

CRITICAL THINKING, STRATEGIC LEARNING AND METACOGNITION IN ESP

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Abstract. *Many students have trouble making a transition to the more independent learning required at the university level of studies as compared to their previous study levels and habits. University study requires students to take responsibility for their own learning, to be more self-directed, to make decisions about what they will focus on and how much time they will spend on learning both inside and outside the classroom. How does this fact relate to ESP? First, students are highly motivated to learn their future expertise language. From the first year on they have to write seminar papers, thus writing skills come to the fore. They are asked to give oral presentations so they need their professional language. Now, they pay more attention to their mistakes, they are anxious to improve their performance. At their second year of studies they are preparing to go abroad, usually the States. Naturally, they need conversational experience and insist on learning it. And we as teachers must follow the ESP scheme of fulfilling the students' needs and prepare them for the harsh reality of the labor market so they can competently join their respective discourse communities. This transition may be especially difficult for students who may be used to more support and direction and even 'parent-like' relationships with their teachers at university. It will be useful for them to know precisely how they are responsible for their learning in their new setting. This will require them to understand that they need to play a more active role in their own learning and will require greater self-motivation and organization and greater self-awareness (metacognition) of their learning needs and behaviors. Therefore, it is important that this pivotal concept of independent learning is explained to students on the onset of their studies, so that they know what is required of them within their new study context and disciplines taught.*

Key words: *critical thinking, independent learning, university setting, ESP, students*

1. INTRODUCTION

Metacognition starts with a conscious awareness of what it is you know and what you do not know. It is a critical step in beginning to decide what it is you need to learn. Conscious awareness is the first step; you cannot effectively determine what you need to know until you understand and try to critically evaluate, together with your teacher and your peers, what you do know and what is expected of you as a student to know.

Since we are going to deal with sport and exercise areas it is worth noting that they require a general increase of the formal levels of qualification, focusing the key criteria for employment functional competences. Therefore, one has to address the need for new qualifications in the strategic fields of the health-related physical education & physical activity, wellness, leisure & tourism, sport management, social work, by developing a joint model of the vocationally oriented Master. Such study level will require diverse learning outcomes & competencies to provide a better match between job market needs and the qualifications offered, while fostering partnership between universities and stakeholders and practical training in real working environment. Therefore, teaching staff and policy makers have to be aware of what PE students need to learn, and to insist on fostering the second part of metacognition: to identify strategies that would help students learn more effectively. Strategies are presented under the topics of motivation, acquisition, retention, and performance.

The third and last part of metacognition focuses on how effective the strategies you try are working. Naturally, you will again need the help of your teacher and your peers, and you will need to write down and track your progress. After assessing the effectiveness of a strategy, you then need to make conscious choices as to the next steps: continue to use the new strategy, modify the strategy, or try a different strategy. Metacognition is the key to choosing which study strategies to try and which study strategies to use. Various study strategies are listed here under the four topics of motivation, acquisition, retention, and performance.

Motivation incorporates attitudes, purpose, and time management as you approach learning situations. Though not truly sequential, motivation can enhance or inhibit learning aspects of each of the categories below. Both extrinsic and intrinsic motivations are in play. For PE students extrinsic motivation is that more proficient level of knowledge of their professional language of sport will avail them of the possibility to find better jobs as for example, lifeguards abroad, immediately upon finishing their second year of studies. Brown (2000) claims that both integrative and instrumental motivations are not necessarily mutually exclusive. Objectives of Psychological Skills Training (PST) of athletes are to help them perform to the best of their ability, to enjoy sport, to develop psych skills as life skills-stress management, coping skills, commitment, motivation, concentration.

Learners rarely select one form of motivation when learning a second language, but rather a combination of both orientations. He cites the example of international students residing in the United States, learning English for academic purposes while at the same time wishing to become integrated with the people and culture of the country. The same holds true for PE students. They need to integrate into the new social groups within their study and their training sessions as well. And they need to use a new register, the language of sport. Thus we mean mental fitness factors affecting performance such as: self confidence, anxiety, nervousness, attitude, team spirit, family, media, and spectators. Since athletes usually go abroad to pursue their career and usually end up as elite athletes, proficiency of language, and here we mean the sports language, matters to them a lot, motivating them to excel in language knowledge. Quite often students ask for additional language courses to equip themselves better for the pending competitions, or some of them take exams for international referees and they need sports language to obtain their licenses.

