



Ineffective learning strategies: a significant barrier to post-secondary perseverance

Louise Sauvé, Anne Fortin, Chantal Viger & France Landry

To cite this article: Louise Sauvé, Anne Fortin, Chantal Viger & France Landry (2016): Ineffective learning strategies: a significant barrier to post-secondary perseverance, Journal of Further and Higher Education, DOI: [10.1080/0309877X.2016.1224329](https://doi.org/10.1080/0309877X.2016.1224329)

To link to this article: <http://dx.doi.org/10.1080/0309877X.2016.1224329>



Published online: 21 Nov 2016.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)

Ineffective learning strategies: a significant barrier to post-secondary perseverance

Louise Sauv  ^a, Anne Fortin^b, Chantal Viger^b and France Landry^c

^aDepartment of Education, TELUQ, Quebec City, Canada; ^bDepartment of Accounting,   cole des sciences de la gestion, Universit   du Qu  bec    Montr  al, Montr  al, Canada; ^cStudent Services, Universit   du Qu  bec    Montr  al, Montr  al, Canada

ABSTRACT

Study programme withdrawal and student perseverance in post-secondary education are major challenges for post-secondary institutions, especially in view of the increasing difficulty of retaining the student clientele during the first year of university studies. To analyse the challenges students face in terms of learning strategies, we asked students to identify the cognitive and self-regulatory strategies that they would like to enhance in order to succeed in their education. We conduct a descriptive analysis of 824 respondents from 7 university accounting programmes to highlight the main learning strategies that failed to work for our sample, mainly for time management, listening, and reading, and attention, concentration, and memorisation management. The students report that they are unable to effectively manage their time (balance family, work, and studies) or estimate the time they need to devote to their studies. They mention being unaware of strategies for easily retaining the information they read in books or texts and for listening to teacher presentations, doing exercises to apply the procedures that they are required to learn, or problem solving. They also report difficulties with concentration and recall. Learning difficulties, lack of project writing skills, and thinking about dropping out are found to be positively related to study withdrawal. Gaps in information search strategies and feeling dissatisfied with results despite the effort expended negatively affect student academic performance and thus increase the likelihood of student withdrawal.

ARTICLE HISTORY

Received 14 July 2015
Accepted 14 February 2016

KEYWORDS

Accounting; dropping out; learning strategies; post-secondary education; withdrawal from studies

Introduction

Student withdrawal during the first year of university studies has for many years posed a major challenge for schools (Fontaine and Peters 2012; Neuville and Galand 2013; Vezeau and Bouffard 2009). Although a number of studies have tried to identify one or more factors of student withdrawal (Neuville and Galand 2013), few authors explore the effects of inadequate cognitive and self-regulation strategies as indicators of student withdrawal, and even fewer have investigated the relationship between ineffective strategies used by accounting students and withdrawal from university studies (Sauv   et al. 2014). Our study therefore helps fill the gap by examining student withdrawal from university accounting programmes.

Student withdrawal occurs when a student leaves his or her study programme before graduation by either dropping out, with or without notifying the institution; being asked to leave by the institution; deciding on their own to interrupt their studies but with the intention of returning; or changing institutions (Grayson and Grayson 2003).

The OECD (2013) reports that study withdrawal is a serious problem and that 30% of students in its member countries abandon their post-secondary studies. Nearly half of student withdrawals from university occur during the first year of enrolment in an undergraduate programme (CSE [Conseil supérieur de l'éducation] 2008). Dropout rates in accounting programmes are higher than the mean OECD rate. In one Quebec university, the dropout rate for the 2005–2011 undergraduate accounting cohorts at the university's Montreal campus was around 39% (DRI 2013). Given that demand for accounting graduates is high both in Canada (Government of Canada 2015) and elsewhere, e.g. in the US (AICPA Students, Academics & Inclusion 2015), it is important to understand the reasons for accounting student withdrawal so preventive strategies can be developed.

To better design interventions aimed at reducing withdrawal from accounting studies, we sought to understand why students leave their field of study. Many factors can influence programme withdrawal, including personal issues such as lack of orientation, education funding, and support from relatives (Fortin et al. 2006; Tremblay 2005); academic difficulties such as students' lack of knowledge about their study programme and the institution's facilities, prior knowledge, and deficient learning strategies (Basque et al. 2009; Hyland, Howell, and Zhang 2010; Ma and Frempong 2008; Sauvé et al. 2007, 2012; Sauvé, Racette, and Moisan 2010; Sauvé, Racette, and Royer 2008); and social difficulties, e.g. interpersonal problems with other students or with faculty and staff at the institution (Kulm and Cramer 2006; Roy 2006; Wright et al. 2008).

In this study we focus on ineffective learning strategies as determinants of withdrawal from university studies. We report on the cognitive and metacognitive difficulties experienced by 824 students from 7 university accounting programmes and link them to study withdrawal and poor academic performance, also major determinants of study withdrawal (Bennett 2003). We thus contribute to a better understanding of students' learning difficulties during their studies so that universities can offer them support programmes to foster academic perseverance.

The rest of the paper is organised as follows. The next section presents ineffective learning strategies as determinants of study programme withdrawal. It is followed by the methodological section and the results. The final sections discuss our results, conclusions, and suggested areas for future research.

Ineffective learning strategies as determinants of study programme withdrawal

Research shows that scores of undergraduate students have problems studying effectively (e.g. Ruph 2010). A number of studies find that students are relatively unaware of their personal learning strategies (Al-Harthy, Was, and Isaacson 2010; Dawson, Meadows, and Haffie 2010; Ferla, Valcke, and Schuyten 2008; Rodarte-Luna and Sherry 2008; Vanmuylder et al. 2006). Since unawareness and ineffective learning strategies can contribute to student failure (Endrizzi 2010; Parent 2014; Vezeau and Bouffard 2009), 'It is imperative to consider an introduction to academic practices and learning strategies' (Vanmuylder et al. 2006, 17). Knowledge about these strategies (cognitive and metacognitive) can lead students to better understand their study habits and adapt to different teaching situations.

Learning strategies have been given various definitions, objectives, and characteristics (Sauvé et al. 2012). We refer to the work of Ruph (2010), who considers that learning strategies are primarily high-level, conscious, and deliberate mental activities aimed at acquiring new knowledge and developing new skills. Learning strategies are metacognitive and self-regulating in nature, and are expressed in a wide variety of actions. Ruph (2010) divides learning strategies into five categories. In the following paragraphs, we define these categories by summarising his work and identifying the associated challenges.

Listening and reading strategies aim to appropriate the information that is pertinent to learning, including cognitive operations such as comprehension, representation, and retention of information in order to use it in the future. These strategies are applied during lectures, in class, or in distance learning (audio/videoconference), in a reading context, during documentation research, in problem-solving situations, during case studies, in an observational context, for the comprehension of various types of instruction, and so forth. Challenges identified in this category are comprehension and organisation of

course materials, most notably difficulty in selecting what is important, summarising or synthesising, organising knowledge hierarchically, and establishing links with real-life situations (Ruph 2010).

Strategies for oral and written production refer to cognitive strategies required to apply acquired knowledge. These strategies are used during written or oral exams, presentations, written assignments, teamwork, problem solving, internships, and so forth. The associated challenges are problems communicating ideas, including being understood, deciding whether something is appropriate to say, organising communications (repetitions, omissions, lack of structure), forgetting part of the instructions or the data for a given problem, providing 'irrelevant' answers, and making 'careless' mistakes (Ruph 2010).

Strategies for managing external resources focus on the planning, organisation, and effective use of available resources that facilitate learning, such as time, work tools, tutors, teachers, specialised help services, computer equipment, etc. Challenges in this area are difficulty in organising, planning, and managing time and the study environment, which results in procrastination, last-minute studying, failure to stick to a schedule, feeling that there is not enough time, being frequently late, cramming at the end of the semester, difficulty locating course materials quickly, and forgetfulness (of work to be done, exam dates, and appointments) (Ruph 2010).

