COLLEGE DOCUMENTATION BULLETIN

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The Inclusion of Students with Disabilities in Quebec Colleges

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Preface

Along with the continual growth in the number of students with disabilities in colleges over the past 20 years, the associated challenges have become increasingly more complex. Consequently, there has been a paradigm shift emerging that not everyone is ready to adopt. We are gradually moving towards a Universal Design (UD) approach that allows us to respond to the diverse needs of today's student population. This bulletin is especially for you, the teachers who daily plan and implement the strategies, methods of evaluation and various measures to ensure that as many of your students as possible can succeed, regardless of their differences.

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1. Introduction

Even though, at the college level in Quebec, we are not subject to the laws regarding compulsory public education, we do in fact have both a legal and social obligation to accommodate students with disabilities, who have been enrolling in colleges in increasing numbers, and who bring with them numerous challenges. The college network must adapt to this reality in order to meet the needs of its diverse student population, and one way to address the situation is to implement a universal design (UD) approach to higher education. In recognition of the UD initiatives taking place in Quebec, as well as acknowledging the fact that many of them meet the selection criteria for documents that we proposed, several UD projects have been included in this bulletin.

Although the entire college community is well positioned to play an important role in the reception, integration and inclusion of students, first and foremost it is teachers with whom students have daily contact.Therefore, this Bulletin has been prepared recognizing the essential contribution teachers make within this context.

In order to increase awareness and appreciation of the Centre de documentation collégiale (CDC), the authors have focused mainly on documents contained in its collection. However, we have also suggested other documents that are not part of the CDC collection but that may be of interest to readers. All documents included meet the following four selection criteria:

1. Written in, or at least applicable to, Quebec
2. Regardless of the year of publication, are still relevant today in postsecondary education
3. Data and recommendations are applicable and useful to college teachers
4. Outcomes can easily and rapidly be implemented by college teachers

Given that the goal was to produce a bilingual edition, we decided to co-author this bulletin rather than to have it translated. The task was accomplished through a strong collaboration between the authors during the writing process. Thus, the reader may notice that although the text is not translated word for word, the information conveyed in the French and English versions is comparable.

Not all the documents presented here are applicable to every teaching situation, but each contains elements that are transferable to a variety of contexts. As the field of disabilities is constantly evolving, the contents of some documents may arouse controversy, or may be somewhat outdated when compared to more recent practices. Nevertheless, we decided to include these documents because, based on our day-to-day experience, we recognize that the suggestions they offer may be helpful for certain students. As well, whenever we found several documents with similar content, we retained the most up-to-date one.

2. Overview of initiatives and projects in Quebec colleges

This section of the bulletin focuses on a special issue of the journal *Pédagogie collégiale*, intended to provide readers with a better understanding of the inclusion of students with disabilities in postsecondary education. The goal of the issue is to acquaint teachers with the specific needs of this group of students. It is in no way meant to serve as a "how to" guide, but rather offers an overview of this rapidly evolving field.
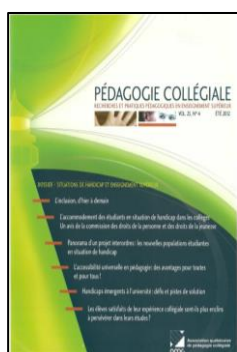
■ **Various authors** (2012). **Dossier – Situations de handicap et enseignement supérieur**, *Pédagogie collégiale*, Vol. 25, No. 4, Summer 2012, pp. 3-44.

The summer 2012 issue of *Pédagogie collégiale*, published by the Association québécoise de pédagogie collégiale (AQPC), is dedicated to one theme: the inclusion of students with disabilities in higher education in Quebec. In her editorial, Fanny Kingsbury reminds us that inclusion is an attainable goal if college teachers have the support of administrators and professionals, if they are provided with the necessary information and tools, and if they are prepared to adopt the principles of universal design in their pedagogy. Although she wishes readers a good summer and happy reading, you can be assured that this issue can be read at any time of the year and that the content is still relevant five years later!

For anyone interested in understanding this rapidly evolving field, a list of terms along with accompanying definitions is invaluable. Odette Raymond introduces this issue by providing us with a glossary that not only facilitates our comprehension when reading about disabilities, but allows us to communicate on the topic using the appropriate vocabulary. As well as defining various learning disabilities, she goes on to make the important distinction between the "integration" versus the "inclusion" of students with disabilities. Another useful term she addresses is that of "excessive constraint" in reference to reasonable accommodations.

