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Introduction

Recently, Neck and Corbett (2018) challenged the entrepreneurship education community by stating that we know very little about what goes on inside the entrepreneurship classroom:

> Much of the research to date has emphasized the student perspective and the content of what they are learning. However, research from the educator perspective has been relatively silent, and we know very little about what goes on inside the entrepreneurship classroom. Our classrooms tend to be very private places where relationships are developed with students, curriculum design is executed, learning objectives are achieved (or not), and student learning is assessed. Nevertheless, "the academy" rarely enters our classrooms and critically evaluates what is happening, how it is happening, and to what end. (p. 9)

Although entrepreneurship education is a relatively recent field (Katz, 2003; Kuratko, 2005), research on its impacts and effectiveness has been prolific (Pittaway and Cope, 2007; Nabi et al., 2017). Research has produced an abundant literature on the evolution of students' entrepreneurial intentions (Fayolle, and Liñán, 2014; Krueger, et al., 2000) as one of the preferred ways to assess entrepreneurship education. As a dominant body of research in entrepreneurship education assessment, the focus on entrepreneurial intentions has nonetheless shifted scholarly attention away from other important questions, such as what alternative entrepreneurial outcomes could be assessed, for what purposes, and with what underlying assumptions (Mets et al., 2017; Pittaway et al., 2009)? What role do educational variables play, such as participants' previous exposure to entrepreneurship, course content, pedagogical methods, teachers' professional profiles, or available resources, in learning entrepreneurship (Fayolle and Gailly, 2015)?

Neck and Corbett (2018) have encouraged the entrepreneurship education community to ask these questions by inviting us to delve into the intimacy of the entrepreneurship classroom, entrepreneurship educators' pedagogical reflections, and the impacts these educators want to have on their students and institutions (Hannon, 2018; Higgins et al., 2019). To do so, they propose that the entrepreneurship education community joins the worldwide movement known as Scholarship of Teaching and Learning (SoTL), a movement that prompts us as educators to research our own teaching methods and to make public how we apply educational theories through academic articles.

This paper builds on this call by using Bloom's revised taxonomy of educational objectives (Anderson and Krathwohl, 2001) to analyze a three-hour long set of learning activities devoted to understanding responsible entrepreneurship. The question that guides this investigation is *what do students really learn from our teaching, beyond what we want (or hope) to teach them?* To address this question, we asked undergraduate students to define "responsible entrepreneurship" before and after the lesson and to reflect on what had changed between their first and second definitions. Students' answers were both a formative part of the lesson and allowed us to analyze how their conceptions of responsible entrepreneurship had evolved and their ability to write about what they learned immediately after a lesson (Pittaway and Edwards, 2012). Bloom's revised taxonomy both guided the design of the set of learning activities and served as an analytical tool to judge what students had learned by the end of the lesson.

This article makes three contributions to the entrepreneurship education literature. First, it offers a concrete application of Bloom's revised taxonomy, which has been little used in connection with entrepreneurship education to date (Leach, 2007), although it has been a topic of renewed interest in some recent work (e.g., Aranha et al., 2018; Canziani and Welsh, 2019; Clement and Silvernagel, 2019; Mets et al., 2017). Second, it presents a set of innovative learning activities on responsible entrepreneurship that could be easily reproduced in other educational contexts. Third, following reflexions on assessment methods in entrepreneurship education (Pittaway and Edwards, 2012), this article pays particular attention to eliciting students' initial conceptions and to the importance of

students' individual, self-reflexive awareness of what they have learned (Achtenhagen and Johanisson, 2018).

Theoretical Framework

Responsible Entrepreneurship Education

In 2016, our university adopted an action plan on responsible entrepreneurship in accordance with its sustainable development (SD) policy. In doing so, the university recognized both the importance of stimulating entrepreneurship and the need to guide it towards a future that will be sustainable for everyone. Responsible entrepreneurship aims to integrate the triple social, environmental, and economic imperative of SD in terms of its opportunities, directions, and value propositions (Tiba et al., 2019 Vallaster et al., 2019). Our university's orientation can be linked to Rae's argument that the 2008 financial crisis set the ground for a shift from an "old" to a "new" entrepreneurship, characterized by its concern for social and environmental issues (2010). In his view, the time has come for "responsible entrepreneurship education." Accordingly, he establishes five guidelines that redefine the ideal contract between the entrepreneur and society and that also inform his vision of responsible entrepreneurship education:

- Solving problems and providing services of wider social value, such as education, community, health, nutrition and housing, as well as being profitable;
- Acting responsibly towards investors and those who provide resources;
- Practising environmental sustainability and ethical behaviour towards employees within the business and communities, customers and suppliers;
- Recognizing that as well as individual, there are mutual interests shared by the community in both the success and possible failure of the venture;
- Rewarding responsible entrepreneurship financially and socially (Rae, 2010, p. 598)

