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Characteristics of and patterns in students' self-set goals for self-regulated learning

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Characteristics of and patterns in students' self-set goals for self-regulated learning

Task-specific goals play a critical role in self-regulated learning, yet little research has examined students' self-set goals for individual study sessions for authentic university tasks. We propose goals that are useful for guiding task engagement and evaluating progress are specific about time, actions, standards, and content. In Study 1, we examined characteristics of students' self-set goals. Five categories were created to describe students' goals. Students rarely included specific information regarding actions, standards, or content. In Study 2, we examined patterns of change in quality of self-set goals across a semester in which students were in a learning-to-learn course. Improvements in goal quality were either inconsistent or non-existent. Students' vague goals may indicate low motivation, incomplete understanding of the academic tasks they are assigned. Implications of vague goals for monitoring progress are discussed.

Keywords: goal setting, self-regulated learning, studying, self-set goals, higher education

Expectations for undergraduate-level university courses are unique compared to earlier stages of learning. Students often (a) receive little guidance from their instructors, (b) are expected to spend a large portion of time independently studying outside of class, and (c) are rarely given external feedback on their studying. Instead, students must wait until after they have submitted work or written an exam, at which point it is often too late for students to adjust their approach. Without proper intervention, students may struggle to develop strategies to tackle large academic tasks with minimal instruction (Tinto, 2005; Yorke & Longden, 2004). Learning to productively self-regulate learning offers promise for students making this transition.

Self-regulated learners strategically approach their academic tasks and make changes to their studying before it is too late (Winne & Hadwin, 1998). Self-regulated learners direct, monitor, and adapt their cognition, behaviour, and motivation (Winne & Hadwin, 1998; Zimmerman, 1989, 2000). Research consistently suggests that self-regulated learning (SRL) is

positively related to academic performance (Cleary & Chen, 2009; Zimmerman & Martinez-Pons, 1986. Winne and Hadwin (2008) describe the two main features of SRL as (a) recognizing when there is a discrepancy between the current state and the goal state and (b) taking action to change that discrepancy. From this perspective, students' goals are a critical focal point of the regulatory process. Unfortunately, there is a paucity of research about the kinds of goals students set in their naturalistic, independent study sessions. Thus the overarching purpose of this study is to examine goals set by university students for authentic university learning tasks.

Self-Regulated Learning Framework

Although goals are posited to play a central role in most models of SRL (e.g., Boekaerts, 1996; Boekaerts & Cascallar, 2006; Pintrich, 2004; Zimmerman, 2000), our investigation draws heavily from Winne and Hadwin's (1998) model, primarily because it articulates specific mechanisms associated with goal setting in SRL (Greene & Azevedo, 2007). Winne and Hadwin (1998, 2008) model SRL as unfolding over four weakly sequenced, recursive phases: (a) Phase 1: task perceptions, in which learners create a personal understanding of the task; (b) Phase 2: goal setting and planning, in which learners set goals and develop plans based on Phase 1; (c) Phase 3: task enactment, in which learners strategically engage tactics to complete the task; and (d) Phase 4: large-scale adaptation, in which learners modify their learning when faced with challenges. Central to the cycle of SRL are the processes of metacognitive monitoring and evaluating, through which learners judge progress and plan adaptations.

Goals in SRL

From the perspective of Winne and Hadwin's (1998, 2008) model, goals (Phase 2) play a central role in SRL in three ways. First, goals provide a context for interpreting tasks (Phase 1).

Theoretically, when task perceptions are weak or incomplete, it is difficult to be specific about goals and standards for learning. The act of setting goals both prompts learners to consider what they are being asked to do and provides an indirect assessment of task understanding. Second, goals direct planning, strategy choice, and flexible task engagement (Phase 3). Getting specific about goals for a study episode generates metacognitive information that is useful when choosing among a plethora of learning tactics such as highlighting, making cue cards, or comparisons. Finally, goals provide standards for monitoring and evaluating performance. Specific goals (a) create a platform for detecting discrepancies between goals and progress and (b) invite regulation to decrease this discrepancy.