Raymond also refers to "emerging clientele" as it is a term still used by authors and therefore needs to be understood within today's perspective on disabilities. However, it is also a term that should gradually be eliminated. Whereas "traditional clientele" has always referred to students with more visible disabilities and whose services and accommodations have been funded in higher education for decades, the term "emerging clientele" includes students with learning disabilities (LD), attention deficit hyperactivity disorder (ADHD) and mental health issues. In reality, the individuals who comprise this "emerging clientele" have been present in the college system for many years and are now finally receiving the recognition, services and accommodations to which they are entitled. Curiously, from an administrative perspective, students with autism spectrum disorder are included in the "traditional clientele" rather than in the "emerging clientele" category. This anomaly supports the argument that favours abandoning these categories altogether as they no longer represent today's reality.

In another article, Raymond points out that in higher education the number of students who have LD, ADHD, ASD and mental health issues now exceeds that of students with motor, sensory and organic impairments. She comments not only on how this has impacted teachers' workloads and the need for more professional resources, but also on the importance of students with disabilities to learn self-advocacy.

Catherine Fichten, Co-Director of the Adaptech Research Network, is the lead author of an article that underlines the valuable role that information and computer technologies, comprised of both general-use (e.g., Microsoft Office, Antidote) and adaptive (e.g., WordQ, Kurzweil) products, can play in increasing the academic success of college students with learning disabilities. In another article, Fichten, along with Jorgensen and Havel, describes a study in which they found that males and females, with and without disabilities, all reported that the single most important aspect of their college experience was the instructional effectiveness of faculty in and out of the classroom. This finding will come as no surprise to college teachers who, although experts in their field of study, are often seeking ways to enhance their pedagogical skills.

The application of any model of universal design to pedagogy will help teachers to better meet the needs of today's increasingly diverse college population: adults returning to school; those whose first language is neither English nor French; members of different cultural and religious communities; and individuals with disabilities. In recent years, some teachers have adopted the model of Universal Design for Learning (UDL), but in an article, Barile et al. address the pedagogy of inclusion by presenting the nine principles of Universal Design of Instruction (UDI) and providing examples of how these can be implemented. Those familiar with UDL will note a lot of similarities with UDI, including planning ahead rather than retrofitting, and increasing the number of options given to students. One suggestion for teachers is to network by finding others with similar interests in inclusion and exchanging ideas; this is already taking place in Quebec through the formation of UDL communities of practice.

In a prominent article, the Commission des droits de la personne et des droits de la jeunesse provides an abridged version of a document posted on its website, detailing the opinion it handed down in 2012 regarding the accommodation of special needs students at the college level. The position presented regarding internships and professional orders may be of particular interest to teachers in career and technical programs. Considering all that has already been achieved regarding accommodations in the educational milieu, this orientation towards the world of work is a logical progression.

Several articles found in the journal have not been discussed here. However, we invite you to go ahead and read the entire issue.

3. Strategies, concepts and approaches to teaching

By the time students reach college they have already had many years of experience with studying, learning and evaluation. They have developed certain strategies but still have a lot to learn. Teachers are there to guide students in their learning and in the acquisition of metacognitive skills that are essential for developing new strategies.
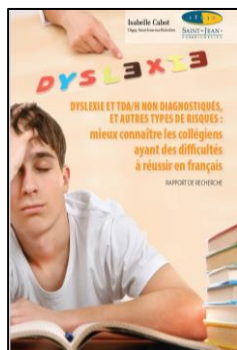
■ **CABOT, Isabelle** (2015). *Dyslexie et TDA/H non diagnostiqués et autres types de risques : mieux connaître les collégiens ayant des difficultés à réussir en français*, Saint-Jean-sur-Richelieu, Cégep de Saint-Jean-sur-Richelieu, 92 pages.

This study examines four factors that increase the risk of failure for students registered in *Renforcement en français* (REF), a remedial French course: dyslexia/dysorthographia, attention deficit hyperactivity disorder with or without hyperactivity (ADHD), vocational indecisiveness and interprovincial migration. Cabot describes the links between these risk factors and three concepts related to motivation (interest in the REF course, perceived usefulness of the material taught in the REF course and a sense of proficiency in French) as well as a link to achievement in the REF course (in which a high failure rate was observed). The author corroborates certain findings described in the research literature, such as the link between learning disabilities (LD) and anxiety disorders, a sense of weaker proficiency in French among immigrants as compared to non-immigrants, and the impact of information and communication technologies (ICTs) on learning. Correlational relationships between LD and ADHD, between interest in the REF course and its perceived usefulness, and between feelings of proficiency in French and final grades in the REF course resembled those correlations reported in previous studies.

In addition, Cabot's findings point to recommendations for future research and to the validation of certain pedagogical approaches. These include studies with a larger sample of students and with students who have undiagnosed difficulties but who are succeeding in their college studies, as well as studies regarding the benefits of a screening and early intervention program. As for teaching practice, based on her findings, Cabot supports the early use of screening tools for those students who want to examine their learning difficulties, followed by access to remedial help through services staffed by professionals. Then, similar to other researchers, Cabot addresses issues regarding the better use of ICTs, as well as the use of pedagogical strategies aimed at stimulating student interest in course material. Finally, she advocates for the implementation of universal design principles and practices that allow all students who are having difficulties, including those without a diagnosis, to learn and to develop their skills and obtain a college diploma.