Building on the United Nations' Principles for Responsible Management Education (see Haertle et al., 2017), Marzi and Caputo (2019) assert that the fundamental

goal of responsible entrepreneurship education is to help future entrepreneurs create value responsibly in line with the three pillars of sustainable development. Other research has shown the importance of entrepreneurship educators conveying alternative worldviews, values, and models in line with today's social and environmental challenges to their students (e.g. Biberhofer et al., 2019; Skoglund and Berglund, 2018). The aim of our lesson, described in more detail below, was thus to enrich students' conceptions of responsible entrepreneurship, as an alternative vision of entrepreneurship that would guide the rest of the course. To do so, we made use of Bloom's revised taxonomy to design a set of learning activities of increasing complexity.

Bloom's Original and Revised Taxonomy

In 1956, a group of 34 psychologists led by Benjamin Bloom published the *Taxonomy of Educational Objectives.* Better known as "Bloom's taxonomy," this classification of cognitive processes orders the intellectual operations used in a learning process from simple to complex. Each level is a prerequisite for the next (Bloom, 1956). As a consequence, Bloom's original taxonomy is hierarchical, and the higher levels contain all the cognitive skills of the lower ones (Krathwohl, 2002). The original taxonomy describes six levels of cognitive processes of increasing complexity: knowledge, understanding, application, analysis, synthesis, and evaluation.

In response to criticism of the original taxonomy, Anderson and Krathwohl (2001) proposed a revised version in 2001. Their revised version still contains six taxonomic levels but uses action verbs for each level rather than concept-based nouns. For example, the revised first level is *remember* instead of *knowledge*. In addition to renaming them, it also reverses the two top levels: *synthesis* and *evaluation* are now *evaluate* and *create*, respectively. Indeed, several critics had pointed out that the creativity involved in the former *synthesis* level called for more complex cognitive skills than the judgment involved in the former *evaluation* level (Dwyer, 2017).

Bloom's revised taxonomy is generally presented in the form of a pyramid, in which the base corresponds to the most basic cognitive skill (*remember*) and the top to

the most complex cognitive skill (*create*).[1] The work of Anderson and Krathwohl (2001) allows us to appreciate the six levels of the revised taxonomy, as shown in Table 1.

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Applications of Bloom's taxonomy

Although it was devised in the middle of the last century, Bloom's taxonomy remains one of the most widely used methods for creating learning and assessment objectives and activities (Leach, 2007; Munzenmaier and Rubin, 2013). It has been used for several decades in many fields of study as diverse as language instruction (Kozikoğlu, 2018), medicine (Adams, 2015), computer science (Wang et al., 2017), and management (Athanasiou et al., 2003) and lends itself to a wide range of applications (see Table 2), although some contextualization to different fields is necessary (Crowe et al., 2008).

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Although Bloom's taxonomy has not frequently been applied to entrepreneurship education (Leach, 2007), some recent research that makes explicit use of it has demonstrated its relevance to the field. Clement and Silvernagel (2019) turn to Bloom's taxonomy to propose coherent, progressive learning objectives for an entrepreneurial finance program. Aranha et al. (2018) combine Bloom's taxonomy, entrepreneurship education, experiential learning and design thinking to develop an educational tool intended to develop the entrepreneurial skills of engineering students. Leach (2007) builds on Bloom's taxonomy to develop action guidelines for teaching, learning and assessing entrepreneurial skills. Mets et al. (2017) use Bloom, through the European Competence Framework, to develop an approach to measure alternative outcomes of entrepreneurship education. Canziani and Welsh (2019) use Bloom's taxonomy to analyze the 345 learning objectives of a set of entrepreneurship programs that includes 59 courses in 29 different departments. Hauge et al. (2013) use Bloom's taxonomy to analyze the educational effectiveness of serious games to stimulate entrepreneurship.

[1] In a more sophisticated presentation, Bloom's revised taxonomy is given the non-linear form of a matrix consisting of four types of knowledge—factual, conceptual, procedural, and metacognitive—that apply to each of the six levels (Anderson and Krathwohl, 2001).

Finally, Nisula and Pekkola (2019) analyze the contributions of different learning environments based on the taxonomic levels they enable students to reach.

Research Objectives

On the basis of the above, this article's pedagogical objective is: to show how Bloom's taxonomy can be used at a single-lesson scale to devise a progression of learning, here specifically in relation to responsible entrepreneurship. Additionally, this article's research objective is to show how Bloom's taxonomy can be used to analyze students' learning immediately after a lesson. Our goal is to understand what students really learn from a set of learning activities on responsible entrepreneurship. In other words, beyond what teachers think they teach, what do students really understand about responsible entrepreneurship at the end of a lesson dedicated to it and to what extent are they able to report it? This line of inquiry allows us to go beyond *teaching to the test*, a prevailing trend in education exacerbated by the need to quantitatively rate professors, programs, and universities, as well as students' need to pursue accreditation, by taking a deeper look at the evolution of students' conceptions of a key concept and by using formative assessment to truly serve students' learning (Pittaway and Edwards, 2012).

