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Metacognition in student academic writing: A longitudinal study of metacognitive awareness and its relation to task perception, self-regulation and evaluation of performance

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Abstract

This article proposes a novel approach to the investigation of student academic writing. It applies theories of metacognition and self-regulated learning to understand how beginning academic writers develop the ability to participate in the communicative practices of academic written communication and develop rhetorical consciousness. The study investigates how this awareness changes over time and how it relates to students' perceptions of the writing task, metacognitive awareness of strategic choices, and evaluation of their writing. Through a constructivist grounded theory approach, journals collected throughout a semester from students of beginning academic composition were analysed to determine qualitative changes. The data suggest a link between task perception and students' conditional metacognitive awareness—their understanding of how to adapt writing strategies to specific rhetorical requirements of the task, and why—and performance evaluation. Metacognitive awareness also seems to have a reciprocal relationship with self-regulation and students' development of individual writing approaches.

Keywords: English for academic purposes, composition, rhetorical awareness, monitoring, self-regulated learning

Metacognition in student academic writing: A longitudinal study of metacognitive awareness and its relation to task perception, self-regulation, and evaluation of performance

The study of academic writing as a form of communication has a long-established tradition. Writing involves intricate interactions between writers and readers, (Hyland, 2004), and learning to communicate through academic written genres is a high-stakes activity (Swales, 1990). The need to help students acquire academic literacy skills has gained momentum as higher education institutions have expanded in both number and provenance of students. However, student academic writing is often seen as a problem in need of remediation (Lillis & Scott, 2007), and research investigating how students learn to write academically has often neglected the students' own experiences.

Student academic writing has been approached from various angles. In the US, where equality of access to education is still an issue, the field of composition has traditionally engaged with the "problem" of underprepared academic writers, designated as remedial, basic, or developmental. This research has focused successively on the notion of error and on textual characteristic (Shaughnessy, 1977; Bartholomae, 1993) and cultural issues of (Gray-Rosendale, 2006; Horner & Lu, 1999). In the field of English for academic purposes (EAP), the prevailing view is that academic communication is situated and social, tied to specific discourse communities and genres (Swales, 1990, 2004; Swales & Feak, 2004). Embracing discourse and genre analysis approaches, research has focused on rhetorical features and has privileged the text in the analysis of student academic writing (Hyland, 2003, 2004, 2007; Johns, 2002; Paltridge, 2001).

In addition, the psychological and cognitive processes that underlie *learning to write* academic texts merit further attention. An interest in comprehending the students' experience cannot exclude the investigation of the learning dynamics that students engage in as they participate in academic writing practices. As Hyland (2006) indicates, learning to write academically entails becoming familiar with academic discourse(s) and a certain way of constructing knowledge, and thus it is important that novice writers learn to recognize the communicative, purposeful features of academic genres. Concepts such as discoursal consciousness (Belcher & Braine, 1995, p. xv) and rhetorical consciousness raising (Hyland, 2007, p. 160) seem to point towards an awareness of discourse and genre, but the question remains of how this awareness is developed, how it translates into writing strategies and choices, and how it ultimately determines students' ability to write effectively for academic audiences (Negretti & Kuteeva, 2011). In this sense, genre awareness suggests metacognitive ability, and metacognitive awareness has been defined as the ability to know when and how knowledge and strategies should be applied. In this article, I argue that the theoretical framework used to investigate metacognition can shed light on how students learn to develop rhetorical awareness.

This article applies theories of metacognition and self-regulated learning to understand how novices develop the ability to participate into practices of academic written communication, and the focus is on beginning writers, sometimes termed "remedial" or "basic" in other contexts. The main objective is to understand how rhetorical awareness is connected to students' task perceptions, metacognitive awareness, and self-regulation.

Metacognition in writing: knowing what, when and why

Metacognition is the unique human ability to reflect upon, monitor and control one's knowledge and thoughts (Flavell, 1979). Metacognition is often discussed together with self-

regulation and self-regulated learning, indicating the complex set of abilities employed by people to control their behavior and their learning to reach desirable goals (for an overview, see Zimmerman & Schunk, 2011). These concepts are for the most part rooted in the theoretical soil prepared by Bandura's (1986) theory of reciprocal determination and the concept of *agency*, which postulates that people, their behavior and the environment in which they act reciprocally influence each other: individuals' ability to exert agency presupposes their awareness of what they do and their ability to develop strategies to control and regulate it. Metacognition has been indicated as a key component of agency, and has been increasingly regarded as one of the facilitating factors of self-regulated learning, as it helps people transfer skills, knowledge, and strategies across contexts and situations (Azevedo & Whiterspoon, 2009; Schraw, 1998, 2009; Veenman, Van-Hout Wolters & Afflerbach, 2006). This study is theoretically grounded on this premise: investigating what student academic writers do and why they do it, i.e. the development of metacognitive awareness and its connection to strategic self-regulation in writing, as seen through a dimension of change.

Current theoretical definitions of metacognition (e.g. Dunlosky & Metcalfe, 2009; Serra & Metcalfe, 2009) agree on the distinction between two components: 1) metacognitive knowledge of cognition, or metacognitive awareness, and 2) metacognitive monitoring and regulation. Metacognitive awareness refers to learners' awareness of their thinking/learning strategies, and comprises three aspects: a) declarative knowledge, or awareness of what strategies and concepts are important in relation to a specific task, b) procedural knowledge, or awareness of how to apply concepts and strategies (how to perform the task), and c) conditional knowledge, or awareness of when and why to apply certain knowledge and strategies (Schraw & Dennison,1994; Schraw, 1998; Sperling, Howard, Staley, & DuBois, 2004). Metacognitive

monitoring refers to learners' ability to judge their own performance (see Schraw, 2009). It has been studied in terms of grain size of metacognitive judgments (see Azevedo, 2009), and relationship to domain knowledge, showing for instance that people who have less knowledge within a domain tend to overestimate their performance (Kruger & Dunning, 1999). Recent research in educational psychology has shown that the *nature* of metacognitive judgments, i.e. the criteria on which these evaluations are based, is an important factor in determining their accuracy (Dinsmore & Parkinson, 2011). This latest aspect is especially relevant in the present study.