■ **ROBERGE, Julie** (2008). *Axes d'intervention en centre d'aide auprès d'élèves dyslexiques ou dysorthographiques*, *Correspondance*, Vol. 14, No. 2, 2008.

According to Roberge, a teacher at Cégep Marie-Victorin, the help given to individuals with dyslexia and dysorthographia is often also beneficial to college students who may not have a diagnosis, but who nevertheless experience similar difficulties. What emerges is a perspective closely related to Universal Design for Learning (UDL).

The impact of learning disabilities on students' reading and writing fluency is obvious and results in some students having to put forth considerable effort. This often leads to a cognitive overload as students are performing too many tasks simultaneously, and are thus unable to process the information. Roberge describes the various approaches that students take while in college to deal with this situation. Some students choose not to disclose their learning disability, some do not even know they have a learning disability until they enter college, and still others find that the strategies they developed to address their learning disability in high school are no longer effective in college. On an encouraging note, and without overgeneralizing, the author draws attention to the positive qualities that many students with dyslexia and dysorthographia possess, including intelligence, determination, and a good understanding of their personal strengths and weaknesses. Teachers need to acknowledge that reading and writing represent the greatest challenge for these students.

In regard to reading difficulties, Roberge suggests that teachers should preview textbooks before making their selection. Some teachers might even go so far as to choose a specific edition of a book; one that has everything from a page layout with lots of white space, scaffolding of the content in order to activate students' prior knowledge, and tools to promote self-regulation. Other suggestions include having a student read the textbook aloud to a fellow student who has dyslexia, and organizing students into groups to discuss the required readings.

According to Roberge, when it comes to writing assignments for college students with dysorthographia, there is no point in focusing on remediation. Instead, students need help to develop strategies to get around their difficulties and thus should be encouraged to use writing software and templates. The students can also ask for input from a resource person who would underline their writing errors in order to identify but not correct them.

Keeping in mind that dyslexia and dysorthographia do not correct themselves over time, Roberge suggests ways to help students develop autonomy, speed and automaticity (fast, effortless word recognition) in reading. Not only can college learning centre professionals assist students with learning disabilities to improve their skills, they can also help them to increase their self-esteem, lower anxiety and reduce fatigue.
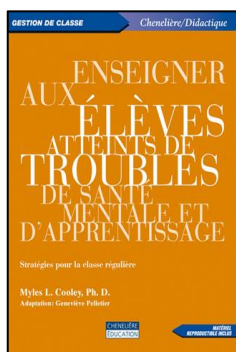
■ **COOLEY, Myles L., and G. PELLETIER** (2009). *Enseigner aux élèves atteints de troubles de santé mentale et d'apprentissage : stratégies pour la classe régulière*, Montreal, Chenelière-éducation, 196 pages. (Available at the CDC, Call number 787293).

The practical value of this book lies in the wide variety of disorders it covers, as well as the strategies it contains, that can help teachers welcome ever-increasing numbers of students with special needs into their classes. Although many of the strategies Cooley and Pelletier describe were originally developed for students in primary and secondary schools, they can certainly be used by teachers and professionals at the college level.

The first section addresses the role of the school with regard to mental health, learning disabilities, Asperger's syndrome, and attention deficit hyperactivity disorder (with or without hyperactivity). The key components identified include a good assessment of the student's needs, along with the establishment of a safe and welcoming classroom environment. In the second section, the various disorders are described in terms of behaviours and symptoms, along with suggestions for strategies. The theory is interspersed with numerous case studies, making the topics discussed easier to relate to for the reader.

There are a variety of strategies offered. Some are related to teacher attitudes: empathy for a student with an anxiety disorder or post-traumatic stress disorder, patience towards a student who has a fluency disorder (stuttering), and a calm composure vis-à-vis a student with a bi-polar disorder displaying intense emotions, etc. Other strategies are of a more pedagogical nature and include things such as giving clear instructions through various formats (written, oral, etc.), granting extensions for exams and submission of assignments, and offering students alternatives to reading aloud in class or writing on the blackboard. The authors conclude by emphasizing the crucial role that teachers play in the successful integration of students with special needs.
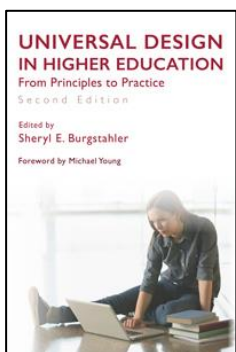
■ **THOMSON, Roberta, et al.** (2015). **Blending Universal Design, E-Learning, and Information and Communication Technologies**, *Universal Design in Higher Education: From Principles to Practice,* S.E. Burgsthahler, ed., Harvard Education Press, pp. 275-284. (Available at the CDC, Call number 789102).