Distinguishing Self-Set Goals from Goal Orientation

Seijts, Latham, Tasa, and Latham (2004) argue goal orientation and goal setting are two distinct constructs. Goal orientation was initially described as a “trait” construct, contrasting, for example, learning and performance orientations (Dweck, 1986) and is usually measured as a general disposition (Payne, Youngcourt, & Beaubien, 2007). Goal setting, on the other hand, is a “state” construct of goals that refers to desire to attain a specific standard in a task (Locke & Latham, 1990). Goal setting researchers (e.g., Seijts et al., 2004) have distinguished between learning goals focused on strategy discovery and outcome goals focused on task performance, both of which fit within an orientation toward self- or task-comparison (learning orientation; Dweck, 1986). Within Winne and Hadwin’s (1998) model of SRL, goal orientation and goal setting are two separate constructs that serve different functions. Goal orientations are considered pervasive conditions that inform all phases of SRL. Goal setting refers to a specific functional phase of SRL.

Most research on goal setting is (a) situated in organizational settings, (b) focused on assigned goals (Acee, Cho, Kim, & Weinstein, 2012), and (c) conducted in laboratory settings (Porter & Latham, 2013). A paucity of research exists examining students' self-set goals in authentic university settings. To address this gap, Acee and colleagues (2012) examined the properties of undergraduate students' self-set academic goals by asking students to list 20 goals at the beginning of the semester. A researcher-coded rating of specificity was found to positively predict semester GPA. However, there remains a need for research that examines the properties of short-term, task-specific goals set by students for their study sessions. As such, we look specifically at properties of effective goals for guiding SRL during single study sessions based in Winne and Hadwin's (1998, 2008) model of SRL.

Further, if self-set goals are "state" constructs, then it would be plausible to expect goals to change over time, particularly upon receiving instruction in setting effective goals. To our knowledge, however, there is no research examining how students' self-set goals change over the course of a semester and whether the quality of those goals improves with instruction. Measuring a goal at one time does not provide a picture of how students might adapt their goal setting as they accumulate experience with goal setting over time. In addition, examining how goals change in the context of a learning-to-learn course where students receive instruction in effective goal setting is important for understanding how to improve goal-setting interventions.

Effective Goals for SRL

While we acknowledge the importance of broader, long-term academic goals (e.g., Acee et al., 2012), we posit that effective goals for regulation should focus on a single study episode. Consistent with Winne and Hadwin's (1998, 2008) model of SRL, we were interested in micro-level goals students used to evaluate the effectiveness of a given study session. Using this model

and the literature on goals drawn primarily from organizational research, we identified four key properties of goals with potential to guide this kind of metacognitive monitoring and evaluation during studying: timeframe, action, standard, and content (TASC). Table 1 provides an example of a goal developed from a vague study goal into a more specific goal with all TASC properties.

First, we posit that a *timeframe* helps to (a) break down large multi-session goals into something that can be achieved in one study session and (b) create opportunities for actively monitoring progress during studying. Seijts and Latham (2001) found that, compared to distal goals alone, breaking down a distal outcome into short-term goals was associated with increases in the number of strategies used. Building on these findings, we posit that when a timeframe is specified, it generates a check-in point to monitor progress, recognize problems, and regulate (Zimmerman, 2008), particularly if the goal is also committed to a specific time and date (Latham & Seijts, 1999). This is particularly important given that post-secondary students often struggle to self-monitor learning (Zimmerman & Paulsen, 1995) and may need cues for monitoring more regularly during studying. We note this focus on short-term goals does not imply that there is no place for distal goals; goals should be hierarchical, with long-term goals broken into short-term goals that can provide regular feedback (Zimmerman, 2008).

Second, we posit effective learning goals should include specific *actions* that define the kind of cognitive processes that constitute learning in a given study episode. Specific cognitive actions, such as identify, evaluate, or apply, provide a platform for choosing appropriate strategies (Phase 3). Cognitive-oriented learning goals focus attention on the process of task completion and strategy use rather than outcome (Mone & Shalley, 1995; Winters & Latham, 1996). For instance, in a complex scheduling task, Winters and Latham (1996) found that strategy use and performance improved when participants were assigned specific learning goals

(discover x number of shortcuts) relative to specific outcome goals (produce x number of schedules) or “do your best” learning goals. Our framework extends these findings to academic contexts where an emphasis on learning processes would be beneficial.

