Examining students’ self-set goals for self-regulated learning: Goal properties and patterns

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Task-specific goals play a critical role in self-regulated learning, yet little research has examined students’ self-set goals for authentic study sessions. We propose high-quality goals that are useful for guiding task engagement and evaluating progress are specific about (a) time, (b) actions, (c) standards, and (d) content. In Study 1, we examined characteristics of students’ self-set goals. Five categories were created to describe students’ goals relative to the features of a high-quality goal. 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. Implications of vague goals for regulating learning 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 to receive feedback, 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 and 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 and Hadwin 1998). Self-regulated learners direct, monitor, and adapt their cognition, behaviour, and motivation (Winne and Hadwin 1998; Zimmerman 1989, 2000). Research consistently suggests that self-regulated learning (SRL) is positively related to academic performance (Cleary and Chen 2009; Zimmerman and 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 yet little research focuses specifically on students’ self-set goals. Thus the overarching purpose of this study is to examine goals set by university students for authentic university study sessions and how those goals change over time.

SRL framework

Although goals are posited to play a central role in most models of SRL (e.g., Boekaerts 1996; Boekaerts and 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 and 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) are state constructs that 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 session 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.

Most research on goal setting is (a) situated in organizational settings, (b) focused on assigned goals (Acee et al. 2012), and (c) conducted in laboratory settings (Porter and Latham 2013). Limited research has examined students’ self-set goals in authentic university settings. Acee and colleagues (2012) asked undergraduate students to list 20 goals at the beginning of the semester. A researcher-coded rating of specificity was found to positively predict semester grade point average (GPA). Our research extends Acee and colleagues research by (a) examining a more comprehensive set of properties in (b) 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.

Self-set goals are ‘state’ constructs in Winne and Hadwin’s (1998) model; therefore, it is plausible to expect goals to change over time, particularly upon receiving instruction in setting effective goals combined with weekly practice in setting and reflecting on goals. Measuring a single goal at one point in time does not provide a picture of how students might adapt their goal setting as they accumulate practice 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 session. We use study session to refer to any block of time during which students engage in university tasks. This could include learning in lecture, studying for an exam, writing a paper, reading a chapter, or collaborating on a group project. 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 and Seijts 1999). This is particularly important given that post-secondary students often struggle to self-monitor learning (Zimmerman and 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 check-in opportunities (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 session. 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

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<tr>
<th>Element of goal development</th>
<th>Example</th>
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<tr>
<td>Vague goal</td>
<td>Study for psychology</td>
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<tr>
<td>Specific time</td>
<td>On Monday, from 1 to 2pm, study for psychology</td>
</tr>
<tr>
<td>Specific content</td>
<td>On Monday, from 1 to 2pm, study working and long-term memory</td>
</tr>
<tr>
<td>Specific action</td>
<td>On Monday, from 1 to 2pm, compare working and long-term memory</td>
</tr>
<tr>
<td>Specific standard</td>
<td>On Monday, from 1 to 2pm, complete a chart comparing working and long-term memory without using my notes</td>
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the process of task completion and strategy use rather than outcome (Mone and Shalley 1995; Winters and 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 and 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. Goal setting in the context of organizational behaviour research has focused on non-academic tasks that often differ dramatically in scope and definition from the kinds of tasks and goals students confront during academic studies. 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 and 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 students set for 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 analysed 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 from 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 specific, measurable, action-oriented, realistic, and timely (SMART) 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 analyse the quality of goals in this study as it is explicitly based in theories of SRL (e.g. Winne and 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, and Hadwin 2013). In particular, goals were coded for quality on the basis of whether or not they included specific actions, standards, and content as outlined in the introduction. Timeframe was dropped from coding because most goals did not provide sufficient information about the task, scope, or context to determine whether goals were realistic targets for a 2-hour study session. Completing or finishing a task did not count as an action since it did not provide any direction for cognitive engagement nor did it count as a standard since it did not provide any way to judge learning. Content was coded as present when participants identified concepts rather than a task, course, or chapter number. Three authors coded a sample of goals independently on five levels of quality. Discrepancies were discussed and used to inductively generate a revised coding scheme appropriate for the participants’ goals. In Phase 2, we used the new coding scheme to code 70 goals together, resolving any discrepancies through discussion. Remaining goals were then coded with consultation when needed. Finally, reliability was tested by sorting goals by their code, reviewing goals in each category and looking for anomalies. No anomalies were identified by any of the coders.