Acquisition incorporates understanding new information being learned. Strategies for success include study reading, note-taking, and connecting new information to previous knowledge (constructivism). We could add at this point that connecting new information to your own experience can help the acquisition, and certainly delay forgetting. Negative motivators can inhibit acquisition of new information. Negative aspects of acquisition likewise can inhibit retention and performance of new information. Linguistics and foreign language methodologies are tightly connected and based on the nurturist's facet of the language acquisition. Therefore it follows that what we acquire must be somehow retained.

Retention is the ability to access new knowledge learned. Retention incorporates time management, note-taking, study-reading, memory, and vocabulary strategies. Practice, review, understanding, and time in contact with new information enhance retention of new information. Lack of retention will inhibit performance. In order to enforce retention it is also necessary to sensitize our cognitive networks by connecting what we know with the new information, for example, PE students connect their positive experiences from training sessions and build them up in their prospective coaching styles.

Performance is the aspect of understanding new information and being able to apply new information appropriately. Performance incorporates retention, test-taking, and anxiety-reduction strategies. As a coach, PE student needs to be aware of the difficulties associated with trying to assess how much learning has taken place, simply by using simple and occasional tests of performance. He needs to consider both the performance and the learning of the athletes. His coaching needs to be directed towards achieving standards, goals and outcomes, as well as towards providing instruction and practice. This will result in permanent improvements in performance potential. To execute all these tasks he will naturally need quite proficient level of sports language.

2. METACOGNITIVE STRATEGIES AND WRITING IN ESP

Kaplan, in his essay on cultural thought patterns and rhetoric, brought to light that L2 students need instruction in writing beyond the traditional focus on grammar and syntax (1966). He stressed that "the teaching of reading and composition to foreign students does differ from the teaching of reading and composition to American students and cultural differences in the nature of rhetoric supply the key to the difference in teaching approach" (p. 1). Kaplan pointed out that it is a fallacy to assume that "because a student can write an adequate essay in his native language, he can necessarily write an adequate one in his second language" (p. 3) as rhetorical structures differ among cultures. For example, skills like Goal Setting, Mental Preparation, Imagery using/Visualization, Relaxation-Centering, Self Talk and Mental Plans can help PE students to write better and use sport specific language with ease. A teacher has to be prepared to use varied vocabulary and help them structure their essays, or seminar papers. Let us name just a few topics they have to cover in their first year of studies: plan, implement, analyze and revise multi-annual coaching programs, demonstrate advanced coaching competence, innovation and leadership. Furthermore, the curriculum claims they will have advanced knowledge of:

- theory and practice of management related to sports coaching, pedagogical approaches to sports coaching, training methodologies and coaching practices, motor skill acquisition and the role of sports medicine
- theories and practice of leadership in sports coaching settings
- scientific principles of sport nutrition
- psychological theories underpinning sports coaching
- research methodologies addressing sports coaching
- evaluation of different research practices to advance knowledge on sports coaching.

Kaplan suggests several activities meant to raise the students' awareness of the rhetorical patterns of English compositions. Studies have shown that texts produced by L2 authors "vary from those produced by native speakers across almost every imaginable dimension (e.g. lexical variety, syntactical choices, cohesion and coherence, global rhetorical structure, etc)" (Silva, 1993, as cited in Ferris, 2001, p. 299); in short, L2 writers simply need "more of everything" (Raimes, 1985, as cited in Ferris, 2001, p. 299), (e.g. instruction in rhetorical patterns, grammar, cohesive devices, etc). Giving L2 writers "more of everything" poses several problems for the instructor given the task of systematically exposing L2 students to the facets of writing an effective text in English, most notably that there is not enough time in a typical course, IEP or otherwise, to cover every aspect of writing. Furthermore, what if for example, our PE students need a focus on conversational aspect? What if are faced with the task to prepare them for their seminar papers in at least six different sport specific disciplines? Therefore, doubts have been cast on whether such a "one-size-fits-all" approach to writing instruction actually provides individual learners with the information needed to complete writing tasks successfully (Devine et al., 1993). Recent research points out that "writing is a process guided by strategic knowledge—the goals writers set, the strategies they invoke, and their awareness of these processes" (Chien, 2004).