Research has highlighted the link between metacognition and academic performance in a number of domains, as it ties to learners' ability to adapt knowledge and strategies and self-regulate their learning (e.g. Paris, Byrnes, & Paris, 2001; Pintrich, 2004): metacognition enables individuals to acquire insight into their own strengths and weaknesses, as well as appropriate strategies (Brown, 1994). However, few studies have investigated the metacognitive dynamics involved in learning to write, especially for academic purposes. Part of the issue is the complex nature of the writing experience, which comprises textual, cognitive and social dimensions, and can therefore be interpreted through different lenses (Hacker, Keener, & Kircher, 2009).

Recent cognitive-science theories have argued that "writing is applied metacognition" (Hacker, et al., 2009), meaning that metacognitive dynamics permeate the writing experience at every level. This research, however, has privileged experimental settings, and has not explored the communicative and rhetorical circumstances that govern writers' choices: *why* writers engage in metacognitive and self-regulatory behaviours. As summarized by the French psychologist Gombert (1993), any type of metacognitive knowledge of language is necessarily tied to the communicative context in which language is used. The question, thus, is how metacognition

helps inexperienced writers acquire the ability to understand and apply the rhetorical characteristics of academic written communication. Further research is needed on the role that metacognition plays in the learning experiences of student academic writers.

Studies in cognitive science indicate that metacognitive variables explain differences in performance between low and high skilled writing students (Perin, Keselman & Monopoli, 2003; Breetvelt, Van den Bergh, & Rijlaarsdam,1994; Rijlaarsdam & Van den Bergh, 2006), and have a more critical influence on writing achievement than verbal ability (Schunk & Zimmerman, 2007; Zimmerman & Bandura, 1994). Regarding revision, Myhill and Jones (2007) show that less-experienced writers do have some metacognitive awareness of the need for revision, but may be unable to articulate it. Similarly, Hayes (2004) suggests the importance of metacognitive awareness in the modulation of the writing process. Although this body of research points to key metacognitive components, no study has so far taken a qualitative and longitudinal approach to investigate the *nature* of the metacognitive dynamics students engage in as they learn to write.

Task perceptions: academic writing as rhetorical communication

How students perceive the act of writing is a key aspect of learning to write. In the case of beginning writers, the first step towards developing rhetorical consciousness is recognizing that writing is purposeful communication: "participant relationship [is] at the heart of academic writing, assuming that every successful text must display the writer's awareness of both its readers and its consequences" (Hyland, 2001, p. 549). Mental representation of the task will therefore influence metacognitive dynamics entailed in writing: student writers' metacognitive awareness of how to adapt their strategies to achieve determinate rhetorical purposes, and their ability to monitor and evaluate the successfulness of their texts.

Research has pointed out that task perception influences students' ability to self-regulate during writing (Venkatesh & Shaikh, 2008, 2010), and that mental representation of audience and purpose influence the cognitive and metacognitive strategies employed by advanced L2 writers (Wong, 2005). According to theories in educational psychology, metacognition is necessary to understand how a task should be, or was, performed (e.g. Schraw, 1998, p. 113).

Metacognitive awareness can be declarative, procedural, or conditional (Schraw & Dennison, 1994). If we consider the writing task as a rhetorical problem, it is clear that task perception may play a role in students' metacognitive awareness of how to address these rhetorical requirements: "people only solve the problem they give themselves to solve" (Flower & Hayes, 1980, p. 22). A recent study involving L2 undergraduate writers suggested that students who develop conditional metacognitive awareness of genre—knowledge about how to adapt rhetorical choices to the specific communicative situation, and why—can better translate this awareness into the analysis and the writing of academic texts (Negretti & Kuteeva, 2011). Therefore, this investigation also considers the *nature* of task representations: how students characterize the text they are about to write, and how these perceptions seem to influence how students monitor, evaluate, and self-regulate their writing.

Using an interdisciplinary approach and a longitudinal design, this study strives to examine how beginning academic writers' task perceptions, metacognitive awareness of strategies (Schraw & Dennison, 1994), and evaluation of performance develop qualitatively over time, i.e. how and why they develop "rhetorical consciousness" (Hyland, 2007). Through a participatory, constructivist method, my goal is to provide a rich account of these dynamics and answer the following questions:

1. What is the nature of beginning academic writers' perceptions of task, and how do these perceptions develop over time?
2. What is the nature of beginning academic writers' metacognitive awareness of strategies, how does this awareness develop over time?
3. How do beginning academic writers use this metacognitive awareness to monitor, self-regulate, and evaluate their writing?

2. Research design

Several ethical and methodological considerations determined the design of the study. In line with participatory research (Altrichter, Posch, & Somekh, 1993), a primary concern was fairness of treatment and beneficial outcome for the students. The study was piloted over a semester, and feedback from colleagues and fellow educational psychologists ensured that data collection, analysis, and course design provided trustworthiness of the research as well as a learning experience for the participants.

Setting, participants, and course content

The study took place over the course of a semester at a community college of a major North-American university in the Pacific area. Participants were recruited on a voluntary and anonymous basis from three classes of a beginning college composition course, two face-to-face and one online. Consent forms were only made available to the researcher after final grades were posted. Only data collected from the eighteen consenting participants was retained; one participant had to be excluded due to incomplete data. The seventeen students in the study typify the social variation of the beginning academic writer population in many higher education institutions: apart from the fact that most—but not all—were in their second semester of college,

they varied in gender, age (from 17 to 55), ethnicity, language (native English, ESL, 1.5 generation) and social background. Two had documented learning disabilities. The patchwork quality of this human ensemble makes it unlikely that a specific social or cultural reality might motivate the findings.