Methods

Our methodological approach revolves around a set of learning activities in a single three-hour class. Before and after, students were asked to produce a definition of responsible entrepreneurship. After producing their second definition, they were also asked to reflect on what had changed from the beginning. The following section explains our methods in relation to research on structuring and ordering learning activities.

Structure of the class' learning activities

In keeping with our university's new direction, the XXX course was considerably revised for the fall 2019 semester in order to integrate responsible entrepreneurship as its central theme. This introductory course in entrepreneurship is an undergraduate-level, three-credit course that consists of three hours of instruction per week over 15 weeks. It is a compulsory course for some programs of X University's Business School and optional for other programs, including from other faculties. While we are specifically interested

here in the second class of the course outline, it bears mentioning that the final objective of the course is for students to design and pitch a responsible entrepreneurship project that they've developed in teams over the course of the semester.

This second class is entirely dedicated to responsible entrepreneurship and specifically aims to enrich students' conceptions of the concept. Bloom's taxonomy can be used to describe learning objectives, as we have seen, but it can also be used to describe a set of learning activities. The pedagogical structuring of the second, three-hour class of the XXX course can therefore be understood through these six levels of classification.

The first activity consisted of gathering the students' initial conceptions of responsible entrepreneurship by asking them to write out the meaning they naturally attribute to it. This activity relates back to the first level of Bloom's revised taxonomy, *remember*, and specifically to students' prior knowledge. Educational theorists have long shown the importance of starting from students' prior knowledge, which forms the basis from which they can—or cannot—build new learning (Shulman, 1999). For our purposes here, beginning with students' prior knowledge enabled students to compare their prior conceptions (before the class) with their later conceptions (after the class).

In the second activity, we presented students with various types of responsible entrepreneurship that integrate the three pillars of SD to varying degrees (Gast et al., 2017; Thompson et al., 2011):

- *Social entrepreneurship* focuses on achieving a social mission while being profitable (Chell, 2007). It integrates the social and economic pillars of SD.
- *Environmental entrepreneurship* relies on profit-seeking behaviours in environmental areas (York, O'Neil and Sarasvathy, 2016). It integrates the economic and environmental pillars.
- *Ecopreneurship* operates on an environmentally friendly basis with the aim of socially and ethically transforming a business sector (Gibbs, 2009). It integrates the social and environmental pillars.

- *Sustainable entrepreneurship* aims to create economic, social, and environmental value simultaneously (Muñoz and Cohen, 2018). It integrates all three pillars.

In terms of Bloom's taxonomy, this activity is related to the second level, *understand*, as students were explicitly taught new knowledge related to responsible entrepreneurship. Differentiating various types of entrepreneurship facilitates students' understanding of the concept of responsible entrepreneurship and its links with the challenges of SD.

In the third activity, students were presented an example of a responsible business. The goal here was to ensure that students understood the theory by asking them to analyze a concrete example. In Bloom's taxonomy, this activity falls under the third level, *apply*. The case study is Lufa Farms, a company that grows fresh, local, and organic vegetables year-round in commercial greenhouses built on the roofs of many buildings in town (environmental pillar). They sell their products, along with those of other local producers, in weekly baskets (economic pillar). These baskets are sold online and distributed at several drop-off points directly to their customers, a community of "Lufavores" who eat healthily and locally (social pillar). A short, audiovisual report on this company was presented to the students, who then had to respond to and debate several questions as a class. They had to explain the company's mission, how it differs from their competition, and, above all, how its mission integrates the three pillars of SD.

For the fourth activity, students were presented with an example of the work expected of them next. The objective was to provide students with a clear idea of what will be required of them. This activity is also connected with the third level in Bloom's taxonomy, *apply*. In this activity, the teacher relied on the classic Venn diagram representation of SD in which three circles representing the three pillars of sustainability intersect to form seven regions: economic, social, environmental, equitable, viable, bearable, and sustainable. The teacher then demonstrated that this representation can be used to classify existing businesses in a given sector, using the agri-food industry as an example. Lufa Farms is an example of entrepreneurship that simultaneously accomplishes all three dimensions of SD and was therefore placed at the center of the

diagram. Students then gradually learned about other companies and initiatives that the teacher placed in the other six regions of the model.

