Teaching How to Learn

The Role of Reflective Practice
and Causal Attribution

Julie Roberge

Teaching teams are generally keen to develop the learning maturity of their students. They also agree that a certain amount of reflective practice will help students to benefit from their college studies, regardless of their program. But for this to happen, it is important to teach what learning is, and above all, how to learn, because for the majority of young—and not so young—people who arrive at CEGEP, their role as students is not obvious.

With this in mind, I undertook a research project[1] aimed at documenting the use of the Causal Attribution Questionnaire (QAT) to develop learning maturity through reflective practice. To this end, students in five class groups used a QAT as part of their normal coursework. Group meetings were then set up to understand their use of the QAT, followed by individual meetings with volunteers during the remainder of their studies to understand their endorsement of the QAT and its usefulness in developing reflective practice, and thus, learning maturity.

The importance of reflective practice and causal attribution

In most circumstances, people try to find a cause for their failures and difficulties, but sometimes also for their successes or for what they think is easy. Thus, even if it's only a *perception* of the cause, it leads the individual to self-reflection in order to become aware of what is best to do or stop doing. Consequently, teachers must create a learning environment in which students have some control over their successes, failures, difficulties and strengths, and in which they are aware of this level of possibility and responsibility (Tardif, 1992). Nonetheless, being able to attribute a cause to a success or failure is a perilous undertaking for those who are not accustomed to practising some degree of self-regulation.

To be a learner is to learn. But how does one learn? How does one learn how to learn? Teachers often tell students: "Here's what you need to study for the exam." But what you "need" to study is content, not a way of doing it. Has a teacher taught a study strategy for declarative knowledge in biology? Has a teacher taught reading strategies for a chapter in mathematics or a novel in English literature? How do students read? In one go, without questioning, or by taking notes? What kind of notes? How do they study? In small chunks, a few days before the exam? Several hours in a row the night before, even if it means staying up all night? To train students in reflective practice and help them become better learners, teachers need to reflect, among other things, on the evaluation practices that explain the usefulness of the QAT in developing learning maturity.[2]

The contribution of the causal attribution questionnaire

In short, the QAT is a tool that enables students to assess their own learning and learning styles at the time of evaluation. The questionnaire is a tool that encourages metacognitive reflection by helping students to think about the causes of their successes and difficulties. Because it is not tied to a particular discipline, the QAT can be used when writing a literary essay or a philosophical essay, when preparing an oral presentation in nursing or a laboratory report in biology, when doing fieldwork in engineering physics or taking an exam in mathematics; in fact, anything that requires preparation outside of class and can be completed in a short period of time in the classroom or during an internship, although the QAT can also be used for long-term assignments.

To help students become aware of the quality of their preparation for an evaluation, and because there are many reasons for success or failure, the QAT proposed in this research is used in three stages: before the evaluation (how does the student rate their preparation, and why), immediately after the evaluation (how did the evaluation go, and why) and when the corrected evaluation is returned by the teacher (are the results as expected, and does the student want to set challenges for the following evaluation).[3]

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[2] It is also necessary, for both teaching teams and the student community, to know the precepts of motivation, engagement and self-efficacy. On this subject, interested readers can consult these articles published in French in *Pédagogie collégiale*: "Sentiment d'efficacité personnelle et réussite scolaire au collégial" by Nancy Gaudreau (2013), "De la motivation à l'engagement" by Séverine Parent (2014) and "Favoriser la motivation et l'engagement des étudiants... tout au long de la session" by Séverine Parent (2018).

[3] On the subject of building a QAT, see Julie Roberge's French-language article "Comment amener les étudiants à être de meilleurs apprenants? Le questionnaire d'attribution causale comme outil favorisant la maturation de l'apprentissage," published in 2016 in *Pédagogie collégiale*.

It is the quality of this reflection that leads students to develop their learning maturity—or not.

What about learning maturity?

We speak of learning maturity when a learner is aware of the degree of responsibility they hold for learning. By learning maturity, we mean the learner's level of knowledge about a given subject, their degree of interest in acquiring new knowledge about that subject, the degree of recognition of their responsibility in the act of learning, and their level of intellectual ability (Bessette, 1998).

Under these conditions, learning maturity has little to do with the age of the students; rather, it's a readiness to learn, based on their prior learning, their ability to perform a task, their interests, their confidence in their abilities, and their motivation and engagement to undertake learning. This suggests that, in a diverse classroom, students are not at the same stage of development in their learning maturity, and that they need to be helped to develop it. According to Bessette (1998, inspired by Grow, 1991), a student can be placed on a spectrum of four levels of autonomy in learning: dependent, interested, engaged and autonomous.