The use of e-learning and information and communication technologies (ICTs) in Quebec colleges has introduced new and exciting opportunities for both teaching and learning, but it also comes with its share of challenges. Recognizing the diverse needs of today's student population, Thomson et al. are quick to remind the reader that just because a course is digital does not ensure that it is usable or accessible to all students. However, by applying universal design (UD) principles to the design, implementation and evaluation of an on-site, hybrid, fully online or massive open online (MOOC) course, many barriers can be eliminated.

Following a quick review of UD principles, the authors go on to explore not only the potential challenges related to e-learning tools, but also solutions that apply the Universal Design for Learning principles of multiple means of representation, engagement, and action and expression. Although many suggestions are not very complex, it is assumed that the reader has a rudimentary knowledge of ICTs. For example,

the value of rendering scanned PDF into an accessible format through the use of optical character recognition (OCR) software is explained, in that it allows students to highlight, take notes, search terms and even listen to text. Various means of communication are explored, with asynchronous communication having the upper hand as it permits students to deal with information at a convenient time and suitable pace.

Thomson et al. acknowledge that many teachers need training in order to apply UD to e-learning courses and thus provide a comprehensive list of resources. However, several of these resources, especially those dealing with website accessibility, are more apt to be meaningful to individuals who are tech savvy.

The chapter concludes with a list of seven key questions that teachers should ask themselves when planning courses with increased accessibility and reduced barriers. Here's one such question: "Has consideration been given to the variety of platforms and mobile devices students could be using to interact with the e-learning course and the course material?" It is encouraging to note that the focus of the authors is not solely on students with disabilities but rather on learner variability, as reflected in another question: "Has careful thought been given to the diversity of learners in the course?"
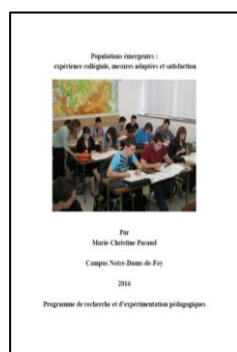
■ **PACAUD, Marie-Christine** (2016). *Populations émergentes : expérience collégiale, mesures adaptées et satisfaction*, Saint-Augustin-de-Desmaures, Campus Notre-Dame-de-Foy, 109 pages.

This study focuses on 19 students with disabilities in four private colleges in Quebec. After giving a detailed history and statistics for this particular student population, Pacaud goes on to describe the support services provided for them in the private colleges. Among the services offered, the two most frequently used are extended time on exams and letters to teachers outlining the student's accommodations. On page 27, there is a chart describing the numerous accommodations that are available. On the following pages the author explains the appropriate accommodations for each type of disability.

The students' impressions of their college experience, as well as their satisfaction level regarding the services they received, are central to this research. Firstly, they attributed their success to several factors, including the support services they were given and the approachability of their teachers and professionals. Despite acknowledging their good fortune to be studying in their chosen fields, the students brought up the impact of the heavier workload in comparison to that of high school. They appreciated being enrolled in a small rather than a large college. Moreover, they were very satisfied with the services they received, for they considered them essential for their academic success. Although there were disadvantages identified with having accommodations, including the concern that some students and teachers might perceive accommodations as unjustified privileges, the 19 students were aware of many advantages, notably those which resulted in reduced stress. Furthermore, the organization of services, the relevance and updating of accommodations, as well as coordination with students' schedules, were identified as aspects that needed to be re-examined. On page 89, Pacaud presents suggestions made by students regarding the organization of the accommodations and services offered. In conclusion, although great strides have been made, the author emphasizes that some questions (p. 90) regarding "emerging clientele" have not been addressed and should be investigated in future research.

■ **Various authors** (2016). *L'inclusion des étudiants en situation de handicap au postsecondaire: besoins, défis et enjeux*, *Éducation et francophonie*, Vol. 44, No. 1, Spring 2016, pp. 1-237.

This special edition of the journal deals with the issues and challenges related to the inclusion of students with disabilities in postsecondary institutions in Quebec. Doucet and Philion cluster the content around three themes: students with so-called "emerging" disabilities, support measures that respond to the needs of students with disabilities, and descriptions of support measures faculty have initiated to better meet the needs of these students. The authors highlight the progress and strong recommendations made by key players in postsecondary education who have undertaken creative and innovative endeavors to address the challenges related to inclusion. Following are the articles that are most likely to be of interest to faculty.