The course included both conceptual and strategic content. Students learned about notions such as audience and purpose and reading, writing and research strategies. They were assigned four papers: a text analysis, a narrative, a persuasive piece, and a research paper, the last two evidence-based (see Appendix 2). The coursework was scaffolded: whereas initially students received consistent teacher feedback, as the semester progressed they worked more independently and received mostly dialogic input from tutors and in group discussions (Palincsar, 1986; Beed, Hawkins & Roller, 1991). Throughout the composition of each essay, students were required to write in their journals.

Data collection and analysis

Journaling was used as data collection tool—rather than think-aloud protocols and interviews—as it allowed complete integration into the coursework:. Methodologically, journals have been used to elicit cognitive and metacognitive thought when participant perception and constructivist epistemology are privileged (Gass & Mackey, 2000).

The journal prompts aimed to elicit students' metacognitive awareness and asked them to reflect on the task, the strategies to tackle it, their progress and their final performance (see Appendix 1). Each essay corresponded to five journal entries: three prompted and two unprompted, totaling 20 entries for each student, 360 entries overall. The journals were neither graded nor corrected, and students received only general feedback on their progress, not included

in the data as teacher-student interactions were not the focus of the investigation. Comments were kept to a minimum to avoid interference with students' reflections. Data also included initial and final self-descriptions as writers. Overall, the data resulted in approximately 235 pages of text (double spaced, Times New Roman 12 points).

Although theoretical sampling was not possible, analysis techniques followed the guidelines of constructivist grounded theory (Charmaz, 2002, 2006)to strengthen trustworthiness: returning to the data several times for cross-comparison and identification of themes, "analysis memos" to build an interpretive narrative, elicit bias, and foreground the "participant's story" (2006, p. 678). The teacher-research quality of the study was invaluable in the analysis because it provided insights that could not have been possible otherwise. I was able, for instance, to know whether students' comments repeated the course content or, on the other hand, were original expressions and adaptations.

In a first stage the data was analyzed longitudinally by student, creating an "analysis memo" about salient features and changes over time. These memos helped to derive an initial understanding of each participant's unique experience as it unfolded through the course. At this stage students' words were coded using active, gerund verbs that identified at a general level the action, rather than theoretical categories (Charmaz, 2006): "describing strategies", "evaluating performance", "expressing emotions".

The second stage of the analysis entailed the creation of overall categories to present the data, and the grouping of the codes under these categories using the criteria that they should "cut across multiple participants and often recur within data gathered from the same participant" (Charmaz, 2002, p. 686). These categories were in part driven by the research questions: journal entries were prompted to elicit task perception, metacognitive awareness, and evaluation of

performance. However, decisions regarding how codes should be grouped and the description of variation within each category were data driven. An initial list of codes and interpretive recount was created for each category.

This initial interpretation was then revised by repeated cross-comparison of the data coded under each category and by writing another analysis memo reporting observations resulting from the comparison of the data and supporting excerpts. A further refinement of the interpretive narrative concerned the longitudinal comparison of the data in each category to draw a picture of variation and development over time, and the tabulation of the data, to detect similarities and differences at different points in time. This further analysis resulted in a final revision of observed trends, and provided more specific examples to support the interpretation. The following section is thus the final version of an interpretive recount that is constructed through constant engagement in the data and reflexivity (Jones, Torres & Arminio, 2006).

3. Findings

This section portrays the main categories: 1) task perception and development of rhetorical awareness, 2) metacognitive awareness of strategies and self-regulation 3) metacognitive monitoring and evaluation of performance. A fourth category, affective perceptions about writing, cannot be discussed here due to limitations of scope and space. Although these categories are presented in separate sections, they frequently overlapped in the same paragraph or sentence. The discussion section will attempt to reconnect the ties and describe their interactions. The presentation of the data follows a longitudinal pattern, to highlight development. Students are identified through codes for anonymity. Data excerpts are presented in tables and numbered in brackets; additional examples are given in the text as quotes.

3.1 Task perceptions and rhetorical awareness development

The first prompt asked students to describe their goals and expected challenges; further information about task perception was gleaned from all the entries. Table 1 illustrates the codes generated under this category and their frequencies.

Table 1. Task perception: frequency and distribution.

Code	Students	Sources	Instances
Reflecting on what has been learned through the task	16	53	81
Guessing challenges of the task	16	60	75
Describing challenges posed by the assignment	14	37	58
Describing task in own words	13	32	39
Describing task in own words, rhetorical problem	9	23	36
Explaining topic and reasoning behind it	12	22	36
Describing task - repeating assignment requirements	16	32	35
Expressing feelings towards upcoming task	6	11	16
Setting a personal goal for the task	2	4	4

Note. Students: number of students out of 17 who displayed the specific code
Sources: number of data sources in which the code was present
Instances: number of instances each code occurred in the data, across sources and students

The top codes are the ones that pertain to specific questions in the prompts. The first three codes, however, did not always offer insights about task perception, since they often regarded descriptions of content knowledge and personal issues or practical constraints.

More revealing were the students' comments coded under "Describing task - repeating assignment requirements", "Describing the task in own words", and "Describing the task in own words, rhetorical problem", meaning that students actually mentioned concepts such as audience, purpose, and the rhetorical situation. Original and rhetorical task descriptions are much more frequent in the data (together, 39 plus 36 instances), compared to repetitions of assignment requirements (35 instances). The distribution of these codes across time is therefore important to understand variation in type of task perceptions, illustrated in table 2.

[insert table 2 here]

Journal 1

At the beginning of the semester, students often concentrated on formal or practical aspects: repetitions or close paraphrases of the assignment handout (1), (2). Even when students used their own words, they defined the task and its challenges based on familiar, practical aspects such as the instructions, time required, and the type of work entailed, often expressing anxiety or concern (3), (4):

"Requires lots thinking, reading, more reading and lots of editing… I will be a little stress out… I don't understand what I need to do or write about" (A4)

Other comments (5), (6), focused on aspects of form, correctness, or structure:

"I must make sure to have my paper organized, with and introduction and conclusion, with correct spelling, grammar, and punctuation" (C17).

Some students however seemed to have some perception of the rhetorical nature of the writing task and mentioned the purpose of the essay, audience and readership (7), (8), although these concepts are still rather vague.

