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# Increasing Self-Regulated Learning Through the LinguaFolio

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## Abstract

Within foreign language classrooms, one intervention gaining recognition is LinguaFolio, a portfolio-based formative assessment designed to increase self-regulated learning. The question emerges whether such an intervention impacts student motivation, learning, and achievement. Researchers conducted a classroom-based, quasi-experimental, one-semester quantitative study with first-year French and Spanish classes at a Midwestern university. Students (N =168) completed a pre- and post-questionnaire. Accuracy in self-assessment was investigated by comparing data from LinguaFolio to student performance on unit tests. The impact of instructor beliefs on LinguaFolio use was analyzed via questionnaires. The results indicate that LinguaFolio use is linked to increased student intrinsic motivation, increased task-value, and more accurate self-assessment of learning. This study supports LinguaFolio as an effective approach to increase self-regulated learning in students.

**Keywords:** LinguaFolio, assessment, motivation, self-assessment, self-regulation

## Introduction

Self-regulated learning (SRL) has been a much-discussed topic in educational psychology and praxis over the past three decades. The ability to control one's own learning has been coined as self-regulated learning and is central to the goal of becoming a lifelong learner.

Schunk (2001) described SRL as resulting "from students' self-generated thoughts and behaviors that are systematically oriented toward the attainment of their learning goals" (p. 125). Student performance is deeply integrated with, and potentially dependent on, student ability to effectively self-regulate (Zimmerman, 2008). This study presents the findings of an intervention

designed to increase self-regulated learning using the *LinguaFolio*, a tool that scaffolds SRL through self-assessment, goal setting, strategy instruction, and reflection on achievement. The research questions were:

1. How do students' motivational beliefs change in relation to *LinguaFolio* use?
2. What impact do instructor beliefs have on the effectiveness of *LinguaFolio* use?
3. How accurate are students' self-assessed beliefs of ability compared to actual achievement in relation to *LinguaFolio* use?
4. How do the measures for cognitive and motivational/affective self-regulation interrelate?
5. What is the relationship between self-regulated learning and achievement?

## Literature Review

Much research has been conducted on various components of SRL. This research has bridged different ideological and theoretical divides among researchers, resulting in the current view of SRL as a combination of cognitive, motivational, and affective components (Paris & Paris, 2001).

### *Cognition*

The role of cognition in SRL can be divided into cognitive strategies used for learning and metacognitive awareness about learning. The former have been effectively explored through information processing theory, which strives to describe how new information is encoded into long-term memory through processes such as rehearsal, elaboration, organization, and association of new concepts (Kiewra, 2009). SRL is most concerned with the metacognitive awareness of which strategies are most effective for an individual within a given context to attain a specific goal.

Gardner's multiple intelligences theory (2006) reinforced the idea that learning, while

best accomplished in collaborative settings, is an individual act that requires the learner to make choices as to how to best learn new material. This cognitive awareness is developed through self-observation, self-judgment, and self-reactions (Schunk, 2001).

Self-observation, or self-assessment, is key to determining which behaviors, or strategies, are effective for an individual. Theory links accurate student self-assessment to increased motivation via feelings of ownership and responsibility for learning, the belief that effort increases ability, and increased task value (Paris & Paris, 2001). Scaffolding the process of accurate self-assessments requires regular practice in close proximity to performance (Schunk, 2001). This scaffolded practice of accurate self-assessment requires clear and concrete learning targets to direct growth and reflection, and these learning targets may be strategically linked to standards in order to simultaneously facilitate a deeper understanding of content standards. Utilizing standards as learning targets, or long-term goals for achievement, allows students to progressively internalize standards when concretely comparing the standards with personal abilities and growth. In tracking personal growth according to content standard-based long-term goals, the learner is also able to analyze at what level of quality the goal, or standard, is being achieved.

Goal setting is a major factor in the motivational process, whereby the greatest motivation results from meaningful, personal, proximal goals (Schunk, Pintrich, & Meece, 2007). Locke and Lathan (2002) identified four influences of goal setting on performance: directive function, emerging function, persistence, and arousal. Goal setting directs student attention toward goal-relevant activities, fosters a higher degree of effort from students as goals become more challenging (emerging function), encourages persistence as more challenging goals require more time on task, and elicits a sense of arousal in students as their degree of intrinsic interest in the subject area rises. Self-judgment refers to the cognitive process of comparing

performance to goals (Schunk, 2001). This also incorporates the ability to adjust strategies to meet goals.

Self-reaction refers to the affective component of self-observation and self-judgment: how one reacts to progress toward goal achievement, or the lack thereof (Schunk, 2001). This is also referred to as emotional regulation, the “ability to manage one’s subjective experience of emotion ... and to manage strategically one’s expression of emotion in communicative contexts” (Saarni, 2006, p. 245).

### *Motivation*

Motivation has been a subject of much interest in the field of second language (L2) studies for decades, as it has been found to significantly influence the outcome of individual language learning. Following the socio-psychological period that began in the 1960s, in which motivation research focused on intergroup attitudes and language learning, in the 1990s researchers shifted their studies to language learning contexts or actual language classrooms. Several comprehensive models of language learning motivation emerged examining classroom variables (e.g., Dörnyei, 1994; Williams & Burden, 1997). At the same time, motivation theories in educational psychology, such as self-determination theory (SDT) (Deci & Ryan, 1985, 2002) and attribution theory (Weiner, 1992), were applied to L2 research (e.g., Noels, 2001; Ushioda, 2001; Williams, Burden, & Al-Bahama, 2001), rendering motivation research more applicable to other fields. As a result, motivational research has shifted its direction toward a more “process-oriented” approach in which motivation is considered to be a dynamic process that changes over time (Dörnyei, 2001, 2005). The way in which learners’ motivation affects their learning process in a classroom context has attracted significant attention, encouraging a focus on process rather than product (e.g., Dörnyei & Otto, 1998; Hiromori, 2009; Williams & Burden, 1997).