Strategies for managing attention, concentration, and memorisation make use of mental capacities to remain attentive and concentrate on learning-related tasks. Challenges in this category include resistance to engaging in a task, being easily distracted by the environment (sounds, images) or personal concerns, and inability to concentrate for long periods during class, while reading, or during an assignment (Ruph 2010). This category also includes issues related to planning and managing memorisation efforts to ensure long-term recall. The ensuing difficulties are memory gaps, problems retaining the subject matter being learned, and forgetting the information after exams or after reading (Ruph 2010).

Strategies for managing motivation, stress, and emotions involve controlling impulsive behaviours and stress. Challenges include feelings of disorientation, vague goals, lack of vocational interests and perseverance, feelings of wasting time, laxness, carelessness, difficulty in getting the work started, procrastination, and not prioritising studies (Ruph 2010). Problems linked to stress manifest themselves through performance anxiety at exams, freezing up when faced with challenges, stress due to assignments, fear of public speaking, fear of making presentations, and feelings of being overwhelmed (Ruph 2010). Problems related to emotions manifest themselves as feelings of incompetence, i.e. lack of self-confidence, uncertainty regarding academic success, self-defeating thoughts, feelings of guilt in relation to difficulties and failures, self-criticism, and feelings of inferiority compared to other students (Ruph 2010). Finally, problems linked to impulsive behaviours are reflected in blurting out answers and acting without thinking about consequences (Ruph 2010).

Some of the most significant deficiencies identified among university students' learning strategies are: (a) cognitive strategies for reading and searching for information (Beaudry et al. 2008; Kozanitis 2010; Ruph 2010; Sauvé et al. 2012); (b) strategies for managing external resources such as time (Dion 2006; Racette 2009; Ruph 2010; TÉLUQ [Télé-Université] 2010) and tasks (Ferla, Valcke, and Schuyten 2008; Greene and Azevedo 2007; Ruph 2010; Shaienks and Gluszynski 2007); and (c) ability to manage emotions (Bartels and Jackson 2009; Berger, Motte, and Parkin 2009; Kozanitis 2010; Racette 2009; Rodarte-Luna and Sherry 2008; Ruph 2010). Some studies that focused on managing assignments to be handed in and allotting time for study concluded that students who withdraw from school tended to skimp on study time (Humphrey 2006; Ma and Frempong 2008; Shaienks and Gluszynski 2007). Other authors looked into the ability to plan and manage tasks (e.g. Ferla, Valcke, and Schuyten 2008; Shaienks and Gluszynski 2007), including Gollwitzer (1996), who showed that good planning is essential to academic perseverance because it facilitates starting and regulating actions, improves performance, and reduces stress, thereby enhancing students' psychological well-being.

It seems that students not only have gaps in their learning strategies, but also have fewer opportunities to self-regulate. Zusho and Edwards (2011, 27) report that:

self-regulatory failures generally arise when students are unable to properly assess the characteristics and demands of the tasks to be accomplished; they have limited knowledge about the task, the domain and / or strategies; and

they underestimate or overestimate their ability to complete the task. These limits may, in turn, lead students to plan incorrectly and set inappropriate goals, which leads to failures in monitoring and control over the learning process.

Other studies investigated students' motivation management strategies and self-efficacy (Bandura 1997; Van Bragt et al. 2011; Galand and Bourgeois 2006; Galand and Vanlede 2004; Neuville, Frenay, and Bourgeois 2007; Vezeau and Bouffard 2009). High self-efficacy, i.e. belief in one's own ability to complete tasks and reach goals (Bandura 1997), has been linked positively to academic performance and perseverance (Galand and Vanlede 2004). Students with low self-efficacy are often less persevering in the face of difficulties, experience more stress and anxiety, and self-regulate less in their academic activities (Vezeau and Bouffard 2009). Ambivalence about learning and lack of self-regulation, i.e. not knowing the what, when, and why of a task, contribute to the likelihood of dropping out (Van Bragt et al. 2011).

In this study, our main objective is to gain a better understanding of the difficulties surrounding the learning strategies of accounting students and to link these difficulties to student withdrawal. Since a number of studies associate the use of effective learning strategies with academic performance (e.g. Al-Harthy, Was, and Isaacson 2010; Bean and Metzner 1985; Bennett 2003; Chyung, Moll, and Berg 2010; Dawson, Meadows, and Haffie 2010; Wolters 2010), we also look at the association between learning strategy problems and students' academic performance, given that poor performance can lead students to abandon their programme (Bennett 2003). Note that assessments often measure understanding of content with little regard for the achievement of skill development, whereas cognitive and self-regulatory strategies are closely related to skills. Further, students develop strategies to maximise assessment success according to the criteria set out by their professors (Boulet, Savoie-Zajc, and Chevrier 1996). Hence, grades attest to student learning only if the learning objectives are valid and the assessments are adequately aligned with these objectives. Nevertheless, we hypothesise that students with low grades who say their learning strategies are ineffective are more likely to drop out.

Methodology

Following is a description of the study sample and data collection process, measuring instruments, and analysis methods.

Study sample and data collection process

In fall 2012 and winter 2013, we surveyed undergraduate accounting students enrolled in seven French-speaking universities in the province of Québec (Canada), including one distance education institution. Our convenience sample consisted of 824 students distributed as follows across each of the seven participating universities (U): U1 = 12, U2 = 50, U3 = 569, U4 = 25, U5 = 78, U6 = 52, and U7 = 38. Variation in the number of respondents between the universities is due to the difference in size of the participating institutions, and consequently of their accounting programme. However, all institutions offer a similar accounting programme. The research received the ethical approval of each participating school's institutional committee.

The data were collected in two phases. In the first phase, a designated professor/collaborator in each of the participating institutions was responsible for distributing the questionnaires to accounting students in their institution. They generally proceeded by inviting students enrolled either in an orientation course in the accounting programme or in an accounting course to take part in the study on a voluntary basis. The second data collection phase was carried out with the registrar of each participating institution three terms after the first phase to determine whether participants in the first phase had dropped out after one year. Students' grade point averages (GPA) were also obtained. For each student, data obtained in the second phase were matched with data from the first phase.

Measuring instruments

In addition to a registration form and a consent form, five questionnaires listing ineffective learning strategies were completed by study respondents: (1) 26 listening and reading problems; (2) 21 oral and written production problems; (3) 18 external resource management problems; (4) 11 problems with managing attention, concentration, and memorisation, and (5) 24 problems with managing motivation, stress, and emotions. Participants were asked to read all items in each of the five questionnaires and identify those that applied to them. Questionnaire items are listed in Tables 1–5 (results section).

The questionnaire items were developed on the basis of Ruph's (2010) five learning strategy categories and a review of the literature on post-secondary perseverance and withdrawal (Sauvé et al. 2007). The questionnaires were first pre-tested with a group of 216 university students. The respondents were asked to indicate (Yes/No) whether they perceived having the difficulties listed, cross out items that they believed were similar, and propose any additional difficulties. The revised questionnaires were then pre-tested again with several students, who said they would prefer it if the statements were formulated as strategies that respondents feel should be improved, as this type of wording might provide them with a different perspective and motivate them to seek help and tools to improve themselves. Finally, the revised questionnaires were used in a study with 179 students which confirmed that the items appropriately illustrated the difficulties students were experiencing (Sauvé et al. 2012). The research instruments were administered in French and items were translated by a professional English translator for publication purposes.

Analysis methods

First, descriptive statistics on deficient learning strategies were collected. Second, factor analyses were performed for each of the five learning strategies to identify latent constructs using eigenvalue above 1 and Scree-test criteria (Kim and Mueller 1978). Six components explaining 45.3% of the variance were obtained for listening and reading strategies (see Table 1); five components explaining 49.8% of the variance were obtained for oral and written production strategies (see Table 2); five components explaining 49.4% of the variance were obtained for strategies for managing external resources (see Table 3); three components explaining 41.6% of the variance were obtained for strategies for managing attention, concentration, and memorisation (Table 4); and six components explaining 42.2% of the variance were obtained for strategies for managing motivation, stress, and emotions (see Table 5). For each component, the total for the items was used in subsequent analyses. We then performed stepwise regressions of the latent constructs related to learning strategy deficiencies on study withdrawal (coded 1 if student dropped out, 0 otherwise) and academic performance. For the purposes of this study, dropouts are defined as students who voluntarily decided not to re-enroll in the accounting programme in the third term, i.e. the following year (whether or not they notified the institution), and students who were asked to leave by the institution. Since not all students completed all five questionnaires, 783 observations, including 122 students who dropped out of their programme (15.6%), were available for the regressions. At fewer than 2.3, the variance inflation factors (VIF) were low with respect to all variables considered in the regressions and there were no condition indices over 10, indicating no problem with multicollinearity (Hair et al. 1998).