Third, we posit that effective goals should articulate concrete *standards* that can be used for self-evaluation. When learners specify to what degree, amount, or standard they will complete the action, they provide a clear point of reference for judging progress and identifying opportunities to enact strategic regulation by adjusting goals or strategies. A large body of literature in organizational behaviour supports the notion that setting a specific standard for performance results in improved performance (e.g., Locke & Latham, 2002). For example, Seijts and Latham (2001) compared learning goals focused on discovering strategies and found that strategy use, performance, and self-efficacy were improved for specific goals (discover x number of strategies in each trial) compared to vague “do your best” goals (discover as many strategies as possible).

Finally, we propose specifying *content* (or *concepts*) to be learned is the foundation of effective learning goals because it focuses attention on the substance of learning rather than a sequence of tasks to complete. Clear content guides learners to concentrate on relevant material as well as in choosing what actions are needed for learning. This also provides a checkpoint for task perceptions as learners with complete and accurate task perceptions should have clear ideas about what concepts are of interest. To our knowledge, no research has focused on the inclusion of specific concepts to be learned in studying goals. In organizational behaviour literature, goals have focused on tasks that are not truly reflective of the kinds of tasks completed in educational settings, which often require meaning and sense making. To address this gap, our study examines

the goals university students set for naturalistic studying sessions for regular grade-bearing courses.

We posit that setting goals with all four TASC criteria promotes effective regulation because learners (a) can monitor goal attainment regularly, (b) know what and how they are going to learn, and (c) can detect discrepancies between outcome standards and current progress and thus make adjustments where necessary. Furthermore, research suggests that both motivation and self-efficacy are enhanced by goals that are specific and proximal (Latham & Locke, 2007; Schunk, 1990, 2003).

Overview of the Present Studies

To examine the goals set by university students for authentic academic tasks, we conducted two studies to answer the following research questions:

- (1) What are the characteristics of students' self-set studying goals?
- (2) What are the patterns in students' self-set goal quality over a semester in a learning-to-learn course?

The purpose of Study 1 was to classify and describe the types of goals that students set for their studying. Such descriptions are lacking in the existing literature, yet are crucial for (a) gaining insight into how students plan for their studying, (b) identifying what students may be evaluating when they engage in studying, and (c) designing interventions to enhance students' goal-setting for more effective regulation of learning. The purpose of Study 2 was to examine how goal quality changes over time, particularly after instruction in setting effective goals for studying. For each study, we analyzed the goals set by students registered in a first-year learning-to-learn undergraduate course, described next.

Instructional Context

Learning Strategies for University Success is a first-year, credit-bearing, semester-long course designed to help students become productive self-regulated learners. This is an elective course, taken by students with a variety of disciplines and incoming levels of academic achievement. The course is anchored in SRL theory and research, guided by Winne and Hadwin's (1998, 2008) model of SRL. Each week, a class-wide lecture introduces students to a different SRL topic, and then a small-group lab guides students in applying the concepts to their learning in concurrent university courses.

The samples for the studies presented here were drawn from two semesters (Spring 2008 and Spring 2010) of the course. Within the first three to four weeks of the semester, students learned about the role of goals in SRL and were taught how to set SMART (specific, measurable, action-oriented, realistic, and timely) goals. Students were also assigned a lab activity in which they practiced writing multiple goals for the upcoming week. SMART goals were used because (a) the TASC framework had not yet been developed and (b) the SMART acronym is fairly prevalent and well-known. Although there are similarities between TASC and SMART criteria, we use the TASC criteria to analyze the quality of goals in this study as it is explicitly based in theories of SRL (e.g., Winne & Hadwin, 1998) and, to our knowledge, there is little empirical literature on SMART goals.

Study 1

Method

Participants

Participants were 43 students (20 females; 23 males) enrolled in *Learning Strategies*. Students

were from a variety of academic disciplines and ranged from their first to fourth year of university study with a mean age of 19.7 years ($SD = 2.8$). The 43 participants set a total of 348 goals across 11 weeks; a subset of 189 goals (53%) was randomly chosen for analysis, with an average of 4.4 goals per participant.

Measures and Procedure

Students completed an online reflection each week at the beginning of lab as a tool to encourage a weekly SRL cycle. Reflections consisted of two sections: (a) the *planning* section, where students were prompted to set a studying goal for the upcoming week; and (b) the *reflecting* section, where students reflected on their goal attainment from the previous week and evaluated what went well and how they could improve their goal striving. For the purposes of this study, we examined students' responses to one item: "State one goal you have for your studying/learning in the upcoming week." Students were not explicitly asked to set cognitive, behavioural, or motivational studying goals nor were they asked specifically to set SMART goals, though they were introduced to this idea in lecture.

