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# Gender differences in the first course in accounting: An achievement goal approach

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## ABSTRACT

We examine whether gendered patterns can be observed in first-year students' achievement goals in an introductory accounting course; a question largely overlooked by prior literature. This investigation is motivated by perceptions of accounting as a masculine field involving gender role stereotypes and business schools as competitive and performance-oriented environments. Our findings suggest that male students tend to adopt performance-approach goal, implying that they are more competitive than female students, and that their performance is thus driven by a desire to outperform others. Our findings further suggest that male students' expectations of learning accounting are higher than those of female students. The expectations explain the gender differences in the performance-approach goal. Finally, we find that this performance-approach goal mediates gender differences in course performance depending on the mode of assessment; male students received higher grades for exams but not for teamwork. Overall, our study highlights the importance of considering contextual aspects related to competitiveness, masculinity, and the mode of assessment on an accounting course when addressing students' achievement goals and expectations of learning accounting. We thus contribute to the understanding of how learning environment, accounting pedagogy, and the broader field of professional accounting intersects with individual student attributes, creating differential learning outcomes.

## 1. Introduction

This paper aims to improve the understanding of potentially gendered differences in students' achievement goals in the context of an introductory accounting course. Prior research on the accounting profession provides some evidence for the existence of gender differences in achievement motivation (Gammie & Whiting, 2013; Whiting & Wright, 2001).<sup>1</sup> Less is known, however, about gender differences in students' achievement goals in accounting.

Achievement goal theory is one of the most influential theories of motivation in education research. It presents two major goal approaches: the *performance-approach* (aiming to outperform others) relates to competitiveness and social comparison, while the *mastery-approach* (which aims to truly comprehend the topic) relates to adaptive motivational processes, including self-efficacy,

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<sup>1</sup> Whiting and Wright (2001) reported that lower job status and remuneration for women can be partly explained by lower career aspirations. They also demonstrated higher competitiveness in men. Gammie and Whiting (2013) examined why women leave professional accountancy firms and reported that the primary reason was a desire to seek more interesting work.

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intrinsic motivation and interest (e.g., Hulleman et al., 2010; Senko et al., 2011). Prior studies have suggested two additional goals: *performance-avoidance* (the goal of not performing worse than others) and *mastery-avoidance* (the goal of not failing to fully comprehend the topic) (Elliot & Church, 1997; Elliot & McGregor, 2001). The achievement goals are situationally specific orientations (e.g., Harackiewicz et al., 1997); thus, the context matters. It may shape, inflate or mitigate gender differences in goal orientations.

Regarding context, accounting has traditionally been viewed as a masculine discipline (e.g., Bebbington et al., 1997), and stereotypical assumptions about gendered characteristics in accounting may persist (Carmona & Ezzamel, 2016; Haynes, 2017). Gender role stereotypes have the potential to shape females' and males' motivation-related beliefs and behaviours (Meece et al., 2006). Another context-related feature is that studying accounting takes place on business degree programmes, which are generally considered masculine and performance-oriented with an emphasis on exams, grades and career advancement (e.g., Bråten & Strømsø, 2006; Kelan & Jones, 2010; Adcroft, 2011; Lucas & Tan, 2013). Given that men have been found to be more competitive and overconfident and to be more favourably disposed to competition than women (Niederle & Vesterlund, 2007, 2011; Croson & Gneezy, 2009), competitiveness in business schools may affect how men and women approach their studies. The need for new evidence regarding gendered achievement goals in the accounting context is pronounced because the type of motivation that leads to success varies according to the discipline (Breen & Lindsay, 2002).

We set three research questions to guide this study, the first being: *Are there gender differences in student achievement goal orientation in the context of an introductory accounting course?* To further scrutinise gender differences in achievement goals, we consider the role of expectations of learning accounting, which captures motivations and intentions in studying it and the epistemological beliefs about it (Duff & Mladenovic, 2015). Accordingly, our second research question is: *Are gender differences in achievement goal orientation mediated by expectations of learning accounting?* This novel research question pursues a further understanding regarding whether gender affects achievement goals through expectations of learning accounting. Finally, we consider the consequences of gendered goal orientation for course performance. Specifically, we examine whether the gender effect is transmitted through achievement goal orientations to course performance. Therefore, our third research question is: *Are gender differences in course performance mediated by achievement goal orientation?*

The data used in this study consists of first-year undergraduates on a compulsory introductory accounting course in 2017. We utilise survey data on students' achievement goals and expectations of studying accounting, combined with course points, high school grade point average (HSGPA) and student age. Our final sample includes 165 students (105 male students and 60 female students). The achievement goals are measured by latent confirmatory factor analysis constructs based on responses to Elliot and Murayama's (2008) *Achievement Goal Questionnaire-revised* (AGQ-revised). Expectations of learning accounting are measured by factor scores from confirmatory factor analysis based on the main themes studied by Duff and Mladenovic (2015).

The results indicate that male students tend to adopt performance-approach goal. That is, the goal of male students is to outperform others, implying that they are more competitive than female students. The results of performance-approach goal differ from the three other achievement goals with no gender differences. In addition, using covariance-based structural equation modelling, the results of our path analysis indicate that male students' expectations of learning accounting are higher than those of female students, thereby explaining differences in the performance-approach goal. Specifically, we find that gender affects the performance-approach goal directly, and indirectly through expectations of learning accounting.

Finally, we examine course performance and find that men have significantly higher exam points than women. Importantly, employing path analysis, we find that the performance-approach goal mediates the association between gender and course exam points. Accordingly, it is plausible to think that male students' underlying competitiveness as a motivational factor leads to higher exam points. We also use alternative modes of assessment as measures of course performance (teamwork and total points), but then mediation is insignificant. A potential reason for these differences between assessment types is that exams seem to favour the gendered performance-approach goal.

Our paper contributes to the limited body of research on students' achievement goals in accounting and their expectations of studying it. Importantly, and broadly speaking, this paper provides a novel research approach and evidence on the links between gender, goal orientation approaches, learning expectations and performance on an accounting course. As our first contribution, our findings show that having the goal of outperforming other students is evident among male students. This differs from the findings of Bråten and Strømsø (2006) and Tempelaar et al. (2015), who study business students in general (i.e., not focusing on accounting) but find no gender differences in the goal of outperforming others. To the best of our knowledge, only Dull et al. (2015) have explicitly examined achievement goals for accounting, but these scholars do not specifically address potential gender differences in achievement goals.

As our second contribution, we provide evidence of the mediating role of expectations of learning accounting in gender differences regarding achievement goals. Although students' expectations and preconceptions of the subject studied are essential to their learning, they are often overlooked in research (Duff & Mladenovic, 2015). Lucas and Meyer (2005) and Duff and Mladenovic (2015) do indeed investigate gender differences in expectations of learning accounting, but their findings on which gender has higher or lower expectations are overall inconclusive. We extend this stream of research by reporting that higher expectations among male students may explain their performance-approach goal.

Our third contribution is to establish the path from gender to course performance through the performance-approach goal. Our study corroborates the findings of Doran et al. (1991) and Koh and Koh (1999), and, importantly, provides novel evidence that male students' stronger preference for the performance-approach goal explains their better results in examinations but not in teamwork. In other words, our findings suggest that male students' performance is driven by the desire to outperform others and that such competitiveness can lead to higher exam grades. Hence, our study contributes to the existing literature by showing that the role of the achievement goal as a mediator between gender and course performance depends on the mode of assessment.