Results

Overall demographics

Fifty-five per cent of respondents were women (453 of 824) and 45.0% were men (371). Just over half (61.0%) of participants were in the 18–24 age group (503), while 16.9% (139) were 25–29 years old and 21.7% (179) were 30 years or older. Most participants (72.2%) were full-time students while 27.8% were part-time, and 25 students (3.0%) were enrolled in a distance education programme.

Table 1. Factor analysis – listening and reading strategies.

Component ^a	Item	Item loading ^b
Need for information search strategies	I would like to learn effective research strategies and use them to find the information I need.	.719
	I would like to know where to begin when doing research.	.686
	I would like to learn how to prepare an oral presentation.	.599
	I would like to identify my research skills.	.575
	I would like to learn how to write a summary.	.538
	I would like to learn to take notes effectively.	.384
Need for listening and understanding strategies	I would like to improve my strategies for deliberate and active listening.	.670
	I would like to read nonverbal cues better.	.662
	I would like to be able to select the appropriate listening strategy for the specific learning situation.	.601
	I would like to improve my ability to correctly identify primary and secondary concepts during a lecture, an oral presentation, or other situation.	.593
	I would like to know how to go about understanding the instructions for my assignments.	.403
Reading difficulties	When I read, I don't think I retain anything.	.708
	My mind wanders when I read.	.658
	When I read, I underline information but still don't retain it.	.567
	When I read, I can't figure out the meaning of the words, concepts, or subject matter.	.456
Need for efficient reading strategies	I would like to learn strategies to easily retain the information that I read.	.638
	I want to be able to extract the main ideas from the material I read.	.562
	I would like to be able to repeat or summarise what I have just read.	.440
	I would like to understand how I learn during routine academic situations, such as listening to a presentation or a demonstration by a teacher; reading manuals or photocopies; doing assignments to apply one or more concepts that I am supposed to learn; or solving problems.	.431
Difficulties with the learning process	Whether in class or online, I rarely ask questions even when I don't understand.	.615
	I wonder whether learning means doing something over and over again. In order to learn, I do a lot of practice exercises.	.606
	To pass an exam, I commit the subject matter to memory, because learning means memorising.	.487
	I hesitate to ask my professor or instructor for tips or to explain steps.	.433
Ineffective reading strategies	When I read, I do a lot of underlining but I don't try to make connections with what I read previously.	.621
	When I read, I often skip words that I don't understand.	.604
	When I read, I don't use any tools (dictionary or Wikipedia) to understand the meaning of some words.	.578

^aExtraction method: principal component analysis; rotation method: Varimax with Kaiser normalisation.

^bThe item loadings above 0.30 are provided for each component.

Learning strategies

A descriptive analysis of the five learning strategy categories is presented in the following sections. The analysis is limited to the problems that affected more than 10% of the respondents. Note that each category has a different number of respondents since some students failed to complete all five questionnaires.

Listening and reading

Most respondents report having reading difficulties ($n = 812$). Out of the 26 items, 22 were checked off by more than 10% of respondents, and few students seemed to have no listening and reading problems (9.9%). Many students report being unaware of strategies that can help them easily retain the information they read (44.3%), or say they do not know how they learn in routine academic situations (39.0%). However, they would like to understand their personal learning process as they complete assignments that apply one or more of the concepts they need to learn, and when they solve problems (39.0%). About one-third reported the following: they feel that they do not retain anything they read (34.0%); they have trouble taking notes effectively (33.4%); they are unable to extract the main ideas

Table 2. Factor analysis – oral and written production strategies.

Component ^a	Item	Item loading ^b
Need for project writing skills	I would like to learn how to write an analysis.	.820
	I would like to learn how to write a synthesis essay.	.782
	I would like to learn how to write a dissertation.	.755
	I would like to know the guidelines for writing projects.	.429
	I don't know how to organise the information in my projects.	.423
Writing deficiencies	I lose several points on my written assignments because of the quality of my writing.	.683
	I often make grammatical errors.	.659
	I have problems conjugating certain verbs.	.658
	I reread what I write but don't spot my mistakes.	.611
Problems organising ideas	I would like to be able to organise my ideas in writing so that they read well and are properly structured.	.739
	I have a specific idea of what I want to write but am unable to express myself clearly.	.574
	I would like to be able to structure my text.	.534
	I would like to learn how to put together a good oral presentation.	.471
	I never do an outline before writing.	.461
Problems citing references	I'm often told that my sentences are hard to understand.	.410
	I don't know how to correctly cite references in my projects.	.902
	I don't know how to correctly cite Web references in my projects.	.898
	I have problems quoting accurately from a book.	.288
Unsatisfactory results despite effort	I don't get satisfactory results despite all my efforts.	.768
	I struggle to prepare thoroughly for exams.	.672

^aExtraction method: principal component analysis; rotation method: Varimax with Kaiser normalisation.

^bThe item loadings above 0.30 are provided for each component, except for one item whose maximum loading on any component was 0.288.

from the material they read (33.6%); their mind wanders while reading (32.4%); they cannot repeat or summarise what they have just read (31.9%); and they do not know how to write a summary (31.2%). Some report that they do not retain information when they read even if they highlight it (24.1%), while others say that they do not use any tools (e.g. a dictionary) to understand the meaning of specific words when they read (17.4%).

In terms of listening, students report being unaware of effective learning strategies to use when listening to a presentation or watching a demonstration by a teacher (39.0%). They would like to improve their strategies for deliberate and active listening (29.1%), and they report not knowing how to prepare an oral presentation (28.7%). They would like to improve their ability to properly identify primary and secondary concepts during a lecture or an oral presentation (20.0%) and to develop their skills for detecting non-verbal clues (19.7%) and understanding the instructions for their assignments (13.4%). They would also like to be able to select the appropriate listening strategy for the specific learning situation (13.7%).

In terms of memorisation and understanding, some students think that learning means repeating the same task over and over again and therefore completing a great many exercises (24.8%) in order to learn. To pass an exam, they report committing the subject matter to memory, because they believe that learning means memorising (24.3%), and they indicate rarely asking questions, even when they do not understand (24.4%).

In terms of researching information, students report lacking effective research strategies to find the information they need (29.1%), not knowing where to begin when doing research (25.9%), and lacking information research skills (22.2%).

The factor analysis performed on the 26 listening and reading items led to the following 6 components: need for information search strategies, need for listening and understanding strategies, reading difficulties, need for efficient reading strategies, difficulties with the learning process, and ineffective reading strategies (see Table 1).

Table 3. Factor analysis – strategies for managing external resources.

Component ^a	Item	Item loading ^b
Problems estimating study time	I would like to know how to estimate how much time I need to dedicate to my studies.	.694
	I would like to manage my time better.	.665
	I would like to be able to estimate the time I need to do my school work.	.633
Problems planning study time	I tend to wait until the last minute before studying or doing my assignments.	.756
	I work better under pressure or by procrastinating until the last minute.	.692
	I don't have the discipline to schedule study time during the week.	.671
	I have problems planning my study time and starting the work.	.496
Need to learn to manage workload	I would like to learn how to follow the steps laid out in the study guide (distance studies) or the course outline (on-campus studies).	.693
	When school begins, I would like to note how I manage my workload.	.629
	I would like to be able to apply myself to my studies so I can complete my assignments and projects.	.602
Problems balancing work, family responsibilities, and school	I have problems balancing work, family responsibilities, and school.	.728
	I can't seem to put aside enough time for my studies while also meeting my personal, family, and social obligations.	.585
	I worry about whether I can dedicate enough time to my studies while meeting my obligations.	.440
	I am habitually late to class.	.424
	I would like to combine my vacation time or my professional obligations with attending school.	.380
Need to manage workload and personal life	I would like to be able to stay in contact with my circle, my friends, and my family while I'm in school.	.706
	My heavy academic workload is a source of concern.	.528
	I would like tips on how to avoid falling behind on my assignments.	.354

^aExtraction method: principal component analysis; rotation method: Varimax with Kaiser normalisation.