Coding

Goal coding occurred as an iterative cycle. We pursued collective agreement on each goal rather than inter-rater reliability, as our previous experience with coding goals had shown that it was difficult to meet high levels of inter-rater reliability due to the large range of variation in students' self-set goals.

In Phase 1, we started with a previously developed coding scheme based on the TASC framework and developed with a sample of goals across multiple offerings of the course in a 5-year time span (Haffey, Webster, & Hadwin, 2013). In particular, goals were coded for quality

on the basis of whether or not they included specific actions, standards, and content. Timeframe was not coded, as determining if a goal could be realistically completed in approximately two hours can be difficult to judge because (a) not enough information about the task is provided in every goal and (b) what can be accomplished in that timeframe will likely vary between students and tasks. Three authors coded a sample of goals independently on five levels of quality, but there were many discrepancies with the initial coding scheme.

Keeping in mind the descriptive purpose of this analysis, we collaboratively developed a new, inductive coding scheme with the aim of describing the content of participants' goals. In Phase 2, we used the new coding scheme to code 70 goals together, resolving any discrepancies through discussion. We then coded the remaining goals in three subsets with discussion between each subset to reach agreement. As a final step towards reliability, we sorted all goals by their code and read through the goals in each category, looking for any goals that did not seem to fit. We did not find any goals at this point that needed to be re-coded.

Findings and Discussion

For each coding category (see Table 2), we describe the goals in that category, explain the potential role of those goals in SRL, and provide examples of actual goals set by students. Each example is followed by parentheses containing a participant number and the week in which the goal was set, so (175, 3) refers to participant number 175's goal in the third week of the course. All goals in quotations or bullet points are direct quotes from students, including any spelling and grammar mistakes. We present the codes in order of most to least frequent.

Vague Goals

Goals that fit in the *vague* category lacked specificity in terms of actions, standards, and

concepts. They often failed to identify a particular task and break tasks down into constituent parts. In addition, the majority of goals were behaviour focused and involved beginning or completing an activity. For example, the goal “To finish my optional assignment #1 in psych 332, due tomorrow. Also I'd like to do all my readings for the week.” (170, 1) identifies one specific task and several other non-specific tasks. It is behaviour focused (“finish”) and does not identify any concepts to be learned, suggesting incomplete understanding of the task. No cognitive actions are identified, resulting in little direction in terms of how to complete the task. Finally, this goal lacks any standard to judge when a good job has been done either on the optional assignment or on the readings. As another example, the goal “Get Started!” (171, 1) is so vague that it could be about anything at all and clearly cannot play much of a role in regulating learning. Following are a goal that identifies a task and a goal that does not.

- Understand what the point of the english readings is. actually catch up on my english readings. (194, 5)
- Since I never seem to have enough time, my goal this week will be to use my time wisely and get the most out of my study sessions. (203, 4)

Plan-to-Plan Goals

These goals were characterized by an intent to plan for the upcoming week or assignments. We identified two subcategories of goals—distinguished by whether or not they identified a task—that have different implications for SRL. First, the majority of the *plan-to-plan* goals did not identify a task and were focused on creating schedules and getting organized. These goals usually lacked specificity of actions, standards, and concepts and likely contributed very little to effective SRL. For example, the goal “During the upcoming week, I am going to write out a

schedule for the work I have missed in all of my classes and will be fully caught up in four of my five classes by weeks end.” (182, 3) expresses an intention to make a schedule rather than figuring out right now what needs to be done in the upcoming week and setting a goal for one study session. While scheduling is a good time management strategy (Ariely & Wertenbroch, 2002), we see this as being a dangerous goal motivationally as it provides no direction for action in terms of the learning that needs to occur.

A second, smaller, subset of *plan-to-plan* goals identified a task and involved needing to figure something out about the task in order to set a more specific goal or start work on the task. This was most often figuring out a topic or the area of focus for an assignment. These goals did not demonstrate complete task understanding. For example, one student wrote “I have a one big paper to do in this term; *I will decide my topic* [emphasis added], go to library do the research and find the material that I want next week” (186, 1). Following are two more examples: the first does not identify a task, while the second does.