The fifth activity was the most complex and involved the three highest levels in Bloom's taxonomy, and thus the most complex cognitive skills. The final objective of this activity was for students to create a new model similar to the one presented by the teacher but for another sector. This objective is related to the top taxonomic level, *create*. On the basis of the knowledge acquired at the beginning of the class and the agri-food industry example presented in the fourth activity, groups of students were asked to build their own diagram of a sector from the perspective of responsible entrepreneurship. To do so, the students first had to choose another sector from a list prepared by the teacher (e.g., slow fashion, responsible tourism, sustainable construction). From there, they had to imagine what companies that meet the various criteria of responsible entrepreneurship in this sector would look like, in order to create a new model.

To create their model, students had to rely on their own knowledge of companies and on internet research to identify businesses that illustrated each of the seven regions of the model. This research and analysis work supports the end goal of the activity and involves the fourth and fifth taxonomic levels, *analyze* and *evaluate*. Students had to find reliable information on various businesses that would allow them to understand their value proposition, strategic positioning, and mission (*analyze*) in order to classify them in the Venn diagram on the basis of the previously taught criteria (*evaluate*). When the time for groupwork was up, each group should have produced a visual synthesis of their research, which represented their new understanding of the chosen industry sector in terms of responsible entrepreneurship.

As the final part of this fifth activity, each group presented the fruit of their labour to the rest of the class in under five minutes. The need to present their work in a short period of time allowed students to prioritize and consolidate what they'd learned. In a way, they become teachers in giving their presentation. As the audience for other group presentations, the students had the opportunity to compare their understanding with that of other students, particularly by asking questions (e.g., inquiring whether a given company doesn't in fact fit better in another region of the diagram).

In the sixth and final activity, students were asked to write a second definition of responsible entrepreneurship that reflected what they'd learned in the lesson. They were also specifically asked to reflect on what has changed from their first definition at the beginning of the class to the second definition at the end of class. Students were thereby encouraged to take a reflexive look at what they'd learned, specifically with respect to how their conceptions of responsible entrepreneurship had evolved.

Data collection

All three sections of the course were given the second class the same week. The same teacher, the professor for the course, facilitated the activities for all three sections in order to minimize the teacher effect, which stipulates that different educators teaching the same material may obtain different learning outcomes (Heafner, 2019). At the beginning of the class, the professor passed out a document containing three questions and collected it at the end of the class. The individual, anonymized responses to the three questions constitute our research data.

Question 1. At the beginning of the class, students were asked to provide an on-the-spot definition of responsible entrepreneurship. The topic of the class was kept secret until the last moment to prevent students from researching the subject in advance. Question 1 asked the students to complete the following sentence: "For me, responsible entrepreneurship is..." The objective was to collect students' initial conceptions of responsible entrepreneurship, that is the meaning that they spontaneously attribute to it.

Question 2. At the end of the three-hour class and after the activities described above, students were again asked to define responsible entrepreneurship by completing the following sentence: "After this class, I think responsible entrepreneurship is..." The aim here was to be able to appraise what students retained from the class and how they integrated what they learned into a new, modified, revised, more precise, or more refined definition of responsible entrepreneurship. This question mainly calls on the conceptual knowledge the students acquired in the class. Note that the exercise was not graded to minimize the bias of students wanting to provide the "right" answer.

Question 3. Immediately after Question 2, students had to reflect on what, according to them, had changed from their first to their second definition by answering

the following question: "What has changed from my first to my second definition?" This question differs in its nature from the two previous ones in that it called on the students' metacognitive skills to a greater extent. The aim was to encourage the student to reflect on what they have learned immediately after the lesson and, above all, on how their conceptions of responsible entrepreneurship has changed.

Sample Description

A total of 160 students are registered in the three class sections of the course XXX. From this number, a total of 151 completed documents, for which all questions were answered, were collected, processed, and analyzed after the second class of the course. The gender distribution of the sample consists of 84 males (55.6%) to 67 females (44.4%). As previously mentioned, this course is open to several faculties. Consequently, the student population is very heterogeneous in terms of fields of study. As Figure 1 shows, 44.1% of students were from Business Administration, meaning that the majority of students in the course (55.9%) were from other faculties. The two most strongly represented other faculties were Agricultural and Food Science (14.5%) and Science and Engineering (12.3%). A share of the course's student population also came from various fields in the Humanities and Social Sciences faculties (16.8%).

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Data Analysis

Questions 1 and 2 were first processed qualitatively and independently. That is, the students' first definitions were analyzed first, then all of the second definitions were analyzed. To reach inter-coder agreement, each definition was read and classified in the research team according to the following categories, which are based on the three pillars of SD—economic, social, and environmental. These categories emerged inductively from the analysis of the first definition and were then applied deductively to the second definition. They are also consistent with the pedagogical goal of the lesson, which was to enrich students' conceptions of responsible entrepreneurship by tying it to the triple bottom line of SD:

- Level 0: the student does not mention SD in their definition.