^bThe item loadings above 0.30 are provided for each component.

Oral and written production

The majority of the 807 respondents report having difficulty with oral and written production. Out of 21 items, 16 were checked off by more than 10% of respondents, and only 20.4% of the respondents seemed to have no difficulties in this area.

With regard to oral production, students report not knowing how to craft a good oral presentation (23.0%). In terms of written production, they indicate having a specific idea of what they want to write but being unable to express themselves clearly (24.2%). They mention failing to make an outline before writing an assignment (19.3%) and not knowing how to write an analysis (18.6%), a synthesis essay (17.2%), or a dissertation (11.6%). Students would like to be able to organise their ideas in writing so that they read well (18.1%), and they want to learn to structure their texts (16.7%). They indicate struggling to prepare thoroughly for their exams (23.4%) and find that they do not get satisfactory results despite their best efforts (19.1%).

In terms of properly formatting texts, students report rereading what they write but failing to spot mistakes (20.9%). They mention losing several points on written assignments for the poor quality of their writing (17.8%) and not knowing the guidelines for writing projects (19.7%). They indicate not knowing how to properly cite references (17.1%) or web references (14.6%) in their projects, and frequently making grammatical errors (12.1%).

The factor analysis on the 21 oral and written production items identified the following 5 components: need for project writing skills, writing deficiencies, problems organising ideas, problems citing references, and unsatisfactory results despite effort (see Table 2).

Managing external resources

Most respondents ($n = 795$) report having difficulty managing external resources. The majority of the 18 items were checked off by more than 10% of respondents, i.e. 16 items, and only 15.0% of respondents appear to have no difficulty with this task.

Table 4. Factor analysis – strategies for managing attention, concentration, and memorisation.

Component ^a	Item	Item loading ^b
Concentration difficulties	I often let my mind wander whether I'm in class or online or when I'm working on assignments.	.659
	I want to study but I can't concentrate.	.574
	When the professor asks a question, I can't think of the answer or I don't even try.	.545
	Before starting an assignment or studying for an important exam, I wait until I'm in the mood to do it.	.504
	I think I have learning difficulties (slow pace, lack of concentration).	.445
Need for attention, concentration, and memorisation strategies	I would like to learn different strategies (e.g. reading out loud) to remain focused on what I'm reading.	.643
	I would like to know which strategies I use to pay attention, concentrate, and memorise.	.642
	I would like to know how to check if I have fully grasped the subject matter.	.510
Problems focusing on relevant material	I don't think I can retain everything.	.420
	I take notes but it takes too long.	.767
	During an exam or a test, I get the feeling that I didn't study the right material.	.579

^aExtraction method: principal component analysis; rotation method: Varimax with Kaiser normalisation.

^bThe item loadings above 0.30 are provided for each component.

Time management is the main problem reported (50.2%). Respondents indicate being unable to estimate the time they need to dedicate to their studies (36.5%), waiting until the last minute before studying or tackling their assignments (33.1%), lacking the discipline to schedule study time during the week (32.5%), having problems planning their study time and starting the work (25.7%), feeling unable to estimate the time needed to do their school work (24.4%), and working best under pressure or by procrastinating until the last minute (24.2%). Some are concerned about the heavy academic workload (20.0%), would like tips on how to avoid falling behind in their assignments (19.6%), and would like to know how to manage their workload at the beginning of their programme (16.9%). In addition, some students would like to be able to apply themselves to their studies so they can complete assignments and projects (11.9%).

In terms of balancing work, family, and education, respondents expressed concern about dedicating enough time to their studies while meeting their obligations (27.3%). They report having difficulty balancing work, family responsibilities, and school (20.8%), wanting to stay in contact with their circle, friends, and family while in school (16.6%), failing to set aside enough time for their studies while also meeting personal, family, and social obligations (14.3%), and having difficulty combining vacation time or professional obligations with attending school (12.6%).

The factor analysis of the 18 managing external resources items yielded the following 5 components: problems estimating study time; problems planning study time; need to learn to manage workload; problems balancing work, family responsibilities, and school; and need to manage workload and personal life (see Table 3).

Strategies for attention, concentration, and memorisation

The majority of respondents ($n = 800$) report having difficulty managing attention, concentration, and memorisation. Each of the 11 items was checked off by at least 10% of respondents, and only 22.1% of respondents reported no difficulties in this category. Overall, more than one-third of respondents indicate being unaware of the strategies they use to pay attention, concentrate, and memorise (37.0%).

In terms of concentration, many students would like to learn different strategies to remain focused on what they read (30.5%). They mention not being able to concentrate when they want to study (27.6%), thinking they have learning difficulties (slow pace, lack of concentration) (14.1%), and waiting until they are in the mood before starting an assignment or studying for an important exam (15.0%). Some students report that when their professor asks a question, they are unable to think of the answer or they do not even try to figure it out (11.6%).

Table 5. Factor analysis – strategies for managing motivation, stress, and emotions.

Component ^a	Item	Item loading ^b
Stress management and self-confidence difficulties	I worry all the time. Everything is a big deal and people say I'm stressed out and anxious. I wonder how I can change this.	.655
	I would like to learn strategies to help alleviate the stress-related symptoms I'm experiencing.	.607
	I would like to be able to better control my stress during exams.	.528
	I have trouble managing my personal problems so that they don't interfere with my studies.	.509
	I tend to get discouraged when I struggle with my classes.	.487
Considering dropping out	I'm not very self-confident.	.412
	I'm thinking about dropping out for a time, but I don't know who to turn to for advice.	.734
	I'm discouraged and want to drop out, but I don't know what to do.	.564
	When I run into problems, it makes me want to drop out. I'm wondering how to stay motivated.	.521
	I'm uncomfortable going to school with people who are young enough to be my children.	.486
Uncertainty about returning to school	The school year is beginning and I'm worried about this new step.	.622
	I don't know if I'm capable of going back to postsecondary studies.	.558
	Thinking about the new school year, I worry about meeting new people.	.504
	I don't know if I have what it takes to resume my studies after so many years away from school.	.499
Self-insight into motivation and attitudes	I don't know if I'm capable of doing distance studies.	.407
	I would like to know what motivates me to learn.	.804
Uncertainty about learning strategies	I would like insight into my attitudes toward my studies.	.780
	I wonder whether completing only the mandatory assignments is sufficient.	.613
Feeling overloaded	When I'm unsure about what I'm doing, I don't know how to check if I'm on track.	.570
	The people close to me are always advising me to slow down.	.618
	I feel overloaded and don't know what to do about it.	.505
	During exam periods or when assignments are due, my sleeping and eating habits are disrupted. I'm wondering how to change this.	.437
	Distance education stresses me out a lot, and I'm wondering what to do.	.414
	I use stimulants or other substances to get me through everything and I don't know what to do to change this.	.395

^aExtraction method: principal component analysis; rotation method: Varimax with Kaiser normalisation.

^bThe item loadings above 0.30 are provided for each component.

With regard to memorisation, many students believe that they are unable to retain everything (37.3%). Several students would like to know how to ascertain whether they have fully grasped the subject matter (25.0%). When taking an exam or a test, some students feel that they did not study the right material (14.9%).

In terms of attention, a number of students point out that taking notes takes them too long (22.4%). Others indicate allowing their mind to wander during class or online sessions, or when working on assignments (20.9%).

The factor analysis of the 11 attention, concentration, and memorisation items led to 3 components: concentration difficulties; need for attention, concentration, and memorisation strategies; and problems focusing on relevant material (see Table 4).

Motivation, stress, and emotions

The majority of respondents ($n = 797$) report difficulty with motivation, stress, and emotions. Out of 24 items, 13 were checked off by more than 10% of respondents, while only 18.8% of respondents appeared to have no difficulty with these factors.