3. LEARNING STRATEGIES

Learning strategies can best be defined as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective and more transferable to new situations" (Oxford, 1990, as cited in Baker & Boonkit, 2004, p. 300). A further defining quality of a learning strategy is that it has to be employed deliberately by the learner in order to achieve a goal (Wellman, 1988, as cited in Carrell et al., 1998, p. 97). In regards to writing, Baker and Boonkit (2004) set forth that strategies involve the "particular techniques or methods by the writer to improve the success of their writing" (p. 301) and list six sets of learning strategies:

- memory strategies
- cognitive strategies
- compensation strategies
- metacognitive strategies
- affective strategies
- social strategies.

It is important, however, to note that a high level of declarative (what it is) and procedural (how to use it) knowledge of learning strategies does not necessarily correspond with a high rate of task success; simply knowing a strategy and how to put it into practice

does not mean that a learner will enjoy success with that strategy. A study by Anderson (1991, as cited in Carrell, 1998) highlights that “the use of certain reading strategies does not always lead to successful reading comprehension, while the use of other strategies does not always result in unsuccessful reading comprehension.” In our own example of fostering two different metacognitive strategies in PE students we could conclude that there is no hard and fast rule as to the final evaluations of their predominant learning strategy used. What was indicative of the success of the reader, however, was when the reader had an array of strategies at his disposal. Even then, comprehension isn’t simply “a matter of knowing what strategy to use, but the reader must also know how to use it successfully and orchestrate its use with other strategies” (p. 99). Here we could compare the case of PE students who were instructed to use two types of metacognitive strategies, one being the use of concept maps, and the other the use of experiential learning and correlating their use with their mother tongue grade. We were not surprised to find out that high achievers in mother tongue writing skills also showed better results in their L2 writing tasks.

4. COGNITION VERSUS METACOGNITION

While it is a fine line between cognition and metacognition, particularly in terms of strategy training, the distinguishing factor between the two is how the strategy is used (Flavell, 1978; Chien, 2006; Schraw, 1998). In short, cognitive strategies are strategies which are used to solve problems, whereas metacognitive strategies are employed in order to monitor, evaluate, control and understand these strategies (Chien, 2006).

PE students aged mainly 20 were divided into three groups, two experimental and one control, at the Faculty of sport in Nis, Serbia, and were instructed during the academic year 2014 to use metacognitive strategies during the implementation of the PE and sports specific, one semester taught ESP language course. First group of 50 students was applying a concept map formation strategy; second group of 50 students was instructed to use an experiential learning strategy. The third group of 78 students was administered a conventional method PE and sport ESP language course.

Metacognition is defined by Weinert (1987) as “second-order cognitions: thoughts about thoughts, knowledge about knowledge, or reflections about actions (1987, as cited in Hartman, 1998, p. 1) and is differentiated from cognition “in that cognitive skills are necessary to perform a task, while metacognition is necessary to understand how the task was performed (Garner, 1987, as cited in Schraw, 1998, p. 113). Or, in short, “metacognition is the regulation of cognition. That is, learners need to link this metacognitive awareness with their strategic knowledge about what they know (declarative), how they will use the knowledge (procedural), and when and why they can use the knowledge (conditional)” (Tapinta, 2006, p. 14).