Taken together, our paper extends the accounting and education literature by proposing that perceptions of accounting as a masculine field serve to accentuate gender differences in competitiveness, shaping students' performance-approach goals. Consequently, male students' tendency towards performance-approach can be explained by competitiveness and higher expectations of learning accounting. Furthermore, these motivational drivers lead to higher exam grades for male students since exams as a mode of assessment appear to support performance-approach goals.

With regard to practical implications, our study reveals a need to ensure gender equal chances of performing well on introductory accounting courses. Inclusivity is a fundamental issue that merits attention. Learning environment, course content, assessment and teaching methods ought to aim at gender neutrality. Therefore, the status quo needs to be challenged and changes in the learning environment of business schools' accounting courses considered. Although our data on high school GPAs show that female students possess higher levels of prior knowledge, it is a worrying and a clear problem that females perceive accounting as a less attractive subject to study than do male students. We assume that this is due to the perception of accounting as a masculine field (e.g., [Bebbington et al., 1997](#); [Carmona & Ezzamel, 2016](#); [Haynes et al., 2017](#)). Our findings lend support to the notion that high-level academic outcomes for both genders would be best ensured by understanding that female students' less competitive goal-setting and lower expectations of learning accounting are aspects clearly needing consideration when designing accounting education. The learning environment should not be biased towards the learning orientation and expectations of any gender. In general, accounting educators should alleviate harmful gender role stereotypes regarding the accounting field and gender differences in competitiveness.

The remainder of the paper is structured as follows. Section 2 discusses the background and research questions. Section 3 describes the data and the model. Section 4 presents the results of the main analyses and discusses the robustness checks and additional analyses. Section 5 discusses our results and concludes the paper.

## 2. Background and research questions

Achievement goal theory (AGT) has enjoyed considerable standing among theories of motivation in education research since the mid-1980s (see e.g., [Senko et al., 2011](#)). Researchers developed AGT to better understand students' motivation and behaviours related to achievement ([Dweck, 1986](#); [Nicholls, 1984](#)). The AGT emphasises students' reasons for choosing courses, performing and persevering during their learning activities ([Meece et al., 2006](#)). Originally, the AGT consisted of two goal dimensions in a dichotomous framework: a performance-approach goal orientation and a mastery-approach goal orientation ([Dweck & Leggett, 1988](#)). A performance-approach goal commonly includes a desire to outperform others, for example in exams ([Nicholls, 1984](#); [Hulleman et al., 2010](#)).<sup>2</sup> Performance is hence linked to ego orientation, relative ability and self-enhancement ([Hulleman et al., 2010](#)). The literature has documented that competitiveness is the major predictor of the performance-approach goal ([Harackiewicz et al., 1997](#); [Elliot & McGregor, 2001](#)).

Mastery-approach goal-oriented students strive to learn as much as possible; their goal is to truly understand, or master, the task at hand. Accordingly, they focus on developing and improving their skills and competence relative to the task ([Harackiewicz et al., 1998](#); [Hulleman et al., 2010](#)). Prior studies have shown that students who adopt the mastery-approach goal have greater motivation characterised by work-mastery ([Harackiewicz et al., 1997](#); [Elliot & McGregor, 2001](#)). That is, they desire to work hard and excel, prefer challenging tasks and meet internally prescribed standards of excellence ([Elliot & McGregor, 2001](#)).

Subsequently scholars have proposed an extension to the dichotomous framework by adding a performance-avoidance goal ([Elliot & Church, 1997](#); [Elliot & Harackiewicz, 1996](#)). Students adopting a performance-avoidance goal try to avoid performing worse than others ([Senko et al., 2011](#)). Further, [Elliot and McGregor \(2001\)](#) introduced a mastery-avoidance goal as the fourth category in the achievement goal framework. [Elliot and McGregor \(2001, p. 502\)](#) also give several examples of students demonstrating mastery-avoidance goal behaviour, such as striving to avoid failing to comprehend or learn course material and to retain what they learned. Both mastery-avoidance and performance-avoidance goals are associated with a greater fear of failure and lower self-determination ([Elliot & McGregor, 2001](#)).

Prior research has generally found that a mastery-approach goal is associated with positive academic outcomes, whereas the findings on the benefits of the performance-approach goal are less consistent ([Hulleman et al., 2010](#)). In some studies, the performance-approach goal has been assumed to have a deleterious effect on a student's academic success, but [Harackiewicz et al. \(1998\)](#), for example, suggest that the performance-approach goal has the potential to enhance students' academic achievement. They state (p. 1) that 'if success does depend on outperforming others, a focus on winning might actually prove adaptive in some college contexts'. Since achievement motivation (i.e., motivation to strive for performance excellence) encompasses features from both mastery and performance-approach goal orientations, [Harackiewicz et al. \(1997\)](#) suggest that achievement-oriented individuals should endorse both orientations. In the context of accounting, [Dull et al. \(2015\)](#) is the only study to examine achievement goals; they conclude that mastery and performance-approach goal motivations jointly lead to better course grades. Regarding avoidance goals (performance-avoidance and mastery-avoidance), it has been suggested that neither has beneficial effects on outcomes ([Elliot & Church, 1997](#); [Elliot & McGregor, 2001](#); [Hulleman et al., 2010](#)).

Achievement goals are situationally specific orientations ([Harackiewicz et al., 1997](#)), and are therefore somewhat malleable, influenced by the context, and cannot be generalised from one context to another. Therefore, when examining student-specific

<sup>2</sup> An appearance component of the performance-approach goal (i.e., the desire to demonstrate superior competence) is sometimes examined separately. In the present study, we follow [Elliot and Murayama \(2008\)](#) and focus exclusively on the normative component of the performance-approach goal, which relates to competition and social comparison.

characteristics such as gender, it is important to consider the specific context which, in our case, is a first-year accounting course at a business school. Below we will discuss the potentially gendered nature of accounting.

Accounting has traditionally been considered a masculine profession and is characterised as male-dominated (Bebbington et al., 1997); it has even been described as ‘universal masculine’ or ‘absolute masculine’ (Hines, 1992, p. 314). The stereotypical assumptions about gendered characteristics in accounting may have diminished over time, but not completely (see the discussion, e.g., by Carmona & Ezzamel, 2016 and Haynes, 2017). Another issue to consider is the common preconception among first-year accounting students, namely, that it is linked to maths, numbers, techniques and formulas (Lucas & Meyer, 2005). Therefore, students often assume that they will struggle on introductory accounting courses if they are not mathematically oriented (Dull et al., 2015; Lucas, 2000). Considering that gender differences in confidence are particularly noticeable in mathematics (Niederle & Vesterlund, 2010), they may also be present in the accounting context.

To view the above discussion in light of achievement motivation, we consider the paper by Meece et al. (2006), who discuss the psychological and education research on gender differences in achievement motivation and conclude that the differences tend to be domain-specific. Importantly, they note that gender role stereotypes shape motivation-related beliefs and behaviours of both genders.<sup>3</sup> Therefore, to the extent that gender role stereotypes exist in accounting, this may affect achievement motivation, leading to gender differences in goal orientations.

### 2.1. Gender and achievement goals

This section will review the literature on the association between gender and achievement goals; we discuss their antecedents and present our first research question. To the best of our knowledge, the literature is silent on an association between achievement goals and gender in the accounting. Below, we summarise what is known about the association at the aggregate level of business schools and in other disciplines.