In accordance with social cognitive theory,

there are many aspects to motivation. Attribution theory concerns itself with how people view what it is that they know. Do they believe that knowledge is a consequence of internal factors such as ability or effort expended, or a product of external factors such as chance or help from others? Do they view knowledge as a trait resulting from a constant value like aptitude, or as an unstable state resulting from variables either internal (effort) or external (chance)? Believing that ability can increase (state) through personal (internal) effort (controllable) is the most psychologically adaptable of the possible combinations. Individuals who believe this tend to have strong learning goals, want to learn, believe that effort can affect performance, attribute success to effort, use more advanced strategies to succeed, and generally perform better than individuals who believe otherwise (Dweck & Molden, 2005). Self-regulated learners adapt this view that the nature of knowledge is ever-changing, not constant. Knowing is an act in which individuals, regardless of their expertise, play a direct role. Therefore, what one knows or is capable of knowing is constantly developing and dependent on the effort the learner exerts. An important empirically supported part of attribution theory is that positive attributions, study strategies, goal setting, and instructor-guided self-assessment skills can be taught to students (Ames & Archer, 1988; Dweck & Molden, 2005).

Self-efficacy is another major component of motivation (Zimmerman, 2000). Simply put, it is the belief that a person will succeed at something. This belief is domain-specific, dependent on past experience, and dependent on the attributions discussed above. For example, my self-efficacy for replacing a flat tire may be entirely different from my self-efficacy for knitting a sweater (domain-specific). If I tried to replace a flat tire and then the doughnut ended up falling off the car two miles down the road (past experience), my efficacy may be pretty low. However, if I view my ability as dependent on my effort (attributions), I am more likely to remain motivated and persistent in attempting to

master the art of tire replacement. Self-efficacy beliefs influence an individual's choice of activities, level of effort, persistence, and emotional reactions to success or failure (Zimmerman, 2000). Combined with attribution beliefs, they are essential for developing a sense of agency in learners.

Goal orientation is another aspect of motivation. The achievement goal construct identifies two types of goals with which individuals engage in a certain behavior: performance and mastery (Elliot, 2005). Performance goals are those in which individuals want to either demonstrate their competence or avoid demonstrating their incompetence. These goals are viewed as being more extrinsic than mastery goals because they depend on external factors for gratification. Mastery goals are those in which individuals seek to either develop competence or avoid losing competence. These are generally considered more beneficial for students because they encourage intrinsic interest in the subject area. While performance goals may be beneficial in the short run for academic achievement, they are maladaptive in the long run because, without external rewards, students lose interest in the subject area (Linnenbrick, 2005). Current research suggests that a combination of performance and mastery goals may be the most beneficial for students (Linnenbrick, 2005)—especially when instructors scaffold students' creation of proximal, specific, and moderately difficult goals (Schunk et al., 2007). Another important part of this goal setting is encouraging students to choose their own goals. Choices give students a stronger affective sense of gratification and therefore motivate students better than instructor-mandated goals (Schunk et al., 2007).

### *Affect*

Flow theory has contributed to SRL the idea that students will actively engage in learning if they enjoy what they are doing. Csikszentmihalyi, Abuhamdeh, and Nakamura noted, "Paradoxically, it is when we act freely, for the sake of the action itself rather than for ulterior

motives, that we learn to become more than what we were. When we choose a goal and invest ourselves in it to the limits of our concentration, whatever we do will be enjoyable. And once we have tasted this joy, we will redouble our efforts to taste it again" (2005, p. 42). Csikszentmihalyi et al. (2005) described the conditions of flow as having a clear set of goals and a balance between perceived challenges and perceived skills, and being dependent on clear and immediate feedback.

When students do not understand the goal of a task or do not invest themselves in a task, there is a lack of ownership in the learning. The value of the learning task is diminished, thereby affecting their motivation to engage in that task. Connecting learning tasks with students' goals increases the value of the task and thus increases motivation. In the classroom, identifying goals increases motivation by assigning value to learning tasks and connecting learning tasks to students' own objectives. When students can attach personal value to tasks that are assigned to them, tasks become purposeful and students are more willing to meet the costs of achievement.

### **Fostering SRL Through Student-Centered Classrooms**

Research has shown that a student's capacity for self-regulation can be fostered in the classroom (Carver & Scheier, 2005; Chemers, Hu, & Garcia, 2001; Ziegler & Heller, 2000). Epstein (1987) established the acronym TARGET to describe classroom structures (task, authority, reward, grouping, evaluation, and time) that are controllable by the instructor and can encourage positive motivational patterns (Ames, 1992).

To maximize student interest, students should be engaged in meaningful tasks. Students can be encouraged to take ownership of their work if authority over class work is scaffolded into the hands of the student. To foster the belief that current ability is the result of effort, students should be recognized for personal

improvement. Designing tasks that utilize group work can both decrease students' affective filter because they are engaged in symmetric peer interactions (Moshman, 2005) and establish an atmosphere conducive to flow. Assessments and evaluations should be standard-based, not standardized, to encourage a mastery orientation to classroom content, and discourage comparisons between students, which promote a performance orientation. Ample time should be given for tests and projects to reduce the emphasis on performance and foster mastery.

Kiewra (2009) referred to instructors who utilize best practices like those delineated by TARGET as "teacher A." Teacher A+ is the instructor who goes a step further by engaging students in metacognitive activities that explicitly teach students strategies for learning and scaffold the SRL process.