Students' descriptions of challenges were congruent with task perceptions. Anticipated challenges comprised "being disciplined and focused" and time and work requirements (9), (10), showing the type of confidence often generated by lack of awareness of what the task entails. Descriptions of challenges after completion of the essay were concerned with reading and understanding the assignment (12), and appear to present a budding awareness of rhetorical purpose (11).

Journal 2

As students learned about aspects of rhetoric, their task perceptions gradually became more focused on audience, purpose as tied to genre, and personal communicative aim (Table 2,

column 2). Students' descriptions still included paraphrased repetitions of the handout (13), (14) or some vague statement of "narrative" requirements (15).

There is however an interesting mix, as often the same student who focused on formal requirements made comments later in the journal or in the same entry suggesting a communicative perception of the task, especially in terms of reader/writer relationship, as in (16) and (17). Some comments mention the genre and its purpose, (18), (19), and the type of thinking entailed: "Requires that I dig really deep and apply some long subdued creative juices" (C17).

Similarly, students' descriptions of challenges often (but not always) show concern about the readers' expectations and the genre requirements, especially after the essay-writing experience (20), (21):

"Come up with something that would engage a reader to continue to read my paper … something that I could share from my own personal experiences and see if they can relate to it" (B12)

Journal 3

Students' reflections in Journal 3 show a complexity of task perceptions. Mentions of formal requirements and paraphrases are not absent (22), (23). However, these descriptions are often followed by comments showing awareness of communicative nature. For instance, B12 initially focused on work requirements, but later showed awareness of readers' expectations in the persuasive genre: "I don't want to choose a topic that has little information to support it … I am wondering 'will other students be persuaded by this essay?'"

Overall, task perceptions vary from communicative aspects, the reader/writer connection, to rhetorical features, purpose and genre (24), (25), (26):

"Requires to dig deep into my intellectual mind … find the right way to say it to make it appealing … make sure I know why I want it a certain way before I try to make [the audience] think my way" (B7)

Some descriptions of challenges focused on the collaborative nature of the task (27), but many students reflected on the challenging nature of effective persuasive writing: "It is easier to speak to someone in person to persuade them, rather than trying to write it out in an essay" (C13), and the need to find supporting evidence and presenting arguments in an unbiased way (28).

Journal 4

In journal 4, for the research essay, some students still focused on formal requirements (29), (30), and paraphrased the handout instructions (31). However, these descriptionsalso demonstrate their perception of the research genre and its purpose, in their view, of presenting unbiased information (31), (32), (33).

Challenges descriptions reflect this attention to credibility and the ethics of the research genre: finding a relevant, appropriate topic (38) and reliable sources of information (39):

"Getting a lot information about my topic and it needs to be very informative" (A4).

Attention to the genre's purpose is often combined with a concern for communicative aspects and readers' expectations, as in (34), (35), (36), (37) and:

> "Find out questions readers might be interested in … make sure that the information is reliable and beneficial … get the readers interested and get them to want to know what I am talking about" (B12)

Note that this student initially described the task in formal, work-required terms (2), (13).

The above examples show students' sense of personal investment, personal goals and agency: writing is less a "job to be done" and more an act of communication with their "readers" (35), (37).

3.2 Metacognitive awareness of strategies and self-regulation of writing

Task descriptions and strategy descriptions are often together in the data. Reflections on writing approaches occupy considerable space, offering an insight into students' metacognitive

awareness of what their strategies are (declarative awareness), how to apply them (procedural awareness), and why they work for the specific task at hand (conditional awareness). These entries also illustrate how this awareness translates into self-regulation: the decisions, choices and actions students carried out while writing.

Table 3 reports instances describing students' writing approaches. Coding differentiated between awareness of task-specific strategies and awareness of personal writing strategies, based on the students' preferences and habits.

Table 3. Metacognitive awareness of strategies and self-regulation: frequency and distribution

Code	Students	Sources	Instances
Describing personal writing strategies to tackle task	17	54	89
Reflecting on what has been learned through the task (strategies)	16	53	81
Expressing positive feelings about skills learned	14	39	70
Describing strategies and their use (not task specific)	16	48	63
Describing personal writing strategies (not task specific)	15	42	56
Describing difficulties and strategies used to overcome them	13	34	49
Planning actions to tackle task	10	24	31

The first code indicates that all students, at some point in time, described a personal strategic approach to meet the specific requirements of the task (89 instances). When students reflected on what they learned by writing the essay, they focused primarily on skills and strategies (second code). Expressions of positive feelings about this newfound awareness were so frequent (70 instances) that they were coded separately.

Most of the students demonstrated some metacognitive awareness of general, not task-specific writing strategies (16 students, 63 instances), as well as personal, unique strategies that seemed to work for them (15 students, 56 instances). Finally, many showed awareness of self-regulation,

both after they completed the task—how they overcame challenges, 49 instances—and before tackling it, 31 instances.

The longitudinal development of strategy awareness helps us to understand its connection to task perceptions and self-regulation (Table 4). Strategy descriptions that are not task-specific are labeled "declarative and procedural awareness of strategies". Strategy descriptions adapted to the specific rhetorical conditions of the task are presented as "conditional metacognitive awareness of strategies". The remaining codes are labeled "self-regulation". Personal, not task-specific strategies will be presented in Table 5.

[insert table 4 here]

Journal 1

Initial strategy descriptions repeated the course content,. Many paraphrased writing techniques almost verbatim (1) (2), or mentioned time or work required (3) (4): students did not elaborate on how to actually perform these actions or why some might be more appropriate under different conditions and at different times.

However, some students' reflections *after* writing the essay present an understanding of how to adapt strategies, and why this adaptation is necessary. For instance (7), (8) and (9) show that students understood why some strategies were more appropriate than others to meet the purpose of the assignment and their own needs at that point:

"[I used] the box strategy to pin-point the main idea that I thought the author was trying to message out to his readers, giving my explanation. At the same time I incorporated supporting quotes from the text to prove my findings" (C15)

It is interesting to observe how strategy awareness translated into self-regulation of writing: knowing what is important to do does not always mean knowing how to do it, when and why.