The performance-approach goal is found to be adopted by male students in many studies (D’Lima et al., 2014; Bouffard et al., 1995; Cavallo et al., 2004). Males have higher levels of overconfidence and competitiveness and are more willing to engage in competitive situations (e.g., Croson & Gneezy, 2009; Niederle & Vesterlund, 2007, 2011).<sup>4</sup> Accordingly, males are the common denominator in these research findings, suggesting that the performance-approach goal may be gendered.<sup>5</sup> However, as achievement goals are situationally specific, the greater adoption of performance-approach goal by male students may not be apparent in some disciplines (cf., Harackiewicz et al., 1997; Elliot & McGregor, 2001; Harackiewicz et al., 2002). With regard to business studies, the findings of prior studies are inconclusive. Bråten and Strømsø (2006) found no evidence of gender differences in performance-approach goals among students on a business administration programme, although they did find differences among participants on a teacher training programme. Moreover, using a sample of first-year students studying in a business and economics school, Tempelaar et al. (2015) found no gender differences in the goal to outperform others.<sup>6</sup>

Business studies offer a context commonly characterised as competitive and performance-oriented (e.g., Adcroft, 2011; Bråten & Strømsø, 2006; Lucas & Tan, 2013). According to Bråten and Strømsø (2006), the selection of business studies by competitive and confident females could be a possible reason why gender differences were neutralised. Another explanation could be the differences in the subjects offered within business schools. While the literature reports no clear gender differences at the level of business school, some differences may emerge when we separate the school level into subjects studied. It may be that gender role stereotypes and preconceptions of accounting as masculine (e.g., Bebbington et al., 1997; Carmona & Ezzamel, 2016) accentuate male competitiveness on an accounting course, leading male students to adopt performance-approach goals.

Many studies have reported that female students are likely to adopt mastery-approach goals (D’Lima et al., 2014; Bouffard et al., 1995; Harackiewicz et al., 1997; Elliot & McGregor, 2001; Harackiewicz et al., 2002), although some have found no gender differences (e.g., Cavallo et al., 2004). Importantly, in a business school setting, Bråten and Strømsø (2006) report no evidence, and Tempelaar et al. (2015) report modest (or no) evidence of gender differences in mastery-approach goals.<sup>7</sup> The accounting context (if perceived as masculine) (Bebbington et al., 1997; Carmona & Ezzamel, 2016), however, may play an important role in explaining gender differences in the mastery approach, which is to a large extent determined by intrinsic motivation to excel in a particular subject. As the

<sup>3</sup> Meece et al. (2006) state that important gender differences in educational achievement and occupational attainment still persist although many gaps between females and males have decreased. For example, Meece et al. (2006, p. 367) state that ‘boys tend to have positive achievement-related beliefs in the areas of mathematics, science, and sports while girls report more favourable motivation patterns in language, arts and reading’.

<sup>4</sup> In the literature, the arguments to explain gender differences in competitiveness relate to societal structure (nurture) on the one hand and genetic differences (nature) on the other (see the discussion in Croson & Gneezy, 2009).

<sup>5</sup> One of the most researched gender differences is the attitude towards risk (which can be related to competitiveness). The research in organisational psychology and economics documents that, on average, women tend to be more risk-averse than men (Croson & Gneezy, 2009). Similar conclusions have been drawn in accounting studies examining, for example, gender diversity of boards of directors (e.g., Dong et al., 2017; Gull et al., 2018). Moreover, Powell and Ansic (1997) showed in a business school environment that females are less risk-seeking than males irrespective of familiarity and framing, costs or ambiguity. In their review of the literature on gender differences, Croson and Gneezy (2009) conclude that potential reasons for women’s risk-aversion relate to stronger emotional reactions to risky situations, lower overconfidence and perceiving risks as threats (whereas men tend to perceive them as challenges).

<sup>6</sup> Tempelaar et al. (2015) utilised Dweck’s (1999) inventory, in which normative outcome goals closely corresponded to our measure of the performance-approach goal that captures a student’s goal to outperform peers (see Section 3 for details).

<sup>7</sup> Both these studies used different inventories from ours.

literature is silent about the gender differences in the adoption of mastery-approach goals in accounting, whether any association exists becomes an empirical question.

The association between avoidance goals and gender has been less studied, and the findings are mixed. When studying first-year students representing various disciplines, D'Lima et al. (2014) found that male students were more performance-avoidance goal-oriented, whereas in a business school setting, Bråten and Strømso (2006) reported that females had marginally higher performance-avoidance goal orientation. These scholars did not address the mastery-avoidance goal. In the context of an introductory psychology course, Elliot and McGregor (2001) found no correlation between gender and the adoption of performance-avoidance or mastery-avoidance goals. The accounting literature has not addressed the association between gender and avoidance goals (nor any other achievement goals). Hence, the existence of this association remains another empirical question.

Given the above discussion, we pose the following research question:

**RQ1.** Are there gender differences in student achievement goal orientation in the context of an introductory accounting course?

## 2.2. Gender, expectations of learning accounting and achievement goals

In this section, we first discuss the meaning of learning expectations in accounting and the link to achievement goals. Then, we address the potential role of gender in these associations and pose the second research question.

Although scarcely examined, students' expectations are a crucial factor in learning (Lucas & Meyer, 2005; Duff & Mladenovic, 2015).<sup>8</sup> It has been suggested that many students come to introductory accounting courses with negative perceptions about accounting (see Mladenovic, 2000 for a literature review). This is worrying because these perceptions influence students' learning expectations and can lead to lower performance (Ferreira & Santoso, 2008).

According to Duff and Mladenovic (2015), high and low expectations of learning accounting reflect aspects of motivation (such as personal interest in accounting), intention (regarding learning accounting) and epistemological beliefs (beliefs about what accounting is all about). While the achievement goals seek to explain why students perform and persevere on a course (Meece et al., 2006), expectations capture whether they are interested in performing and persevering in the first place. Hence, higher expectations can drive goal orientations, especially the mastery-approach goal, which emphasises learning and mastering a topic (Hulleman et al., 2010). Surprisingly, and to the best of our knowledge, no studies have examined this important association between expectations of learning accounting and achievement goal orientation.

With regard to gender, the association between gender and expectations of learning accounting has been very little researched, and in the existing studies, the findings appear inconclusive. Lucas and Meyer (2005) examined expectations of learning introductory accounting at UK universities and reported that male students scored higher on lack of interest and had a stronger exam focus. Women scored higher on scales measuring the likelihood of worrying and on the belief that accounting is mainly about numbers and calculations. Differences in the subscales measuring anticipated enjoyment and relevance of accounting proved insignificant between genders.

In a more recent study, Duff and Mladenovic (2015) applied a cluster-analytical approach and divided a sample of first-year undergraduates in Australia into three clusters based on their expectations of learning accounting: in Cluster 1 (moderate expectations), students had an average profile, with scores between Cluster 2 (high expectations) and Cluster 3 (low expectations). The findings suggest no clear gender differences relating to whether females/males had higher expectations regarding learning accounting. Specifically, these authors report that students in the 'moderate expectations' ('low expectations') cluster are marginally more (less) likely to be women. However, they found no gender differences in the 'high expectations' cluster.

Taken together, the above literature presents a somewhat unclear picture of which gender has higher expectations when studying accounting (Lucas & Meyer, 2005; Duff & Mladenovic, 2015). Nevertheless, the perceived masculinity of accounting (Bebbington et al., 1997) may shape expectations of learning accounting, so these expectations may be higher among male students.