### *LinguaFolio as an Intervention for Scaffolding SRL*

The European Language Portfolio (ELP) has its origins in the 1991 Rüsclikon Symposium, in which the need for a common framework to describe language proficiency led to the creation of a new tool to guide both instructors and students. Since the initial pilot programs in Europe between 1998 and 2000, the ELP has become very popular very quickly. The 2007 Interim Report on the ELP by Schärer (2008) claimed that "the ELP contributes significantly to the dissemination of European goals, values, concepts, and principles; ... makes a difference in educational practice; ... [and] is an effective catalyst for change at European, national and local levels" (p. 3). Because each region inside the European Union is unique, they require personalized models of the ELP to meet their unique demands. Over the past eight years, the number of validated models has grown from 6 to 99, and the number of students using the ELP has reached from 30,000 to over 584,000 (Schärer, 2008).

In 2003, the ELP was adapted in the United States under the name LinguaFolio. The LinguaFolio can be defined as a systematic collection of student work that is analyzed to show progress over time with regard to instructional objectives (Kohonen, 2000). It is divided into three parts: Language Biography (or My Language Journey, in Nebraska's LinguaFolio), Passport, and Dossier.

The Language Biography section begins with a page requiring students to describe their involvement with all languages with which they have had experience. This includes travel to places where the target language is spoken or contact with people from foreign countries where the target language is spoken. Next, students are required to self-report the strategies they employ to improve various aspects of their language ability (vocabulary, pronunciation, listening skills, etc.). This is done in a three-step process: first, student responses are elicited for the strategies they use; second, students read a long list of activities they could perform to improve; and finally, students must assess how often they engage in various strategies. This section provides students the opportunity to explore their goals for learning the language by thinking about the kinds of things they can do with language and engaging in an investigation of the strategies they are using/could be using to learn the language in order to meet those goals. The goal is that students not only reflect on what they currently do to learn the language, but also become aware of other strategies for learning.

The Passport section requires students to self-assess their current ability to speak the target language in relation to the standards, which define language proficiency. This is carried out through a series of "can do" statements, which are separated into the various aspects of language ability (listening, reading, speaking, and writing) and get progressively more demanding as the proficiency levels increase. For example, a beginning novice "can do" statement for listening comprehension is: "I can understand when someone speaks very slowly and

carefully” (LinguaFolio Nebraska). The goal is that after thinking about why and how students are learning a language in the Biography section, students then assess their current language ability in order to connect the dots between current ability and the strategies they are using to learn the language in relation to their goals for learning the language.

The final section is the Dossier, a dynamic collection of student work that illustrates the learning process by providing concrete examples from different periods of development. This substantiates the self-assessment of ability in the Passport section. Examples of student work to be included in the Dossier are quizzes, tests, homework, or any other summative assessment. Students are encouraged to collect and select examples of their work throughout the year and regularly add or remove their work to showcase progress and best work. This allows students the authority to choose how they would like to demonstrate their proficiency.

Using the LinguaFolio as an intervention, Moeller, Theiler, and Wu (2012) conducted a longitudinal study analyzing the relationship between goal setting and student achievement across time at both the individual student and instructor levels. A correlational analysis of the goal-setting process and language proficiency scores revealed a statistically significant relationship between the goal-setting process and language achievement ( $p < 0.01$ ). More sophisticated hierarchical linear modeling analyses (HLM) also indicated a significant relationship between the goal-setting process and language proficiency growth ( $p < 0.001$ ). This HLM finding implies that the goal-setting process benefits learners throughout the entire duration of their language learning experience. At the instructor level, the HLM analyses revealed that growth in a student’s ability to write goals and self-assess is independent of the instructor. This finding emphasizes the importance of scaffolding ownership of the goal-writing process into the hands of students.

### *Pedagogical Purpose*

The pedagogical theory behind the LinguaFolio is that engaging students directly in the processes of self-assessment in the Biography and Passport sections fosters metacognitive processes in the students to not only think about what the student is doing to improve, but also why the student is doing it. These self-assessments help students develop a mastery attribution of success, in which ability is a result of the effort and strategies they use, and they ultimately motivate students to self-regulate their own learning, thereby becoming more autonomous learners, by internalizing the standards upon which the self-assessments are based. As the students gain more autonomy, they develop a mastery orientation of achievement in which learning is the means to its own end—not the grade. This internal motivation and the autonomy to apply their emerging skills however they wish to demonstrate their ability in the Dossier section in turn lead to higher achievement. The instructor guides the process of autonomy building by providing strategy instruction to equip students with tools to learn more efficiently.

One of the larger challenges for instructors utilizing the LinguaFolio in their classrooms is integrating the LinguaFolio into everyday classroom exercises. Scaffolding self-regulatory processes for students is key to the LinguaFolio’s success and requires that instructors themselves understand how to use the LinguaFolio to maximize its effectiveness (Van Houten, 2007). When instructors receive training on how to use the ELP/LinguaFolio, it would be expected that student achievement would improve. While the longitudinal study of goal-setting and student proficiency by Moeller et al. (2012) did not reveal a statistically significant relationship between the instructor and student goal writing, the researcher posited that this lack of relationship was due to the highly scripted goal-writing process implemented uniformly by all instructor-participants. The study highlighted

the need to allow for variability in scaffolding the goal-writing process in order to more effectively explore the relationship between the instructor, the student's goal-setting process, and student achievement.