With regard to stress, a third of respondents indicate having problems controlling stress when writing exams (33.6%). Some report sleeping and eating disruptions during exam periods or when assignments are due (32.5%). They would like to learn strategies to help alleviate the stress-related symptoms that

they experience (31.6%) and some feel overloaded and are unsure of how to deal with it (27.5%). Others express anxiety, i.e. they worry constantly, think everything is a big deal, and say that they are stressed out and anxious (18.4%).

In terms of motivation, respondents indicate feeling discouraged when they struggle with their classes (28.9%). They would like insights into their attitudes toward their studies (23.3%) and what motivates them to learn (22.6%). Some mention a lack of self-confidence (18.4%).

As for emotions, some respondents indicate being unsure about what they are doing and not knowing how to check if they are on track (17.8%). Some wonder whether it is enough to complete only the mandatory assignments (15.2%). Others report being always advised to slow down by those close to them (12.7%) or having trouble managing personal problems so that they do not interfere with their studies (12.2%).

Six components were obtained as a result of the factor analysis on the 24 motivation, stress, and emotions items, i.e. stress management and self-confidence difficulties, considering dropping out, uncertainty about returning to school, self-insight into motivation and attitudes, uncertainty about learning strategies, and feeling overloaded (see Table 5).

Difficulties most encountered by accounting students

When the results for prevailing difficulties are compared, we find that even if the majority of respondents report difficulty with oral and written production, we find that no more than 25% of students report experiencing problems with a specific item. Over half of the respondents report time management problems (50.2%) while close to half indicate lacking strategies to easily retain the information they read (44.3%). About one-third mention being unaware of learning strategies for listening and reading or for managing attention, concentration, and memorisation. They report failing to remember course material, being unable to estimate the time they need to dedicate to their studies, waiting until the last minute before studying or working on their assignments, and lacking the discipline to schedule study time during the week. With regard to stress, about one-third of respondents indicate having poor control over stress during exams.

Learning strategies and study withdrawal

The results of the stepwise logistic regression of all components on study withdrawal indicate that six components related to three learning strategy categories are associated with students dropping out of their university programme (see Table 6). In terms of listening and reading strategies, difficulties with the learning process contribute to study withdrawal. Therefore, failing to ask questions when needed and memorising only the subject matter are behaviours not conducive to academic perseverance. However, reading difficulties (e.g. not retaining information when reading) are negatively related to study withdrawal, possibly because students who experience such difficulties work harder to compensate for them. In terms of oral and written production strategies, students who sense that they lack project writing skills may be more inclined to drop out. However, difficulty organising ideas for written and oral presentations (e.g. being unable to express ideas clearly in writing) does not influence students to withdraw from their university programme. These results may be due to the fact that written assignments and oral presentations are seldom required during first-year courses in the accounting curriculum, as compared to later in the programme. However, if students do not develop this learning strategy because it is not required by first-year assessments (Boulet, Savoie-Zajc, and Chevrier 1996), they may lack the necessary skills to perform adequately in the following years when they are required to write papers and answer cases.

In terms of strategies for managing motivation, stress, and emotions, it seems that students who consider dropping out eventually act on the idea, but those who feel overloaded remain in the programme. This feeling arises from working hard, and their work pace is illustrated by the fact that those close to them are constantly advising them to slow down. Although students report a need for learning concentration and memorisation strategies, none of the three components related to attention, concentration, and memorisation is associated with study withdrawal.

Table 6. Stepwise logistic regression of learning strategies on study withdrawal.

Part A: Final model				
Learning strategies	Variables	β coefficient	Probability (Exp β)	p^a
Listening and reading strategies	Intercept	-1.481	0.227	0.000
	Reading difficulties	-0.252	0.778	0.018
	Difficulties with the learning process	0.223	1.252	0.041
Oral and written production strategies	Need for project writing skills	0.167	1.182	0.063
	Problems organising ideas	-0.175	0.839	0.063
Strategies for managing motivation, stress, and emotions	Considering dropping out	0.428	1.534	0.020
	Feeling overloaded	-0.308	0.735	0.017

Test for β_i to $\beta_0 = 0$, Chi-square = 652.82, $p < 0.001$, Nagelkerke $R^2 = 0.054$.

Part B: Classification by final model			
Withdrawal	Actual number by category	Correctly classified by model	Percentage correctly classified
Yes	122	75	61.5
No	661	358	54.2
Total	783	433	55.3

^aProbability tests are bilateral.

Table 7. Stepwise regression of learning strategies on academic performance (grade point average).

Learning strategies	Variables	Coefficient	p^a
Listening and reading strategies	Intercept	2.792	0.000
	Need for information search strategies	-0.060	0.004
Oral and written production strategies	Unsatisfactory results despite effort	-0.314	0.000
Strategies for managing external resources	Problems estimating study time	0.097	0.007
Strategies for managing motivation, stress, and emotions	Feeling overloaded	0.173	0.000

Adj. $R^2 = 0.066$, $p = 0.000$, $n = 783$.

^aProbability tests are bilateral.

Learning strategies and academic performance

The regression of learning strategies on academic performance is presented in Table 7. Two components are negatively related to academic performance, i.e. need for information search strategies (listening and reading strategies) and unsatisfactory results despite effort (oral and written production strategies), indicating that these difficulties hinder performance. Difficulty estimating study time (strategies for managing external resources) and feeling overloaded (strategies for managing motivation, stress, and emotions) are positively related to academic performance. As pointed out previously, students who experience these problems are probably hard workers and their efforts pay off in their grades. The three components related to attention, concentration, and memorisation are not associated with GPA.

Correlation between academic performance and study withdrawal

There is a strong negative correlation between academic performance and withdrawal: $r = -0.483$ ($p = 0.000$, $n = 783$, not tabulated). This negative correlation indicates that dropout students score lower academically and supports Bennett's (2003) results that poor performance can lead to programme withdrawal. As learning strategy problems can negatively impact accounting students' academic performance (e.g. Al-Harthy, Was, and Isaacson 2010; Bean and Metzner 1985; Bennett 2003; Wolters 2010) and academic performance can affect student withdrawal, ineffective learning strategies can then be considered to indirectly influence the decision to withdraw from the programme. Some of the faulty

strategies that hinder performance are the need for information search strategies (listening and reading strategies) and unsatisfactory results despite effort (oral and written production strategies), as indicated previously (see Table 7).

Discussion

Consistent with the findings of several studies (Al-Harthy, Was, and Isaacson 2010; Dawson, Meadows, and Haffie 2010; Ferla, Valcke, and Schuyten 2008; Rodarte-Luna and Sherry 2008; Sauvé et al. 2012; Vanmuylder et al. 2006), our results show that accounting students perceive having difficulty with learning strategies. For each of the five categories, at least one-third of respondents indicated they lacked or needed to improve on items. However, a number of students also indicated no difficulty in each category, with the largest percentage reporting no problems with attention, concentration, and memorisation (22.1%).

In terms of listening and reading, students reported two main difficulties: being unaware of strategies they can use to easily retain the information they read, and not understanding how they learn in routine academic situations. Further, the regression on withdrawal indicates that students who expressed having challenges with the learning process (e.g. rarely asking questions when they do not understand, equating learning with memorising) are more prone to dropping out (see Table 6). We conclude that difficulties with the reading and learning process are associated with study withdrawal, and that the more students use inadequate search strategies, the lower their grades (see Table 7) and the more likely they are to drop out of their university programme. These results confirm those of Beaudry et al. (2008), Kozanitis (2010), Ruph (2010), Sauvé et al. (2012), and De Clercq, Galand, and Frenay (2012), who examined major listening and reading problems – challenges also experienced by many of our respondents. In line with St-Pierre's (2004) recommendation, we believe accounting students must be taught how to use learning strategies to overcome the major difficulties that they report.

