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## We're only in it for the money? Developing sustainable literacy through management accounting curriculum

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### ABSTRACT

This article addresses how and why introductory management accounting courses could contribute to sustainable literacy. Drawing on pragmatic constructivism we develop a course design. We base our discussions on teaching experience from two Business Schools. The proposed course design discusses sustainability around five common themes; (i) fundamental concepts, (ii) what are 'net income' and 'value creation', (iii) product costing and short-term decision-making, (iv) capital budgeting decisions, and (v) performance measurement. We demonstrate that it is possible to introduce sustainability and how it also allows for a better understanding of management accounting as such. Fundamentally, it is illustrated that critical thinking can be integrated at an introductory level in a management accounting course. As such, this study helps develop students' sustainable literacy. By allowing sustainability to be a natural part of the standard subjects, the article claims that the subject area contributes to the future demands on management accountants as well.

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## Introduction<sup>1</sup>

This article aims to answer the following research question: *How and why could an introductory management accounting course contribute to sustainable literacy?* This is important because, despite the initiatives taken to integrate sustainability into the business administration curriculum, research indicates there seems to be a long way to go (McMillan & Overall, 2016). We answer the opening statement by first proposing a course design drawing on pragmatic constructivism (Nørreklit et al., 2016), where sustainability is embedded in standard management accounting topics. Hence, our suggested approach should be of interest beyond the distinctive context in which it originates. Then we discuss whether the course design can fulfil its intentions to promote sustainable literacy.

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The paper pursues its objective by describing five common themes in introductory management accounting and how one can integrate sustainability. The examples may increase students' critical thinking skills by (i) seeing differences between explicit costs and externalities, (ii) externalities related to sustainability may be restorative, damaging, or related to avoidance, and (iii) how calculative techniques are orientated toward economic (and positivistic) logics. This shifts the compass from purely technical to how financial decisions affect life in all forms. We argue that this encourages students to take a more holistic approach to management accounting as they must consider externalities and the context of decisions. Then, complexity and ambiguity are a natural part of the student's bachelor programme from its beginning.

This study is motivated by the contemporary public discourse on sustainability. The UN's sustainability goals (UN, 2021) are explicitly mentioned in the requirements for bachelor programmes in business administration. Sustainability is also encouraged by accrediting bodies such as AACSB<sup>2</sup> and EQUIS.<sup>3</sup> Notwithstanding these initiatives, we observe that sustainability has gained partial attention in business education in general and management accounting in particular. Indeed, a lack of sustainability in the curriculum is found by McMillan and Overall (2016) and also claimed by Brown and Dillard (2019).

In this article, we understand sustainability in the same vein as the definition provided by the Brundtland Commission in 1987: 'Meeting the needs of the present without compromising the ability of future generations to meet their own needs'.<sup>4</sup> This is a well-known and accepted approach to sustainability (Décamps et al., 2017; Figueiró & Raufflet, 2015; Gray, 2013; Jones, 2010; Rusinko, 2010; Sharma & Kelly, 2014; Wu et al., 2010). Looking at sustainability's etymological meaning it is 'endure without failing or yielding'. This is further outlined to be the quality of being able to continue over time. In contemporary discourse, the meaning is often about avoidance of the depletion of natural resources to maintain an ecological balance. This translates as a business that endures not only as a business but also its surroundings in a wider sense. Consequences imposed on the surroundings, whether intended or unintended, positive, or negative, are referred to as externalities. In the context of sustainability, the negative ones are of particular focus. Hence, a negative corporate externality is the harm that the business transaction of a corporation does to a third party (Biglan, 2011). We will also delve into how sustainability should be considered a literacy. We understand sustainable literacy as the knowledge, skills, and mindsets that help compel individuals to become deeply committed to building a sustainable future and allow them to make informed and effective decisions to this end (Décamps et al., 2017).

Sustainability may be approached from three angles within business administration: (1) As stand-alone (and often elective) courses in sustainability, (2) as stand-alone lectures in a 'traditional' course, and (3) embedded throughout 'traditional' courses. The different approaches may be distinguished as 'strong' and 'weak' sustainability (Sharma & Stewart, 2022). Strong sustainability is embedding sustainability in the entire course and typically being the main point of interest. Weak sustainability is, for instance, treating sustainability in a separate lecture at the end of the semester (Sharma & Stewart, 2022). The novelty of the course design proposed in this paper is that sustainability is embedded throughout the lectures, and hence, this falls under the 'strong' sustainability umbrella.

Sustainability intersects with several competing logics, preferences, and stakeholders such as professional practice, institutional reputation, graduate employability, curriculum and learning outcomes, and educators. This paper's focal point of interest is curriculum and learning outcomes, although we acknowledge the spillover effects on other domains of life and society.

Management accounting's main function is to contribute to value creation (Cimaglobal, 2015). However, value creation is not a straightforward concept, nor is it clear-cut for whom value is created, and neither is it clear whether existing (basic) methods are suited for expanding the notion of value to consider sustainability. Value creation may be considered orthodoxy (Marshall et al., 2010), as business administration generally aims to maximize shareholder value. On the other hand, management accounting textbooks' fundament can be summarized by Balakrishnan et al. (2009), cited in Balakrishnan et al. (2011, p. 1888) (self-)citing: '*fundamental role of accounting is to measure the costs and benefits of organizational decisions.*' This understanding of accounting might relax the dogma of profit maximization by opening up for considering that costs and benefits do not necessarily need to be financial goals. Indeed, the financial goal may be long-term satisfactory profit. Even though it is implicit, the fundament for management accounting is a scarcity of resources, something that resonates with the term sustainability. However, profit optimization and sustainability represent different logics that are possibly hard to integrate into the same course.