The role of any educator is to guide learners toward ways of doing things that are effective, and to encourage them in these discoveries, whether through distance learning or in the classroom. Young people sometimes discover academic disciplines they didn't know about before arriving at CEGEP. For some students, the choice of college studies was made somewhat haphazardly, without really knowing what it was all about. Did everyone really understand what they were getting into when they chose this or that technical program? How many struggled with all the reading they had to do, never realizing before they enrolled in a program that many of the skills they would learn would be acquired in this way? This is where the role of teaching staff becomes essential. It consists of explaining not only the course, but also the discipline, what it is today and what it will be tomorrow, by the time the graduate enters the job market, and what it will be many years from now, if at all possible to imagine.

Research: some planning... that went out the window!

In the Fall 2019 session, meetings were held with five teachers who would be building the QAT to be used in their courses in the Winter 2020 session.[4] These regular workgroup meetings allowed the teachers not only to discuss the design of their QAT, but also to reflect on the theories behind it.[5]

The implementation of a QAT in each of the courses took place, as planned, at the beginning of the Winter 2020 session. These first meetings already gave rise to reflections that fuelled the need to help students develop their reflective practice and reflect on their ways of studying.[6]

Of course, the arrival of the pandemic in March threw everything into disarray. So, in the fall, I resumed the group interviews via Teams, with the attendant difficulties of not knowing the participating students and speaking to unfamiliar voices and closed cameras. The ease of recording of the meetings was the only advantage of using Teams! After the group meetings, the semi-directed interviews took place four times—again via Teams—from the Fall 2020 to Fall 2021 sessions, with 15 students. Of these, five agreed to continue the research in the Fall 2021 session, even though their college studies had ended, and they were attending university.

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[4] The QAT created by the teachers are deposited on the CDC website. An example of QAT is available here [bit.ly/45KPSRj].

[5] On this topic, read Catherine Arvisais-Castonguay's article in French "Lire pour se développer professionnellement. Une habitude à intégrer dans sa routine de travail," published in *Pédagogie collégiale* in 2020.

[6] On this topic, refer to Julie Roberge's French-language article "La maturité d'apprentissage: comment la susciter chez nos étudiants?" published in 2021 in *Pédagogie collégiale.*

All exchanges from the group and individual interviews were transcribed verbatim; once the transcripts were completed, the ideas expressed were coded according to their meaning and then grouped together to facilitate their analysis. All of this work was done by research assistants throughout the study.[7]

Some results

The group meetings made it possible to document the usefulness of the QAT and what the students thought of it, from the very first time they used it. They noted that it had forced them to ask themselves questions, something they weren't used to doing. At the first group meeting, they wondered why their teacher had made them complete such a questionnaire. The second meeting, the following session, revealed another troubling observation: the students confessed that they found the questions difficult because they were not used to self-regulation; in fact, not so much the questions as the honest answers that had to be given. This is probably why they said that it would be easier to complete a QAT again because they already knew the questions. This shows how little learning maturity these young people have: they have a "student mentality" and want to please their teacher by answering the questions "correctly."

Fortunately, for some of them, the QAT allowed them to start moving beyond the commonplaces in the answers; they felt that the answers were meant to help them prepare for the next evaluations, which can contribute to the development of their learning maturity.

"We put the teacher's comments into our own words by answering the questions. Next time, we can reread it and from that, it can help us move forward in our reflection and after we've finished the work, we can check if we've got everything."[8]

– Éléonora

Asking questions, therefore, is proof of learning maturity. Not surprisingly, the various meetings during the two years of data collection showed that not all students are at the same stage in this development. Despite the passage of time, many of them are at Level 1 in their role as students: they are dependent on their teachers and want to please them. But how does learning maturity develop? The students' observations are grouped into six sections. Table 1 summarizes these sections, which will be explained later.

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[7] Justine Schwartz and Elio Desbiens, today Science graduates from Cégep André-Laurendeau. Readers interested in their experiences as research assistants can read the article "Learning Through Research: An Unexpected Personal Evolution" on p. 28 of this issue of *Pédagogie collégiale.*

[8] Original French-language verbatims have been translated literally.