In terms of oral and written production strategies, the greater students' dissatisfaction with the results of their efforts, the lower their grades. In addition, the greater their need for project writing skills, the more likely they are to drop out. Students' dissatisfaction is related to the effort they invest in preparing for exams and in their work. When students lose confidence in their ability to succeed, they set lower expectations for themselves and are thus less likely to succeed (Galand and Vanlede 2004; Neuville, Frenay, and Bourgeois 2007). Given that accounting courses rely mainly on exams as an assessment tool, especially early in the programme, it is recommended that students be offered tools that can help them develop their learning strategies and prepare appropriately for exams.

In terms of strategies for managing external resources, results show that the main difficulty reported by about half of the respondents (50.2%) is time management. This finding confirms studies by Dion (2006), Racette (2009), and TÉLUQ [Télé-Université] (2010), in which students identify time management as a major weakness in their learning strategy. The results of the regression on academic performance indicate that students who report having trouble estimating study time have better grades. However, they would like to better manage their time and estimate how much should be dedicated to their studies. Bandura (1997) and Parmentier (1994) stress that as students gain confidence in their time management skills, they increase their chances of academic success. Since they develop their time management skills and expend the necessary effort to obtain good grades during their first year, students should be offered tools to develop strategies to better understand course and workload requirements as early as the first term so they can do the work and assignments required to undergird their academic performance.

In terms of managing motivation, stress, and emotions, students report having difficulty controlling stress during exams. Many studies associate stress management difficulties with study withdrawal (e.g. Bennett 2003). The regression results show that students who feel overloaded perform better academically and tend to remain in school. They seem therefore aware of the stress they experience, including sleeping and eating disruptions in response to work overload and distance education, and some of them indicate compensating for stress by resorting to stimulants to help them achieve high

grades. In line with Pintrich and Schunk (2002), these results might be explained by the goals pursued by accounting students in their university studies (e.g. obtaining a degree or becoming a member of the accounting profession), as well as the following: the more accounting students focus on performance, the greater their desire to exceed performance standards, surpass others, and be recognised for their achievements. The regression on study withdrawal indicates that students who were contemplating dropping out at the time they completed the questionnaire actually withdrew during their first year of study. Identifying these students early in their first academic year to offer counselling sessions with university personnel, discuss the support they need, and provide them with the appropriate tools to meet these needs might prevent their dropping out.

Our results also indicate that students seem unaware of the strategies they use for managing attention, concentration, and memorisation. Many would like to learn different strategies to remain focused on what they read. However, since none of the three components related to these strategies was significant in either the regression on study withdrawal or on academic performance, it therefore appears that students compensate for these difficulties in some way, perhaps by working harder.

Lastly, our results establish that the lower their grades and the weaker their learning strategies, the more likely students are to withdraw from university within the first year. These results are in line with those of Schleifer and Dull (2009), who found a significant correlation between learning strategies and academic performance and concluded that the higher a student's grades, the more he or she masters self-regulation strategies. Our findings also echo the results of studies correlating the use of effective learning strategies to academic performance (Al-Harthy, Was, and Isaacson 2010; Bean and Metzner 1985; Chyung, Moll, and Berg 2010; Dawson, Meadows, and Haffie 2010; Wolters 2010). Students urgently need tools at the outset of their first term if they are to develop the learning strategies they need to bolster their academic performance.

Conclusion

The results indicate that certain difficulties with learning strategies seem to impact accounting students' academic performance or lead them to drop out of their programme during their first academic year. To our knowledge, few studies in the literature have yet investigated these students and their reasons for study withdrawal.

The findings show that there is a need to provide students with support tools to help them improve their information search skills and organise information in essays or projects. Short videos could be developed along with support materials to help hone these learning strategies. Institutions could identify failing students early in the programme, particularly those who consider their unsatisfactory results disproportionate to the effort expended. These students could be offered support tailored to their individual needs.

Further studies could investigate whether the difficulties identified in this study recur each school term and continue when no action is taken to resolve them. Support tools, such as the ones suggested previously, could be assessed to see whether they help develop accounting students' learning strategies or offset their deficiencies, given that the more students use appropriate strategies, the higher their scores and the longer they persevere in their studies. More broadly, research should be undertaken to determine what types of interventions (e.g. student selection process, curriculum design, support mechanisms) work best to reduce student withdrawal and when. Lastly, inquiries should be made into how some students who seem to lack learning strategies are nonetheless able to obtain high grades (i.e. problems estimating study time or feeling overloaded, see Table 7) or persevere in their studies (i.e. reading difficulties or problems organising ideas, see Table 6).

Despite our study's limitations, i.e. use of a non-random sample, possible issues with the accuracy and exhaustiveness of student self-reported data, and omission of other variables that could explain study withdrawal, we support the findings of Endrizzi (2010) and Vezeau and Bouffard (2009), namely the critical nature of offering workshops or courses to foster the development of learning strategies at the beginning of university studies. We suggest that knowledge of cognitive and self-regulation

strategies can help accounting students to better understand their study behaviours and adapt to different learning situations, thus enabling them to pursue and complete their study programme.

Acknowledgements

The authors thank the following collaborators at the participating institutions: Sylvain Beaudry, Diane Bigras, Pierrette Doré, Bruce Lagrange, Isabelle Lemay.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Academic development foundation (FODAR) of the Université du Québec.

Notes on contributors

Louise Sauvé (PhD in Educational Technology, Université de Montréal) is a Full Professor of Educational Technology in the education department, Télé Université, Université du Québec (TÉLUQ). She is also president and director of the Centre of Expertise and Research in Lifelong Learning (SAVIE – Société de l'apprentissage à vie). Her research focuses on distance and online education, systems for personalised online help and retention, continuing education, educational games, and simulation for learning. She has co-authored a number of books and research reports and published in journals such as *Educational Technology & Society Journal* and *Canadian Journal of Learning and Technology*.

Anne Fortin (PhD in Accounting, University of Illinois at Urbana-Champaign) is a Full Professor of Accounting and Ethics in the École des sciences de la gestion, Université du Québec à Montréal. Her research focuses on stakeholders' roles in standard setting, accounting information and user decision-making, IT governance, CSR and sustainable development, and accounting students' competency development. She has published in journals such as *Accounting, Organisations and Society*, *Contemporary Accounting Research*, *Accounting and Business Research*, *Advances in Accounting Behavioural Research*, *Information Systems Management*, *Journal of Management and Governance*, *Sustainability Accounting, Management and Policy Journal*, and *Accounting Education: An International Journal*.

Chantal Viger (PhD in Accounting, Drexel University) is a Full Professor of Accounting in the École des sciences de la gestion, Université du Québec à Montréal. Her research focuses on the behavioural impact of accounting information on user decision-making, and student perseverance in undergraduate accounting programmes. She has published in journals such as *Behavioural Research in Accounting*, *Canadian Accounting Perspectives*, *Advances in Accounting Behavioural Research*, *Advances in Management Accounting*, *Comptabilité, Contrôle, Audit*, and *Journal of Cost Management*.

France Landry (PhD in Cognitive Psychology and PsyD in School Psychology) is a psychologist with the student services department, Université du Québec à Montréal (UQAM), and an Associate Professor in UQAM's Department of School Psychology. Her field of expertise is student perseverance and adult ADHD. She has published in journals such as *Revue Internationale de l'enseignement supérieur*, and authored a book chapter in P. Chenard, P. Doray, E.-L. Dussault, and M. Ringuette (eds.), *L'accessibilité aux études postsecondaires: un projet inachevé*. Sillery, Québec: Les PUQ.