By covering a wide range of gender differences in expectations of learning accounting in an introductory accounting course, the research by Lucas and Meyer (2005) and Duff and Mladenovic (2015) has established a solid basis for future studies addressing the role of expectations. We build on their work and examine the unaddressed links between gender, achievement goals and students' expectations of learning accounting. Specifically, considering an association between gender and achievement goals, we examine whether expectations of learning accounting mediate this association and pose the following research question:

**RQ2.** Are gender differences in achievement goal orientation mediated by expectations of learning accounting?

## 2.3. Gender, achievement goals and course performance

To examine the consequences of potential gender differences in achievement goals, we explore course performance. The research so far provides mixed evidence on whether there are gender differences in terms of performance on introductory accounting courses (e.g., in exam grades). Some studies report insignificant differences between genders (e.g., Buckless et al., 1991; Carpenter et al., 1993; Duff, 2004; Gist et al., 1996; Lipe, 1989), whereas others report that female students outperform male students (e.g., Arthur & Everaert, 2012; Crawford & Wang, 2014; Tho, 1994; Tyson, 1989). There are also studies suggesting that male students perform significantly

<sup>8</sup> Also, in other disciplines, such as in mathematics (Meyer & Eley, 1999) and economics (Meyer & Shanahan, 2001), subject-specific conceptions have been identified as playing a major role in students' motivations to learn (see also Breen & Lindsay, 2002).

better than female students (e.g., Doran et al., 1991; Koh & Koh, 1999).

Assessment methods (such as project work, presentations and exams) are essential components of course learning environments since they convey information about what is valued, hence influencing students' learning (Struyven et al., 2005). Students may adapt themselves to the assessment methods in use, leading to different course performance from what the performance would have been had another assessment method been used. Next, we discuss the potential association between gender, achievement goals and course performance and consider the role of different modes of assessment.

Some studies have found that male students have more positive attitudes towards exams as an assessment method (e.g., Furnham & Chamorro-Premuzic, 2005), whereas others have not found such evidence (e.g., Turner & Gibbs, 2010; Woodfield et al., 2005). Regarding achievement goals, studies have suggested a positive association between the performance-approach goal and exam performance (Elliot & McGregor, 2001; Harackiewicz et al., 1997). For example, Harackiewicz et al. (1997) discuss how in introductory psychology courses, the large lecture format, multiple-choice exams and a normative grading structure potentially establish a context in which the performance-approach goal is conducive to course performance. Overall, it may be that the competitiveness of male students is linked to a greater performance goal orientation (see Section 2.1.), which in turn may lead to higher points on exams (i.e., an assessment method that favours a performance orientation).

Compared to male students, females have been found in some studies to have more positive attitudes towards continuous assessment, including assignments and projects, with no rigorous exam situations (e.g., Furnham & Chamorro-Premuzic, 2005). Yet Woodfield et al. (2005) and Turner and Gibbs (2010), among others, found no gender differences. Regarding overall course grades, Dull et al. (2015) found that female students performed better on an accounting course consisting of projects, quizzes, exams and homework assignments, but that there were no gender differences in the exam grades. Gammie et al. (2003) found no gender differences in course performance when assessed on the basis of course work or exams among final-year accounting and finance students. Collaborative learning seems to be preferred by females (e.g., Curşeu et al., 2018) and strengthened by the mastery-approach goal (e.g., Hijzen et al., 2007; Senko et al., 2011). Also, in the collaborative learning context, Senko et al. (2011) point out that the underlying competitiveness of the performance approach may be detrimental to the team members' learning and may affect overall group performance.

Overall, in light of the above discussion, achievement goals may mediate the effect of gender on course performance if the assessment methods support gendered goal orientations. This aspect has been overlooked in the literature. We add to the literature by examining whether gender differences in course performance can be explained by potentially gendered achievement goals. In so doing, we also test whether assessment methods (exams, teamwork and total points) can play a role. Accordingly, we pose the following research question:

**RQ3.** Are gender differences in course performance mediated by achievement goal orientation?

### 3. Data and model

#### 3.1. Data and participants

The data used in this study were obtained from first-year undergraduates taking a compulsory introductory accounting course at a university in Finland. Finland is an appropriate research setting for the purposes of this study because in the Nordic countries, gender equality is more advanced than elsewhere (Looze et al., 2018, p. 1079), thus helping to capture gender-specific voluntary choices and hence diminishing potential cultural impacts that may bias the findings.<sup>9</sup>

Our primary data were collected from students who joined the course in 2017. Similar to the majority of introductory courses in business schools around the world, this course was a mass course with more than three hundred students. The course had two instructors, one woman and one man, which mitigated the potential interactive effect of (fe)male students in (fe)male-instructed classes (e.g., Lipe, 1989). The course was offered during the last half of the first semester. Hence, by the time the course started, the first-year students had had only two months of studies in this undergraduate programme.

The data were obtained from three sources. First, a (survey) questionnaire elicited information about the students' achievement goals on the introductory accounting course and their expectations of learning accounting.<sup>10</sup> The survey was administered during the first lecture of the course by two of the authors. Second, university entrance data were accessed to gather information about the students' school grades (based on a standard national examination). Third, we used data on the students' course performance. We addressed the ethical aspects by acquiring permission from the university and from the responding students to use the data.

The initial sample size was 321, representing all the students who registered for the course (38% of whom were female). Then, we excluded students who were not studying business (e.g., students studying in other schools of the university) and those who were not first-year students, which left us with 264 student observations. After we excluded those students who did not take the first exam of the course (leaving 229) and also those who did not answer the survey questions about achievement goals or expectations of learning accounting, the final sample size is 165 student observations (105 male students [64%] and 60 female students [36%]).

<sup>9</sup> However, we acknowledge that there are factors such as social support systems (i.e., family, peers and educational context) that are important from the gender equality point of view (Looze et al., 2018).

<sup>10</sup> To obtain a high response rate, the questionnaire was designed to be short (but comprehensive). To transfer all the data into an analysable form (e.g., transferring the questionnaire data to Excel), one researcher did the coding and another non-coding researcher double-checked for accuracy.

The additional analysis of course performance uses data consisting of students' course grades in the introductory accounting course between 2012 and 2017. That sample size is 1702 observations, among whom 1086 (64%) are male and 616 (36%) are female. This sample is used in our univariate tests to investigate potential gender differences in course performance across the six years.

### 3.2. Research design

#### 3.2.1. Structural equation model

In our main analyses, we employ covariance-based structural equation modelling to examine the three research question operationalisations, which are presented in Fig. 1. That is, the figure illustrates the overall picture of the associations addressing the research questions. Our analysis proceeds in three steps. First, for RQ1, we examine the direct association between gender and achievement goals. Then, for RQ2 and RQ3, we employ path models where some variables influence others either directly or through intervening or mediator variables (Preacher & Hayes, 2008). Structural equation modelling enables us to present how constructs are theoretically linked and test the directionality of the significant relationships (Schreiber et al., 2006). We apply a two-phase approach as proposed by Mueller and Hancock (2008); that is, we first conduct a measurement phase (using confirmatory factor analysis), followed by a structural phase. The statistical analysis used 165 observations, which exceeded the minimum of 150 observations that should be used in structural equation modelling (Anderson & Gerbing, 1988, p. 415).