- Level 1: the student mentions one pillar of SD in their definition.
- Level 2: the student mentions two pillars of SD in their definition.
- Level 3: the student mentions the three pillars of SD in their definition.

From this qualitative classification based on the content of the students' definitions, a distribution (in number and in percentage) of students' initial and final conceptions of responsible entrepreneurship was prepared for before (question 1 = T0) and after (question 2 = T1) the lesson, to assess the overall evolution of the class as a whole following the set of learning activities.

Question 3, which called on students' metacognitive skills (Achtenhagen and Johannison, 2018), was analyzed through the six levels of Bloom's revised taxonomy, which served as the basis for developing six categories of analysis that reflect increasingly complex levels of cognitive skills. As a team, we deductively applied these categories to the students' reflections given in response to Question 3. Insofar as the responses of some students to Question 3 were sometimes poorly developed or explicit, their Definition 2 was also considered in parallel in order to classify students in the correct taxonomic level reached. Moreover, students' answers sometimes reflected several taxonomic levels simultaneously. Each student was therefore classified according to the highest taxonomic level expressed. As we will see, although we observe a standardization of students' conceptions of responsible entrepreneurship at T1, the analysis of Question 3 allows for a more detailed appreciation of what students really learned from the lesson:

- Level 1 (remember): the student demonstrates their ability to repeat what has been taught about responsible entrepreneurship but does not demonstrate a deep understanding.
- Level 2 (understand): the student demonstrates their understanding of responsible entrepreneurship, by expressing what they've learned and how it has changed their prior conceptions.

- Level 3 (apply): the student demonstrates their ability to apply the criteria of responsible entrepreneurship to their own projects or to examples they provide.
- Level 4 (analyze): the student demonstrates their ability to analyze the concept of responsible entrepreneurship by breaking it down into its various parts and describing the relationships between them.
- Level 5 (evaluate): the student demonstrates their ability to make a judgment, whether positive or negative, related to responsible entrepreneurship.
- Level 6 (create): the student demonstrates their ability to take a fresh look at the world through the lens of responsible entrepreneurship.

Findings

Before delving into the analysis of Question 3—that is, what students say they have learned—in order to answer our research question, it is relevant to first show how their conceptions have evolved between their first and second definition, written before (T0) and after (T1) the lesson. As described above, the students' two definitions were each classified into four levels of comprehension.

Question 1 (T0)

Our analysis of students' conceptions of responsible entrepreneurship in their first definition is presented in Table 3. It shows that four fifths (79.5%) of the class either initially misunderstood (level 0) or only partially understood (levels 1 and 2) responsible entrepreneurship at the outset of the class, while one fifth of the class (20.5%) already associated responsible entrepreneurship with SD, in the full complexity of its three pillars (level 3). Recall that at this stage, SD had not previously been mentioned and the students have been given no prior indication that would lead them to believe that the course explores entrepreneurship in relation to SD. Students' first definitions thus reflect their initial, on-the-spot conceptions of responsible entrepreneurship.

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More specifically, one quarter (25.2%) of the class were placed at level 0, meaning they did not mention SD at all in their first definition. In these definitions, responsible entrepreneurship refers to a variety of concepts: the responsible entrepreneur must meet their responsibilities and commitments (the primary meaning of "responsible"), produce quality goods and services, rigorously manage their business, or be able to anticipate risks and be proactive in managing them. The element of risk was the most frequently mentioned factor for level 0 definitions: "*A responsible entrepreneur does business while minimizing risks. That is to say, they start with an idea and make it grow but avoid risks*" (S12, definition 1).

One third of the class (30.5%) was placed at level 1, meaning that they mentioned just one pillar of SD in their first definition. The natural environment was the most frequently mentioned pillar in level 1 definitions: "*To be an entrepreneur but with ecologically responsible practices, meaning that you pay attention to the environment"* (S32, definition 1). The natural environment was seen as either a resource that should be preserved or in terms of standards to comply with (i.e. environmental regulations). A few rare level 1 definitions mentioned only the social or economic pillars of SD. In general, however, the level 1 definitions associated responsible entrepreneurship with only the environmental pillar of SD.

Almost one quarter of the class (23.8%) was placed at level 2, meaning that they included two pillars of SD in their first definition. Almost all of the level 2 definitions mentioned the social and environmental pillars of SD: "*Making business decisions that have beneficial effects for both the environment and the community in which the business operates*" (S107, definition 1). These definitions thus neglected the economic pillar of SD, such that the economic viability of the company, which ensures the sustainability of its mission, was mainly absent from level 2 definitions. A few rare level 2 definitions mentioned the economic and environmental pillars of SD but neglected the social pillar: "*A person with an innovative idea who will ensure the environment is respected in the manufacturing process while still making a profit*" (S76, definition 1).