Findings

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.

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 ‘Make time to review and get homework and readings done’ (185, 3) identifies a vague task and is behaviour focused (‘done’). This goal does not identify any concepts to be learned, possibly indicating incomplete understanding of the task. No cognitive actions are identified, providing little direction in terms of how to complete the task. Finally, this goal lacks any standard to judge how things are progressing or when they are complete. As another example, the goal ‘Get Started!’ (171, 1) is so vague that it could be about anything
Table 2. Goal categories, frequencies, and examples.

<table>
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<tr>
<th>Category</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Vague ((n = 106))</td>
<td>- Understand what the point of the <em>English readings</em> is actually catch up on my English readings. (194, 5, task)</td>
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<td>- 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)</td>
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<td>- The one goal that I am going to process for this week is to get a head start on studying for exams. I want to by the beginning of next week. Have gone through all of the mid-term exam sheets I made up for mid terms as a base for starting to draw back on concepts from the first half of the semester, (207, 9)</td>
</tr>
<tr>
<td>Plan-to-plan ((n = 43))</td>
<td>- In the upcoming week I plan on sitting down and figuring out <em>where I will begin my psychology project</em>. 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, task)</td>
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<td>- 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)</td>
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<tr>
<td>Multiple with TASC ((n = 16))</td>
<td>- Prepare for the exam. Read through Weber and Simmel, take notes from text and make connections between the lecture notes and text material. <em>Can compartmentalize the similarities and differences between those two theorists.</em> Get my research paper checked by writing center, especially the grammar and the form of essay. (186, 9, action, standard)</td>
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<td>- Exams are coming up. I want to make a web, like an outline of all key concepts. I have two final exams so I would like to do one for each. I want to be able to link concepts and get a full understanding of each so I will be prepared for my exam. (203, 11)</td>
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<tr>
<td>All TASC ((n = 13))</td>
<td>- I would like to have section 10.1 read and have <em>three key examples written</em> out by Tuesday night between 10, section 10.2 and 10.3 read and have three key examples written out between 7 and 10 Wednesday night. (182, 9, action)</td>
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<td>- 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)</td>
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<tr>
<td></td>
<td>- I want to improve my ability in distinguishing the different uses of the <em>Spanish verb tenses preterit and imperfect</em> (211, 1, action, content)</td>
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at all and provides little direction for guiding or adapting studying when a student sits down with a free hour to work.

**Plan-to-plan goals**

These goals were characterized by intent to plan for the upcoming week or assignments. We identified two subcategories of goals – distinguished by specification of the task. The majority of the plan-to-plan goals did not identify a task and were focused on creating schedules and getting organized more generally. These goals 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) postpones specific studying actions and studying targets by expressing an intention to figure it out later by making a schedule. While scheduling is a good time management strategy (Ariely and Wertenbroch 2002), it provides no direction for substantive studying actions (learning) and has potential to lead to procrastination.

A second, smaller, subset of plan-to-plan goals identified a broader task or activity but pushed concrete goal setting into the future. This often occurred when students appeared to have incomplete task perceptions and needed to schedule ‘figuring it out’ before they could plan any substantive actions for engagement with the task. 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).