## Empirical Evidence

### *ELP Pilot Meta-Analysis*

Schärer (2000) wrote the Final Report on the ELP's pilot project phase, which lasted from 1998 to 2000. A little more than 30,000 students from 16 different countries participated in the pilot program. This report analyzed questionnaires completed by both instructors and students from the different countries assessing the ELP. The general assessment was good:

68% of learners felt the time spent on keeping an ELP was time well-spent. 70% of teachers find the ELP is a useful tool for the learners. 78% of teachers find the ELP a useful tool for the teachers. (Schärer, 2000, p. 10)

There was a similar agreement about the ELP's self-assessment component. Schärer (2000) reported that 70% of learners found the ELP helped them assess their own competence. Self-assessment is a way to encourage adaptive control beliefs (students do well because of their effort) – which in turn encourages mastery orientation of motivation, self-regulation, and eventually (hopefully) higher achievement. There have been no formal experimental studies to assess whether using the ELP/LinguaFolio actually increases achievement, but that 70% of learners believe that the ELP helps them assess their own competence appears to be a good start.

An important potential problem that was voiced in the findings (Schärer, 2000) was the need for instructor training in order to ensure the use of the ELP as an effective pedagogical and reporting tool.

## *Current Study—Purpose and Research Questions*

The purpose of the current study is to provide more quantitative research to answer the question of whether the LinguaFolio is meeting its pedagogical purpose of increasing student capacity for SRL. Data from students' motivational beliefs, instructor beliefs, students' self-assessed abilities, and achievement were analyzed. A one semester quasi-experimental quantitative study was conducted in nine Spanish 102 classes (second-semester beginner) and three French 102 classes at a Midwestern university, comprising a total of 168 mostly freshman students. Spanish served as the experimental group because LinguaFolio had already been introduced into the Spanish curriculum. Students in the Spanish 102 courses ( $N = 127$ ) used the LinguaFolio intervention, and students in the French 102 classes ( $N = 41$ ) served as the control group of students who did not. These particular classes were selected for inclusion in this study based on volunteer participation. Research questions include:

1. How do students' motivational beliefs change in relation to LinguaFolio use?
2. What impact do instructor beliefs have on the effectiveness of LinguaFolio use?
3. How accurate are students' self-assessed beliefs of ability compared to actual achievement in relation to LinguaFolio use?
4. How do the measures for cognitive and motivational/ affective self-regulation interrelate?
5. What is the relationship between self-regulated learning and achievement?

## Methodology and Measures

To aid the integration of the LinguaFolio into university Spanish classrooms, a chapter goal-writing and reflection paper was developed. This assignment was designed to incorporate the metacognitive skills required of the

LinguaFolio at the macro level of holistic language learning into micro, or chapter, exercises. Students had to pre- and post-self-assess their ability (similar to the Passport section of the LinguaFolio) to complete the communicative goals of the chapter, choose and reflect on strategies (similar to the Biography section) to master different aspects of the language each chapter, plan and reflect on the amount of time they would study Spanish for the given chapter, and set and reflect on a performance and mastery goal for each chapter, which were to be evidenced in the Dossier section of the LinguaFolio. Because these assignments were a substantial enhancement to the LinguaFolio, a more complete description of what they entailed is necessary.

### *Self-Assessment of Ability*

This section asked students to assess their confidence that they were able to complete the different communicative goals of each chapter. The scale was 1 (I am not confident) to 7 (I am extremely confident). Each chapter started with a pre-assessment and ended with a post-assessment. The goal was that students would both internalize the communicative goals of the chapter and see a positive change in their confidence levels from pre- to post-assessments. The post-assessments provided the researcher with data that were then compared to actual achievement on the tests to establish accuracy in self-assessments of ability.

### *Strategies for Learning*

In the pre-assessment, students planned strategies they would use in order to tackle different aspects of learning Spanish (grammar, vocabulary, listening, and speaking) in the context of the specific chapter on hand. Lecturers were instructed to explicitly go over some sample strategies for learning these different parts of the language (e.g., associations, visualizations, categorizations).

In the post-assessment, the goal was for students to make the connection between the

degree of their improvement and the strategies that they used to learn the language. Because all people are unique learners, certain strategies will work better for certain people—hence, it was important that instructors were aware of various strategies that students could use to master different aspects of the language.

### *Time on Task*

One of the major goals of the LinguaFolio is that students see their current ability and the improvement in their ability as a result of the amount of effort they put forth. Time on task is one of the most important factors when attempting to master a task (Kiewra, 2009). This section asked students explicitly to think about when they would allot time to learning Spanish in the pre-assessment and then reflect on how much time they actually allocated to learning Spanish in the post-assessment. Instructors were encouraged to explicitly state the purpose of this section (as well as the other sections) so that students would begin to connect the dots between ability, strategy use, and effort.

### *Goal Setting*

The final section of this form was goal setting. Students set two different types of goals: achievement and personal. Attribution theory calls this the difference between performance and mastery goals. Achievement, or performance goals, required external gratification to be met; an example of an achievement goal would be to receive a B on the test for the chapter. Personal, or mastery goals, on the other hand, did not require external gratification. Personal goals required students to choose one of the five communicative goals from the chapter and internalize it as their own. For example, if a chapter's communicative goal was to be able to order food in Spanish at a restaurant, a personal goal might be to actually go to a Mexican restaurant and order a meal in Spanish. Hence, while the personal goals required external means for providing evidence for accomplishment, they were designed to foster a mastery attitude for

the task. These goal-writing assignments were then the basis for what was included in the Dossier section. The evidence that students chose to provide in the Dossier had to reflect these goals. Following our examples, if my achievement goal for a particular chapter was a B on the test, my evidence would be that chapter test. If my personal goal for this chapter was to be able to order food in Spanish, a signed affidavit from a waiter at a Mexican restaurant saying that I had done so would be my evidence. Evidence meeting both of these goals was required.