Traditionally, critical thinking has rarely been part of the introduction to accounting, as the learning of techniques is considered a prerequisite to critical thinking (Ferguson et al., 2010). One understanding of critical thinking is that it helps evaluate ideas and solutions, what types of problems are associated with them, whether they can be improved, and which ideas are better than others (Cunningham, 2014). In the context of this paper, critical thinking will relate to two levels: (1) how management accounting techniques inhibit or underpin sustainable literacy and (2) how the application of sustainability examples inhibits or underpins the understanding of management accounting techniques. Thus, we will discuss whether it may be considered insurmountable to combine the logics of shareholder maximization and sustainability.

With this article, we answer the call from Sharma and Kelly (2016, p. 185) that accounting education needs to promote a scholarly environment in which the freedom to be critical and sceptical about conventional wisdom is encouraged. Furthermore, Wolcott and Sargent's (2021) call for action regarding critical thinking is also answered. We argue that it is possible to implement reflection and critical thinking departing from the concept of sustainability already at the introductory level in business administration study programmes. It is also worth adding that critical thinking are highly ranked skill among students and employers (Kavanagh & Drennan, 2008).

This article is positioned within the strand of literature suggesting how and why accounting courses could be redesigned in general, and particularly how to contribute to sustainable literacy. Most of the literature is founded in financial accounting (see for instance, Glover & Hwang, 2013; Gray, 2013; McPhail, 2013; Tsay et al., 2023), yet there are exceptions related to management accounting. For instance, Sharma and Kelly (2015) give sound arguments for sustainable business models over the neoclassical shareholder wealth approach, while Sharma and Kelly (2016) outline ethical decision models. In any respect, all of these are founded in normative ethical theories (without

being explicit about it). Hence, we must claim that design proposals for management accounting courses that take a ‘strong’ sustainability approach are rarely seen. Our article also supplements studies by Carnegie et al. (2021) and Carnegie (2021) discussing how accounting should be redefined from solely being a technical exercise to also embracing the social and moral implications of numbers. Furthermore, we supplement the approach taken by Sheehan et al. (2022) and Jones (2010), who conceptually propose approaches to link sustainability (and particularly financial) accounting, and thus how to satisfy external stakeholders. As an organizing framework for the course design presented, we draw on pragmatic constructivism (Nørreklit et al., 2016), as this is a paradigm for practice that links idealized management accounting models to the complexity of organizational practices. The pragmatic constructivist approach offers the possibility to combine education with practice, as well as emphasising both the social and technical core of accounting. Particularly, this article considers the opportunities for integration across two different knowledge domains, namely management accounting and sustainability. Put differently, we connect the actor (the management accountants to be) with the social world (the firms’ reality) through the lens of sustainability. Yet, this study does not intend to develop a moral or normative basis for why business schools should be teaching sustainability or what is the ‘correct’ virtue for the coming management accountants. Our perspective can be considered as being ‘in the middle of the road’ where we suggest changing existing structures and emphasize the potential conflict between accounting and corporate externalities, these being societal or environmental (Sheehan et al., 2022).

## Contribution

The contribution is twofold: First, we suggest how to introduce sustainability in introductory management accounting courses. This may contribute to the future demands on management accountants. The study’s second contribution is of theoretical relevance as it adds to the empirical literature on how a specific learning framework, pragmatic constructivism, can be used for the implementation of sustainability. We exemplify how sustainability can be part of domain-specific knowledge within the teaching of management accounting. We will also suggest that critical thinking skills related to sustainability may be achieved already at the introductory level.

In the next paragraph, we elaborate on the foundation for the course design, pragmatic constructivism. Next, we link pragmatic constructivism to the specific course design studied. Then, a pedagogy for course design is presented. Thereafter, the integration of sustainability in the framework is discussed before we close the article with some reflections and considerations.

## Pragmatic constructivism

Pragmatic constructivism is based on constructivism in education (learners construct knowledge rather than passively take in information) and the pragmatist (knowledge as the facilitator for critical reflection in practice) paradigm in the philosophy of science. The epistemological consequence is that we base our argumentation on a consensus of truth. This means that we agree on solutions as ‘true’, even though they are

only valid temporally and in given contexts (Nørreklit et al., 2016). This is a middle ground between positivism, predominantly the management accounting space, and, to some extent, the interpretivist rationale for advocating sustainability. Hence, we believe it is possible to make changes among practitioners by promoting ‘middle-range’ theorizing.

Pragmatic constructivism would contend that higher education is an arena where reflexive and new practices may emerge. This is not solely based on ‘personally convincing’ students that sustainability is important but builds upon familiar management accounting logic for bridging theory and practice. The constructivist epistemology relies upon instructions from the teacher to enable learning while also acknowledging the importance of learning from peer students through social collaboration and discussions. The pragmatic notion stems from the impossible task of deriving one ‘truth’ about management accounting and its relationship with sustainability. There will be both quantitative and qualitative factors that are important to consider jointly or sequentially. This means that we think looking for absolute and objective truth or realities is futile and instead emphasize how management accounting affects social practice. If one is reflexive about this relationship, there are also opportunities for finding new practices and reflecting upon ‘what works for whom’ when looking at the interaction between the symbolic (numbers) and material (ecological and human life) world.