Students who mentioned time and work or who repeated textbook strategies self-regulated accordingly by being "diligent" students (10), (11), (12) or by falling into frustrating (but not always ineffective) loops of repetition of generic strategies (13), (14).

Fluctuations in metacognitive awareness, sometimes declarative and sometimes procedural or even conditional, are reflected in self-regulation. For instance, C13 initially showed an inability to take effective further action and adapt to the situation:

"I felt like I was going in circles. I would read the text and then read it again. I would start writing, then I would erase it, then I would type again, and I would erase it" (C13)

The same student, later reflecting on what had been learned by writing the essay, indicated sensibility to communicative and rhetorical characteristics and how to use this knowledge in future tasks:

"I have learned about my audience … I should not be assuming that the audience shares the same views as I do, be clearer in my introductions and thesis … I need to put myself in the readers shoes" (C13)

The examples above suggest that metacognitive awareness also develops *during* the essay writing experience. Having *a* strategy, even repeating the same action, and being encouraged to reflect on what seems to work, often resulted in conditional metacognitive awareness of why certain strategies worked for that specific paper (8).

Journal 2

Journal two reflections also suggest a connection between different types of task perceptions, metacognitive awareness, and self-regulatory behaviors. Several instances of declarative or procedural awareness echoed formal/content requirements (15), (16), often repeating the assignment (17), (18). Students did not know how to adapt these strategies or why:

"Use descriptive words and well described scenes, writing dialogue … I don't know how to do that" (B10)

However, the perceived familiarity with the narrative genre prompted many students to adapt writing strategies, mentioning the readers and conveying a sense of the task as a communicative act (19), (20).Some statements also show an original elaboration about how to tackle the task in light of its rhetorical features or their personal goals (21), (22), (23):

"The goal is identifying who am I as a writer … The purpose is using first-hand experience to make the writer and readers close" (C14)

The data on self-regulation suggests a connection between the type of awareness and how students self-regulate. Declarative or at best procedural awareness of strategies translated into self-regulatory behaviors such as time allocation and effort, rewriting or just writing "something" (24), (25), (26), repeating strategies learned in class and reliance on others' feedback (tutoring) (27). More realistic task perceptions of the rhetorical requirements helped in finding a solution out of the writing bog (28), (29):

"I thought it was going to be easy, not exactly. How was I supposed to start the narrative and gain the audience's interest?" (C16)

Self-regulation often fed back into metacognitive awareness: some students with initial superficial or confused understanding of strategies later provided descriptions of self-regulatory behaviors adapted to the rhetorical characteristics of the task (29):

"Give my readers a vivid image of my feelings and characters … have my characters think and say things aloud, something [that] would capture an audience of readers" (C15)

Students who initially showed conditional metacognitive awareness also described a self-regulated writing experience (28) (29). This did not exclude setbacks (30), but often resulted in more refined awareness perceptions:

"I am having a hard time thinking how I can correct my paper, I need to add flash backs, I redid the beginning and tried to make it more inviting for the reader" (B5)

Journal 3

These entries show less variation: metacognitive awareness translated more consistently into self-regulation; task perceptions involving communicative (writer-reader) and genre/rhetorical dimensions helped students to adapt their strategies conditionally, and self-regulation fed back into metacognitive awareness as students found personal ways to approach the task.

Descriptions of declarative and procedural strategies were still present (31), (32), (33), (34), but they were often followed by descriptions indicating adaptation. Increasingly, students showed conditional metacognitive awareness of how and why their approach could be tailored to rhetorical and communicative requirements: finding a relevant topic as a way to engage with the audience and achieve persuasiveness (35), (36), ethos-establishing strategies such as providing reliable information and considering different points of view to achieve credibility (37), (38):

"Try to make the subject arguable, make sure it can change some one's mind. Think about the information: is it reasonable, how will the audience react?" (A2)

When students did not mention communicative or rhetorical aspects, they often displayed quite a precise awareness of how to adapt personal writing strategies based on previous experiences (39).

Self-regulation both reflects and feeds back into metacognitive awareness: many entries suggest the ability to adapt a variety of techniques aimed at finding, selecting and incorporating relevant information (40), (41), (42), and presenting information in a way that fulfills the essay's rhetorical purpose and a personal goal(43), (44).For instance, this student initially expressed uncertainty about the best approach but later showed a sense of how strategies could be fine-tuned:

> I did not know at all how I would approach this assignment … I just collected as much material and took complete notes. [After realizing] I needed to cite better and that I could use my summaries and paraphrases as well as quotes, it became a lot easier. (C17)

Journal 4

For the research essay, students' entries concentrated on the need to establish ethos in research-based writing, often expressing a sense of responsibility to find reliable and unbiased information Lists of strategies were more sophisticated than at the beginning of the course (45), often mentioning the readers' expectations (46) (47).

Thirteen students out of seventeen in Journal 4 made statements indicating metacognitive awareness of how to adapt their strategies conditionally to meet the rhetorical requirements of the essay and their own personal needs. Many of these are ethos-establishing techniques with the audience in mind (48), (49), (50), (51), (52).

A student even mentioned how the research helped to find models of written academic genres, besides information:

"During the research process, we are learning the writing skills from others. It helps a lot for our own writing" (C14)

Self-regulatory behaviors reflected these developments: students seemed to have a better sense of how and why they should be self-regulating (53), and taking further action (54), (55), (56), (57). Students' writing was less teacher/textbook directed, and they seemed more in control of their writing process:

> "I don't have all the research completed, so I have gotten down a few paragraphs of a basic idea which I can expand further when other sources are found. I have to look at outside resources, then look up the symptoms from a medical website. Cite that information, probably another 4-6 hours left of research" (A3)

Personal writing strategies

Over the semester, many students became increasingly metacognitively aware of their own personal strategies as writers (Table 5): almost all the students towards the end described unique approaches to using what they had learned about academic writing.