The post-assessments required students to reflect on whether they had met their goals for each chapter and why. Here also, the purpose was for students to think about their ability in relation to the strategies that they had used and the amount of effort that they had expended.

One of the findings from research available on the ELP is that instructors need professional development/training on how to best integrate the ELP/LinguaFolio into the classroom (Van Houten, 2007). In addition to weekly departmental meetings in which instructors met to talk about teaching strategies and the tests that would be administered to the Spanish students, the researcher met with instructors three times during the semester to answer questions directly related to LinguaFolio. Two of the Spanish instructors chose not to attend any of these meetings and, as a result, the researcher created a separate group for them named "Limited LinguaFolio use." The other instructors were placed into a group named "Extensive LinguaFolio use." These categories were created to better discern the impact that effective LinguaFolio integration had on the learners.

Instructors completed a questionnaire during the middle of the semester that assessed their beliefs in relation to theory on student-centered classrooms. Ames's theory (1992) on the classroom activities/ structures (tasks, authority, and evaluation) that support mastery goal orientation and those that support performance goal orientation was converted into positively stated prompts to which

participating instructors responded via a Likert scale. Three statements were developed for each of the categories; for example, a statement used for a mastery view on task design read, "The main purpose of in-class activities is to maximize student interest." A performance view on evaluation included statements such as, "Students should be evaluated on the outcomes of their final products." To substantiate these self-reported instructor beliefs and assess the interaction between instructors' self-reporting and student perceptions, questions were added to the student survey about their perception of this largely instructor-defined classroom goal structure.

A questionnaire (see Appendix), which was a combination of the motivation components of the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1991), the Patterns of Adaptive Learning Survey (PALS; Midgley et al., 2000), and student perception of the classroom goal orientation was administered to students twice during the semester: once at the beginning and once at the end. Similar to the instructor survey, students were presented with statements and asked to agree or disagree using a Likert scale. The motivation component of the survey measured student mastery goal orientation, performance-approach goal orientation, performance-avoidance goal orientation, task-value, control beliefs (belief that effort increases ability), test anxiety, and academic self-efficacy. To calculate how the students changed their beliefs over the course of the semester, results from the second survey were subtracted from the first survey, meaning that students with a positive change score increased their belief for a given measure, and conversely students with a negative change score decreased their belief for a given measure.

Achievement scores were collected from all chapter tests, the final test, and the final grade. Accuracy in self-assessment for the Spanish classes was analyzed by calculating the absolute value of the difference between the average post-chapter assessments for ability and

**Table 1. Mean Change Scores**

	Goal Orientation			Motivational		Affective	
	Mastery	Performance Approach	Performance Avoidance	Control Belief	Academic Self-Efficacy	Test Anxiety	Task Value
French N = 41	-0.24	-0.46	-0.75	0.07	-0.10	0.28	-0.25
Spanish Limited N = 42	-0.62	-0.02	-0.56	0.09	-0.08	0.05	-0.01
Extensive N = 85	0.11	-0.07	-0.42	0.21	0.17	-0.28	0.23

individual students' actual achievement scores for each chapter. Hence, the lower the score, the more accurate an individual self-assessment.

Statistical analysis was conducted using ANOVA tests and correlation coefficients. *P*-values and eta-squared values are included to address statistical significance and effect sizes.

## Results

### *How Do Students' Motivational Beliefs Change in Relation to LinguaFolio Use?*

Table 1 shows the mean change scores. One-way ANOVAs revealed significant differences in the change scores only for the mastery goal orientation and task value variables. The results for change in mastery goal orientation revealed a significant difference among groups ( $F = 7.03$ ,  $p = 0.001$ ). The eta-squared value for effect size was 0.08, meaning that 8% of the variability in the dependent variable was explained by variability among treatment groups; this is considered a "medium" sized effect by Cohen's (2008) benchmarks. Follow-up Tukey tests indicated that the only significant difference was that between the mean of the Extensive LinguaFolio group (mean = 0.11,  $SD = 0.95$ ) and Limited

LinguaFolio group (mean = -0.62,  $SD = 0.95$ ,  $F = 7.03$ ,  $p = 0.001$ ). Hence, students of teachers in the Limited LinguaFolio group significantly decreased the level of their mastery goal orientation over the course of the semester compared to students of teachers in the Extensive LinguaFolio group.

The other significant difference among student groups was that of the task value ( $F = 3.39$ ,  $p = 0.026$ ). Tukey tests revealed that the only significant difference was between the French (mean = -0.25,  $SD = 1.08$ ) and the Extensive LinguaFolio group (mean = 0.23,  $SD = 0.87$ ,  $F = 3.39$ ,  $p = 0.022$ ). The eta-squared effect size for this difference was 0.04, revealing a "small" effect in accordance with Cohen's benchmarks. This means that students in the Extensive LinguaFolio group significantly increased their task value, compared to the decrease in task value observed in the French classes.