#### 3.2.2. Variables

The variables used in the analyses are presented in Fig. 1 with measured variables represented as rectangles and latent variables as ellipses. FEMALE is the variable affecting achievement goals directly (arrow *a* in Fig. 1; RQ1). FEMALE is an indicator variable with a value of 1 when the student is female and otherwise zero. Achievement goals consist of four latent goal measures constructed using confirmatory factor analysis. FEMALE also affects achievement goals indirectly through HIGH (LOW) EXPECTATIONS (arrows *b* and *c* in Fig. 1; RQ2). HIGH (LOW) EXPECTATIONS are latent constructs from confirmatory factor analysis. FEMALE also affects course performance directly (arrow *d* in Fig. 1) and indirectly through achievement goals (arrows *a* and *e* in Fig. 1; RQ3). We measure three assessment types of course performance: the course exam (EXAM POINTS), teamwork points (TEAMWORK)<sup>11</sup> and total course points (TOTAL POINTS).<sup>12</sup>

In our analysis, we control for student knowledge. The first control variable measures high school grade point average (PRIOR KNOWLEDGE) (e.g., Rankin et al., 2003). Including this measure is relevant to our research setting because there is evidence of a positive association between high school grade point average and achievement at university (Betts & Morell, 1999). The second control variable, student age (AGE), captures the experience and is a likely determinant of preferences, attitudes towards studying and self-regulation (e.g., Rankin et al., 2003). See Appendix for variable definitions.

#### 3.2.3. Confirmatory factor analysis

To construct achievement goal variables to examine RQ1, RQ2 and RQ3, we employ the AGQ-revised (Elliot & Murayama, 2008), which has been used extensively (e.g., Cook et al., 2017; Hall et al., 2016) in prior studies. In the questionnaire, the students reported the extent to which they agreed with each item on a five-point scale ranging from totally disagree (1) to totally agree (5).<sup>13</sup> The questionnaire included 12 questions that underpin the four latent constructs: PERFORMANCE-APPROACH, MASTERY-APPROACH, PERFORMANCE-AVOIDANCE and MASTERY-AVOIDANCE.

Table 1 presents the latent constructs, items that measure the latent constructs, standardised factor loadings, the decision criterion to retain the item in the scale of the factor or to delete it from the scale and, finally, the Cronbach's alpha. In Table 1, the standardised factor loadings can be interpreted roughly as a correlation metric (Furr, 2011), and they reflect the degree to which each indicator is linked to a corresponding achievement goal. The standardised loadings show that the items do indeed load very well on the four achievement goals. As seen in the table, the minimum standardised loading of all three indicators of PERFORMANCE-APPROACH is 0.916. The indicator 'I am striving to avoid an incomplete understanding of the course material' of MASTERY-AVOIDANCE has the weakest standardised loading at 0.595. None of the items have a standardised factor loading below 0.4. In light of this property, we retained all the items in the scales measuring the achievement goals.

From Table 1, we can also see that all subscale scores demonstrate adequate internal consistency. For PERFORMANCE-APPROACH, MASTERY-APPROACH, PERFORMANCE-AVOIDANCE and MASTERY-AVOIDANCE, the respective Cronbach's alpha values are 0.947, 0.745, 0.880 and 0.718. The commonly cited benchmark of the subscale scores provided by Nunnally (1978) suggests that Cronbach's alpha values between 0.7 and 0.8 are satisfactory, 0.8 and 0.9 good, and above 0.9 excellent. Hence, the Cronbach's alpha values in our analysis range from satisfactory (MASTERY-APPROACH and MASTERY-AVOIDANCE) to excellent (PERFORMANCE-APPROACH).

To examine RQ2, we employ nine indicators adapted from Duff and Mladenovic (2015), who show (in the correlation matrix) that there are two sets of expectations: high and low (p. 329). Accordingly, we construct a high expectation factor from the first five items and a low expectation factor from the last four items. In the questionnaire, students reported the extent to which they agreed with each

<sup>11</sup> The students were randomly assigned to teams at the beginning of the course. The total teamwork points consist of teamwork (max. 15 points), participation in class exercises to discuss their teamwork (max. 6 points) and an individual reflection on the teamwork (max 5 points).

<sup>12</sup> The total assessment of the course performance (max. 106 points) comprises the final course exam (max. 60 points), two open-book mid-term exams (max. 20 points) and teamwork points (max. 26 points).

<sup>13</sup> We replaced eight missing item values with the sample median of each item.

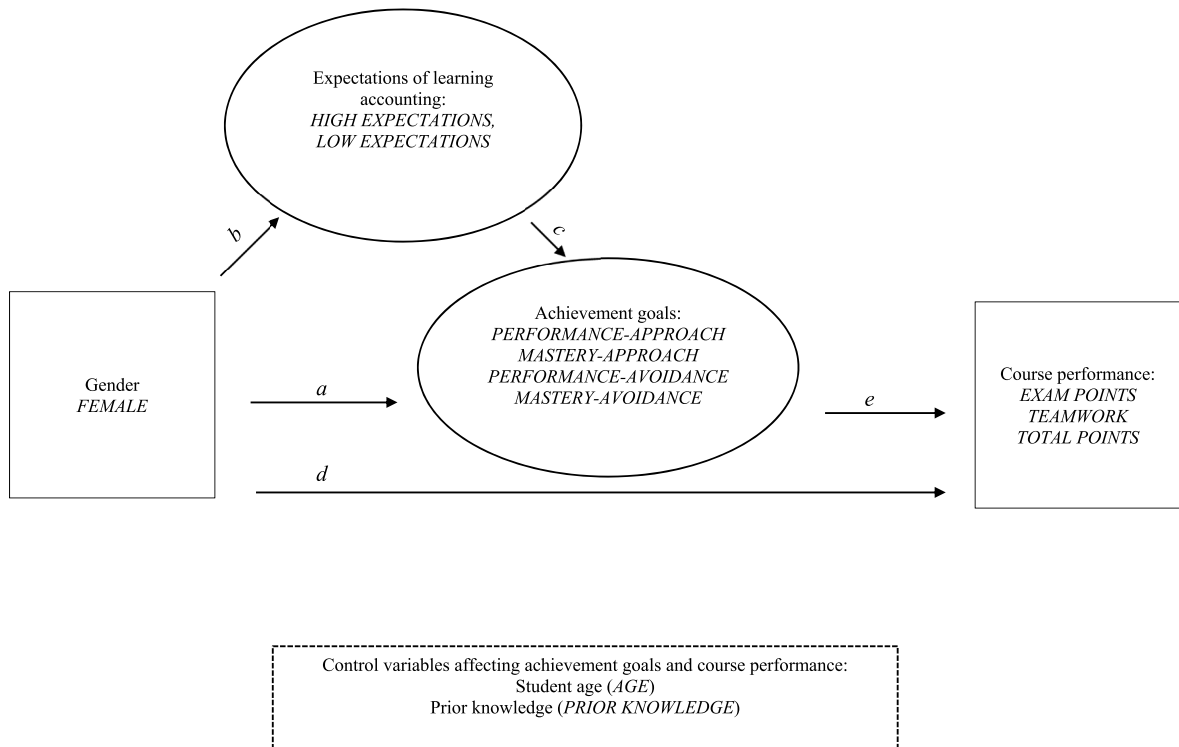


Fig. 1. The associations under examination.