[Insert table 5 here]

Initial self-descriptions showed either confusion or a focus on general strategies such as taking notes, writing and proofreading, time on task (1), (2), vocabulary and grammar (3). Often, students perceived their writing in negative terms as "basic" or sub-standard, (4), (5). They often described writing as a difficult, painstaking process (6), (7), and indicated a preference for narrative and personal genres (8), (9).

Final self-reflections illustrated an awareness of personal strategies and how to adapt them to different essay-writing situations, stemming from experiences in the course (10), (11). Students were critical, yet metacognitive awareness was often accompanied by expressions of positive feelings and self-efficacy, a sense of agency and communicative engagement with their readers (12) (13) (14).

3.3 Metacognitive awareness and performance evaluation

Evaluations of performance were elicited through prompt two, asking students to evaluate their ongoing performance, and prompt three, asking them to evaluate their work. Table 6 shows the codes listed under this category, and their frequencies.

Table 6. Performance evaluation: frequencies and distribution

Code	Students	Sources	Instances
Describing oneself as a writer	16	46	84
Evaluating final performance on task	17	55	75
Describing progress	16	46	67
Evaluating ongoing performance with explanation	16	51	66
Expressing pride in achievements	14	43	63

The first code, "Describing oneself as a writer", refers to the initial and final self-reflections, which explains its frequencies. "Describing progress" refers to instances where students simply

listed what they had completed, whereas "Evaluating ongoing performance with explanation" refers to instances where these accomplishments were evaluated in light of different criteria. Very often evaluations were accompanied by positive feelings about the outcome (63 instances across 14 students). Table 7 illustrates the nature of these evaluation criteria, and how they changed over time.

[Insert Table 7 here]

Journal 1

Initially, monitoring of performance focused on criteria such as completing the required work, meeting deadlines, and using the strategies taught in class. Often these judgments were accompanied by positive feelings: lack of awareness of the rhetorical requirements of the task led to over-confident evaluations. Confused task perceptions corresponded to uncertainty about how to evaluate the quality of what students were writing.

Evaluations of ongoing performance showcase these two trends. Some students expressed positive judgments because they completed the work and met deadlines (1), (2), and because they applied strategies learned in class (3), (4). Some showed uncertainty (5), (6), and reliance on others' opinion (7).

Similarly, evaluations of final performance focused on "completing the requirements" (8), (9), (10), and were often based on feedback received by others (tutors, classmates) (11), (12):

"I feel pretty confident and feel that I met the requirements. What really did it for me was tutoring . . . even if I started off unsure of myself, I think I did pretty well" (C13)

Students' uncertainty may reflect confused task perceptions, and some evaluations were vague if not contradictory:

"I felt that I did ok with this assignment; I am relieved that I even finished. Writing it was not too bad, but still pretty bad. I'm a little skeptical about this" (A3)

Journal 2

As students became more aware of the rhetorical features of academic communication, they tended to be more critical of their work, and sometimes expressed mixed feelings about their performance. Ongoing evaluations of performance are overall less optimistic than in Journal 1; criteria for evaluation are more varied and complex. Some students' displayed metacognitive monitoring in connection to rhetorical elements such as audience and purpose (13), (14), (15):

"I am a little worried with the suspense and maybe the readers having a hard time figuring out where the climax is." (C16)

Students' perceptions of the task (narrative) led to mixed evaluations. Some felt that they "knew what is going on" and could just "write and write" because they were dealing with personal experiences (16), whereas others were more critical because of the rhetorical challenge of finding a relevant topic (17). Sometimes students evaluated their work based on strategies used or completion of assignments (18) (19):

"Very good. I am doing all of my homework as we go along in the class. I feel very organized" (B12)

Final evaluations demonstrate a variety of criteria. Some judgments are show reliance on others' opinions (20) (21). Positive evaluations are based on the perceived familiarity of the genre (22) and on fulfilling requirements (23), (24), but some focus on rhetorical elements: having achieved the communicative purpose of a narrative as well as a personal goal (25):

"I reached the goal in writing that identifies myself as a writer. I used first-hand experiences to engage and inform the reader, create emotional appeal and convey my original voice" (C14)

Journal 3

In Journal 3 students seemed less keen on characterizing their work in a positive/negative binary. . The persuasive essay was a collaborative assignment for the face-to-face classes: some evaluations focused on group work (26), and many were based on strategy effectiveness (27), (28).

Some students mentioned rhetorical elements and the reader/writer interaction in their evaluations. For instance, in (29) and (30) students showed concern about readers' (other students') reactions and meeting a persuasive goal, and their evaluations seemed to entail the change of perspective needed to step into the readers' shoes:

"I've been hit with the dumb stick again. I start writing and when I read it again, it doesn't seem like I am trying to persuade someone, it sounds like I am giving direction" (C13)

Other students mentioned strategies, but evaluated them in light of criteria such as creating credibility (31) (32) and persuading the reader to adopt their point of view.

Final evaluations of performance are also less glowingly optimistic than in early journals and more critical about the quality of the work. As mentioned, some are focused on group-work dynamics (33), but many take into account rhetorical elements: the need to select, incorporate, and argumentatively present information and a personal view to persuade, (34), (35), (36), showcasing agency:

"I was able to incorporate my findings as well as my own ideas as the writer, which made the essay more appealing, made me feel I had a sense of responsibility to add knowledge that would persuade my reader" (C15)

Journal 4

Students' evaluations of the research essay confirm the development of judgment criteria towards rhetorical quality or achievement of a communicative goal. Students' perceptions of this

task and their strategic choices, aimed at building ethos and presenting credible information, are reflected in their judgments.