Our study aiming at introducing metacognitive learning strategies to the PE and sport students produced mixed results, but what dominantly prevailed were the statistically better results in the use of concept map by students in the first group, followed by the second group using the strategy of experiential learning, leaving thus the control group with the worst results achieved. The students were assessed after completion of their ESP course, during their final examination, each being devised according to the learning strategy used by the respective groups during teaching hours. They were asked to complete their exam questions using the working style and strategies taught during the semester. We

hoped to gain some insight into the workings of the strategies taught and deliberately used by students. Concept mapping style was predominant with the first group of students who used maps to prepare their comprehensive answers to posed exam questions. Exam rate success for these students was 78%, experiential learning students showed somewhat smaller rate of success 67%, whereas the conventional type exam answers amounted to 58% success rate. The overall conclusion for the ESP teachers in sport would be to introduce as many possible metacognitive learning strategies to motivate students to learn more effectively and to make them become more responsible for their own learning success.

The benefits of metacognitive knowledge are not disputable. Rubin (1975) identified self-monitoring as a strategy employed by good language learners. PE students, who were good at English in their secondary schools, tend to self monitor their progress at the university level as well. They find difficult lots of new vocabulary specialized according to different sports disciplines, but they categorize it for easier remembering and in pair or group work, make lists of words which they share with other students, helping lower level proficiency students learn them. Here we discern the mutual use not just of metacognitive but of affective learning strategies as well.

Flavell himself postulated that “metacognitive knowledge can have a number of concrete and important effects on the cognitive enterprises of children and adults. It can lead you to select, evaluate, revise, and abandon cognitive tasks, goals and strategies in light of their relationships with one another and with your own abilities and interests with respect to that enterprise” (1979, p. 908), and others (Carrell et al. (1998); O’Malley et. al. (1985); Schraw (1998) have pointed that metacognitive knowledge is essential not only for being aware when comprehension is breaking down, but also for a greater understanding of the demands of the task and one’s own personal limitations; or, as Carrell explains, “if a reader is aware of what is needed to perform efficiently, then it is possible to take steps to meet the demands of a reading situation more effectively” (p. 100). Hartman (2001) claims that metacognition can “make or break student academic success (as cited in Wong & Storey, 2006, p. 283).

Thus, PE students reported, after being exposed to two different metacognitive strategies, following actions or applied strategies to help them understand and process the contents of their sports specific ESP language course:

1. We have more activities and we learn how to create our own phrases and map structures,
2. When in pairs I notice differences in my knowledge structures, if my peer has devised a better concept map,
3. Sometimes I know I have partial understanding and misconceptions about the topic we are covering,
4. We are given lots of opportunities to determine our conceptual understanding of the topic,
5. Our teacher told us that we are in fact using high-order cognitive processes, when we explain and plan our actions in advance, and then we read about the topic,
6. Now, I think my brain is more active in reading as if, I read with my brain rather than my eyes,
7. After previewing I can decide how I will deal with any particular text, and which other strategies I am going to follow to have better comprehension,
8. The strategies we applied made me conscious and active,
9. I used to read a text word for word before my teacher told me to use concept maps,

10. Now I'm trying to skip as many words as possible even when I am going to read about something not familiar, and I am going to deal with the text I have already had quite a few knowledge.
11. There are many positive aspects of using predictions.
12. Thinking about the topics help me to understand contents of my lesson and to relate it to my own experience,
13. I can improve my reading speed by predicting the content to follow,
14. I can associate my knowledge concerning the topics and it can help me make my learning much easier,
15. Finding key words in any text was an interesting technique. I think relying on Key words is more helpful than relying on the structure in reading a text,
16. I think it is easier to ask question when I read something I have prior knowledge of because I have something from my own experience to base in to ask questions,
17. Now, I have a more critical approach when reading and I can use my background knowledge.

Other benefits of metacognitive knowledge include compensation “for low ability or lack of relevant prior knowledge...and contributes to successful problem solving over and beyond the contribution of IQ and task-relevant strategies” (Schraw, 1998, p.117), as well as strengthening learners’ procedural knowledge of strategy application (Tapinta, 2006). While great efforts have been made to illustrate the disparities between cognitive and metacognitive strategies, it is important to note that these strategies are not in opposition to each other; they are, in fact, related (Schraw, 1998, 113).