An article by Robert, Debeurme and Joly focuses on the development of self-determination skills needed by students with a learning disability or an attention deficit hyperactivity disorder (with or without hyperactivity). The authors point out that these students usually have a low participation rate in any support measures offered to them. Next, they take a look at self-determination, beginning with a critical review of the literature (appended is an informative chart with the main characteristics of the documents examined). Self-determination is indeed necessary for success, along with other factors related to certain personal and environmental characteristics. Keys to success include being able to explain one's difficulty and its impact, knowing one's rights, and participating along with faculty and support staff in the development of one's service plan. According to the authors' study it is important to measure success, not only in terms of grade average, but also from the perspective of perseverance and graduation rates. These variables provide a very different picture, for there are many students who, despite low academic averages, still manage to get their diplomas.

In their article, Dauphinais, Rousseau and St-Vincent question the effectiveness of strategies used by students who have both a learning disability and attention deficit disorder. Through a multiple case study, the authors examine the learning strategies used by these students in their first year of university. The study provides a better understanding of the difficulties that students encounter and the strategies they use to cope. On page 51, there is an interesting chart entitled *Taxonomie des stratégies d'apprentissage selon Boulet et al. (1996) à partir de Saint-Pierre (1991)* - (taxonomy of learning strategies according to Boulet et al. (1996) from Saint-Pierre (1991)). One important outcome of the research is that the results support the notion that, in spite of their difficulties, these students do legitimately belong in university.

Few researchers have examined the topic of internships. Even more interesting is to look at the training of student teachers who have disabilities from the point of view of the field supervisors, as presented by Lebel, Bélair, Monfette, Hurtel, Miron and Blanchette. The field supervisors have a dual perspective: on the one hand, they provide reasonable accommodations adapted to the teaching internship; on the other hand, they also focus on the coaching, training and assessment of student teachers with disabilities. Regarding the first point, the researchers noted that a high proportion of the survey respondents were more concerned with the autonomy and job performance of the student teachers during their later field placements than with providing adequate accommodations. As for the second issue, the degree of openness of the field supervisors to train student teachers with disabilities was largely dependent on the nature of the student's disability, the impact of the disability on the field supervisor's work load and their concern regarding society's receptiveness to teachers with disabilities. The supervising teachers also had two requests: they wanted training on this topic to be delivered by specialists, and they wanted procedures to be put in place by the institutions to ensure a closer follow-up of student teachers.

Philion, Doucet, Côté, Nadon, Chapleau, Laplante, and Mihalache wrote an article based on their research findings regarding the views of over 600 professors from three Quebec universities on the inclusion of students with disabilities at the postsecondary level. More than just being made aware of the legal obligations, professors wanted clear guidelines with respect to accommodations. Concerns revolved around two issues: one had to do with the professors' impressions of the potential of students with disabilities for university studies and for meeting the requirements of their programs; the second dealt with the professors' stated need for information and training to better provide structure and support for students. The numerous charts present the views of university professors, including their needs, queries and level of comfort.

■ **MARCOTTE, Diane** (2014). **Conjuguer avec les difficultés psychologiques lors de la transition vers les études supérieures**, *Se former à la pédagogie de l'enseignement supérieur*, Louise Ménard and Lise St-Pierre, eds., Montreal, Association québécoise de pédagogie collégiale, pp. 301-327. (Available at the CDC, Call number 789042).

Taking a PERFORMA course is highly desirable. Reading a book written by resource people from the PERFORMA program and published by AQPC is also a good thing! The chapter that deals with students with psychological problems was selected for this bulletin, not only because the subject touches upon disabilities, but also because the number of students identifying with mental health problems in postsecondary education is steadily increasing. Teachers need more than to merely understand the causes and treatments for depression and anxiety; they need to be equipped with strategies for supporting these students.

Marcotte, a professor of psychology at Université du Québec à Montréal, begins by describing the challenges that arise during transition into early adulthood. She explains that the inherent stressors can result in the emergence of what she refers to as "internalized disorders" such as depression and anxiety, the latter including panic attacks. On a positive note, she points out that students today are more willing to access psychological support services and then goes on to describe various treatment approaches that have proven effective.

At the close of the chapter, Marcotte addresses a key concern for teachers: what they can do to address their students' anxiety and depression. Rather than focus on therapy, which is not in a teacher's purview, she stresses the potential impact of instructional strategies. When it comes to students with anxiety, she suggests that teachers provide a detailed course schedule along with a study timetable, conduct formative evaluations that give feedback on what has been mastered and what remains to be learned, prepare evaluations that depend less on memory and more on understanding (although she acknowledges that memorization can sometimes be unavoidable), etc. For students dealing with a depression, she suggests breaking activities down into small tasks so that students do not feel overwhelmed and giving students classroom responsibilities in order to increase their involvement.

