two different STEM courses?

Method & Analyses

Overall, the two studies included 800 undergraduate students at a large public university in the northeastern United States. Specifically, Study 1 included 395 students enrolled in an introductory biology course in Spring 2020 (average age = 19.05, *SD* = 1.09). In
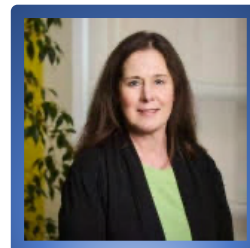
Rayne A. Sperling

this data collection, we also measured students' SRL-related components and collected their exam scores to examine the construct validity of the PULSS. Additionally, Study 2 included 228 students from an introductory biology course (average age = 18.54, *SD* = 1.43) and 177 students from an introductory statistics course (average age = 19.25, *SD* = 1.36) to respond to the PULSS in Fall 2021.

In terms of the instrument development, the development of PULSS included four phases. In Phase 1, we created a pool of 29 items, which represented four broad categories of learning strategies, including rehearsal strategies (RS), self-testing strategies (STS), organization and elaboration strategies (OES), and peer learning and academic resource use strategies (PLS). In Phase 2, we conducted confirmatory factor analyses to examine the factor structure of the PULSS. We removed seven items based on the analyses and examined additional psychometric properties. In Phase 3, we examined the factor structure of the revised PULSS with a unique sample of biology students. In Phase 4, we examined the measurement invariance of the PULSS between an introductory biology course and an introductory statistics course.

Conclusion

Overall, this validation study demonstrated sound psychometric properties of a new utility value for strategy use instrument across three independent samples and supports that this measure is suitable for college biology and statistics students. The metric invariance suggested that the PULSS can be used to compare students' utility value for strategy use across different STEM courses. Importantly, the present study provides a validated diagnostic tool for researchers and instructors to assess learners' perceived utility value for strategy use and can inform future SRL interventions.

References

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value of achievement motivation. *Contemporary Educational Psychology, 25*, 68–81. doi:10.1006/ceps.1999.1015

Winne, P. H., & Hadwin, A. F. (2008). The weave of motivation and self-regulated learning. In D. Schunk & B. J. Zimmerman (Eds.), *Motivation and self-regulated learning: Theory, research, and applications* (pp. 297–314). Erlbaum.

2022 - 2023 EXECUTIVE BOARD

Chairs

Senior: Aubrey Whitehead (whiteheadak@vmi.edu)
Junior: Abraham Flanigan (aflanigan@georgiasouthern.edu)

Program Chairs

Senior: Aloy Anyichie (anyichiea@brandonu.ca)
Junior: Michelle Taub (michelle.Taub@ucf.edu)

Secretary/Newsletter

Senior: Kendall Hartley (kendall.hartley@unlv.edu)
Junior: Anna Brady (abrady@georgiasouthern.edu)

Treasurers/Membership

Senior: Greg Callahan (greg.callan@usu.edu)
Junior: Ying Wang (ywang4083@gatech.edu)

AWARDS COMMITTEES (2022-2023)

Outstanding Poster Award

Chair: Roger Azevedo (roger.azevedo@ucf.edu)
Adar Ben-Eliyahu (adarbe@edu.haifa.ac.il)
Evely Boruchovitch (evely@unicamp.br)
Amy Dent (amy.dent@uci.edu)

Graduate Student Research Award

Chair: Héfer Bembenutty (hefer.bembenutty@qc.cuny.edu)
Taylor Acee (aceet@txstate.edu)
Peggy P. Chen (ppchen@hunter.cuny.edu)
Timothy J. Cleary (timothy.cleary@rutgers.edu)
Darolyn Flaggs (dflaggs@kennesaw.edu)
S. Jeyavel Sundaramoorthy (jeyavel05@gmail.com)
Divya Varier (dvarier@gmu.edu)

Barry J. Zimmerman Award For Outstanding Contribution

Chair: Anastasia Kitsantas (akitsant@gmu.edu)
Evely Boruchovitch (evely@unicamp.br)
Deborah Butler (deborah.butler@ubc.ca)
Dale H. Schunk (dhschunk@uncg.edu)

SIG CONTRIBUTORS (2022-2023)

Webmaster

Charles Raffaele (craffaele@gradcenter.cuny.edu)

Social Media Coordinator

Rinat Levy-Cohen (rlevycohen@fordham.edu)

SIG History Committee

Yan Dai (yzd0038@auburn.edu)
Hyun Sung Jang (hzj0046@auburn.edu)

SSRL SIG Times Magazine

Editor-in-Chief: Héfer Bembenutty (hefer.bembenutty@qc.cuny.edu)
Executive Editor: Pamela Murphy (pamela.murphy@uagc.edu)

Graduate Student Mentoring Program Committee

Chair: Matthew Bernacki (mlb@unc.edu)
Stephen Aguilar (aguilars@usc.edu)
Nikki Lobczowski (nikkilob@cmu.edu)
Fernando Rodriguez (fernanr1@uci.edu)
Teya Rutherford (teomara@udel.edu)

2023 Spring Newsletter

Previewing AERA 2023