- I would like to make a solid effort to refocus and go over my goals for my courses again. I feel by going over these goals again I hope to be able to re motivate myself and focus during study sessions. To refocus I plan on making more concrete and definable study goals for each study session vs the outcome of the entire week of studying. With a definable goal for each study session I feel that I will be less likely to procrastinate as there will be a set outline of material that I need to achieve that day. (204, 3)
- In the upcoming week I plan on sitting down and *figuring out where I will begin my psychology project*. My goal is to go to the library and see what resources they have on my subject. I would like to gather as much information as possible so that my project will

be a success. It will be a lot of work but if I get off to a good start it should make things a lot easier. (201, 3)

Multiple Goals with TASC

This category was used to describe goals that included several goals, one of which identified at least one TASC criterion. Relative to the goals we have described so far, these goals are more useful in allowing the student to check task understanding, direct task engagement, or judge learning using a specific standard; however, TASC criteria were not consistently present in each sub-goal of the multiple goals. Take the following goal (emphasis added to highlight TASC elements):

- One goals for this upcoming week, is start to finish reading Chapter 15 of Economics and being able to learn the *market structures* for the exam. I also want to finish my French composition and some assignments that I have for my other classes. Mainly, I want to finish all of my group projects for Commerce. (208, 10)

This goal has at least four sub-goals, only one of which has a TASC element (content). We expect students with many tasks to have many goals; however, the lack of consistent TASC elements means that students are not consistently monitoring task understanding, directing task engagement, or setting standards for judging learning. Another example follows.

- Prepare for the exam. Read through Weber and Simmel,take notes from text and *make concetions* between the lecture notes and text material. *Can compartmentalize the similarities and differences between those two theorists.* Get my research paper checked by writing center, especially the grammar and the form of essay. (186, 9)

The majority of *multiple* goals focused on different tasks, as in the example above. Less frequently, *multiple* goals focused on a single task, breaking it down into more specific elements or goals, such as in the following example (emphasis added to highlight TASC elements):

- This week I need to write an essay for my history class. In order to complete this task in a timely fashion, I first plan to find four sources for each of the next two nights. I then plan to use the research I collect, to *formulate a thesis* and then *create an outline* for my writing. (169, 11)

This goal breaks down the essay task into many parts, some of which have specific cognitive actions (italicized). We see this as an important step in being able to set TASC goals useful for regulating learning because, in order to set a goal for one specific study session, learners need to be able to break that task down into different components and choose the one piece to work on in that session. Of note, most of the *multiple* goals in the sample were from Week 7, perhaps at a time when students were starting to feel overwhelmed with assignments to complete.

TASC Goals

TASC goals include three categories representing goals having one (TASC 1), two (TASC 2), or all three (TASC 3) of the TASC elements. Because the frequency of these goals was so low, we describe them together. Only one goal in our sample had all three TASC elements (emphasized by italics): “I will review the cardiovascular system in PE241b, and make flashcards *outlining the blood flow through the heart*, and be able to *recite it in my own words* by Friday” (198, 9). This goal is specific about actions, standard, and content. This allows the student to monitor her task understanding (to understand how blood flows through the heart), direct her task engagement (outlining), and judge how well she knows it at the end of her session (recite it in

my own words). More common was having one or two TASC elements meaning those goals had some usefulness for SRL. Two examples follow.

- I would like to have section 10.1 read and have *three key examples written out* by Tuesday night between 10, section 10.2 and 10.3 read and have three key examples written out between 7-10 Wednesday night. (182, 9, action)
- Read the powerpoint notes for Nutrition 155 Mid-term and understand the concepts of *healthy eating and life*. Also know the *macro/micro-nutrients*. (184, 6, content)

To Do List Goals

Goals categorized as *to do list* focused on completion of several tasks, without any TASC elements. These were behaviour-focused goals and thus provided little in terms of monitoring task understanding, directing engagement, or standards for judging learning. These included both lists across different tasks (first example) and a breakdown of one task (second example).