**Multiple goals with TASC**

This category was used to describe goals including several ‘sub’-goals, one goal of which identified at least one TASC criterion. Relative to the goals we have described

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| To-do list (n = 8) | - Study for my German test: – copy vocabulary from Ch1–Ch5 – rewrite my German notes – review previous quizzes and tests – finish online exercise (212, 11, single task)  
- read books for my research project on D day and read and make specific notes in astronomy up to chapter 14. Then I’m going to start reading and making notes on chapter 12 in psychology. (205, 4, multiple tasks)  
- Work on studying for CSC [child studies], PE [physical education], Hist on the bus during our road trip. We will be on the bus for about 12 hours in total so that will give my plenty of time to get some productive work done. I hope to study Chapters 1 and 2 for CSC, Lab 5 for PE 141, and Lectures 1–3 for Hist 130. This will involve doing some readings of the textbook and lecture notes and doing cue cards as well. (177, 5, multiple tasks) |

Note: Italics added to emphasize task or elements of action, standard, and content as indicated in parentheses following the participant number and week. Total number of goals was 189 including 3 goals that did not address academic work.
so far, goals containing TASC elements may be more useful benchmarks for students to check task understanding, direct task engagement, or judge quantity or quality of learning; 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 goal for this upcoming week, is start to finish reading Chapter 15 of Economics and being able to learn the market structures [concepts] 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. 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.

The majority of multiple goals focused on different tasks, as in the above goal. Less frequently, multiple goals focused on a single task, breaking it down into more specific elements or goals, such as in the following example:

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 [action] and then create an outline [action] for my writing. (169, 11)

This goal breaks down the essay task into many parts, some of which have specific cognitive actions. 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 the number of tasks and assignments in front of them.

**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 [action] the blood flow through the heart [concepts], and be able to recite it in my own words [standard] by Friday’ (198, 9). This goal is specific about actions, standard, and content. This allows the student to monitor her task understanding (concepts), direct her task engagement (action), and judge how well she knows it at the end of her session (standard). However, this TASC-3 goal was an anomaly. Most *TASC* goals included one or two TASC elements providing varied degrees of support for SRL during studying.

**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 providing minimal standards for monitoring task understanding, directing engagement, or judging learning progress;
these goals were a smorgasbord of things students needed to get through over the week. Few of the to-do list goals consisted of a breakdown of one task into multiple steps; most were lists across different tasks, such as the following goal in which three tasks were identified (in italics):

Finish catching up on my English Readings (not that I 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)

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, goals often 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 and 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 2 moved beyond describing the content and type of academic goals students set during studying by qualitatively examining 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 stu-
dents to set a more specific goal rather than simply naming one or more tasks that
needed to be accomplished. Students were introduced to the following goal-setting con-
cepts during Week 4 of the course: the role of goals in SRL, SMART goals, the impor-
tance of measurability to create a standard, and the importance of action for guiding
strategy choice. The remainder of the course included strategy instruction, emphasizing
connections between tasks, goals, and strategies. In Week 4 students practiced writing
goals with peer and instructor support. The importance of goals was reiterated through-
out the course. Formal feedback was not given on goals within the lab assignment or the
weekly reflections; however, students may have received informal feedback through
class discussion or individual support with their lab instructor.

Coding and analysis
A total of 243 goals were coded using the descriptive coding scheme from Study 1. For
Study 2, descriptive categories were ranked 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 goal categories for the nine weeks, colour-coded
for quality. A team of two researchers identified groups based on patterns in goal
quality over time; this was done by printing each participant’s one-row table and arran-
ging by visual patterns. Patterns were based on (a) quality levels (low, moderate, high),
rather than the more specific descriptive goal categories, and (b) changes in quality
level over time. To check our patterns, two additional researchers independently exam-
ined the one-row tables for patterns over time; patterns were nearly identical to the orig-
inal patterns, and any discrepancies were resolved by discussion. Finally, to create
group descriptions we examined the descriptive goal categories over time and actual
goals of students in each group.

Findings
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 stu-
dents who were part of that group. Figure 1 shows the quality of all 30 students’
goals across nine weeks, organized by the groups we identified.