**Table 1**  
Construct assessment regarding achievement goals (n = 165).

Construct	Indicator	Loading	Criterion	Decision	Cronbach's Alpha <sup>a)</sup>
<i>Performance-approach</i>	I am striving to do well compared to other students.	0.924	≥ 0.40	Retained	0.947
	My aim is to perform well relative to other students.	0.916	≥ 0.40	Retained	
	My goal is to perform better than the other students	0.936	≥ 0.40	Retained	
<i>Mastery-approach</i>	My aim is to completely master the material presented in this class.	0.673	≥ 0.40	Retained	0.745
	My goal is to learn as much as possible.	0.658	≥ 0.40	Retained	
	I am striving to understand the content of this course as thoroughly as possible.	0.838	≥ 0.40	Retained	
<i>Performance-avoidance</i>	My goal is to avoid performing poorly compared to others.	0.741	≥ 0.40	Retained	0.880
	I am striving to avoid performing worse than others.	0.980	≥ 0.40	Retained	
	My aim is to avoid doing worse than other students.	0.822	≥ 0.40	Retained	
<i>Mastery-avoidance</i>	My aim is to avoid learning less than I possibly could.	0.903	≥ 0.40	Retained	0.718
	My goal is to avoid learning less than it is possible to learn.	0.629	≥ 0.40	Retained	
	I am striving to avoid an incomplete understanding of the course material.	0.595	≥ 0.40	Retained	

<sup>a</sup> Cronbach's alpha is presented based on the retained indicators, here with all indicators, as they exceed the loading threshold of 0.40.

item on a Likert-scale from totally disagree (1) to totally agree (5).<sup>14</sup>

In Table 2, we can see that seven out of nine standardised coefficients of the indicators exceed the threshold of 0.40. Regarding the *HIGH EXPECTATIONS* construct, the indicator 'I would be interested in exploring the social and economic importance of accounting'

<sup>14</sup> We replace one missing item value with the sample median.



has the highest loading of 0.752. The lowest loading, 'I expect that I might question the basis on which accounting techniques are founded', loaded poorly (standardised loading of 0.172), not exceeding the threshold of 0.40, and is therefore deleted. After that, four indicators remain for *HIGH EXPECTATIONS*, together yielding a Cronbach's alpha of 0.722.

The indicators of *LOW EXPECTATIONS* do not load as well as those of *HIGH EXPECTATIONS*. The indicator 'I do not have a personal interest in accounting, and I expect it to be boring' has the highest standardised loading of 0.654. One of the indicators, 'I expect that studying accounting focuses on numbers', has a standardised loading (of 0.209) that does not exceed the threshold of being retained as an indicator for *LOW EXPECTATIONS* and is therefore deleted. After that, three indicators remain for *LOW EXPECTATIONS* that yield a Cronbach's alpha of 0.543, which is below 0.6, an often-used cut-off value for the scale reliability. Because of low scale reliability, we will use caution when interpreting the results regarding *LOW EXPECTATIONS* and will focus on interpreting the results regarding *HIGH EXPECTATIONS*.

## 4. Results

### 4.1. Descriptive statistics

Table 3 presents descriptive statistics (mean, median and standard deviation) of the variables used in the analyses for women (60 students) and men (105 students). It also presents the results of differences between the genders in means (*t*-tests) and medians (*z* values from Wilcoxon–Mann–Whitney).

The descriptive statistics show that female students have lower expectations (*LOW EXPECTATIONS*) and better high school grades (*PRIOR KNOWLEDGE*) than male students. The mean factor score of *LOW EXPECTATIONS* for females is 0.058 and 0.033 for male students. The mean factor score of *PRIOR KNOWLEDGE* for females is 29.7 and 26.4 for male students. Female students score lower in the performance-approach goal (*PERFORMANCE APPROACH*), and high expectations (*HIGH EXPECTATIONS*) and have lower exam and total course points (*EXAM POINTS* and *TOTAL POINTS*) than male students. The respective means for females and males are  $-0.393$  versus  $0.255$ ;  $-0.064$  versus  $0.036$ ;  $41.4$  versus  $44.8$ ; and  $80.0$  versus  $84.1$ . The differences in medians are otherwise similar, but *AGE* differs between genders. The median age of females (males) is 20 (21) years.

Spearman's correlations (untabulated) indicate that *FEMALE* is negatively correlated with *PERFORMANCE-APPROACH*, *EXAM POINTS*, *TOTAL POINTS* and *AGE*. *FEMALE* is positively correlated with *LOW EXPECTATIONS* and *PRIOR KNOWLEDGE*.

### 4.2. Main analyses

The results of examining the three research questions are presented in Figs. 2–4. In Fig. 2, we report the results of the direct association between gender and achievement goals (*RQ1*). In Figs. 3 and 4, we report the results estimated by the structural equation model (*RQ2* and *RQ3*). The (untabulated) fit statistics of the structural model indicate a good fit.  $\chi^2$  is statistically insignificant ( $p = 0.173$ ), suggesting that there are no unidentified paths, CFI and TLI are close to 1 (0.992 and 0.979 respectively), RMSEA is 0.045, the standardised root mean squared residual (SRMR) 0.062, and the coefficient of determination 0.236.

#### 4.2.1. Results for *RQ1*

We start from the testing of the association of *RQ1* and report the results in Fig. 2. We can see that *FEMALE* is significantly associated with *PERFORMANCE-APPROACH* (coefficient  $-0.576$ ,  $p$ -value  $<0.001$ ), but not with the three other achievement goals.<sup>15</sup> Hence, we obtain support for gender differences only in performance-approach goal orientation in the context of an introductory accounting course, but not in the other (three) goal orientations.

#### 4.2.2. Results of mediation effects

To examine mediation effects (*RQ2* and *RQ3*), we use the widely cited guidelines for assessing mediation by Baron and Kenny (1986). The testing of causal steps has been provided for *RQ2* (Panels A and B) and *RQ3* (Panels C through E) in Table 4. The testing includes three steps (three regressions) for each potential mediation path. According to Baron and Kenny (1986), all three sub-paths must be statistically significant as a prerequisite of a mediation test. The last column of the table shows the decision based on the three steps. The decision informs whether the path is retained for the actual mediation test or whether it is deleted from further analyses (as the steps failed to indicate that there is sufficient basis for the mediation test).

4.2.2.1. Results for *RQ2*. The first potential mediation based on *RQ2* is presented in Panel A: the path *FEMALE* → *HIGH EXPECTATIONS* → *PERFORMANCE-APPROACH*. We require that (1) *FEMALE* has to be a significant predictor of *PERFORMANCE-APPROACH*, (2) *FEMALE* has to be a significant predictor of *HIGH EXPECTATIONS* and (3) *HIGH EXPECTATIONS* has to be a significant predictor of *PERFORMANCE-APPROACH*. Since all three significant associations existed, the decision is to retain the mediation path for the actual mediation test. Similarly, the path *FEMALE* → *LOW EXPECTATIONS* → *PERFORMANCE-APPROACH* is significant (Table 4, Panel B) and is retained for the actual mediation test. However, since *FEMALE* is not associated with *MASTERY-APPROACH*, *PERFORMANCE-*

<sup>15</sup> The explanatory power of the model where *FEMALE* and control variables (*AGE* and *PRIOR KNOWLEDGE*) are predictors of *PERFORMANCE-APPROACH* is 11.4%.