- Finish catching up on my English Readings. (not that it think there is still much to do) (i.e. finish reading BC Oddities so that i can start working on my assignment); Start thinking about my english assignment.; Finish doing maths exercises (set 10, 11 and 12) and work on maths assignment with friends in the library. (194, 6)
- Study for my German test: - copy vocabulary from Ch1-Ch5 -rewrite my German notes - review previous quizzes and tests -finish online exercise (212, 11)

Discussion

To our knowledge, this is the first study to examine the content of goals students set for their authentic study sessions. We created five categories to describe the goals students set over one

semester in an SRL course. Despite learning about the importance of goals in SRL, students often set goals that provided little direction in terms of self-regulating their learning. Students' goals were generally vague in terms of what cognitive actions they would engage, what standards they would use to judge learning, and what content they would be learning. In fact, many of the goals focused on behaviours and simply completing tasks and did not focus on learning content at all. Considering the importance of goals in SRL theory (Winne & Hadwin, 1998) and that the course in which students were enrolled aimed to improve students' SRL, it is disconcerting to see the low quality of students' goals.

Study 2

Study 1 aimed to describe the content and type of students' academic goals; in Study 2, we aimed to qualitatively examine changes in students' goals across the semester, particularly after they learned about effective goal setting. In the *Learning Strategies* course, a lecture on goal setting was given in Week 4 of 13, covering the role of goals in SRL and how to write SMART goals for academics.

Method

Participants

Participants were 88 students (52 females; 36 males) enrolled in the *Learning Strategies* course described in Study 1. Students were from a variety of academic disciplines and ranged from their first to fourth year of university study with a mean age of 19.7 years ($SD = 2.8$). The 88 participants set a total of 748 goals across 9 weeks; a subset of 30 participants was randomly chosen for analysis. These 30 participants included 19 females and 11 males and set a total of

243 goals. There were no statistically detectable differences between the subsample and the entire sample of participants in terms of their grade for the *Learning Strategies* course and their semester GPA (both $t < 1$, $p > .05$).

Measures and Procedure

Students used the same online weekly reflection as in Study 1 with one difference in the instructions for writing goals: Students were asked to “(a) Name one specific task (e.g. a reading, assignment, note taking, studying, etc.) to focus on this week, and (b) Set 1 good goal for the task you have chosen.” These changes were aimed at encouraging students to set a more specific goal rather than simply naming one or more tasks that needed to be accomplished.

Coding and Analysis

A total of 243 goals were coded for Study 2 using the descriptive coding scheme from Study 1. For Study 2, we ranked our descriptive categories for quality. *Vague*, *to do list*, and *plan-to-plan* goals were labeled *low quality*. *Multiple* and *TASC 1* goals were labeled *moderate quality*. *TASC 2* and *TASC 3* goals were labeled *high quality*. For each participant, we created a one-row table that displayed their goal categories for the nine weeks, colour-coded for quality. A team of two researchers identified groups based on patterns over time in goal quality; this was done by printing each participant’s one-row table and arranging by visual patterns. Patterns were based on quality levels (*low*, *moderate*, *high*), rather than the more specific descriptive goal categories. To check our patterns, two additional researchers independently examined the one-row tables for patterns over time; patterns were nearly identical to our original patterns, and any discrepancies were resolved by discussion. Finally, to create group descriptions we examined the descriptive goal categories and actual goals of students in each group.

Findings

The patterns found in students' goal quality across the semester are presented with the label we chose for each group, a description of the group's pattern, and the number of students who were part of that group. Figure 1 shows the quality of all 30 students' goals across nine weeks, organized by the groups we created.

Consistently Low Quality (n = 9)

Students in the *consistently low quality* group set low quality goals across all nine weeks. There were no improvements in goal quality even after goal setting was introduced in the course.

Though this group set goals that were described as *vague*, *plan-to-plan*, or *to do list*, the majority of goals set by students in this group were considered *vague*. These ranged from "Doing my calculus homework" (226, 2) to "thoroughly answer all my questions properly" (264, 7).

Generally, the goals set by students in this group focused on completing tasks over larger periods of time (e.g., "by Thursday"; 264, 9). This group contained almost one third of the students in our subset.