### *What Impact Do Instructor Beliefs Have on the Effectiveness of LinguaFolio Use?*

ANOVA analysis revealed a significant difference among instructors for mastery beliefs ( $F = 7.99$ ,  $p = 0.01$ ). The eta-squared measurement for effect size (0.64) was significantly higher than Cohen's benchmark for large effect sizes,

**Table 2. Classroom Goal Orientation**

Teacher Beliefs			Student Perception		
	Mastery	Performance		Mastery	Performance
French ( <i>N</i> = 3)	4.52	4.78	French ( <i>N</i> = 41)	5.33	4.31
Spanish			Spanish		
Limited ( <i>N</i> = 3)	4.56	4.93	Limited ( <i>N</i> = 42)	5.50	3.60
Extensive ( <i>N</i> = 6)	5.95	4.28	Extensive ( <i>N</i> = 85)	6.02	4.20

suggesting that 64% of the total variability in mastery beliefs was accounted for by the mean differences between groups. Follow-up Tukey tests found that instructors in the Extensive LinguaFolio group (instructors who attended the meetings with the researcher and regularly attended weekly faculty meetings) (mean = 5.95, SD = 0.41) had significantly higher mastery beliefs about classroom goal orientation (see Table 2) than both instructors of French (mean = 4.52, SD = 0.82,  $F = 7.99$ ,  $p = 0.023$ ) and instructors grouped into the Limited LinguaFolio category (mean = 4.56, SD = 0.77,  $F = 7.99$ ,  $p = 0.026$ ). There were no significant differences between instructors on their beliefs that supported performance classroom goal orientation. In other words, the only significant difference among the experimental groups (both Limited and Extensive LinguaFolio) and the control group was that instructors in the Extensive LinguaFolio group had higher mastery beliefs than instructors in both the Limited LinguaFolio group and the control group.

Students had similar perceptions of their classrooms' mastery goal orientations. ANOVA analysis showed a significant difference among groups ( $F = 7.517$ ,  $p = 0.001$ ). The eta-squared measurement for effect size (0.09) registered as a "medium" effect size according to Cohen's benchmarks. Substantiating the instructors' self-reports, follow-up Tukey tests revealed that students in classrooms with access to Extensive LinguaFolio use (mean = 6.02, SD = 0.85) reported a higher perception of mastery

classroom goal orientation than students in the French (mean = 5.33, SD = 1.11,  $F = 7.517$ ,  $p = 0.001$ ) and students in the Limited LinguaFolio classrooms (mean = 5.5, SD = 1.1,  $F = 7.517$ ,  $p = 0.021$ ). There were no other significant differences.

Students differed from instructors in their perception of classroom performance goal orientation. ANOVA analysis found a significant difference between groups ( $F = 9.35$ ,  $p < 0.001$ ). The eta-squared effect size (0.12) was considered a "medium" effect by Cohen's benchmarks. The classes with access to Limited LinguaFolio use (mean = 3.6, SD = 0.77) rated their classroom performance goal orientation as significantly lower than the French classes (mean = 4.31, SD = 0.73,  $F = 9.35$ ,  $p < 0.001$ ) and the classes with access to Extensive LinguaFolio use (mean = 4.19, SD = 0.89,  $F = 9.35$ ,  $p = 0.001$ ). This means that students in the Limited LinguaFolio group believed their classroom performance goal orientation was significantly lower than students in the Extensive LinguaFolio experimental group and students in the control group. There were no other significant differences among groups.

#### *How Accurate Are Students' Self-Assessed Beliefs of Ability Compared to Actual Achievement in Relation to LinguaFolio Use?*

Because these data were collected via the chapter goal writing assignments, which were part of the LinguaFolio intervention, results

**Table 3. Self-Judgments and Chapter Change Scores**

Test	Limited LF	Extensive LF
Chapter 1	$N = 9, R = 0.69^*$	$N = 81, R = 0.25^*$
Chapter 2	$N = 10, R = 0.56^*$	$N = 69, R = 0.53^{***}$
Chapter 3	$N = 28, R = 0.67^{***}$	$N = 74, R = 0.49^{***}$
Chapter 4	$N = 7, R = -0.142$	$N = 79, R = 0.31^{**}$
Chapter 5	$N = 26, R = 0.54^{**}$	$N = 79, R = 0.57^{***}$
Final Test	$N = 40, R = 0.59^{***}$	$N = 85, R = 0.46^{***}$
Final Grade	$N = 40, R = 0.40^{**}$	$N = 85, R = 0.45^{***}$

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

**Table 4. Mean Accuracy in Self-Judgment**

	Accuracy
Limited LF ( $N = 41$ )	0.201
Extensive LF ( $N = 85$ )	0.136

were limited to the experimental groups using LinguaFolio. Due to missing data from the chapter self-assessed ability and the fact that students were able to drop one of the test scores, the  $N$  for each of the chapter correlations between self-assessed ability and actual achievement varied significantly (see Table 3).

However, from the correlations from available data, it can be seen that students in both the Limited and Extensive Lingua-Folio groups had significant correlations between self-assessed ability and actual test scores for almost all of the chapter tests. This means that those who reported larger increases in their self-judgment of ability also generally scored higher on actual assessments of ability. Only Chapter 4's test revealed a nonsignificant correlation for those in the Limited LinguaFolio group, and this may have more to do with the small  $N$  than with the majority of the students' inability to accurately self-assess. The correlations provided for the final test and the final grade were calculated by averaging students' chapter ability test

scores and comparing that averaged number to the final test and final grade. In general, it can be seen that the Extensive LinguaFolio group had lower  $p$  values, but this too may be due to a larger sampling size.

Mean accuracy scores (see Table 4) were calculated by converting the self-assessed ability and achievement scores into percentages and then averaging the absolute values of the difference between chapter tests and self-assessed ability for each student. The lower this number is, the more accurate it is. An ANOVA analysis showed that students in classes with Extensive LinguaFolio use (mean = 0.136,  $SD = 0.08$ ) had a significantly better mean accuracy score than those in the Limited LinguaFolio classes (mean = 0.201,  $SD = 0.11$ ,  $F = 14.7$ ,  $p < 0.001$ ), meaning they produced more accurate self-judgments of ability than students in the Limited LinguaFolio group. The eta-squared value for effect size (0.11) revealed a "medium" effect according to Cohen's benchmarks.