References

- AICPA Students, Academics & Inclusion. 2015. *2015 Trends in the Supply of Accounting Graduates and the Demand for Public Accounting Recruits*. Durham, NC: AICPA.
- Al-Harthy, I. S., C. A. Was, and R. M. Isaacson. 2010. "Goals, Efficacy and Metacognitive Self-Regulation: A Path Analysis." *International Journal of Education* 2 (1): 1–20.
- Bandura, A. 1997. *Self-efficacy: The Exercise of Control*. New York: W.H. Freeman/Times Books/Henry Holt.
- Bartels, J., and S. Jackson. 2009. "Approach–Avoidance Motivation and Metacognitive Self-Regulation: The Role of Need for Achievement and Fear of Failure." *Learning and Individual Differences* 19: 459–463.
- Basque, J., T. Nault, M. St-Pierre, P. Toussaint, F. Fournier, J. Lajoie, and L. Brunet. 2009. *Un modèle de formation intégrant le mentorat, la pratique en milieu de travail, la communauté de praticiens-apprenants en ligne et la modélisation des connaissances pour des programmes universitaires professionnels – Application à la formation en administration scolaire* [A Teaching Model Incorporating Mentoring, Work Internships, Online Practitioner-Learner Communities, and Knowledge

- Modelling for Professional University Programs - Application to Educational Administration Training]. Research report. Montreal: Centre de recherche LICEF, Télé-Université.
- Bean, J. P., and B. S. Metzner. 1985. "A Conceptual Model of Nontraditional Undergraduate Student Attrition." *Review of Educational Research* 55: 485–540.
- Beaudry, N., B. Boulianne, C. Fisher, A.-M. Grandtner, and E. Haghebaert. 2008. "Définir les attentes en termes de maîtrise et de qualité du français oral et écrit à l'université : des compétences communicationnelles et langagières" [Defining Expectations in Terms of Mastery and Quality of Spoken and Written French in University: Communication and Language Skills]. *Correspondance* 13 (4). <http://correspo.ccdmd.qc.ca/Corr13-4/Attentes.html>
- Bennett, R. 2003. "Determinants of Undergraduates Students Drop Out Rates in a University Business Studies Department." *Journal of Further and Higher Education* 27 (2): 123–141.
- Berger, J., A. Motte, and A. Parkin. 2009. *Le prix du savoir. L'accès à l'éducation et la situation financière des étudiants au Canada* [The Price of Knowledge: Access and Student Finance in Canada]. 4th ed. Montreal: La Fondation canadienne des bourses d'études du millénaire.
- Boulet, A., L. Savoie-Zajc, and J. Chevrier. 1996. *Les stratégies d'apprentissage à l'université* [Learning Strategies at University]. Quebec: Presses de l'Université du Québec.
- Chyung, S. Y., A. J. Moll, and S. A. Berg. 2010. "The role of intrinsic goal orientation, self-efficacy, and E-learning practice in engineering education." *The Journal of Effective Teaching* 10 (1): 22–37.
- CSE (Conseil supérieur de l'éducation). 2008. *Des acquis à préserver et des défis à relever pour les universités québécoises. Avis à la Ministre de l'éducation, du loisir et du sport* [Québec Universities: Maintaining Achievements and Facing the Challenges. Memorandum to the Minister of Education, Recreation and Sports]. Quebec: Conseil supérieur de l'éducation.
- Dawson, D. L., K. N. Meadows, and T. Haffie. 2010. "The Effect of Performance Feedback on Student Help-Seeking and Learning Strategy Use: Do Clickers Make a Difference?" *The Canadian Journal for the Scholarship of Teaching and Learning* 1 (1):1–20. Article 6.
- De Clercq, M., B. Galand, and M. Frenay. 2012. "Chicken or the Egg: Longitudinal Analysis of the Causal Dilemma between Goal Orientation, Self-Regulation and Cognitive Processing Strategies in Higher Education." *Studies in Educational Evaluation* 39 (1): 4–13.
- Dion, C. 2006. "Évaluation du processus et de l'effet d'un programme d'aide à la réussite des études en enseignement supérieur universitaire" [Assessment of the Process and Effect of an Academic Success Assistance Programme in Higher Education]. PhD diss., Université du Québec à Trois-Rivières.
- Direction de la recherche institutionnelle de l'Université du Québec [DRI]. 2013. *Statistiques sur les taux de déperdition dans le programme de baccalauréat en sciences comptables (par cohorte)* [Statistics on Dropout Rates in the Accounting Undergraduate Program (by Cohort)]. Quebec: Université du Québec.
- Endrizzi, L. 2010. "Réussir l'entrée dans l'enseignement supérieur" [Transitioning Successfully to Higher Education]. *Dossier d'actualité de la VST* 59. <http://www.inrp.fr/vst/LettreVST/59-decembre-2010.php>
- Ferla, J., M. Valcke, and G. Schuyten. 2008. "Relationships Between Student Cognitions and Their Effects on Study Strategies." *Learning and Individual Differences* 18 (2): 271–278.
- Fontaine, S., and M. Peters. 2012. "L'abandon des étudiants à l'université : état de la question" [Student Withdrawal from University: A Progress Report]. In *Réussite, échec et abandon dans l'enseignement supérieur*, edited by Marc Romainville, and Christophe Michaut, 33-52. Bruxelles: De Boeck Supérieur.
- Fortin, L., D. Marcotte, P. Potvin, É. Royer, and J. Joly. 2006. "Typology of Students at Risk of Dropping Out of School: Description by Personal, Family and School Factors." *European Journal of Psychology of Education* 21 (4): 363–383.
- Galand, B., and E. Bourgeois. 2006. *(Se) motiver à apprendre* [Motivating Oneself to Learn]. Paris: PUF.
- Galand, B., and M. Vanlede. 2004. "Le sentiment d'efficacité personnelle dans la formation : Quel rôle joue-t-il? D'où vient-il? Comment intervenir?" [Self-Efficacy Beliefs in Adult Education and Training: What are its Effects? Where Does it Come from? How to Intervene?] *Savoires – Revue Internationale de Recherches en éducation et Formation des adultes* 1 (5): 91–116.
- Gollwitzer, P. M. 1996. "The Volitional Benefits of Planning." In *The Psychology of Action: Linking Cognition and Motivation to Behavior*, edited by P. M. Gollwitzer, and J. A. Bargh, 287–312. New York: Guilford Press.
- Government of Canada. 2015. *Explore Careers - Outlook Report – Financial Auditors and Accountants*. http://www.jobbank.gc.ca/LMI_report_bynoc.do?noc=1111&reportOption=outlook
- Grayson, J. P., and K. Grayson. 2003. *Les recherches sur le maintien et la diminution des effectifs étudiants* [Research on Retention and Attrition]. Sherbrooke, Quebec: La Fondation canadienne des bourses d'études du millénaire. https://qspace.library.queensu.ca/bitstream/1974/5794/1/maintien_final.pdf
- Greene, J. A., and R. Azevedo. 2007. "A Theoretical Review of Winne and Hadwin's Model of Self-Regulated Learning: New Perspectives and Directions." *Review of Educational Research* 77: 334–372.
- Hair, J. F., F. R. Anderson, R. L. Tatham, and W. C. Black. 1998. *Multivariate Analysis*. 5th ed. Englewood Cliffs, NJ: Prentice Hall.
- Humphrey, R. 2006. "Pulling Structured Inequality into Higher Education: The Impact of Part-Time Working on English University Students." *Higher Education Quarterly* 60 (3): 270–286.
- Hyland, T. A., G. Howell, and Z. Zhang. 2010. *Efficacité de l'évaluation des compétences en rédaction (WPA) dans l'amélioration des compétences en rédaction des étudiants et étudiantes du Huron University College* [The Effectiveness of the Writing Proficiency Assessment (WPA) in Improving Student Writing Skills at Huron University College]. Toronto: Conseil ontarien de la qualité de l'enseignement supérieur.