The framework incorporates four dimensions of human existence to avoid reductionism: (1) facts, (2) possibilities, (3) values, and (4) communication. Facts are, in our context, the idealized management accounting models represented by textbooks. Even though these models are considered conventional wisdom, they may be based on assumptions that are not realistic in a specific business setting. To be used in practice, they must be subject to a reflective process and reconceptualised for the particular application. This is what we label factual possibilities. While reflecting on sustainability and relevant costs when, for instance, considering a special pricing decision, facts are translated into possibilities for action. However, the actor’s values must substantiate the possible courses of action. Values form the reason to choose one possibility over the other. Should we, for instance, go for a supplier in a democratic country over a supplier in an authoritarian regime, even though the latter provides for the lowest costs? Communication is urgently needed for action to be enabled in a social setting. Without communication, only individual reality exists (Nørreklit et al., 2006). Altogether, our present understanding of facts, possibilities, values, and communication form a proactive truth. Our understanding is pragmatically true when acting accordingly and the outcome is as expected. In this article, the point of departure for sustainability is the definition provided by the Brundtland Commission. This is not an unproblematic definition as it is static in the sense that it implies that future needs are the same as today’s and that these needs are universal, that is, across time and space. We do not know whether this may be true or realistic, but it represents our proactive truth concerning sustainability.

### Teaching course ‘introduction to management accounting’

In this study, the introductory accounting courses consist of both financial and management accounting. In the authors’ context, it is common to start the course with an

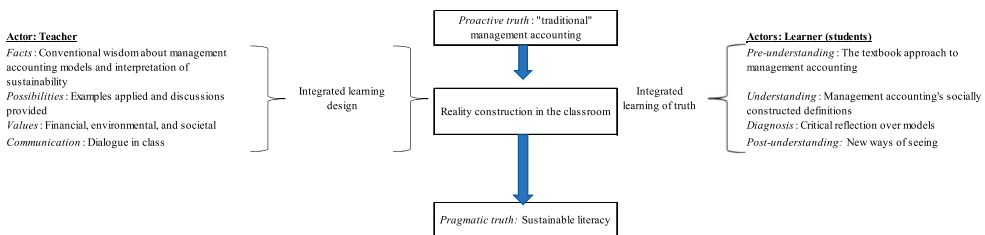
introduction to financial accounting, particularly the basic accounting equation. Even though this may not be a universal approach, the example below might be a nice opportunity to bridge management and financial accounting. The main focus, however, includes the nature of costs, product costing, cost-volume-profit-analysis and related short-term decisions, and capital budgeting. Hence, the focal point for this article is particularly the managerial part of accounting; generally accepted accounting principles (GAAP) and financial reporting are, for instance, topics in later courses. We also note that one important fundament for business administration overall is to answer the question of how to coordinate activities and transactions among opportunistic actors who are, to different degrees, bounded rational (Fallan & Pettersen, 2016). Consciousness about opportunism and bounded rationality must be considered when discussing sustainability, and doing so might improve students' critical thinking and their later application of management accounting in practice.

Our focus is on the learning process itself. In any respect, building upon pragmatic constructivism, we assume that the students alternate between communicative interaction and reflection (Arbnor & Bjerke, 2008; cited in Jakobsen et al., 2019). This consists of four phases: (1) pre-understanding, (2) understanding, (3) diagnosis, and (4) post-understanding. The reflective process supposed to run through these phases intends to close the gap between proactive and pragmatic truth, which is the actual result of action (Nørreklit et al., 2016). This is at the heart of pragmatic constructivism.

The paragraph above is illustrated in Figure 1: The point of departure, proactive truth, is represented by conventional wisdom as represented by the textbooks in management accounting. Both teacher and learner must take this into consideration and will build upon this knowledge. The learning process is a synthesis of the teacher's facts, possibilities, values, and communication, that is, the course design and the phases that the learner is (supposed) to run through. The outcome is a new truth, the pragmatic one, where management accounting has contributed to building sustainable literacy. This new knowledge is co-created between the contributing actors, that is, the teacher and learner.

## Research setting

We depart from and develop our proposed course design on how two courses in management accounting are currently taught in the bachelor's degree in business and administration at two business schools in Norway. The students' average age is 20 years, and the gender mix is approximately 50 per cent male and female. One of the authors is employed at the business school, which is part of the largest university in Norway. The other author



**Figure 1.** From proactive truth to pragmatic truth.

is employed at the second-largest business school in Europe. The authors themselves teach the courses studied. The courses are given in the study programme's first semester. We fully acknowledge that reflecting upon one's own practice may be problematic. There is the potential for being too biased and ending up with opinions rather than balanced discussions. Our sincere objective is, in any respect, to present a course design with strengths and weaknesses and open for collegial critique. We also acknowledge that the choice of examples is indicative only. One challenge is the dearth of sustainability research in traditional accounting journals (Endenich & Trapp, 2020). Therefore, the examples given are suggestions only.