### *How Do the Measures for Cognitive and Motivational/Affective Self-Regulation Interrelate?*

Students who were comparatively more mastery goal-oriented self-assessed themselves as having comparatively higher ability than their peers ( $r = 0.389$ ), and they were also comparatively more accurate at self-assessing than their peers ( $r = -0.171$ ) (see Table 5). Interestingly, this was also true for students who increased their mastery goal orientation the most over the course of the semester ( $r = 0.219$ ,  $r = -0.154$ ). Performance-approach orientation only produced one significant correlation to the cognitive measure of average accuracy in self-assessment ( $r = -0.193$ ), meaning that those who were comparatively more performance approach-oriented were also comparatively more accurate at self-assessing. The belief that effort translates into ability (control belief) provided significant correlations for students on their second survey to average self-assessed ability ( $r = 0.37$ ) and average accuracy in self-assessment ( $r = -0.289$ ). However, there was no significant correlation between increased control beliefs and self-assessment. This combination was also true for academic self-efficacy, which provided a strong correlation of 0.601 between student reports on the second survey and the average self-assessed ability, meaning that those who comparatively believed they would do well in the class (academic self-efficacy) were also those who rated themselves, on average, as having a comparatively higher ability. Students with higher academic self-efficacy were also comparatively more accurate than their peers at self-assessing their ability ( $r = -0.289$ ). Test anxiety, as expected, provided the opposite results. Those who were more anxious about taking tests rated themselves, on average, as having lower abilities than their peers ( $r = -0.278$ ) and were comparatively less accurate at self-assessing their ability ( $r = 0.181$ ). Finally, task-value behaved similarly to the measure for mastery goal orientation. There was a significant relationship between

those who valued learning the language the most (task-value) as both revealed higher ( $r = 0.39$ ) and more accurate ( $r = -0.198$ ) self-assessments of ability. In addition, students who increased their task-value beliefs the most had higher average self-assessments of ability ( $r = 0.217$ ). Note that these findings are not causal in nature, but represent the findings from the study.

### *What Is the Relationship Between Being a Self-Regulated Learner and Achievement?*

The results from motivation measurements from the second survey and the change values from the second to the first survey were correlated with the results from the achievement scores from the final test and final grade (see Table 6). Contrary to expectations that both mastery and performance goal orientation would be linked to the final test and final grade, only mastery goal orientation was linked to both ( $r = 0.239$  and  $r = 0.176$ ). Interestingly, a negative correlation was revealed between increased performance goal orientation and performance on the final exam ( $r = -0.168$ ). This indicates that those who became more performance oriented over the course of the semester actually did comparatively worse on their final test.

Those who increased their performance avoidance goal orientation had negative correlations to both the final test and final grade as well ( $r = -0.24$ ,  $r = -0.193$ ). The belief that effort increases ability (control belief) positively correlated with both the final test and the final grade ( $r = 0.199$  and  $r = 0.17$ ). Academic self-efficacy produced the highest  $r$  coefficients for both the final test and the final grade ( $r = 0.524$  and  $r = 0.519$ ).

The results from the final survey for test anxiety also had high, but negative,  $r$  coefficients for both the final test and the final grade ( $r = -0.453$  and  $r = -0.343$ ). Those who became more anxious about taking tests throughout the semester performed worse on the final test and received lower final grades ( $r = -0.21$  and  $r = -0.189$ ).

**Table 5. Cognition, Motivation, and Affect**

	Goal Orientation				Motivation				Affect					
	Mastery		Performance Approach		Performance Avoidance		Control Belief		Academic Self-Efficacy		Test Anxiety		Task Value	
	2nd	Ch	2nd	Ch	2nd	Ch	2nd	Ch	2nd	Ch	2nd	Ch	2nd	Ch
Average Self-Judgment	0.389***	0.219**	0.112	-0.017	0.086	0.022	0.370***	0.118	0.601***	0.115	-0.278***	-0.085	0.390***	0.217**
Average Accuracy	-0.171*	-0.154*	-0.193*	-0.012	-0.145	-0.089	-0.278***	-0.071	-0.289***	-0.053	0.181*	0.058	-0.198*	-0.118

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

2nd refers to the value reported on the second survey.

Ch refers to the change in values from the second to the first surveys.

**Table 6. Self-Regulated Learning and Achievement**

	Goal Orientation				Motivation				Affect					
	Mastery		Performance Approach		Performance Avoidance		Control Belief		Academic Self-Efficacy		Test Anxiety		Task Value	
	2nd	Ch	2nd	Ch	2nd	Ch	2nd	Ch	2nd	Ch	2nd	Ch	2nd	Ch
Final Test	0.239**	0.173*	-0.051	-0.168*	-0.047	-0.240**	0.199*	0.059	0.524***	0.094	-0.453***	-0.210**	0.217**	0.199*
Final Grade	0.176*	0.101	-0.040	-0.105	-0.001	-0.193*	0.170*	0.030	0.519***	0.183*	-0.343***	-0.189*	0.174*	0.237**

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

2nd refers to the value reported on the second survey.

Ch refers to the change in values from the second to the first surveys.

**Table 7. Self-Judgments and Achievement**

	Limited LF	Extensive LF
Self-Judgment	-0.866***	-0.610***
Final Test	-0.271*	-0.068
Final Grade	-0.109	0.007

\* $p < 0.05$ \*\*\* $p < 0.001$ 

However, these results reflected “small” effect sizes according to Cohen’s benchmarks.

Task-value was positively linked to both the final test and the final grade both on the second survey ( $r = 0.217$  and  $r = 0.174$ ) and for the change values ( $r = 0.199$  and  $r = 0.237$ ). In other words, those who reported higher task-value assessments on their second survey received comparatively higher scores on their final test and higher final grades. In addition, those who increased their task-value over the course of the semester scored higher on the final test and received higher final grades.