Consistently low quality (n = 9)
Students in the consistently low quality group set (a) low quality goals that (b) did not
change 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 home-
work’ (226, 2) to ‘thoroughly answer all my questions properly’ (264, 7). Generally,
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 stu-
dents in our subset.
Attempts to improve \((n = 5)\)

Students in this group set (a) mostly low quality goals with one or two moderate level goals that (b) were set at varied points in the semester. 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-1, showing some attempts to set better goals, but with minimal improvement. Almost all of the TASC-1 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 with (a) three or five goals at a primarily moderate level (b) set in the middle of the semester. These students had low quality goals in the first and 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)
Students in this group set (a) three to six moderate quality goals (b) 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-1 goals with more specific actions, such as, ‘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 [sexually transmitted infections]’ (286, 12) were rare. Improvements were not always consistent, with several students articulating low quality goals later in the semester, after having previously set moderate quality goals in earlier weeks.

Improvement (n = 4)
This group of students articulated (a) three to four high-quality goals over the semester (b) set at varied points in the semester, similar to the attempts to improve group. That is, there was a lack of consistency in setting high-quality goals. All 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 they understood and attempted to implement the goal-setting principles. However, students were not consistent in their application of these principles. This could be due to a number of things such as lack of
effort later in the semester or variation in the structure or types of tasks confronting stu-
dents. It is possible that it is easier to set higher quality goals for some tasks than others.

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 stu-
dents 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 univer-
sity 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:
TASC. 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, when present, were largely inconsistent over time and tasks.

Findings paint a bleak picture of students’ learning goals: even when students are
explicitly taught about the importance of goal specificity goals tended to be vague
and lacked improvement. We propose at least three possibilities 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 that what students write
down is actually only a placeholder for something more intricate they hold in their
memory. Future research might examine this by utilizing elaborative prompts that
encourage students to specify beyond their original words (e.g. what do you mean by
‘study’?). If students hold more elaborate understandings of the goals they document,
the concern may be less about the kinds of goals they set and more about the fallibility
of memory later in the week when the study session actually occurs and the documented
goal neglects specifics.

A second explanation is that students may have low motivation to engage in setting
and documenting 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
and the subsequent effectiveness of their studying sessions. SRL is an effortful
process requiring students to understand academic work deeply enough to be able to
accurately break things into sub-goals suitable for study sessions, and accurately
predict the time and scope of those sub-goals. If students resist setting more specific
goals for study sessions, it may indicate a general lack of willingness to engage in regulation.

A third explanation of low quality goal setting may be that poor goals indicate weak task understanding, meaning students do not really know what they are supposed to be learning or doing during self-guided study time. Their perceptions of academic work may be limited to explicit tasks such as ‘read chapter 7’ rather than the purpose of those tasks in their course or program of study (e.g. understand the difference between types of organisms). Since task perceptions are foundational for SRL (Winne and Hadwin 1998), this potential lack of task understanding may have widespread implications for success in university. These three suggestions highlight potential avenues for future research aiming to examine and support students’ self-set goals.

The goals set by participants in our study had one similarity with assigned goals used in the organizational literature (e.g. Winters and 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 and 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 tackle studying and regulate learning during studying.

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 or (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. Findings from this study suggest this is not an easy task for many students who tend to set vague goals for studying at best, and who often struggle to refine or improve those goals over time. Our findings lend support to a growing recognition that students transitioning from high school to university and suddenly being faced with a larger proportion of self-directed study versus teacher-directed study hours, may have very limited conceptions of what it means to study.

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 study documents the outcomes of a preliminary attempt to intervene with student goal setting by prompting students to set goals for studying on a weekly basis and informing students about the types of goals that might be more effective for a specific study session. Though the goals observed in these studies were generally poor in quality, anecdotal reports from students suggest that being taught about goals for SRL is helpful. Findings highlight the importance of designing and testing the effectiveness of interventions to support students in setting goals for independent and self-directed study time as well as of striving to uncover students’ task understanding related to academic work and study tasks. Finally, we posit that the challenges university students report regarding dominance of procrastination (e.g. Steel 2007) may in large part be related to their inability to break tasks down into specific process oriented goals that can guide smaller study episodes.

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References