Ongoing evaluations mention the progress and outcome of the research process, and the quality of the information retrieved (37), (38):

"Is going good. I am really interested in the information from the sources I have. I need more information" (C16)

Some students focused on the importance of the topic (39), a concern that illustrates their effort in achieving a communicative goal, i.e. presenting the reader with something interesting and relevant, (40), (41), (42). Many judgments are based on rhetorical criteria such as credibility of the information and the quality of the research (44), (45):

"I investigated and exposed a global issue, also, I uncovered and disseminated the truths of the matter: present reliable evidences about the phenomena" (C14)

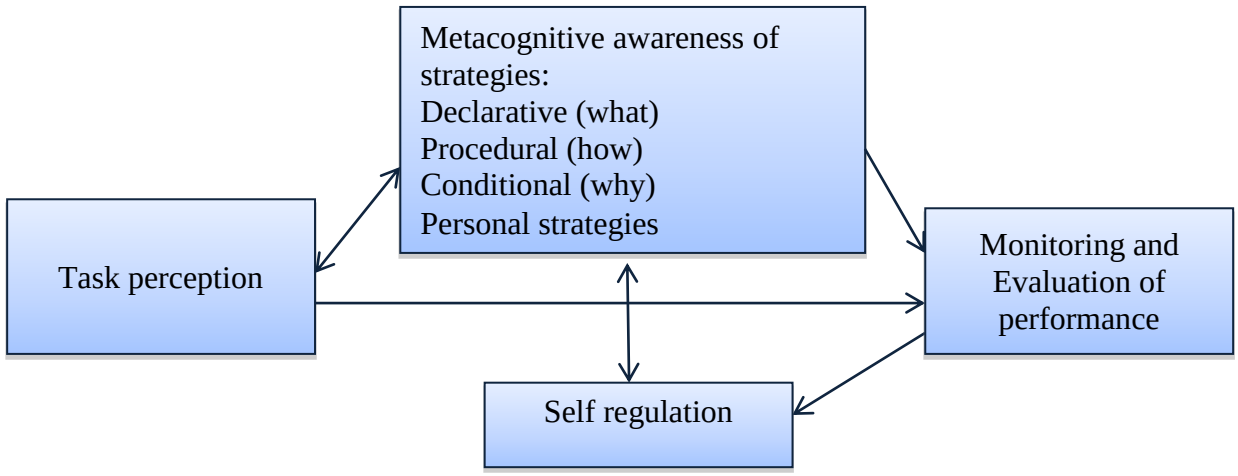
In general, evolving criteria of performance evaluation became increasingly based on metacognitive awareness of the rhetorical effectiveness of writing strategies, and often conveyed a new-found sense of pride and authorship.

4. Discussion

Figure 1 summarizes the observed learning dynamics and the relationships among categories. Task perceptions intertwine with metacognitive awareness in academic writing. In turn, metacognitive awareness of strategies seems to foster changes in task perception. Metacognitive awareness, especially conditional, mediates between task perception and self-regulation: it helps students know how to adapt their strategic choices to the specific requirements of the task, and why. In turn, self-regulatory experiences feed back into an increased awareness of conditional and personal strategies. Finally, monitoring and performance evaluation are closely tied to how students perceive the task and their metacognitive awareness of writing strategies' effectiveness:

criteria for evaluation reflect task perceptions and awareness of successful (or unsuccessful) self-regulatory experiences.

Figure 1. Interactions among categories in the data



The longitudinal and qualitative dimensions of change in these categories are summarized in Table 8. The most recurrent theme that emerges is the development of students' metacognitive awareness of the task in communicative and rhetorical terms over the course of the semester, its relationship with the development of task-specific and personal strategies, and its influence on students' ability to evaluate performance in terms of rhetorical effectiveness. Throughout the data, qualitative changes in task perception and metacognitive awareness seem to encourage students to take more initiative in writing, and to self-regulate their writing by developing a personal writing process. These dynamics seem to positively influence perceptions about their writing ability and their potential to successfully tackle academic writing tasks.

Table 8. Qualitative changes in task perception, metacognitive awareness and performance evaluation over time.

	Development over time		
Perception of task	Uncertainty, confusion Formal requirements of task Minimal interpretation of requirements	Beginning understanding of audience and purpose Basic understanding of genre-specific requirements Basic understanding of logos, ethos, pathos	Understanding of more complex rhetorical elements such as purpose of different genres Personal investment in the writing task: Voice (self-representation in text), desired effect on readers, choice of topic
Metacognitive awareness of strategies	Uncertainty Minimal awareness of personal or genre-specific strategies Following of instructions given step-by-step	Beginning adoption of task-specific strategies First attempts at personalization of strategies	Personal strategies adapted to rhetorical problem and personal goals Personal, self-regulated writing process, unique to writer
Monitoring and Evaluation of Performance	Uncertainty about criteria Assessment based on completion rather than quality Over-optimistic or over-negative assessments	Adaptation of strategies Effectiveness of strategies based on rhetorical problem	Critical awareness of both strength and weaknesses Evaluation of performance based on personal goals and definition of rhetorical problem
Affective perceptions	Avoidance, anxiety, uncertain or negative self-perceptions	Satisfaction about progress, growing confidence Writing perceived as less threatening	Confidence in personal writing skills Sense of agency and voice

These overall trends do not assume a uniform development. One possible criticism is the fact that students' reference to rhetorical concepts and writing strategies learned in class is not a surprising result. Indeed it would be naïve to think that the course, the journal, and the duality of the teacher-researcher had no effect whatsoever on the students. As stated by Kruger & Dunning (1999), "incompetence not only causes poor performance but also the inability to recognize that one's performance is poor" (1130): if metacognitive skills help people realize their own incompetence, undoubtedly more than one student may have benefited from taking the course and consistently reflecting on their writing. No research method is completely transparent, not

even in experimental settings (e.g. the "Hawthorne effect", see Adair, 1984; Brannigan, 2004). This is particularly problematic in qualitative research about writing, where some interaction is always present, and authenticity is never totally attainable unless interpretation is supported by richness of data (Smagorinsky, 1994, p. 13).

The strength of this study lies in this richness and the depth of the analysis, which showcases variation among students and provides reasons for this variation. The aim was not to investigate if students were learning about audience or other rhetorical aspects of writing, but clarify how they were using this knowledge, and why they were using it differently. This research has explained how and why metacognition plays a role in the way students make different writing choices. Specifically, it highlights the connection between task perception, different types of metacognitive awareness, metacognitive monitoring and self-regulation: students displaying conditional metacognitive awareness were able to use what they had learned to adapt their writing strategies in a unique, personal way. Not only did they know what to write and how to write it, but also why it should be written in a certain way to meet their own communicative goals and the rhetorical purpose of the text.