### A pragmatic constructivist pedagogy for course design

One main challenge when integrating management accounting and sustainability is the coexistence of different perceptions of reality. Management accounting is based on a calculative and positivistic logic, while sustainability is applied ethics (Shearman, 1990), something that per se is a reflective exercise. Still said, what is essential for reflection and the learning process is that language and introduction to accounting can be considered as a language course. Terms and concepts can be seen as troublesome knowledge. In this regard, threshold concepts (Meyer & Land, 2006) are essential for the students to understand 'the underlying game' (Perkins, 2006) from which the subject area departs. These concepts are decisive to grasp and essential for acquiring the knowledge domain. Threshold concepts represent challenges and are problematic for students' learning and knowledge processes. Threshold concepts assume that when the code is cracked and new knowledge is acquired, one will permanently understand or interpret context differently. For instance, net present value is a threshold concept that, once learned, one sees valuation in a permanent and new way. As educators, we must acknowledge that accounting terms themselves represent troublesome knowledge, and combined with the somewhat blurry definition of sustainability, the approach to integrating accounting and sustainability is not trivial. Both management accounting and the concept of sustainability are social sciences and not given by nature; the numbers do not speak for themselves (Van der Kolk, 2022). Also, most decisions are subject to quantitative calculations and qualitative considerations. However, this approach to management accounting concepts may also open new ways of relating the methods to what is more in correspondence with sustainable business.

A practical example in the auditorium is the use of open-ended questions, as the students are encouraged to reflect critically upon assumptions, challenges, and opportunities related to abstract concepts such as 'value' (Blumberg, 2008). With this as a backdrop, sustainability is a term that must be given specific content; it must be combined with domain-specific terms and concepts and be practically applicable.

The rest of this paragraph delves into how sustainability is integrated with commonly taught topics within our introductory accounting courses, mainly focusing on management accounting. They form a basis for discussing the suggested course design. The typical introductory course design can be divided into five main themes:

- (1) Fundamental concepts: Opportunity cost and sunk cost,
- (2) 'Net income' and 'Value creation',



- (3) Product costing and short-term decision-making,
- (4) Capital budgeting decisions,
- (5) Performance measurement.

### **Theme 1 – Fundamental concepts: opportunity cost and sunk cost**

The beginning of the semester is typically orientated toward logical conceptual constructs such as opportunity cost and sunk cost. These concepts are fundamental for the entire field. But they are constructs derived logically and, as such, cannot be objectively and empirically verified; they are based on reasoning. However, our sincere opinion is that it is a relatively short way from a more positivist approach to teaching logical conceptual constructs to a constructivist approach that promotes sustainability. For instance, opportunity costs are about the value of scarce resources' best alternative use. Then, it is only up to one's imagination to set limits for how the concept can be applied for sustainable purposes. As noted above, the awareness of threshold concepts is important, and opportunity cost is one of these (Davies & Mangan, 2007). This means that this becomes an integral part of the knowledge domain when this is learned. Put bluntly, one cannot go back and not think about sustainability regarding opportunity cost once it is learned and understood. Hence, an extension of the repertoire of examples can potentially contribute to a better understanding of what opportunity costs are. Furthermore, examples regarding environmental or social opportunity costs are also illuminated to illustrate how hard it can be to give a specific number to opportunity costs. We emphasize that this is not an excuse for not quantifying the costs. When it comes to environmental and social opportunity costs, the value of those resources is determined by 'price discovery' (Smith, 2011). For instance, how to value wheat, trees, or fish is based on market price and risk. The value of these goods becomes 'something' when being sold and thus creating a link between a minimum of one buyer and one seller. In the case of renewable resources, the opportunity cost is the value in the growth and/or reproduction of the same resource. The key point is that social or environmental ecosystems are affected by harvesting those resources compared to letting them grow and not be harvested/extracted/used/consumed at a given time. If there is a substantial loss in the regeneration or renewability of a social or natural resource in a long-term perspective, it quickly becomes more costly to use that resource rather than preserve it.

Departing from the textbook definition, facts and different courses of action are illustrated. These possibilities form reflections in class, voluntary assignments, and the final exam. Communication is both oral and written, allowing for reflections on how one is talking about sustainability in the context of teaching and in organizations.

### **Theme 2 – 'Net income' and 'value creation'**

As a bridge from the nature of costs, we return to the general point of departure for all financial calculations:  $\text{Income} = \text{Revenues} - \text{Expenses}$ . At this point, the understanding of value creation is discussed. Should it be considered only from the shareholder's perspective, or is it relevant to include other stakeholders? We apply the following model<sup>5</sup> and the statement that *the numbers do not speak for themselves* (Van der Kolk, 2022). This means that numbers and calculations are based on assumptions and interpretations (Table 1):

**Table 1.** From Income statement to Sustainable income (Adapted from Berg, 2021).

	<b>Net income according to the income statement</b>
+/-	Fair value considerations, i.e. adjusting for valuation differing from market values
+/-	Opportunity costs, i.e. relevant costs falling outside the GAAP, for instance, imputed rent and depreciations based on market values
=	<b>Actual income</b>
+/-	Social and environmental costs
=	<b>Sustainable income</b>

The table enables a transition from the numbers given by the official income statement to ‘real’ values by including possible opportunity costs and social and environmental externalities. By presenting a table based on this thinking, the management accountants can facilitate discussions where all stakeholders are considered. It is not that numbers are not objective but that they result from assumptions, interpretations, and judgments. What is important is that we see social and environmental costs as being integrated into the common concept of ‘value creation’ and not as distinct; there should be nothing called ‘sustainable accounting’ compared to just ‘accounting.’ This may also emphasize that numbers, even how neutral they may look, are not value-free information and have a substantial impact on sustainability (Järvinen et al., 2022).