**Table 2**  
Construct assessment regarding expectations of accounting (n = 165).

Construct	Indicator	Loading	Criterion	Decision	Loading <sup>a)</sup>	Cronbach's Alpha <sup>b)</sup>
<i>High Expectations</i>						0.722
	I have a strong desire to excel in my academic achievement	0.464	≥ 0.40	Retained	0.468	
	I expect that I will enjoy accounting studies.	0.684	≥ 0.40	Retained	0.676	
	I expect that I might question the basis on which accounting techniques are founded.	0.172	< 0.40	Deleted		
	I want to see the meaning behind accounting numbers in a business context.	0.633	≥ 0.40	Retained	0.642	
	I would be interested in exploring the social and economic importance of accounting	0.752	≥ 0.40	Retained	0.749	
<i>Low Expectations</i>						0.543
	I expect that I will do only enough work to simply pass the exam.	0.428	≥ 0.40	Retained	0.424	
	I do not have personal interest in accounting, and I expect it to be boring.	0.654	≥ 0.40	Retained	0.673	
	I expect that studying accounting focuses on numbers.	0.209	< 0.40	Deleted		
	I am worried about my learning in accounting.	0.538	≥ 0.40	Retained	0.521	

<sup>a</sup> We re-estimated standardised factor loading after deleting two indicators with below 0.40 standardised loading.

<sup>b</sup> Cronbach's alpha is presented based on the retained indicators.

**Table 3**  
Descriptive statistics (n = 165).

	Female (n = 60)			Male (n = 105)			Difference in Means		
	Mean	Median	Std.dev.	Mean	Median	Std.dev.	Difference	t-test	Mann-Whitney
<i>FEMALE</i>	1.000	1.000	0.000	0.000	0.000	0.000	1.000		
<i>PERFORMANCE- APPROACH</i>	-0.393	-0.418	0.996	0.225	0.212	0.819	-0.618	<0.001***	<0.001***
<i>MASTERY- APPROACH</i>	-0.020	-0.051	0.484	0.011	-0.051	0.467	-0.031	0.687	0.864
<i>PERFORMANCE- AVOIDANCE</i>	-0.066	-0.053	0.844	0.038	-0.053	0.695	-0.104	0.398	0.758
<i>MASTERY- AVOIDANCE</i>	0.050	-0.106	0.785	-0.029	0.030	0.824	0.079	0.548	0.855
<i>HIGH EXPECTATIONS</i>	-0.064	-0.051	0.360	0.036	0.068	0.291	-0.100	0.053*	0.091*
<i>LOW EXPECTATIONS</i>	0.058	0.059	0.269	-0.033	-0.064	0.193	0.091	0.013**	0.042**
<i>EXAM POINTS</i>	41.400	43.000	8.166	44.781	45.000	6.906	-3.381	0.005***	0.008***
<i>TEAMWORK</i>	12.817	13.000	1.501	12.581	13.000	1.610	0.236	0.355	0.387
<i>TOTAL POINTS</i>	80.000	81.000	10.772	84.133	87.000	9.696	-4.133	0.013**	0.007***
<i>AGE</i>	20.317	20.000	2.418	20.790	21.000	1.885	-0.473	0.164	<0.001***
<i>PRIOR KNOWLEDGE</i>	29.700	33.000	8.100	26.429	29.000	9.355	3.271	0.025**	0.015**

\* shows significance at the 0.10 level, \*\* shows significance at the 0.05 level, and \*\*\* shows significance at the 0.01 level.

*AVOIDANCE* and *MASTERY-AVOIDANCE* (Fig. 2), their corresponding mediation paths are deleted from the actual mediation test.

Fig. 3 presents the results for RQ2. The mediation effect is defined as the product of two sub-paths: *FEMALE* to *HIGH* (or *LOW*) *EXPECTATIONS* and *HIGH* (or *LOW*) *EXPECTATIONS* to achievement goal (see Brown, 1997 and Fox, 1985 for testing of paths coefficients). The path from *FEMALE* to *HIGH EXPECTATIONS* is negative and significant (coefficient is -0.100 and p-value 0.05). The path from *HIGH EXPECTATIONS* to *PERFORMANCE-APPROACH* is positive and significant (coefficient is 1.318 and p-value <0.001). The path from *FEMALE* to *PERFORMANCE-APPROACH* through *HIGH EXPECTATIONS* has a z-value of 1.88, with a (two-sided) p-value of 0.06. This lends support to RQ2 with regard to the path from *FEMALE* to *PERFORMANCE-APPROACH* through *HIGH EXPECTATIONS*. The path from *FEMALE* to *PERFORMANCE-APPROACH* through *LOW EXPECTATIONS* is insignificant.

**4.2.2.2. Results for RQ3.** Next, we turn to the empirical testing of RQ3. In Panels C to E of Table 4, we examine only those paths that involve *PERFORMANCE-APPROACH*, since *FEMALE* is not associated with the other three goals. Table 4 presents the following three paths: *FEMALE* → *PERFORMANCE-APPROACH* → *EXAM POINTS* (Panel C), *FEMALE* → *PERFORMANCE-APPROACH* → *TEAMWORK* (Panel D), and *FEMALE* → *PERFORMANCE-APPROACH* → *TOTAL POINTS* (Panel E). The paths in Panels C and E are retained for the actual mediation test, but the path presented in Panel D is excluded because *TEAMWORK* is neither statistically significantly associated with *FEMALE* nor *PERFORMANCE-APPROACH*.

The results of the mediation test of RQ3 are presented in Fig. 4, which shows that the sub-path from *FEMALE* to *EXAM POINTS* is negative and significant (coefficient is -2.597 and p-value 0.029). The sub-path from *FEMALE* to *PERFORMANCE-APPROACH* is negative and significant (coefficient is -0.486 and p-value <0.001). The sub-path from *PERFORMANCE-APPROACH* to *EXAM POINTS* is positive and significant (coefficient is 1.552 and p-value 0.019). The mediation test shows that the path from *FEMALE* to *EXAM POINTS* through *PERFORMANCE-APPROACH* has a z-value of 2.00, with a (two-sided) p-value of 0.045. These results lend support to RQ3, where the measure of course performance is exam points. The path from *FEMALE* to *TOTAL POINTS* through *PERFORMANCE-APPROACH* is statistically insignificant with a z-value of 1.47 and (two-sided) p-value of 0.141.

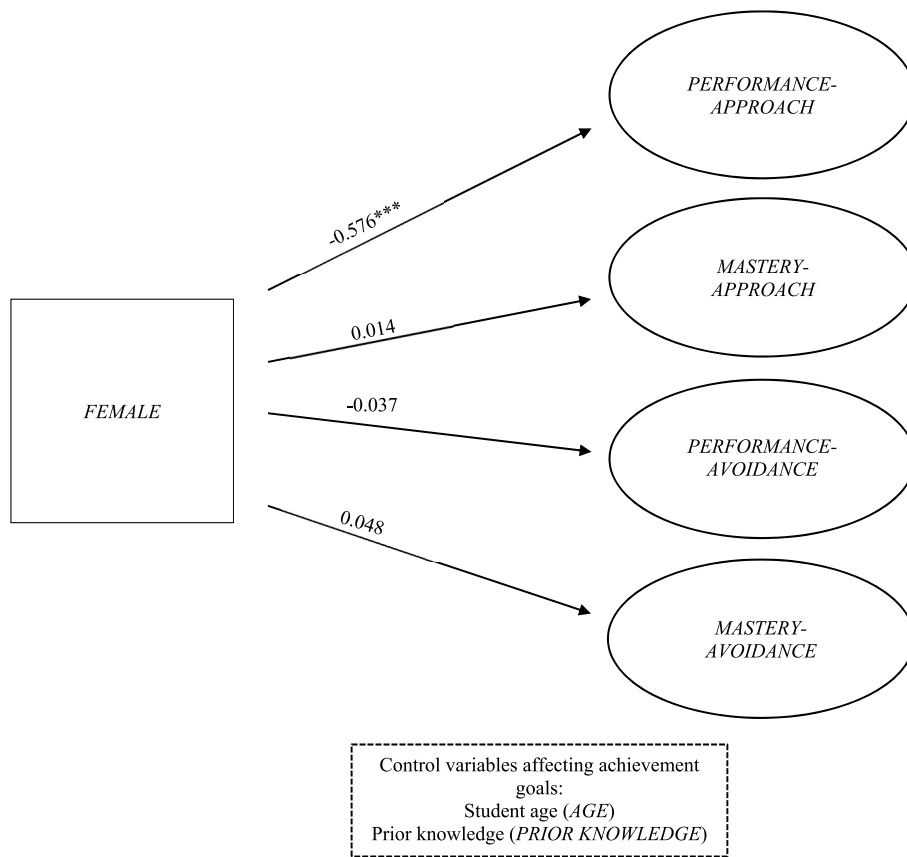


Fig. 2. Testing of RQ1.