Marcotte goes on to say that it is important to discourage avoidance behaviour such as allowing students to write exams away from the rest of the class, or excusing students from oral presentations. Here it is important to caution the reader: although Marcotte makes an excellent point, please note the position of the Commission des droits de la personne et des droits de la jeunesse is that to outright refuse an accommodation is not a teacher's prerogative. As authors of this bulletin, as well as specialists in the field of inclusion, our suggestion is that the teacher, student and service provider meet and discuss what

would allow the student to best demonstrate mastery of the course material and mitigate barriers related to mental health issues.

4. Information and computer technologies

In today's world ICTs are unavoidable and form an integral part of the educational environment. In reference to students with disabilities, ICTs were first developed to benefit individuals who were blind or had a visual impairment. It quickly became apparent that these same technologies could also be beneficial for individuals with specific learning disabilities such as dyslexia/dysorthographia, dysphasia, or attention deficit hyperactivity disorder (ADHD). Regardless of their intended function (screen reader, text editor, text-to-speech reader, grammar/spell checker), technologies are being used by more students and with greater efficiency.

■ **LACASSE, Jocelyne, et al.** (2009). *Expérimentation de mesures de soutien à la lecture de textes d'argumentation auprès d'étudiants ayant des troubles d'apprentissage en vue de produire un modèle d'intervention efficient*, Sherbrooke, Cégep de Sherbrooke, 38 pages.

The main goals of this project were to experiment with "a supportive environment" in which students used text-to-speech software, word processing, reading software and concept mapping; to describe the pedagogical strategies and modifications used; and to assess the impact of these interventions on students' motivation and their ability to transfer the skills acquired to other settings. In table 2, in the fourth section of the report, entitled *Résultats et appréciation du projet* (project results and assessment), Lacasse and her colleagues present the learning and teaching strategies that were applied in the project. In table 3 they list what the students indicated they had learned, as well as what the teachers identified that the students had learned through examination of the students' writing assignments submitted for the fall 2008 semester.

In view of the fact that the project proved to be a success in 2008, some of the findings and conclusions arrived at then should still be relevant for teachers today. Among the suggestions given are, notably, to select adaptive technologies that are accessible, not too expensive, and easily put into daily use; as well as to simplify the procedures required to access the technology and to demystify its use. Several practices that proved effective can be regarded as recommendations; for example, formation of a multidisciplinary research team; engagement of a teacher who has developed an expertise in academic coaching for students with disabilities; integration and ownership of the reading process by the student; and use of the following three-pronged approach 1. Students express the stress they are experiencing as a result of their academic difficulties; 2. Students begin to work on the assignment that corresponds to the text that they have selected; 3. Students continue to work on their assignments after having met with the teacher to review their progress. In *Annexe 3*, Lacasse and her collaborators provide teachers with a list of suggestions on how to prepare and format exams including: the choice and size of font, the layout of tables and texts with white space to make them more legible, the contrast between the color of print and paper, etc. These guidelines can help not only students with learning disabilities but may prove useful to all students.

■ **FICHTEN, Catherine, M. N. NGUYEN, L. KING and M. BARILE** (2013). **Portrait de l'utilisation des TIC par les collégiens ayant des troubles d'apprentissage, les bons lecteurs et les très faibles lecteurs**, *Pédagogie collégiale*, Vol. 26, No. 4, Summer 2013, pp. 38-42.

■ **FICHTEN, Catherine, et al.** (2013). **Information and communication technology profiles of college students with learning disabilities and adequate and very poor readers**, *Journal of Education and Learning*, Vol. 2, No. 1, pp. 176-188.

It will be of no surprise to those familiar with the work of the Adaptech Research Network to read the findings from their 2013 study that examined what both experts and students had to say about information and communication technologies (ICTs) used by students with learning disabilities (LD). The researchers took their study one step further and compared ICT use among three groups of students: students with LD, students rated as adequate readers and students rated as very poor readers. The category of very poor readers should be of special interest to teachers as many students who begin their college studies have never been identified as having LD yet demonstrate poor reading skills.

When comparing the views of experts (service providers, resource specialists, etc.) and students with LD, Fichten et al. found the former recommended specialized (and often expensive) multipurpose software, dictation software and screen readers while the latter indicated they used their laptops, smartphones/cell phones/iPods, MP3 players and instant messaging. As well, they reported extensive use of Antidote (French language grammar/ spelling software) and WordQ (bilingual word prediction software).

Students with LD used fewer and less varied ICTs than either adequate or very poor readers, and felt less comfortable with ICTs than their peers. Students from all three groups liked courses that used ICTs and felt that ICTs helped them do their schoolwork. They indicated that even when lecture notes were posted online, they were unlikely to miss classes.