- Kim, J.-O., and C. W. Mueller. 1978. *Introduction to Factor Analysis*. Beverly Hills, CA: Sage.
- Kozanitis, A. 2010. "L'influence d'innovations pédagogiques sur le profil motivationnel et le choix de stratégies d'apprentissage d'étudiantes et d'étudiants d'une faculté d'ingénierie" [The Influence of Pedagogical Innovations on the Motivation Profile and Learning Strategy Choices of Students in an Engineering Faculty]. *Revue internationale de pédagogie de l'enseignement supérieur* 26 (1). <https://ripes.revues.org/385>.
- Kulm, T. L., and S. Cramer. 2006. "The Relationship of Student Employment to Student Role, Family Relationships, Social Interactions and Persistence." *College Student Journal* 40 (4): 927–938.
- Ma, X., and G. Frempong. 2008. *Raisons de l'inachèvement des études postsecondaires et profil des décrocheurs des études postsecondaires : rapport* [Reasons for Non-Completion of Postsecondary Education and Profile of Postsecondary Dropouts: Report]. (No. SP-837-05-08F). Ottawa: Ressources Humaines et Développement Social Canada.
- Neuville, S., M. Frenay, and E. Bourgeois. 2007. "Task Value, Self-Efficacy and Goal Orientations on Self-Regulated Learning, Choice and Performance among University Students." *Psychologia Belgica* 47 (1): 95–117.
- Neuville, S. and B. Galand. 2013. "La persévérance et la réussite dans l'enseignement supérieur : Les approches par facteurs isolés" [Perseverance and Success in Higher Education: Approaches using Isolated Factors]. In *Persévérer et réussir à l'Université*, edited by S. Neuville, M. Frenay, B. Noël, and V. Wertz, 17–32. Louvain-la-Neuve: Presses Universitaires de Louvain.
- OECD. 2013. *Education at a Glance 2013: OECD Indicators*. OECD Publishing. doi:10.1787/eag-2013-e.
- Parent, S. 2014. "De la motivation à l'engagement" [From Motivation to Engagement]. *Pédagogie collégiale* 27 (3): 12–16.
- Parmentier, P. 1994. "La réussite des études universitaires : Facteurs structurels et processuels de la performance académique en premier année en médecine" [Academic Success in University: Structural and Process Factors for Academic Performance in First-Year Medical School]. PhD diss., Université Catholique de Louvain, Louvain-la-Neuve, Belgium.
- Pintrich, P. R., and D. H. Schunk. 2002. *Motivation in Education. Theory, Research, and Applications*. Upper Saddle River, NJ: Merrill Prentice-Hall.
- Racette, N. 2009. "La conception d'un programme motivationnel destiné aux cycles supérieurs en formation à distance" [Development of a Motivational Programme for Higher Education Programmes in Distance Education]. *Revue de l'Éducation à Distance* 23 (2): 1-23. <http://www.jofde.ca/index.php/jde/index>.
- Rodarte-Luna, B., and A. Sherry. 2008. "Sex Differences in the Relation between Statistics Anxiety and Cognitive/Learning Strategies." *Contemporary Educational Psychology* 33: 327–344.
- Roy, J. 2006. *Les logiques sociales et la réussite scolaire des cégépiens* [Social Patterns and Academic Success in Cégep]. Quebec: Presses de l'Université Laval.
- Ruph, F. 2010. *Guide de réflexion sur les stratégies d'apprentissage à l'université* [Guide to Developing Learning Strategies in University]. 2nd ed. Rouyn-Noranda, Quebec: Presses de l'Université du Québec.
- Sauvé, L., G. Debeurme, V. Martel, A. Wright, G. Hanca, and M. Castonguay. 2007. *SAMI-Persévérance. L'abandon et la persévérance aux études postsecondaires. Rapport final* [SAMI-Persévérance: Withdrawal and Perseverance during Postsecondary Studies]. Quebec: FQRSC.
- Sauvé, L., A. Fortin, F. Landry, and C. Viger. 2014. *La persévérance et la réussite universitaires d'étudiants inscrits à des programmes de premier cycle en sciences comptables au Québec* [Perseverance and Success in University Studies: Students Enrolled in Undergraduate Accounting Programmes in Québec]. Quebec: FODAR.
- Sauvé, L., N. Racette, G. Debeurme, F. Ruph, M.-M. Roy, D. Berthiaume, S. Bégin, A. Caron, S. Côté, and D. Moisan. 2012. *Les difficultés en lien avec les stratégies d'apprentissage, la mise à niveau en mathématiques et en français des étudiants ayant ou non des troubles d'apprentissage et de déficit d'attention en première année d'études au collège et à l'université et l'apport des outils d'aide pour résoudre ces difficultés* [Problems Addressed by Learning Strategies and Mathematics and French Remediation for College or University Freshmen With or Without Learning Difficulties or Attention Deficits, and Use of Tools to Help Overcome these Difficulties]. Quebec: FQRSC.
- Sauvé, L., N. Racette, and D. Moisan. 2010. *Entre l'abandon et la réussite aux études postsecondaires: offre institutionnelle et recours des étudiants aux dispositifs d'aide. Rapport de recension* [Between Postsecondary School Withdrawal and School Success: Institutional Services and Students' Use of Assistance Tools. Survey Report]. Quebec: Télé-Université and SAVIE.
- Sauvé, L., N. Racette, and M. Royer. 2008. *Rapport de recension sur les difficultés éprouvées par les étudiants universitaires* [Survey Report on Problems Experienced by University Students]. Quebec: Télé-Université and SAVIE.
- Schleifer, L. L. F., and R. B. Dull. 2009. "Metacognition and Performance in the Accounting Classroom." *Issues in Accounting Education* 24 (3): 339–367.
- Shaiens, D., and T. Gluszynski. 2007. *Participation aux études postsecondaires : diplômés, persévérants et décrocheurs, résultats de l'EJET, 4e cycle* [Participation in Postsecondary Education: Graduates, Continuers and Drop-outs, Results from YITS Cycle 4]. Ottawa : Statistique Canada, no 81 595 MIF2007059.
- St-Pierre, L. 2004. "L'habileté d'autoévaluation : pourquoi et comment la développer?" [Self-Evaluation Skills: How to Develop them and Why]. *Pédagogie collégiale* 18 (1): 32-38. http://cdc.qc.ca/ped_coll/pdf/St_Pierre_18_1.pdf.
- TÉLUQ (Télé-Université). 2010. *Horizon 2015: L'université à distance de l'avenir (préambule et éléments de contexte)* [Horizon 2015: The Distance University Programs of the Future (Preamble and Background)]. Quebec: Télé-Université.
- Tremblay, L. 2005. "La réussite à l'université et l'accès au diplôme. État des connaissances de la recherche institutionnelle hors-Québec" [University Success and Qualifying for a Diploma. Survey of the Findings of Institutional Research Outside

- of Québec]. In *L'enjeu de la réussite dans l'enseignement supérieur* [Issues in Higher Education Success], edited by Pierre Chenard, and Pierre Doray, 85–110. Quebec: Presses de l'Université du Québec.
- Van Bragt, C. A. C., A. W. E. A. Bakx, T. C. M. Bergen, and M. A. Croon. 2011. "Looking for Students' Personal Characteristics Predicting Study Outcome." *Higher Education* 61 (1): 59–75.
- Vanmuylder, N., P. Salvia, F. De Broeu, M. Rooze, and S. Louryan. 2006. "Stratégies d'apprentissage des étudiants de premier cycle des études médicales, de graduat en biologie médicale et d'élèves infirmiers : une étude conduite au pôle universitaire européen Bruxelles-Wallonie" [Learning Strategies of Undergraduate Students in Medicine, Medical Biology, and Nursing School. Study Conducted by the 'Pôle universitaire européen Bruxelles-Wallonie']. *Pédagogie médicale* 7 (1): 7–19.
- Vezeau, C., and T. Bouffard. 2009. *Étude longitudinale des déterminants affectifs et motivationnels de la persévérance et de l'engagement dans ses études collégiales*. [Longitudinal Study of the Affective and Motivational Determinants of Perseverance and Engagement in College Studies]. PAREA Research report. Joliette, Canada: Cégep régional de Lanaudière. <http://www.cdc.qc.ca/parea/787269-vezeau-bouffard-determinants-affectifs-motivationnels-lanaudiere-joliette-uqam-PAREA-2009.pdf>.
- Wolters, C. A. 2010. *Self-Regulated Learning and the 21st Century Competencies*. Houston, TX: University of Houston. http://www.hewlett.org/uploads/Self_Regulated_Learning__21st_Century_Competencies.pdf.
- Wright, A., M. Frenay, M. J. Monette, B. Tomen, L. Sauvé, N. Gold, D. Houston, J. Robinson, and N. Rowen. 2008. *Institutional Strategy and Practice. Increasing the Odds of Access and Success at the Post-Secondary Level for Under-Represented Students*. Montreal: Fondation canadienne des bourses d'études du millénaire.
- Zusho, A., and K. Edwards. 2011. "Self-Regulation and Achievement Goals in the College Classroom." *New Directions for Teaching and Learning* 126: 21–31.