Table 1

Manifestations of learning maturity development

Section	Events
Involvement of teaching staff	• Relevance of corrective feedback • Explanations of what the QAT is • Need to complete a QAT in class
Transitions	• From college to university • From college to the job market • From face-to-face to distance learning • From distance to face-to-face learning • Absence of a linear path
The mentality of letting go	• Study time • School/life separation
Study strategies	• Lack of strategies • Difficulty naming strategies • Time management
Self-efficacy	• Importance of failures and successes • Development of self-efficacy in various spheres of life • Role of the various professionals involved
Motivation	• Study context • Intrinsic motivation • Developing study strategies

Involvement of teaching staff

Not surprisingly, teachers play a key role in helping students develop their learning maturity. Among the critical gestures they make, the study's participants frequently noted the relevance of corrective feedback from the teacher, with constructive comments that help students understand not only the work at hand, but also the pitfalls to be avoided later. One student testifies to the difficulty she encountered when one of her teachers failed to provide helpful comments.

"To use the philosophy example again, the teacher writes, "Develop your argument here." But how? Should I add examples? Do I need to explain certain concepts better?"

– Céleste

The formulation of constructive and positive corrective comments, as well as the modality of correction, play a key role in the development of reflective practice. Oral correction, as practised by two teachers, is conducive to this because it's easier to give positive feedback.[9] Students have noted

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[9] On the subject of oral correction, see Julie Roberge's article in French "Commenter autrement les travaux des étudiants. La correction orale dans toutes les disciplines," published in 2017 in *Pédagogie collégiale*.

that receiving graded assignments is an important part of their learning process, as is completing the QAT afterward. Uriel, now a university student, pointed out that unfortunately, there is not always a match between what he and his classmates learn and what is required in the exams, so they sometimes feel incompetent when they receive their grade. This incompetence doesn't disappear afterward because the graded exams are not available to the students; Uriel complains about this, observing that he can't improve… or perhaps just realize that it's the wording of the questions that he doesn't understand.[10]

"When I receive a corrected assignment or need to prepare for the next one, the QAT helps me remember what I did well last time. That way, I don't put extra effort into perfecting something I know I do well, and I put my energy where I need it."

– Uriel

Students have indicated the need to explain what a QAT is, especially in the first session. Since the QAT is not associated with a grade, it can be difficult to get learners to understand the usefulness of such a tool. Those who understand it quickly have generally already developed a certain learning maturity.

Completing the QAT in class is necessary not only to ensure that students do it, but also that classmates and teachers can help with the process or provide strategies for doing better next time. Some students found that completing the QAT in class (especially the third part, which focuses on future challenges) felt like both time lost and time gained: lost, because they felt they were "learning nothing" during this exercise; but gained, because they felt that the answers given may eventually help them to do better. The observation here is that students feel they aren't learning anything about the subject matter, discipline, or course content, and that learning "how to study" seems secondary. Being able to draw conclusions about the quality of one's study habits and the results they produce is evidence of learning maturity, especially when a student is able to use these conclusions to improve both in and out of school.

"Let's just say that the QAT really helps you force yourself to see things that you don't want to see! I don't want to see what I haven't succeeded. It really forced me to see what I didn't want to see. I'd say it helped me with that."

– Mariana

Transitions

All transitions contribute, in some way, to the development of learning maturity, whether we think, first of all, of transitions between levels and cycles (e.g., from high school to college, from college to university), or transitions into the labour market. There is learning to be done in each of these transitions.

"A student arrives at CEGEP and it's like a child: if you don't educate them, they don't know they can't put their elbows on the table. I didn't know what I had to do to study. I didn't know those strategies!

– Rose

The transition from face-to-face to online learning was also a marker of learning maturity: many students reported that they felt lost from the start of distance learning and had taken a long time to find their bearings but had managed to do so all the same. Returning to the classroom (Fall 2021) after 18 months of distance learning was also unsettling. Students were very critical of teachers who took little notice of the fact that their first year of college had been completed at a distance; they didn't feel like "second-year students," despite what their teachers told them.

"Online, everything was done any way, any time. I did my other work during online classes. When I am physically in class, I have to sit through three or four hours of class, and I can't do anything else during that time. I didn't have any support from my teachers to explain to me

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[10] On the topic of the importance of returning marked copies, refer to Julie Roberge's French-language article "Un peu de perplexité autour des copies corrigées non remises" published in 2017 in *Pédagogie collégiale*.

what face-to-face college studies involve. COVID or not, that's "what it means to be a second-year CEGEP student." But I didn't know! We did our whole first year remotely, and the teachers didn't adapt to the fact that second-year students didn't have any face-to-face classes in their first year."

– Mia

The transition from distance to face-to-face learning should have been welcomed by students, but for many it was a difficult one. According to some of them, online classes were more varied: synchronous or asynchronous video material, oral presentations, online discussions, Kahoot! and so

on. Each time there was a surprise. Teachers had learned to let go of the traditional way of preparing a class, and they had learned to take account of students who were always on their phones… But the return to the classroom showed the opposite: the students now had to adapt to the teachers and the "old ways of doing things" (Mia). This situation forced the students to rethink their ways of doing things, somewhat in spite of themselves.