One strong recommendation is that before starting college students should have the opportunity to learn to use ICTs for reading and writing because workloads get heavier in postsecondary education. Fichten et al. also suggest college-wide initiatives to publicize ICT solutions that can help students with LD, very poor readers and second language learners succeed in their studies. They go further and recommend that colleges hire specialists in adaptive technologies, purchase site licenses for certain specialized software and set up a process for lending students portable computers with the specialized software already installed. To familiarize both students and teachers with free and/or inexpensive ICT alternatives the researchers refer them to the Free and Inexpensive Adaptive Technology Database found in the "Downloads" section of their web site at **http://www.adaptech.org**.

■ **TREMBLAY, Marc, and J. CHOUINARD** (2013). *Modèle des fonctions d'aide : un pont entre la théorie et la pratique*, Montreal, Centre de recherche pour l'inclusion scolaire et professionnelle des étudiants en situation de handicap (CRISPESH), Service national du RÉCIT en adaptation scolaire, 13 pages.

The article begins with a historical overview of a model or framework for matching the features of assistive technologies to student needs (modèle des fonctions d'aide), as well as a description of the seven principles upon which the model is based: assistive technologies, disability (as defined by the Disability Creation Process, DCP), functional needs, reasonable accommodations, undue hardship, assistive features, and the product itself.

Tremblay and his colleagues next describe 19 types of assistive features including writing text (word processor), auditory feedback through text-to-speech, dictionaries, grammar tools, proofreading, editing for language usage, changing a word from phonological to correct spelling, taking notes in digital and voice format, summarizing text, translation, etc. Because the reader can easily get lost among the myriad of software programs that offer one or more of these features, they provide an annex of links to resources that are organized according to functional uses rather than software companies.

The authors suggest that the selection of assistive technologies should be based on an analysis of the functional needs of the student. This analysis allows for the identification of ways to address needs, and in cases where the answer can be found in the use of assistive technologies, the relevant features can be identified. Thus, the result of this process can determine whether Antidote, WordQ, or maybe even a totally different product, allows the student to be more successful in completing a writing task.

According to Tremblay et al., before the student can be autonomous, training and support are often necessary to achieve optimal use of the assistive technology. In addition, they suggest a follow-up to ensure the student's ongoing efficient and autonomous use of the technology, as well as to ascertain the added value of its use (linked to an enhanced achievement of the task). For example, in a writing context, reducing the number of mistakes by using proofreading software is considered added value.

To conclude, Tremblay and his colleagues propose universal accessibility to the various features of assistive technologies, rather than only making them available through a process of individual student accommodations.

■ **ROUSSEAU, Nadia, and V. ANGELUCCI, eds.** (2014). *Les aides technologiques à l'apprentissage pour soutenir l'inclusion scolaire*, Montreal, Presses de l'Université du Québec, 153 pages. (Available at the CDC, Call number 788666).

■ **ROUSSEAU, Nadia, ed.** (2012). *Modèle dynamique de changement accompagné en contexte scolaire : pour le bien-être et la réussite de tous*, Quebec City, Presses de l'Université du Québec, 229 pages. (Available at the CDC, Call number 788426).

This book, edited by Nadia Rousseau and Valérie Angelucci, presents assistive technologies from the perspective of inclusive education through universal design—both Universal Design for Learning and Universal Design of Instruction. Implicitly, the intent is to support the success of the diverse students within a class. Chapter 6, aimed at the secondary school teacher who wishes to implement assistive technologies, is easily applicable to the college teacher. A heterogeneous composition of students necessitates the use of support measures that can bypass differences and allow students to progress at their own pace, stimulate enthusiasm and improve

performance. The authors point out that the positive outcomes that result from the use of technologies are partially dependent on the teachers' endorsement of the tools. The articles published in *Modèle dynamique de changement en contexte scolaire : pour le bien-être et la réussite de tous* (dynamic model for change in the school context: for the well-being and success of all) are written from this point of view. The model, which is outlined on page 116, not only stimulates thinking about values, beliefs, perceptions and principles, as well as the dichotomy between homogeneity/heterogeneity, but also underlines the need for fairness in student evaluations. According to the authors, in order to effect change, there needs to be continuous communication and collaboration among the stakeholders, students, teachers and professionals. Change can be achieved through planning, objectively observing, monitoring, making adjustments, and valuing autonomy and student accountability. An excellent chart (pp. 123-124) presents the steps required to implement the use of adaptive technologies. In broad terms, it can easily be adapted to the college context. Indeed, the process of changing one's practice described in this chapter is based on a collaborative project that can serve to inspire college teachers.

5. Conclusion

Every day, teachers and professionals are given the responsibility to make appropriate decisions that support students and to accompany them on their journey towards fulfilling their life goals. In addition to the students' personal qualities, strengths and talents, it is precisely the self-determination and autonomy that they acquire during their studies that will enable them to take an active role in our society. The resources, knowledge and flexibility of teachers and other stakeholders must continue to keep pace with a constantly evolving student population. For this reason, we have provided you with a summary of what some researchers, authors, educators and teachers have written on the subject. It is evident that a great deal has already been accomplished; it is now up to all of us to continue this work.