The discussion will contend that ‘net income’ and ‘value creation’ are socially constructed phenomena. Hence, specific meanings may be attributed to the concepts by different actors. Moreover, this meaning may change over space and time. Littleton (1928) outlined specific meanings of profit within economics, law, and accounting. Implicit in his interpretation of accounting was financial accounting and maximizing the balance sheet’s value. We suggest a new understanding where income takes into consideration corporate externalities. Discussions will be about how to interpret, for instance, ‘value’ and then execute this in specific situations. For instance, should plans be executed when actual income is greater than zero while sustainable income is less than zero?

### Theme 3 – Product costing and short-term decision-making

#### Different elements in product costing

The textbook approach to product costing is the general *direct material cost* and *direct labour cost*, as well as different variable and fixed indirect costs. In this context, we find it relevant to discuss *what* comprises material and labour costs. Does the firm use polluting material, at risk of being drained, or do we do business with regimes taking it easy on human rights? The latter will specifically also be relevant for labour costs. We follow, asking the perhaps unpleasant question, is it not better to pay for child workers than the same kids starving? Also, the view on labour unions is considered relevant, both abroad and in our home country. Hence, we open up for a discussion about the interaction between financial, environmental, and social sustainability departing from product costing.

Particularly the social dimension to this question is partly influenced by the teacher’s explicit or implicit standpoint (such as utilitarian, deontological, or virtue logic). However, we suggest that labour cost, at the minimum, should be priced at minimum wage as defined by a union or that provides a sustainable living standard. For instance,

following the Brundtland definition of sustainability, this does not mean that wages (labour cost) can be set so low that debt is accumulated and/or inherited from one generation to another. This is a common practice in some countries. The wages are too low to meet basic needs and are combined with the risk of being transferred to the worker (such as having a bad harvest/season means no payment). This circumstance often leads to employee debt to their employer accumulating in a negative spiral, which becomes impossible to repay fully in one generation.

### *Special pricing decisions*

In general, we teach conventionally that one should accept one-time-only orders if the contribution margin is positive. However, this we turn into reflecting on whether thoughtless pricing based on the contribution margin alone may push prices to a level that may lead to bankruptcy. This is not an unusual issue to discuss in connection with the use of marginal costing. In addition, we discuss whether the order should be accepted even if the contribution margin is positive, but it has to be executed outside regular working hours (evening or weekend, for instance). Hence, we open up for combining the problematisation of financial decision criteria and the relevance of specific methods with social sustainability, such as UN sustainable goal no. 8 regarding decent work and economic growth.

The main idea is that some value, in addition to the outlay costs, needs to be attributed to the decision. For instance, it is not uncommon to have a premium of 50 per cent when working overtime. This should reflect that working overtime has a higher opportunity cost than regular working hours. The same is reflected on holidays as the premium is often increased to 100 per cent. We suggest that there is no excuse not to pay overtime regardless of labour unions. Of course, more qualitative factors also need to be included in such decisions, such as offering predictable work opportunities to employees and developing good buyer-supplier relationships by being a reliable supplier. In this respect, we discuss the relevance and possibility of demanding certain 'sustainable' actions throughout the entire value chain.

The discussions in class are analysing and evaluating the sustainability of the different product costing elements, particularly the non-financial consequences in short-term decision-making. Discussions can benefit from building upon the previous discussion about what value may be. Departing from that, one can construct decision-relevant calculations, explain, and differentiate between relevant information, and herein achieve knowledge about the concept of relevance. As Jakobsen et al. (2019) and Nørreklit et al. (2016) pointed out, the statement giving the conclusion for special pricing decisions draws on a semi-logic derived from microeconomics. However, by reflecting on how marginal costs and opportunity costs (in their widest sense) may be interpreted across different industries (space), it acknowledges that different organizations inhere different topoi (Nørreklit et al., 2006).

### *Theme 4 – Capital budgeting decisions*

We start with cash flow described as: (- + + +). That is, negative cash flow in period 0 is typically the investment outlay, followed by net positive cash flow for the rest of the project from year 1 to year n. Capital budgets are nice as a departure point for

sustainability: They allow for thinking about the entire life cycle, and by being of a certain size, they may spark discussions beyond the financial ones: What are the possible signs of the environmental and social consequences, and how do we weight these alongside the financial consequences? Calculating cash flow for the entire life cycle makes it possible to discuss the expected number of years with consequences inflicted by the project, specifically the sign of the cash flow in year  $n$ . Will there be clean-up costs, and is it possible to reuse some of these resources, or is it solely waste? Examples may be given related to the disassembly of oil rigs or oil tankers. The latter is often associated with the phenomena of the ‘beaching’ of ships, that is, laid ashore for dismantling, a business subject to much criticism.