It can also be argued that not following a linear path in one's studies shows a certain maturity, or at least helps to develop it. A student returning to school after a period in the job market, or a student changing programs, must have undergone some form of introspection in order to make this new life choice, and for the few participants who were in this situation, the emphasis was on the need to learn and to engage in studies, on the ability to find solutions to different problems (academic or otherwise).

"For me, the exams I take aren't just about getting a grade and passing. I like to learn, to know if I've really understood what we've done. I'm always looking ahead. I don't just see the present. When I learn something, I ask myself, "What's in it for me later?"

– Isabella

The mentality of letting go

Letting go is a clear sign of learning maturity and its development. Students find it difficult to do this, not least because their whole school life has been built on an unchangeable

structure and on tangible, quantified results. They find it hard to estimate the time needed to study and to study according to the importance attached to the different evaluations: everything is important.

Some participants openly admitted that all evaluations were equally important, until they realized that it wasn't "normal" to study several hours for a 5% quiz. In their view, teachers may also need to let go of their need to constantly check that students are up to date with their readings or exercises. Small 5% quizzes often create unnecessary stress for students and are only useful for the teacher who wants to exert some control over the flow of classroom tasks.

Those who manage to achieve a better life balance, perhaps in spite of themselves, practise letting go. They find it easier to separate school, study, and life in general.

"I take time for myself, I talk with my friends on calls, I play music to try to pass the time, to have fun while I'm at home."

– Uriel

Study strategies

The vast majority of students indicated that they had never (or rarely) had classes on different study strategies. So it's not surprising that they have few strategies, or that they cannot name the ones they use (often, without even knowing that it's a *strategy*). They do what they've always done, not really knowing if they can do it any other way, because their enrollment in college has little impact on the development of their various learning strategies.

For example, some students rewrite their course notes because that's what they've always done, and what everyone else does: "*I just decided to do it that way*" (Éléonora). What Éléonora admits is that she has never asked herself what might work for her; she does what all her classmates do: she rewrites her notes. But there's a difference between rewriting (copying the course notes in the same way), retelling in your own words or synthesizing, according to Rose.

When it comes to study strategies, the different paths students can take are a testament to their learning maturity. If a particular way of doing things suits them, and the results are commensurate, learners—even if they cannot easily name the strategy used—will decide to stick with it. However, if the results are unsatisfactory, learners are faced with different ways of doing things, depending on their level of learning maturity: 1) despite the effort involved, they try to make it work; 2) they may decide that the effort

required is too great to even consider changing strategy; 3) they haven't considered that another strategy might be effective because they don't know any others; 4) they don't know how else to act; 5) they don't want to do it any other way.

"I also feel that choosing strategies is just useful when you've understood the mistake because sometimes you haven't understood the mistake, and you want to give yourself another strategy, but the new strategy kind of leads nowhere because you haven't understood how to improve or what to improve."

— Alexie

Time management is also a factor related to study strategies. A student who has given thought to their study strategies will know whether they are more efficient in the morning or in the evening, whether or not revising on the morning of an exam is an effective strategy for them, whether it is preferable for them to start an assignment several days in advance. The choice of time management strategies is also a marker of learning maturity.

"If I've studied for 10 hours and it hasn't paid off, I'm not going to study for 35 hours. There are limits. But developing methods that don't necessarily require more time, but are more efficient, I think that's better."

— Rose

This shows that the development of learning maturity depends on a number of factors that students master to greater or lesser degrees. But there can be no learning maturity without self-efficacy, without motivation.

Self-efficacy

In the context of this study, self-efficacy is the foundation of motivation and engagement, the ability a student believes they have—or don't have—to succeed at a given task in a given context (Gaudreau, 2013).

The development of self-efficacy involves failures and successes, studies, work, internships, family life, social life, friendships, program changes… Everything contributes to the development of self-efficacy in an individual, in many areas of life. The use of the QAT, which ultimately leads to better work, has an impact on the self-efficacy of students, as Mariana says: "It makes for better work and because you get better grades, it leads to confidence in yourself. It's really important for personal development."

For students, the fear of disappointment, both for themselves and their teachers, is important; some students are aware that studying too much doesn't improve results, and that they need to "get over" this possible disappointment. They also want teachers to judge them not on a few results, but on the whole of what they are capable of achieving.