Finally, one fifth of the class (20.5%) was placed at level 3. Thus, from the outset, these students included all three pillars of SD in their first definition: "*Being a*

responsible entrepreneur means thinking beyond profit by taking social and environmental impacts into account, in the same way as economic benefits are taken into account" (S95, definition 1). "*Being aware of the social, environmental, and economic impacts that our business decisions will have on present and future society and doing everything to meet these obligations*" (S63, definition 1).

Question 2 (T1)

Table 4 shows the distribution of students' conceptions of responsible entrepreneurship in their second definition, after the class (T1). Recall that the four categories that emerged inductively from our analysis of the first definition were applied deductively to students' second definition. As we can see, the vast majority (97.4%) of students' second definitions were placed at level 3, meaning that they integrated the three pillars of SD. The following example is illustrative: "*A responsible company strives to include environmental, economic, and social fields. While making a profit, it contributes to SD through its processes, technologies, and resources, to preserve the environment for current and future generations. A responsible company is also socially engaged, aiming to give back to society and help it grow*" (S41, definition 2). Note that a small minority of students (2.6%) remained at level 0, meaning that they did not mention SD in their definition. "*To be sustainable means to have the ability to act, to know how to make decisions alone, and not to be scared of taking risks. Every time you have an idea, you know how to implement it, while taking the surrounding environment into account. Indeed, the environment influences entrepreneurship*" (S147, definition 2). This means that the four students placed at level 0 at T1 did not progress in terms of their conceptions of responsible entrepreneurship.

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Overall, the distribution of students' conceptions of responsible entrepreneurship from definition 1 before the class (T0) to definition 2 after the class (T1) went from 79.5% of students having a misunderstanding (level 0) or only a partial understanding (level 1 or 2) of responsible entrepreneurship to 97.4% of students integrating all three pillars of SD in their second definition. These results confirm that the learning objective of this class was met, which was to enrich students' conceptions of responsible

entrepreneurship by connecting it to SD. That being said, beyond their ability to repeat what they were taught, as our analysis of Question 2 attests, what have students really learned from this class? The analysis of Question 3 will help shed light on this question.

Question 3

As we saw in the methods section, the six levels of Bloom's revised taxonomy served as a reference to develop deductive categories of analysis, according to which students' reflections in Question 3 were classified. Before going further, it's worth noting that their second definition in itself manifests Bloom's first taxonomic level, *remember*. From this perspective, 97.4% of students were able to recall what they were taught by applying the concepts discussed in class to their new definition. That said, the analysis of Question 3 allows for a more nuanced interpretation of the results, as Table 5 shows.

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A first type of response to Question 3 (26%) did not go beyond the first taxonomic level (*remember*): here, students' explanations merely demonstrated that they were able to repeat what has been taught about responsible entrepreneurship, without reflecting a deeper understanding. "*Absolutely everything has changed. I was completely wrong about responsible entrepreneurship. I thought that it was a way of preparing yourself, but in fact, it's a type of business*" (S58, question 3). Many of the reflections at this first taxonomic level also show that the second definition now includes one or the other of the pillars of sustainable development which had been omitted from the first definition: "*At first I thought that the term responsible was linked with the environment, but it is also linked with the social and economic aspects*" (S67, question 3). Note that this level also includes a small number of students who already demonstrated a good understanding of responsible entrepreneurship at the beginning of the lesson and who therefore did not evolved in their conceptions: "*I think I already had a good definition of responsible entrepreneurship. It was rather hard to add details*" (S36, question 3).

A second type of response to Question 3 (39%) reflected the second taxonomic level (*understand*). Responses at this level tended to show that students have acquired a more specific vocabulary for discussing responsible entrepreneurship that allowed them to be more complete, precise, or nuanced. They also tended to show that, after the class,

the student better understood the interaction between the three pillars of SD and how they relate to responsible entrepreneurship: "*I increased my knowledge of various responsible companies as well as companies that come close to being responsible or still have a long way to go. I better understand the different types of companies and the vocabulary used to define them. It's truly a balance between economic, environmental, and social concerns*" (S84, question 3). "*In my second definition, we find more technical terms that can make my first definition less vague. This makes it easier to imagine how responsible entrepreneurship can take shape. Also, my second definition is more precise and rich in information*" (S115, question 3).

A third type of response to Question 3 (4.8%) reflected the third taxonomic level (*apply*). Students whose responses were classified at this level mentioned that their definition is now more concrete as they now have precise examples to illustrate responsible entrepreneurship and markers of responsible entrepreneurship that they can apply to their own projects. "*In my first definition, I had only a vague idea of what responsible entrepreneurship meant, and I wouldn't have been able to explicitly link it to the three dimensions of SD. Additionally, my second definition was more precise because it included examples*" (S24, question 3). "*I realized that responsible entrepreneurship affects all areas, all spheres, from housing, transport, food, fashion, etc. There are many examples, often more complex to classify as economic/environmental/social than it seems. I have a clearer vision of this notion of responsible entrepreneurship thanks to the circle diagram*" (S19, definition 3). "*I now have clear, precise examples of responsible entrepreneurship, which allows me to think about how I can apply it in my own projects*" (S133, question 3).