To sum up, the difference between a cognitive and metacognitive strategy lies in the focus of the immediate activity: a cognitive approach is focused on the completion of the task at hand and prepares learners to tackle similar problems in a similar manner in the future. Thus we rely upon the transfer of knowledge, or transfer of already acquired strategies to a new task. A metacognitive strategy is focused on how the task was completed, how effective this strategy was, what might the learner do differently next time when confronted with a similar task. Thus our PE students learned that they can direct their learning efforts; they experienced something new, something we as teachers taught them were strategies they could use in future.

5. APPLICATION OF METACOGNITIVE STRATEGIES TO WRITING INSTRUCTION

All writers enter the writing process with some metacognitive knowledge in place. Studies by Devine et al. (1993) have shown that “all writers (L1 and L2) could be characterized as having a metacognitive knowledge base which contributed to their cognitive model of the writing process (p. 213) and which subsequently had implications on the performance of the writers on the written tasks. Several studies (Kasper, 1997; Chien, 2004) have found correlations between the extent to which students employed metacognitive strategies and their writing performance. Another method is to give the students extended practice and reflection, which together “play important roles in the construction of metacognitive knowledge and regulatory skills” (p. 118). At this point we could add that PE students are not so keen on writing but when asked to prepare their assignments according to their own experience in their sporting careers, they were more than willing to contribute and elaborate on ideas. For example, when elaborating on the

topic Science of Coaching, they were writing extensively on good and bad experiences during their own training sessions, transfer of good and avoiding of bad aspects of coaching process, stating that they had to give up some sports because of bad coaches and their authoritarian leadership styles. Although research into the use of metacognitive strategy training in L2 writing is limited, what research has been conducted seems to support Wenden's and Schraw's recommendations.

A number of studies looked at the use of learning diaries and/or journals as a means of measuring metacognitive knowledge. A study by Chien (2006), though limited in sample size, found a strong correlation between metacognitive reflection and achievement among Chinese ESL students. In the study, students with high task achievement attended more in review, editing and evaluation (i.e. in metacognitive processes) than students with low achievement. Wong & Storey (2006) found that the use of reflective journals before and after actual writing is "useful for arousing and increasing students' awareness of effective writing skills and is significantly related to writing performance" (p. 297). Further studies have indicated the value of reflective tasks in sensitizing students to the demands of writing for specific discourse communities (Hirvela, 1997). Overall, these studies support Mayer's (1998) sweeping statement: "Students who receive writing strategy training show improvements in the quality of what they write" (p. 55). We could corroborate this statement since our PE students reflected on what they were asked to write during their ESP course, showing better results in writing at the end of semester, and being fully aware that writing is a process, and that they have to monitor this process all the time.

6. APPROACHES IN WRITING INSTRUCTION: PRODUCT, PROCESS, GENRE

Over the past 30 years, product and process approaches have been the main methods of writing instruction in EFL classrooms (Badger & White, 2000). The product oriented writing approach is typified by establishing a context, modeling, noticing, and analysis of the features (moves, functions, etc) of these models, information transfer, followed by comparisons between the texts. From this point the students can be given controlled practice activities, which would ultimately lead to the learners producing drafts independently. (Reid, 1988, as cited in Flowerdew and Peacock, 2001). Our PE students might for example, dwell on the transfer of learning from other motor skills and its positive effect, so it might be useful for them to point out similarities with and distinctions between other skills. For example: the similarity between the forward defensive stroke in cricket and trapping the ball in hockey, and the distinction between the flexibility of the wrist in badminton and the stiff wrist required in tennis. The students might then produce a piece of guided writing based on a picture of an athlete giving a final description of their own strikes or throws.