"Without the QAT, if I had a good grade, I wouldn't have looked at my mistakes [because there was no point], and if I had a bad grade, I wouldn't have looked at them either, because it would have upset me! But with the QAT, on the contrary, it can be beneficial. A grade isn't just a number.

— Rose

The courage to ask for help from different professionals, whether a teacher or a psychosocial resource, is a sign of good self-efficacy, which will influence the development of learning maturity. Students with good self-efficacy generally have a good perception of themselves: they know that they are not "perfect students." Nevertheless, they enjoy coming to CEGEP, and studying in order to learn. Those who have changed programs or returned to school after entering the job market have not only developed good learning maturity, but also good self-efficacy.

"In high school, studying was easy. But now I'm in CEGEP, and what I'm learning makes me feel valued: I'm learning things that are challenging, it's interesting!"

— Rose

Motivation

Research has shown that learning maturity is influenced by a number of factors related to motivation, such as study context: the organization of studies (face-to-face or online courses, or an educator's teaching style), students' life habits (the life balance they are able to achieve between classes, work and internships), the evaluation of assignments (oral grading, as mentioned above, promotes motivation because there are more often positive comments and feedback aimed at improvement), good grades achieved, and enjoyment of school. The choice of program also influences the motivation to develop competencies that ultimately affect learning maturity: students who changed programs or those who, at the end of the research study, had gone on to university, had better defined motivation.

Intrinsic motivation is also clearer at the end of studies, or at least, students are better able to name the elements that contribute to the development of their academic motivation at the end of the research study, i.e., at the end of their college studies. They have developed ways of learning in "their" field, with—or without—the help of teaching staff.

The links between motivation, engagement and learning maturity can also be seen in the development of study strategies. But motivation cannot be forced… hence the importance of developing self-efficacy: if students know that they are effective in a situation, they will be motivated to invest themselves in it.

Some suggestions from students

The last meetings gave participants the opportunity to express their views on their studies, their use of the QAT, and their learning maturity (even if they don't know the words!). Their suggestions include:

1. Using a QAT, required by the teacher, as part of regular coursework, especially in the first session; the transition from high school to college would be less stressful for students, both in terms of the results to be achieved and in terms of the requirements, which are very different;

2. Placing great importance on correction and, above all, on feedback given to help the student target what is going well (this is important) and what is going wrong in the corrected work, and in anticipation of subsequent work. Those who received oral correction and feedback from their teacher talked about it throughout the research study, even if it only happened once, during their second session at CEGEP;

3. Making sure to ask questions in the QAT that help students find answers that are useful for their development. Since including too many questions discourages respondents, it is important to alternate between multiple-choice and short open-ended questions;

4. Teaching learning strategies, note-taking strategies, organization (what is a CEGEP schedule, how to manage an agenda, etc.), in general and applied to a specific course;

5. Teaching study strategies in all courses: reading in mathematics is not the same as reading in psychology or literature. Reading to be informed is different from reading to learn;

6. Getting students to name the strategies they use and to evaluate their effectiveness;

7. Choosing a program- or department-based orientation: creating an evolving QAT that "transforms" as students progress through their program—this idea was supported by all participants;

8. Making sure that a program's teaching team is cohesive: the questions asked in the QAT in the first year don't necessarily need to be asked in the second or third year. Students need to be encouraged to reflect in more depth as their studies progress.

Conclusion

After three years of research, including two years during a pandemic, a number of observations can be made. The first is that, yes, students develop their learning maturity, but they need help! We cannot emphasize enough the central role of the teachers, the sense of belonging to the program (or to the CEGEP), useful corrections and the use of the QAT to develop the learning maturity that ensures that the learners know why they attend CEGEP and how to succeed in their studies.

It's all interrelated: the use of a QAT forces students to question the way they study, complete assignments or prepare for evaluations by developing, with varying degrees of success, reflective practice. Success in their evaluations has a real impact on their self-efficacy and motivation. And all of this contributes, to varying degrees, to the development of learning maturity.

For the QAT to be truly useful, time must be set aside, ideally in the classroom. While the teacher is responsible for what happens in the classroom, it's different for the organization of what happens outside of school. Reflective practice develops over time, but by requiring students to reflect, we "force" this development a bit.

Mia gets the last word:

"I've never asked myself, for example, "What grade do you think you'll get?" I never really thought about that. If I get 60, I get 60, and if I get 80, I get 80. That's fine. But after I completed the questionnaire, it helped me to pay more attention to my techniques, how I work, and then to my self-perception. It helped me to see that I've got this aspect right, and that it's my strong point, so I'm going to keep doing it. But that aspect, it's a little less strong, so I might have to modify it."

– Mia ▬

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