Attempts to Improve (n = 5)

Students in this group set mostly low quality goals across nine weeks with one or two moderate level goals. Similar to the *consistently low quality* group, the low quality goals set by students in the *attempts to improve* group were almost all *vague*, particularly focusing on vague actions such as "Take very good notes the first time I read the material" (256, 3). The moderate level goals were *TASC I*, showing some attempts to set better goals, but with minimal improvement. Almost all of the *TASC I* goals in this group had the element of content, such as "a paper on the Titanic" (230, 7), suggesting some task understanding around the area of focus, but still lacking specific

cognitive actions and standards to guide learning.

Bell Curve (n = 2)

Students in the *bell curve* group showed improvement in goals at a moderate and high level through the middle of the semester, but had low quality goals in the last two weeks of the semester. These students demonstrated improvements in goal quality that they were unable to maintain. Goals changed from specifying actions (e.g., “identify” and “brainstorm”; 274, 7) or content (e.g., “notochords”; 216, 7) to being *vague* goals such as “do research for the [paper]” (274, 11). This drop in quality could be due to a decrease in motivation for goal setting at the end of the semester, a time when students are often overwhelmed by final papers and exams. It could also be due to the potentially increased difficulty of setting goals for assignments with less structure, such as writing papers, which are often required at the end of the semester.

Late Emergence (n = 5)

In this group, students set three or more moderate quality goals towards the end of the semester. These students demonstrated an improvement in goal quality starting in the week after the lecture on goal setting. Again, similar to other groups, most of the lower quality goals were considered *vague*, such as, “catch up on all my notes” (286, 3). Moderate level goals were mostly *TASC I* goals with more specific actions, including “do 3 free writes on different themes” (277, 7). Specific standards, such as “to the point that I can define the outlined terminology” (222, 5), and specific content, such as “STIs” (286, 12) were rare. Improvements were not always consistent, as several students had low quality goals later in the semester, when they had already set moderate quality goals in earlier weeks.

Improvement (n = 4)

This group of students had three to four high quality goals over the semester but, similar to the *attempts to improve* group, there was a lack of consistency in setting high quality goals. All of the students in this group set a low quality goal after having set at least one high quality goal. Overall, this group had the most high quality goals, with multiple *TASC 2* goals for each participant. Many of these goals had specific content, such as “the San Francisco AIDS outbreak between 1979-1983” (248, 11) or “the relationship between the two main characters” (233, 4). Specific actions were also common, including “pointing out key terms, main concepts and the sociological thinking” (241, 7) and “creating an outline recognizing 4 key points” (248, 9). Similar to the *late emergence* group, specific standards, such as learn “what distinguishes [biomes] from one another” were rare.

All four of these students showed improvement in Week 4, immediately after the goal setting lecture in *Learning Strategies*, suggesting these students understood and were able to implement the goal setting principles. However, these students were not consistent in their application of these principles. Similar to our speculation with the bell curve group, this may be due to lack of effort later in the semester or change in the structure level of the tasks.

Erratic Improvement (n = 5)

The final group of students did not clearly fit in any other group and lacked a clear pattern of goal setting. All students had one or more moderate quality goals and one or two high quality goals but the changes in these goals appeared random.

Discussion

In Study 2, we aimed to explore patterns of goal quality across a semester in which students were

enrolled in the *Learning Strategies* course. Analysis resulted in six patterns: consistently low quality, attempts to improve, bell curve, late emergence, improvement, and erratic improvement. Overall, there were small improvements in students' goals, but considering that students were explicitly taught about creating goals with specific details, improvements were minimal and inconsistent for most groups.

Overall Discussion

The overall aim of this paper was to explore students' self-set goals in authentic university settings. We focused specifically on goals that would help students to regulate learning in one study session, drawing on Winne and Hadwin's (1998) model of SRL. We posit being specific about four areas makes goals helpful for regulating: timeframe, action, standard, and content. Two main themes were identified: (a) Study 1 demonstrated that students' goals were generally too vague to provide guidance in terms of choosing strategies or standards for evaluation, and goals that had TASC properties were rare; and (b) Study 2 demonstrated that improvements in goal quality across a semester in the *Learning Strategies* course were inconsistent, if present at all.

This paints a bleak picture of students' learning goals as vague and lacking improvement even when students are explicitly taught about the importance of goals being specific. Three possibilities exist to explain the overall poor quality of goals. First, students may not have articulated their goals to the level of specificity they held internally. It is possible they would have provided specific details if they were asked directly (e.g., *what do you mean by "study"?*). If this is the case, the poor quality goals may not be a concern. Second, students may have had low motivation to engage in setting high quality goals. That is, students may have treated the weekly reflection as a form to fill out rather than an opportunity to improve their goal setting.