A fourth type of response to Question 3 (19.9%) reflected the fourth taxonomic level (*analyze*). In their responses, students at this level showed that they were able to break down responsible entrepreneurship into its constituent parts without losing sight of the overall structure—that is, the relationship between all three pillars: "*A lot has changed between my first and second definition. Now I really understand what responsible entrepreneurship is. The class also taught me that there are different types of entrepreneurship—economic, social, and environmental—and that there are other types based on how these three aspects are combined. The exercise also allowed me to find*

examples and distinguish between the different types of responsible entrepreneurship" (S71, question 3). "*The definition is now more precise for me. There are certain types of entrepreneurship—fair, viable and bearable—that bring together two of the three spheres of sustainable development. However, to qualify as responsible, it is essential that the business affects the economy, society and the environment*" (S92, question 3).

A fifth type of response to Question 3 (10.3%) reflected the fifth taxonomic level (*evaluate*). Students at this level demonstrated the ability to exercise judgment about responsible entrepreneurship: "*I understood that a responsible business is not only about preserving economic, ecological and social resources. Its goal is to create financial wealth, to preserve or create natural resources and to create a rich environment for a person or their community by allowing them to have a better quality of life. Responsible entrepreneurship is not only a driving economic force, as it can revolutionize some sectors, but it is also a catalyst pushing large industries to modify their practices*" (S46, question 3). "*In my first definition, I thought that it was more of a question of doing what's right. It's actually a question of what businesses are able to strike a balance between the social, environmental, and economic spheres. I also learned that 'green' companies are not necessarily responsible. That said, few companies are able to strike this happy medium*" (S82, question 3).

Finally, no answer to Question 3 (0%) was classified in the sixth taxonomic level. Given that the objective of the short lesson was to evolve students' conceptions, it is not surprising that no student has expressed a renewed vision of the world from the responsible entrepreneurship' perspective.

Conclusion

Following Neck and Corbett's (2018) call to look at what goes on inside the entrepreneurship classroom, this paper proposed to dive into a three-hour lesson on responsible entrepreneurship, focusing on the point of view of both the teacher who develops learning activities and the students who, we hope, learn from our teachings. This exercise led us to detail a sequence of learning activities easily reproducible in other teaching contexts. The analysis of the definitions produced by the students before and

after the lesson allows us to demonstrate the relevance of this lesson to enrich their conceptions about responsible entrepreneurship by associating it with sustainable development, in the complexity of its three constituent pillars.

Bloom's revised taxonomy (Anderson and Krathwohl, 2001) served as a guide for developing the sequence of learning activities presented. Although rediscovered in recent works, as we specified above, this taxonomy is still little used in the field of entrepreneurship education, while it allows multiple applications (see Table 2). We have shown here the capacity of this taxonomy to support the pedagogical reflection of a teacher who plans learning activities during a short three-hour lesson. That said, the potential of this taxonomy can also be appreciated on a larger scale, constituting an invitation to entrepreneurship education scholarship to pay greater attention to this conceptual tool.

Finally, we also used this taxonomy to analyze what students think they learned at the end of the lesson, from their own point of view. The presentation of Question 3, which took the form of a meta-cognitive task, has demonstrated the interest to ask students to reflect on their learning after a lesson. Indeed, the analysis of Question 3 allowed us to dig deeper into students' reflections and to qualify more accurately the depth of their learning. Even though 97.4% students were able to link responsible entrepreneurship to sustainable development at the end of the lesson, our analysis of Question 3 revealed that some students manifest relatively superficial learning while other show a deeper ability to reflect on the concept. This, we believe, could raise entrepreneurial education scholarship's attention to the significance of using metacognitive assessment for both teaching and research purposes in the process of building our Scholarship of Teaching and Learning Entrepreneurship (SoTLE).