It was a very informative and stimulating activity for us to prepare this bulletin. We hope that the documents described here help inform, equip and guide us, along with all stakeholders in the college milieu, not only in our choices but also in our actions.

6. For more information

6.1 Documents

■ **LACASSE, Jocelyne, and T. LÉTOURNEAU** (2011). *Les aides technologiques pour soutenir les étudiants des services adaptés*, Actes du 31ᵉ Colloque de l'AQPC, Lévis, Association québécoise de pédagogie collégiale, 15 pages.

■ **POIRIER, Nathalie, and C. DES RIVIÈRES-PIGEON, eds.** (2013). *Le trouble du spectre de l'autisme : état des connaissances*, Quebec City, Presses de l'Université du Québec, 241 pages. (Available at the CDC, Call number 788562).

■ **COMITÉ INTERORDRES** (2013). *Intégrer les nouvelles populations étudiantes en situation de handicap aux études supérieures : mission possible!*, Montreal, Comité Interordres, 70 pages. (Available at the CDC, Call number 788570).

■ **ROBERT, Émilie** (2015). *Les personnes autistes et le choix professionnel : les défis de l'intervention en orientation*, Quebec City, Septembre éditeur, 177 pages. (Available at the CDC, Call number 788808).

■ **PROJET CUA** (2015). *Projet interordres sur les applications pédagogiques de la conception universelle de l'apprentissage*, 78 pages.

■ **ROUSSEAU, Nadia, dir**. (2016). *La pédagogie de l'inclusion scolaire : un défi ambitieux et stimulant*, 3rd edition, Quebec City, Presses de l'Université du Québec, 510 pages. (Available at the CDC, Call number 789100).

6.2 Some associations, research networks and not-for-profit organizations

ADAPTECH (Adaptech Research Network)

A team of academics, students and consumers who conduct research involving college and university students with a variety of disabilities across Canada. The team has been in existence since 1996 and is based at Dawson College in Montreal. Its areas of focus include the use and accessibility of information and communication technologies in postsecondary education and free or inexpensive software beneficial to students with various disabilities.

AQICESH (Association québécoise interuniversitaire des conseillers aux étudiants en situation de handicap)

An association of advisors, working in the Quebec university environment, whose role is to assist students with disabilities in accessing university facilities, services and academic accommodations. Its mission is to develop best practices and to support the development of professional standards and expertise within the field of disability service provision among its members.

Bibliothèque du cégep de Granby : ***Veille documentaire sur le trouble du spectre de l'autisme***, prepared and updated by the library of Cégep de Granby.

CAPRES (Consortium d'animation sur la persévérance et la réussite en enseignement supérieur)

An organization that disseminates information based on research and practice regarding perseverance and student success in postsecondary education. It facilitates networking among stakeholders in higher education.

CRISPESH (Centre de recherche pour l'inclusion scolaire et professionnelle des étudiants en situation de handicap/ the Research Centre for the Educational and Professional Inclusion of Students with Disabilities)

A College Technology Transfer Centre in Innovative Social Practices (CCTT-PSN), which was recognized by the Ministry of Education, Recreation and Sports (MELS) in October 2010 and was formed as a partnership between Cégep du Vieux Montréal and Dawson College. Its mission is the advancement of knowledge and the development and promotion of social practices that target the educational, social and professional inclusion of people living with disabilities.

About the authors

Alice Havel

Alice Havel holds a PhD in Counselling Psychology from McGill University. From 1992 until her retirement in 2014, she was Coordinator of the Student AccessAbility Centre at Dawson College. She is currently a scholar in residence at Dawson College and a member of the Executive Committee of the Montreal Centre for Learning Disabilities. As a research associate with the Adaptech Research Network, she focuses on the development of inclusive teaching practices through universal design and the use and accessibility of information and communication technologies in postsecondary education.

Odette Raymond

Odette Raymond holds a Master of Education degree from Université de Sherbrooke, completed while pursuing her career at the Service d'aide à l'intégration des élèves (SAIDE) (adapted services for student integration) at Cégep du Vieux Montréal. She worked at SAIDE as a sign language interpreter, then as an adapted services advisor and then as a pedagogical advisor at the Centre collégial de soutien à l'intégration (CCSI). She also taught at various colleges, universities and other institutions in Quebec and Ontario. Always committed to the inclusion of people with disabilities, she works as a professional resource at the Institut des troubles d'apprentissage and is a member of the Adaptech Research Network.

Most of the documents referred to in this Bulletin are available online or upon request from the Centre de documentation collégiale (CDC).

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