SRL is an effortful process, and if students are not willing to engage in setting goals, this may be an indicator of a general lack of willingness to engage in regulation. Third, poor goals may indicate that students did not know what they were supposed to be learning. Their understanding of tasks may have been limited to explicit details (e.g., read chapter 7) with little thought as to the implicit purpose (e.g., understand the difference between types of memory). As task perceptions are foundational for SRL (Winne & Hadwin, 1998), this potential lack of task understanding may have widespread implications for success in university.

The goals set by participants in our study had one similarity with assigned goals used in the organizational literature (e.g., Winters & Latham, 1996) that might suggest cause for concern: The vague goals students set, such as “To finish my optional assignment,” are reminiscent of the “do your best” goals that are assigned in organizational research for a specific task. In both cases, a task is identified, but there is no guidance in terms of choosing strategies or monitoring progress. This is problematic because results in the organizational literature suggest that “do your best” goals lead to lower performance than specific outcome goals (see Locke & Latham, 2002).

As with any study, we acknowledge there are limitations. First, the sample was drawn from a specific population of university students. That is, students self-selected to take a learning-to-learn course and, thus, may not be representative of the typical university learner. We recommend examining self-set goals for students who are not learning about SRL. Second, students were required to set goals as part of their coursework. The kinds of goals students set spontaneously or whether students set goals at all for their studying is unclear and warrants further research. Despite the limitations, we highlight two particular strengths of this study: (a) students set their own goals, rather than being assigned goals; and (b) goals were related to actual

coursework, rather than to experimental tasks. Examining self-set goals for real-life study sessions makes an important contribution to understanding how students regulate their learning.

In this paper, we proposed the TASC framework for effective studying goals, which provided a useful base for developing a goal coding scheme. However, empirical validation of the effectiveness of the framework is needed. This could be done in at least two ways: (a) compare task performance when assigned goals either include or exclude TASC properties and (b) compare task performance across levels of goal quality when goals are self-set. Considering the quality of goals in our current dataset, the latter suggestion may require more effective interventions for consistently setting high quality TASC goals.

For students who have to make decisions about how to use their independent study time, being able to break tasks down into manageable goals is a critical skill. This study was an important first step in examining the kinds of goals students set and how they change over time in a learning-to-learn course. This study contributes to the goal setting literature by extending existing research to the educational context and focusing explicitly on self-set goals. In terms of practice, this was a first attempt at an intervention to improve students' goals. Though the goals were generally of poor quality, anecdotal reports from students suggest that being taught about goals for SRL is helpful. There is potential to improve student success at university if effective interventions can improve goal setting and thus help students to understand tasks, choose strategies, and monitor learning consistently. It is only when students can effectively monitor progress that they can adapt and modify learning to overcome challenges.

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Table 1. Example of development of specific TASC goals.

Element of goal development	Example
Vague goal	Study for psychology
Specific time	On Monday, from 1 to 2pm, study for psychology.
Specific content	On Monday, from 1 to 2pm, study working and long-term memory.
Specific action	On Monday, from 1 to 2pm, compare working and long-term memory.
Specific standard	On Monday, from 1 to 2pm, complete a chart comparing working and long-term memory without using my notes.

Table 2. Goal categories, descriptions, and frequencies.

Category	Description	Frequency
Vague	No action, standard or concept, sometimes no task or breakdown of task	106
Plan-to-plan	Intent to plan and set goals	43
Multiple with TASC	Several goals in one, with at least one goal with one of action, standard, or content	16
To do list	Completion of several tasks, no action, standard, or content	8
All TASC		13
<i>TASC 1</i>	<i>Included action, standard, or content</i>	8
<i>TASC 2</i>	<i>Included two of action, standard, and content</i>	4
<i>TASC 3</i>	<i>Included action, standard, and content</i>	1
N/A	Goals that did not address academic work	3
Total		189

Figure 1. Patterns of students' goal setting across an 11-week semester. White = missing goal; light grey = low quality; dark grey = moderate quality; black = high quality.

^aWeek that goal setting was included in lecture. All goal setting in Week 4 took place after the lecture.