A process-oriented writing cycle, on the other hand, typically contains the following steps: taking preliminary decisions, composing a rough draft, revising the rough draft, preparing a second draft, further revisions and reworking of drafts, further evaluation and writing the final draft. (Flowerdew and Peacock, 2001, pg. 188). A typical prewriting activity in the process approach would be for PE students to brainstorm on the topic of Individual Learning Styles in Learning a new Skill. Individual learning styles refers to the ways in which different individuals learn best. Some people need to hear instructions; others need to see a skill performed, while others learn by doing. Students could describe effective teaching and coaching. They could describe various opportunities for all athletes

to learn in the manner which suits them best. In practice, this means that in order to cater for the needs of all learning styles you generally need to provide a good demonstration, an explanation of the key points, and plenty of time to practice. There are many skills that athletes must learn for themselves. It is important that you encourage your athletes to be in control of their own learning. Self-direction, self-motivation, self-determination, and self-reliance are important qualities and characteristics of successful athletes.

More recently, the genre approach, focusing much of its attention on the situation and purpose of writing, has gained popularity in writing instruction (Badger and White, 2000). Typically, a genre-approach will begin with an analysis of authentic examples of the target text. Usually, in sports sciences there are theoretical and much more practical contents. While a genre approach does share many features with a product cycle, the fundamental difference is in the genre approach's explicit focus on the purpose of the writing, which includes both the author and the author's purpose for writing the text, as well as the reader and why he/she is reading the text. Our PE students become highly motivated when asked to submit seminar papers on their sports, knowing that not only a teacher but their peers in the sporting class are going to discuss and finally evaluate and grade those seminar papers.

In our limited study on the PE students' use of metacognitive learning strategies in their writing tasks we have obtained very encouraging results showing that they are aware of the writing process and they are trying to improve their essays and seminar papers. It may be that we have tried as their teachers to motivate them additionally to be aware of their writing maturity through analyzing their final exam papers and giving them rightful and deserved credits for their improvement in writing skills. Metacognitive strategies with intermediate-level students in ESP courses and the efficiency of these strategies applied in the ESP classes can be summarized by students' comments:

1. We have more activities and we learn how to create our own phrases and map structures,
2. When in pairs I notice differences in my knowledge structures, if my peer has devised a better concept map,
3. Sometimes I know I have partial understanding and misconceptions about the topic we are covering,
4. We are given lots of opportunities to determine our conceptual understanding of the topic,
5. Our teacher told us that we are in fact using high-order cognitive processes, when we explain and plan our actions in advance, and then we read about the topic,
6. Now, I think my brain is more active in reading as if, I read with my brain rather than my eyes,
7. After previewing I can decide how I will deal with any particular text, and which other strategies I am going to follow to have better comprehension,
8. The strategies we applied made me conscious and active,
9. I used to read a text word for word before my teacher told me to use concept maps,
10. Now I'm trying to skip as many words as possible even when I am going to read about something not familiar, and I am going to deal with the text I have already had quite a few knowledge.

7. CONCLUSION

Having analyzed the obtained research data and having reviewed references of previous research conducted on the use of metacognitive strategies, the following conclusions could be drawn:

1. The practice of metacognitive strategies teaching leading to student self-assessment carries the possibility of creating a dynamic, interactive environment on several levels: between student and teacher, learner and learning, learning and knowledge, and knowledge and action.

2. Self-directed ESP studies foster reflective thinking when students take responsibility for their actions.

3. Reflective thinking should be fostered and encouraged by the teacher.

4. Learning diaries, journals, portfolios are the best techniques to help students to foster their reflection and metacognitive awareness.

5. There should not be too much of teachers intervention in the learning process as well designed and structured studies lead students to less responsibility and discourage reflection.

To sum up, there are several methods which can be used to raise students' metacognitive awareness in the classroom. Firstly, teachers should explicitly model both their cognitive and metacognitive thought processes for their students. Secondly, students should be given explicit instruction into the demands of the writing task in question. This in turn will aid the students in their attempts to self-monitor. Finally, students should be given extensive opportunities both to practice these skills and reflect back upon them. We also think that the obtained research results point to the need to introduce strategic and thus autonomous learning as early as possible, if not in secondary schooling then at the very beginning of the tertiary level of learning, so that upon the completion of their studies, our students would be ready to join their prospective discourse communities, in our case, sports and sport specific discourse community.

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