However, we emphasize that capital budgeting decisions are among those more likely to be criticized as ‘fallacies of composition’ due to the discounting rate (Schoemaker & Schramade, 2018). We illustrate how the net present value of long-term effects (such as social and environmental) becomes negligible compared to the economic effects. Then we outline the possibility of using two separate cash flow estimations: one traditionally financially orientated and one representing the cost of social and environmental consequences. Regarding the second cash flow, we discuss the relevance of using a lower discount rate that increases the net present value. This is then subtracted from the first net present value to see if it is still financially sound to continue or execute a project (‘sustainable net present value’).

The discussion analyses and evaluates how, for instance, discount rate and time horizon influence sustainability. Discussions can benefit from explaining why non-financial considerations are, or are not, relevant, and hereby achieving deeper knowledge on the balance between and the importance of financial and non-financial information, what matters the most when it comes to the end of the day. We also combine the technical and social spheres by reflecting on ‘short-term’ vs. ‘long-term.’ As shown by Lindvall (2009), a sample of management accountants defined long-term as being more than one week to being more than five years ahead.

### **Theme 5 – Performance measurement**

Performance measurement is one of the fundamental roles of the finance department. Therefore, we sometimes include some of this outline in the introduction to the course. Then a discussion about performance measurement, in general, can be a starting point, something that counts for the course in general; performance measurement does not permeate only businesses but also society at large. Standard analysis of profitability, liquidity, and solidity can, with simple means, be supplemented with non-financial key performance indicators, such as the UN goals. Thus, this may direct attention toward sustainability and facilitate discussions about the relevance of goals and measurement, including the positive and negative effects of measurement systems.

A common discussion we tend to use is whether being ‘more sustainable’ has a positive relationship with organizational performance. There are two different approaches to this question: Either view them as (i) complementary and a win-win relationship or (ii) trade-offs, and you cannot have both (Hahn et al., 2010). Thus, we move on to a more critical conceptualization of sustainability which is to view it as a sacrifice of economic performance for enhanced sustainability performance (Byggeth &

Hochschorner, 2006). An even more critical stance on sustainability is that we claim that some businesses should cease to exist to promote sustainability (tobacco, firearms, alcohol, etc.).

The next step is to discuss the possible trade-offs that may occur at the individual, organizational, industrial, and societal levels (Hahn et al., 2010). Thus, we open up for reflection on whether sustainability is solely a micro-level issue or if it also exists at the macro level. The emphasis on the outcome dimension of efforts related to sustainability is natural, and this means that we problematize if all dimensions of sustainability are measured in terms of (un)desirable effects (Hahn et al., 2010).

These discussions highlight how the complexity of what and how to measure sustainability increases. We indicate that there are no clear-cut answers to these questions. This does not mean that it is not necessary to implement sustainability into performance measurement. The discussion ends with the concept of opportunity costs. However, at a fundamental level, students should also be able to reflect critically upon issues related to the existence of multi-dimensional metrics, key indicators, and frameworks, what is possible to control, manage, and change, various goals and objectives within the same organization, incompleteness, and inconsistencies within or between organizations, lack of reporting standards related to units to use, structure, and format (Qorri et al., 2018).

Discussions can benefit from combining the conflicting interests of ('short-term' and what this may mean) profitability and environmental and social dimensions, as well as composing new measures and actualizing them for the organization. However, accounting measurements are particularly related to the observation of factual dimensions (Nørreklit et al., 2016). Then, a reflection of the possibilities the measures offer the different actors being measured to realize their values is allowed.

Below we summarize the examples above according to the pragmatic constructivist framework departing from the learning process, and how this may be integrated in class. We have distinguished between pre-understanding (what the student knows before taking the course), understanding (learning about the topics), diagnosis (questions to stimulate critical thinking), and post-understanding (new reality construction of knowledge). We have also inserted several weblinks for contemporary articles that delve into the themes in the management accounting course. We suggest using news articles rather than journal articles. This is a pedagogical decision. Journal articles require more knowledge than what the typical student posits in their first year. News articles are quite short and have (often) easy language with clear messages (Table 2).

## Reflections and considerations

This article aims to answer how and why could an introductory management accounting course contribute to sustainable literacy. We have contributed to this by describing a framework for how five common themes in introductory management accounting can relate to sustainability. Below, we synthesize the discussion. Through the brief examples given, we claim that, *per se*, it is possible to apply established accounting tools and methods to illuminate and illustrate sustainability. It also resonates well with the finance department's roles (Simon et al., 1954): Sustainable issues may be part of a