Data collected from the goal-writing assignments, used in the experimental groups, revealed interesting correlations between accuracy in self-assessment and achievement (see Table 7). Students in both the Limited LinguaFolio ( $r = -0.866$ ) and the Extensive LinguaFolio ( $r = -0.61$ ) classes had significant negative correlations between accuracy in self-assessment and actual self-assessed ability. This means the students who were most accurate at self-assessment tended to be the ones who were assessing themselves with comparatively higher abilities. While the accuracy of student self-assessments in the Limited and the Extensive LinguaFolio classrooms did not correlate to final grades, students in the Limited LinguaFolio did produce a significant negative correlation ( $-0.297$ ) between accuracy in self-assessment and the grade they received on the final exam, while students in the Extensive LinguaFolio classrooms did not. There are two ways to interpret this. It is true

that students in the Limited LinguaFolio classes who most accurately assessed themselves did comparatively better on the final test than those who did not accurately self-assess. Is this because students in the Limited LinguaFolio classrooms were better at the self-regulative process of self-assessing ability than students in the Extensive LinguaFolio classrooms? Or did students in the Extensive LinguaFolio classrooms receive enough scaffolding throughout the self-assessment process that even mid- and lower-achieving students were also able to self-assess their abilities accurately?

## Discussion

Acquiring “behavioral, emotional and cognitive self-control is essential to competent functioning throughout life” (Shonkoff & Phillips, 2002, p. 94). The findings presented from this semester-long quantitative study support the theory behind SRL. The cognitive component measured, accuracy in self-assessment, was positively linked to the motivational and affective measures of mastery goal orientation, control beliefs, academic self-efficacy, task-value, and higher self-assessments of ability (self-efficacy).

Mastery orientation, control beliefs, academic self-efficacy, task-value, and student self-assessment of ability (domain specific self-efficacy) all positively correlated to student achievement. These results support the view that self-regulated learners who are intrinsically motivated

(mastery goal orientation) believe that effort drives ability (control beliefs), value the content information, believe they can succeed (academic self-efficacy), and actually do succeed.

The results also show an important interaction between instructor beliefs about classroom goal structures and extensive LinguaFolio use. It is not surprising that instructors who participated in the professional development, both with the researcher and the department, had higher beliefs that support mastery goal orientation in students. This combination of instructor beliefs, classroom goal orientation, and LinguaFolio use produced findings that support the effectiveness of LinguaFolio as an intervention to increase SRL in students. Extensive LinguaFolio use was linked to higher accuracy in self-assessment, higher mastery goal orientation, and higher task-value; however, a more rigorous experimental design would be required to show causality between LinguaFolio and increased SRL.

## Conclusion

This study, coupled with the Moeller et al. (2012) goal-setting study, supports the idea that the LinguaFolio accomplishes its pedagogical purpose. As with all correlative studies, it is impossible to show causality between LinguaFolio use and the positive outcomes presented. In order to better establish this link, a more concrete definition of what is “on model,” or representative of the LinguaFolio process, will need to be established. This is difficult because one of the underlying goals of the LinguaFolio is to allow students more choice and control over their learning. Establishing scripted lesson plans for instructors to follow would diminish the instructor’s ability to personalize the learning experience. Work on establishing the Sheltered Instruction Observation Protocol Method as an effective tool, for example, has circumvented scripted lesson plans by providing instructors with a lesson outline and options for possible tasks in which

students could engage, as opposed to mandating specific ones (see Himmel, 2007).

One strategy the current study utilized was the chapter goal writing assignments that were designed to integrate the pedagogical underpinnings of the LinguaFolio (self-assessment, self-reflection, goal setting, and strategy awareness) into the everyday classroom. These goal-writing assignments drove the Dossier section of the LinguaFolio by providing a concrete place for setting goals for and reflecting on the evidence that was provided by students. Hence, the positive findings of this study must be seen as a reflection of not only LinguaFolio use, but also the chapter goal-writing assignments.

Other strategies for integrating the principles of the LinguaFolio have been investigated. For example, Moeller et al. (2012) produced a poster-sized diagram of the LinguaFolio process, and instructors were encouraged to display the poster in their classrooms. In addition to the SRL-related graphic, instructors were provided with detailed templates for goal writing and for reflection, and students utilized the templates during the goal-writing process. Finally, instructors in the study attended multiple trainings and worked cooperatively in developing numerous activities to guide learners through the goal writing and reflecting process. All of these supportive activities were designed to assist instructors in integrating the LinguaFolio into their classrooms. This idea of establishing a pool of activities designed to integrate the LinguaFolio would allow researchers to better define what being “on-model” with the LinguaFolio means, thereby allowing researchers to further investigate the effectiveness of the LinguaFolio.

With the ever-increasing interest in SRL, it is not surprising that classroom interventions emphasizing goal writing and reflection would be met with intrigue and enthusiasm. This study has analyzed the instructional integration of the LinguaFolio, a tool that scaffolds SRL through self-assessment, goal setting, strategy instruction, and reflection on achievement. Results provide substantial evidence in

support of integrating self-regulatory interventions, such as the LinguaFolio, into the classroom learning environment. Results also indicate a need for additional investigation into concepts such as the training needs of instructors interested in integrating self-regulation processes and the relationship between specific intervention tools and student self-regulation. Combining the efforts of this and future studies on self-regulatory classroom interventions presents the potential to yield critically important insights into the process of becoming a self-regulated learner. Such insights are essential in establishing the optimal path for students to develop the habits and skills necessary for being lifelong learners.

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