These observations align with scholarship emphasizing that literacy development goes hand in hand with rhetorical awareness (Haas, 1994), and that students' development of academic writing skills is tied to the understanding of writing as a situated communicative event defined by purpose and audience (Hyland, 2007; Johns, 2008; Kuteeva, forthcoming). This study proposes that students' development of "rhetorical consciousness" encompasses task perceptions, metacognitive awareness, and criteria for evaluation.

Undeniably, students' rhetorical perceptions of the task were still somewhat unrefined—their readers, for instance, never quite become populated by an academic disciplinary community.

However, as Hyland (2010) points out, the notion of 'audience' for writing has more to do with writers' awareness of a rhetorical context than the presence of actual readers, and the key challenge for neophytes is to engage in socially acceptable ways with the readers through a variety of rhetorical choices. This study has shown the metacognitive rather than textual facet of this engagement, describing how students became aware of participating in a persuasive endeavor entailing "interpersonal negotiations in which writers seek to balance claims for the significance, originality and truth of their work against the convictions of their readers" (Hyland, 2001, p. 550). Although students realized and strategically used this awareness in different ways, the key finding is that an understanding of the communicative and purposeful nature of academic texts is at the root of students' ability to use metacognitive awareness to self-regulate and evaluate their writing.

The development of conditional metacognitive awareness—why knowledge and strategies apply to specific writing tasks—appears to catalyze students' gradual ability to self-regulate through the development of a personal writing approach. This harmonizes with Zimmerman's (2000) model of self-regulation development: the highest levels of self-regulatory competence--entailing the adaptation of skills and strategies to personal needs and contextual conditions--require learners to develop metacognitive awareness of what, how and why certain choices apply. Finally the variety of task perceptions observed reinforces current research suggesting that mental representation of task have a strong link to students' metacognitive awareness of how the task can be tackled and, indirectly, to self-regulation and monitoring of performance (Schraw,1998; Wong, 2005). The nature of task perceptions and metacognitive dynamics (Dinsmore & Parkinson, 2011) must be therefore taken into account to understand how and why students make certain rhetorical choices while writing (Negretti & Kuteeva, 2011).

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Appendix 1 - Journal and self-reflections prompts

Week	Prompt
Week 1	**Initial self-reflection:** What is your learning style? How can you apply it to reading and writing? Who are you as a writer? What are your strengths and weaknesses, likes and dislikes? What is your style? What is your process of writing?
Week 2	"What does this essay assignment require from you? What do you need to know, and what skills do you need to use, to complete it? What challenges do you see?"
Week 3	"How do you feel about your progress in this assignment so far? What strategies are you using, and how? What works and what doesn't?"
Week 4	"How well do you feel you met the essay assignment requirements? What have you learned by writing it? Would you have done something differently?" / Free journal entry.
Week 5	"What does this narrative essay assignment require from you? What do you need to know, and what skills do you need to use, to complete it? What challenges do you see?"
Week 6	"How do you feel about your progress in this assignment so far? What strategies are you using, and how? What works and what doesn't?" / Free journal entry
Week 7	"How well do you feel you met the essay assignment requirements? What have you learned by writing it? Would you have done something differently?" / Free journal entry
Week 8	"Reflect on the persuasive essay assignment: what do you know about persuasion? What does this assignment require from you? Based on your experience so far, what do you think you will need to do to write this essay successfully? What areas will be the most challenging?
Week 9	"Reflect on the first steps of the writing process. What have you learned about how to begin writing an essay and drafting? What strategies did you use? Were they effective? What could you do differently? / Free journal entry
Week 10	Reflect on your writing experience with this essay. In what ways have you met the requirements? What were the most valuable concepts of techniques you learned? Based on this experience, how will you approach your next essay? / Free journal entry
Week 12	What type of essay are you required to write, and what do you know about this type of paper? What knowledge, skills, and strategies will you need to successfully complete it? Based on what you learned so far, what will be the most difficult areas for you, and why?
Week 13	Reflect on what you have done so far for this assignment. What has been your writing process? In what ways has it been successful? Based on this, how will you improve your paper?
Week 14	Free journal entry
Week 15	Reflect on the assignment requirements and the purpose of the essay, and describe in which ways your paper meets these criteria, both in content and style. Then, discuss what you learned about writing research that you can take with you in future courses. / Free journal entry
Week 16	**Final self-reflection (writer's self-portrait):** You are required to write a 2-page reflection on your experience in this course, a self-portrait of yourself as a writer. Go back to your Journal and read it from the beginning. What have you discovered about yourself as a writer, a thinker, and a learner? The purpose of this reflection is to describe who you are as a writer, show in what ways you improved, what you accomplished, Imagine you are painting a before/after self-portrait of yourself as a writer, with your unique colors, lights and shadows. In your self-portrait, you should respond to the course learning outcome: "Students will be able to describe personalize and apply processes appropriate for reading, writing, and learning."

Appendix 2 - Course content and Assignments

Writing Assignment	**Strategies**	**Concepts**
Week 1-4 Text analysis and summary	Pre-writing strategies, Freewriting, Note-taking, Essay organization	Author's main message, Main ideas of a text, Thesis, topic sentences, paragraphs
Week 5-7 Narrative Essay, literacy narrative	Brainstorming strategies, Freewriting, Outlining, Writing dialogue	The rhetorical triangle: logos, ethos, pathos, Purpose and audience, Style and purpose
Week 8-12 Persuasive essay, collaborative, interpersonal relationships and communication	Outlining, Database research, Research notes, Paragraph writing, Revision strategies	Purpose and audience, Rhetorical triangle, Thesis, integrating information without plagiarism.
Week 12-15 Research Essay, global issues and the environment	None new. Repeat research and revision strategies	Communicative value of writing, selection and integration of sources.