**Table 2.** Summary of course design.

Know-ledge domain	Theme	Pre-under-standing	Under-standing (key points)	Diagnosis (questions to be asked in class)	Post-under-standing (lessons learnt)	Examples (selected weblinks)
Logical conceptual con-structs	I	What are constructs in a positivist perspective, such as opportunity cost and sunk cost?	Actual practice due to lack of objective and universal criteria, such as 'price discovery'.	Q1: How does this create problems and challenges from a sustainability perspective? Q2: How do we value different opportunity costs?	Opportunity costs are more than solely financial ones. Suggestions for 'new practice' in terms of solutions, such as the absence of numbers, do not imply the absence of value.	Indigenous peoples' right to land vs. windmill parks Overfishing
State-ments	II	Net income equals value creation.	Defining conceptual constructs such as revenues and costs.	Q1: How do accounting rules resonate with the calculation of 'non-measurables?' Q2: What are the boundaries for the organi-zation's responsibilities?	Suggestions for 'new practice' in the shape of integrating GAAP with 'actual costs', incl. social and environmental ones.	Should we care about human rights in the supply chain? Does sustainability equal hanging up the towel?
Semi-logical models	III	If the contribution margin > 0, then accept the order.	'Relevant costs' are dependent on time and space.	Q1: What are the 'relevant costs' besides financial ones when making decisions? Q2: Should we care about consequences throughout our supply chain?	Contextual factors include those beyond the numbers alone.	750,000 workers die from overwork – pushing too hard? Use of metals in mobile phones Aspergers– a benefit, not a barrier Migrant child workers Child labour
Semi-logical models	IV	If NPV is greater than zero, this implies project accep-tance.	What is 'relevant' cash flow, discount rate, and timeframe?	Q1: How does the discount rate reflect social and environ-mental consequences in the long run? Q2: How is decision-making affected by the choice of discount rate in the long run?	Sensitivity analysis should include a 'break-even' for social and environmental conse-quences. Important to acknowledge that the discount rate reduces the importance of social and environmental costs in the long run, although it is only the long-term effects that we observe (such as climate change).	Beaching a ship – a chip on the shoulder? Financing and calculating wood planting – a real sustainable measure?
Idealized and rational models	V	Carrots and sticks are useful means to reach targets.	How does one design 'balanced' KPIs inhibiting negative conse-quences for the stake-holders?	Q1: How does one find causality between performance measures and 'sustainable action'? Q2: What are the different focus areas for making 'sustainable action'?	Sustainability can be ethically, instrumentally, or rationally substantiated. The relevant areas for 'sustainable action' are dependent on the type of organization. There is no 'one size fits all' solution.	Use of UNS sustainable goals

measurement system directed toward any part of managerial decision-making. The examples in this article are illustrations and by no means pretend to represent an exhaustive list. In the following, we will outline how the different themes contribute to sustainable literacy as well as how this resonates with understanding beyond the (still important) technicalities of management accounting.

### ***Theme 1 – Fundamental concepts: opportunity cost and sunk cost***

The chosen approach here contributes to sustainable literacy by highlighting the scarcity of resources. Particularly, opportunity costs are not considered to be financial ones for the organization only. Even though it can be hard to allocate specific numbers to opportunity costs along all three axes of sustainability, this should not restrict the inclusion of sustainability in managerial decision-making. Also, even though sunk costs are not relevant for decision-making, it is stressed that carrying out analyses that later are being classified as sunk costs, may inhibit waste. This may create an understanding that the absence of numbers does not imply the absence of value. This is also a nice bridge to the next theme.

### ***Theme 2 – ‘Net income’ and ‘value creation’***

This theme contributes to fulfilling our intentions by highlighting that the organization’s calculations should include externalities, even though they are seemingly beyond the organization’s responsibilities. The attention-directing effect of the finance department’s analyses must not be underestimated. We know that methods direct actions and action triumph over attitude. Furthermore, we shed light on sustainability by discussing what ‘value’ may be and for whom. This allows for understanding accounting as a construct that influences actions. Indeed, it is not a neutral science. Hence, the value of discussions without clear-cut answers should be welcomed. We acknowledge that many students call for straight answers, but this may illustrate that net positive income goes beyond the financial dimension.

### ***Theme 3 – Product costing and short-term decision-making***

This category adds knowledge to sustainability by revealing that numbers are not neutral, and one must look beyond the calculations. A Direct material cost of 100 is not value-free. Also, decisions have consequences beyond the numbers, i.e. a positive contribution margin may impact the social sphere. This may increase the understanding of the intersection of management and accounting, namely management accounting. Accounting is not a neutral, technical practice; indeed, it is more a social and moral one influencing the society in which we live (Carnegie et al., 2021). Then, the rhetoric applied should be expanded to be more than accounting as the language of business.

### ***Theme 4 – Capital budgeting decisions***

Long-term decisions do not differ substantially from short-term decisions. Yet, discussing a project’s entire life cycle and particularly the time horizon itself may raise consciousness

about one of the pillars of sustainability, its inherent meaning of being able to continue over time. This may also increase the understanding of the time value of money and the importance of the discount rate. To highlight sustainability and critically reflect on the usefulness of methods is, in any respect, fruitful; no matter the purpose, the students must learn that tools and methods cannot be applied uncritically. As pointed to by Carnegie (2021), looking at accounting from a balanced perspective between people, planet, and profit will contribute to accounting remaining relevant. Hence, we expand the view about what it means to be an accountant: a person equipped with more than knowledge (Barnett et al., 2001) and someone who understands ‘the underlying game’ (Perkins, 2006).

### **Theme 5 – Performance measurement**

The core message related to performance measurement and sustainability is that measurement has consequences, and measures may be contradicting in the way they influence behaviour. There is a large strand of literature on how accounting measures meant to solve problems create new ones (see Evans & Tourish, 2017). This allows for an understanding of trade-offs among financial, environmental, and social sustainability, and indeed if there must be a trade-off. It is natural to discuss whether there is always a trade-off between the three dimensions of financial, environmental, and societal sustainability (Hahn et al., 2010). One argument for ‘no’ is, for instance, reduced packaging which is good for the environment as well as income. On the other hand, a trade-off implicitly accepts profit maximization as an underlying premise. This will also be the case if the three dimensions are considered to be equal. Indeed, even if the environmental or societal dimensions are considered the most important, there will be trade-offs. Then, one has to learn how to cope with ambiguity, something that is at the heart of critical thinking. We are agnostic, and hence pragmatic, when it comes to whether one or the other dimension is more ‘important’ than the other.