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Table 1. Bloom's Revised Taxonomy

Level	Description	Cognitive processes
Remember	The aim is for students to retain concepts as presented by the teacher. The act of remembering involves recovering knowledge and relevant information stored in students' memory.	Remembering calls for two cognitive processes that draw on long-term memory: namely, identifying and recalling.
Understand	Most of the pedagogical objectives that teachers use in educational institutions are related to understanding. We say that students understand when they are able to construct meaning from the information they have at their disposal and when they build connections between newly taught and previous knowledge.	Understanding involves many cognitive processes: interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.
Apply	Applying involves transferring knowledge or understanding to a task, be it familiar or not. An *exercise* is a familiar task: the student already knows the procedure to follow, which they can apply as is. A *problem* is a new task: at the outset, the student doesn't know what procedure to use and must then find a procedure to solve the problem.	Applying involves two cognitive processes: executing (when the task is a familiar exercise) and implementing (when the task is an unfamiliar problem).
Analyze	Analyzing consists of breaking down a concept into its constituent parts and determining the relation between them and an overall structure.	Analyzing involves three cognitive processes: determining the relevant or important elements of a message or concept (differentiating), determining how these elements are organized (organizing), and determining the raison d'être of the message or concept (attributing).
Evaluate	Evaluating is defined as making a judgment based on criteria and standards. This level involves exercising judgment, spotting inappropriate or missing elements, and demonstrating critical thinking.	This taxonomic level involves the cognitive processes of checking (making judgments about internal consistency) and critiquing (making judgments based on external criteria).
Create	The most complex level, creating, involves combining elements or knowledge into a model or structure that wasn't previously clear in order to form a new, coherent, or functional whole.	Three cognitive processes are involved in creating: coming up with alternative hypotheses based on criteria (generating), devising a procedure for accomplishing a task (planning), and inventing a product (producing).

Table 2. Applications of Bloom's taxonomy

Education	Research
To design learning activities, courses, or programs, in terms of their educational objectives and the progression of learning (Aranha et al., 2018; Clement and Silvernagel, 2019).	To compare learning activities, courses, or programs according to the taxonomic levels they target (explicitly or not) through their stated educational objectives (Canziani and Welsh, 2019; Hauge et al., 2013).
To design assessment methods that match predefined educational objectives (Leach, 2007; Mets et al., 2017).	To evaluate learning outcomes by determining students' taxonomic level at the end of a class, course, or program (Aranha et al., 2018; Nisula and Pekkola, 2019).
To provide a common language to describe increasing complex levels of cognitive sophistication in a course or program (Clement and Silvernagel, 2019).	
To rethink effective collaboration between faculty within a program or between different scholastic levels (Mets et al., 2017).	

Figure 1. Sample Distribution by Field of Study (%)

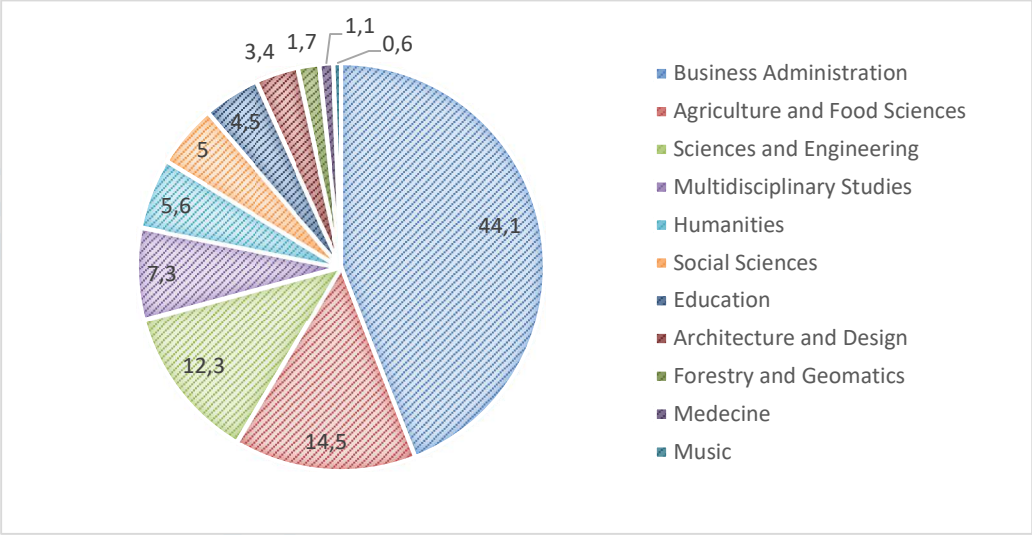

Table 3. Distribution of Students' Initial Understanding of Responsible Entrepreneurship (T0)

	Level 0	Level 1	Level 2	Level 3	
Number of students	38	46	36	31	N = 151
Percentage	25.2%	30.5%	23.8%	20.5%	100%

Table 4. Distribution of Students' Final Understanding of Responsible Entrepreneurship (T1)

	Level 0	Level 1	Level 2	Level 3	
Number of students	4	0	0	147	N = 151
Percentage	2.6%	0%	0%	97.4%	100%

Table 5. Distribution of Students' Responses to Question 3 Based on Bloom's Taxonomy

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	
Number of students	38	57	7	29	15	0	N = 146*
Percentage	26%	39%	4.8%	19.9%	10.3%	0%	100%

* 5 on 151 answers had to be removed from the analysis.