### **Concluding remarks**

The overriding question for this article was *how and why an introductory management accounting course could contribute to sustainable literacy*. The ‘how’ question is answered by the examples given by the course design outlined above. The answer to the ‘why’ is given by how the link between the technical and social spheres is enabled, particularly how facts, values, and communication interact to create new possibilities for the learning of management accountants. Hence, the contribution is twofold, where the first is of practical relevance for other educators: We suggested introducing sustainability in introductory management accounting courses. This may contribute to the future demands on management accountants. The study’s second contribution is of theoretical relevance as it adds to the empirical literature on how a specific learning framework, pragmatic constructivism, can be used to implement sustainability. It also suggested that critical thinking skills related to sustainability may be achieved at the introductory level.

We started out speculating whether sustainability and management accounting are a match creating synergy or antagonists. What we have learned from this, we will claim, is that the learning outcome of management accounting will not suffer from being discussed through the lens of sustainability. Particularly, the integration opens up for



introducing critical thinking alongside techniques. Hence, the technical and social spheres are aligned. Also, and substantial for the thinking at business schools, the axiom of profit maximization is challenged. This is fundamental if one accepts the notion of sustainability.

One challenge when taking the suggested angle for course design may be to clarify the core of the course. Is it management accounting, or is it sustainability? There might be a risk that instead of a coherent whole, the outcome is neither management accounting nor sustainability; the course ends up like a pancake,<sup>6</sup> quite loose in all ends (and a circle does not have any end). Still said, we believe combining techniques with reflection is possible. If we succeed in that respect, these authors will claim that we contribute to educating candidates with general skills of ‘practical relevance.’ The practical relevance is not solely about quantifying sustainability measures but also encouraging critical thinking about sustainability. Indeed, our students must accept to cope with ambiguity. What defines a sustainable business is somewhat subjective, depending on whether it is observed from within or between firms and people changing perspectives over time in line with technological and societal advancements. While sustainability is a normative ideal that may be disputed, it will encourage dialogue about how we value social and biological life and how this is related to management accounting.

We started with an implicit presumption that sustainability could be considered a literacy. Our answer to this is ‘yes.’ Based on the systematic approach offered by pragmatic constructivism, we will claim that it is possible to develop skills basic for being a citizen enabled by integrating sustainability into managerial decision-making based on accounting numbers and the accountant’s logic.

As always, also this article has its limitations. We acknowledge that sustainability must also be looked at from a holistic perspective. For instance, deforestation may have negative environmental effects. This means that even though each firm internalizes sustainability, this does not mean that the social and environmental sustainability boundaries are not exceeded. Another common example is a carbon footprint, as it requires a much more drastic cut in carbon emissions than what is pursued by firms on their initiative (Schoenmaker & Schramade, 2018). However, we distinguish between what belongs to the political and governmental realms instead of the firm realm. Firms need to have policies, laws, regulations, and monetary incentives to ensure that the total sum of sustainability is sufficient. It is also important to note that there is also a communal responsibility. For instance, consumers demanding sharing economy services are necessary for the supply of such offerings in the first place.

We are well aware of the fact that there are still several avenues for further research related to course design, management accounting, and sustainability. We have, for instance, not considered what our approach may imply for how to measure learning outcomes (Caspersen et al., 2017). Does this mean we have to change how learning outcome is measured? If so, do institutional contexts open up for or inhibit such changes? This could, for instance, be approached from the perspective offered by structuration theory (Englund et al., 2011).

Also, what is the (average) student’s motivation for attending a study in business administration? Is it to learn a profession, or is it to learn certain different forms of literacy that one can build upon in future work-life? A study by Vedel and Thomsen (2017) finds business and economics students’ personality traits to be associated with a desire for

power, status, and social dominance. How might this influence the need for teaching sustainability and its learning outcome? Different competing approaches to learning could be considered from the institutional logics perspective (see, for instance, Conrath-Hargreaves & Wüstemann, 2019). Indeed, this is a lens with which one may explore the competing logics of accounting and sustainability as such. Even though there might be a mismatch between teachers' and learners' perceptions of what is considered an important learning outcome, this cannot be ignored. Disentangling students' motivation and reasonable methods for measuring learning outcomes are still puzzles to be solved. Indeed, how and why to integrate sustainability into management accounting courses have by no means reached an end-state with this article.

## Notes

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2. <https://www.aacsb.edu/>
3. <https://www.efmdglobal.org/>
4. <https://www.un.org/en/academic-impact/sustainability>
5. Jones (2010) outlines the concept of full costing departing from a financial accounting perspective, i.e., accounting for stakeholders outside the organization. Full costing aims at making externalities visible, and as such resonates with the model given here. However, the present model has internal stakeholders at interest. In any respect, these two approaches may be supplemental and possibly be discussed as synergy or antagony later on in the study programme.
6. Thanks to Professor Alf Westelius for suggesting this metaphor.

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