#### 4.3. Robustness tests

We conduct various robustness tests. Regarding RQ1, we run an untabulated one-way MANOVA to determine the effect of gender on achievement goals and include *HIGH EXPECTATIONS*, *LOW EXPECTATIONS*, *AGE* and *PRIOR KNOWLEDGE* as covariates. The results of the MANOVA indicate a statistically significant difference in the combined achievement goals between female students and male students ( $F = 7.28$ ,  $p < 0.001$ ). A post hoc analysis shows that there are gender differences only in *PERFORMANCE-APPROACH* (significant at a 5% confidence level).

To further explore the association between *FEMALE* and *PERFORMANCE-APPROACH*, we test the gender differences using subsamples of below (above) median positive (negative) expectations. Males have a positive and statistically significant association with the performance goal approach in all four subsamples, regardless of higher or lower expectations. This suggests that the association between gender and performance-approach is strong.

Regarding RQ3, given that earlier research has suggested that men perform better than women when presented with multiple-choice questions (e.g., Arthur & Everaert, 2012; Murphy, 1982; Walstad & Robson, 1997), we test the robustness of our results when we exclude the points of multiple-choice questions (maximum eight points) from the *EXAM POINTS* variable. The findings are qualitatively similar to those from our main analysis (results not tabulated).

Also, to test the broader generalisability of the results for RQ3, we utilise a sample of students' course grades on the introductory accounting course between 2012 and 2017.<sup>16</sup> Although we do not have survey data on achievement goals and expectations of learning accounting for those six years, investigating the observed gender difference in course performance over a longer period could yield further insights into the main findings. Here, course performance is measured by the final grade from the course, which ranged from 1 to 5 (5 being the top grade). The untabulated results indicate statistically significant differences between female and male students. On average, male students have higher grades than females in each year investigated, although the magnitude of the differences varies slightly. The differences are statistically significant at the 0.01 level each year, except for 2014 and 2017, when the difference is significant at the 0.05 level. The test results derived from the total sample (all years) show that the average grade for female students is

<sup>16</sup> The sample includes all students who participated in the course (i.e., first-year business students, later-year business students and those not studying business).

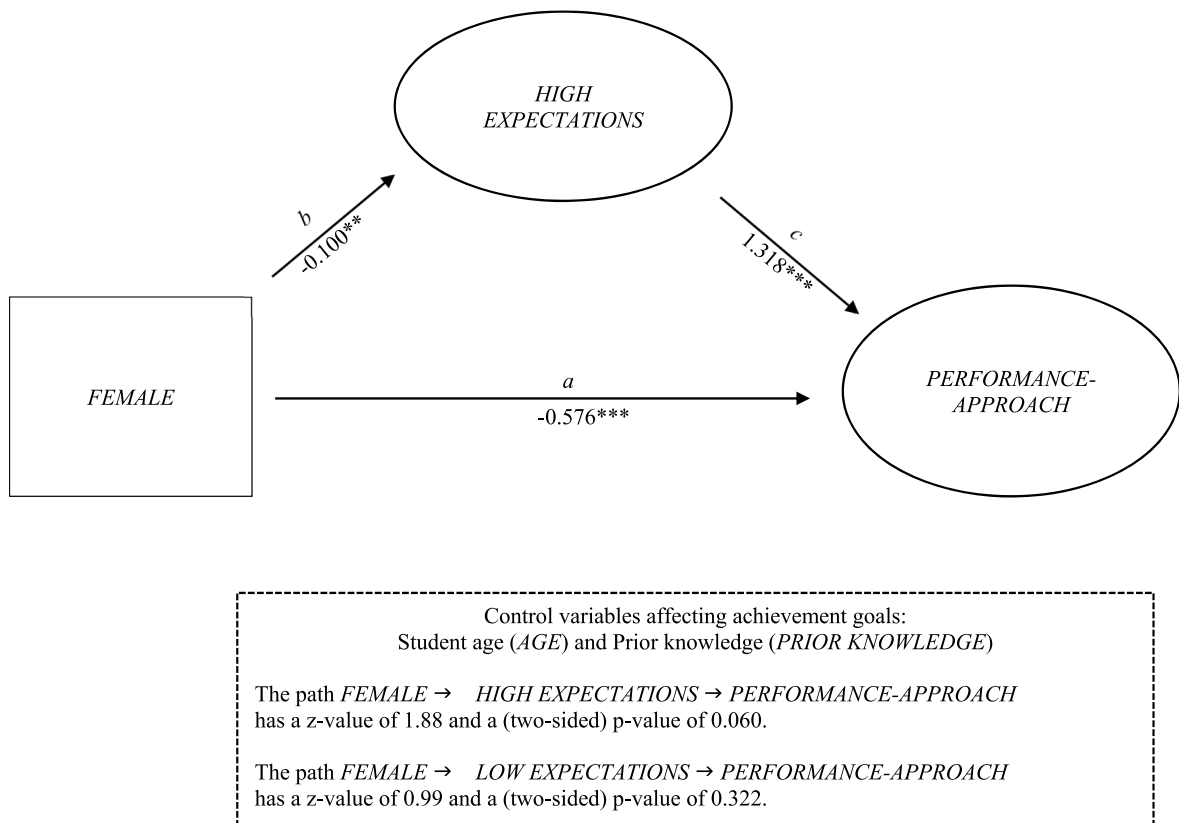


Fig. 3. Testing of RQ2.

3.55, while for male students it is 3.97. In summary, the gender difference in course performance persists over the six-year period, which encompasses all the data available in this study.

Finally, we perform an untabulated discriminant analysis with gender as the grouping variable and other variables as independent variables. The results are largely consistent with the empirical analyses using SEM. The highest standardised coefficient is *PERFORMANCE-APPROACH* (coefficient is  $-0.721$ ). The standardised coefficient of *EXAM* is negative (coefficient is  $-0.411$ ), the standardised coefficient of *PRIOR KNOWLEDGE* is positive (coefficient is  $0.420$ ), and the standardised coefficient of *HIGH EXPECTATIONS* is positive but relatively low (coefficient is  $0.062$ ). In the discriminant analyses, we remove variables that are largely redundant because redundancy can lead to unreliable matrix inversions, which result in large standard errors of the estimates of discriminate analysis. We also remove *LOW EXPECTATIONS* because of its high correlation with *HIGH EXPECTATIONS*. The reason for the removal is that when predictor variables are correlated, the associated discriminating coefficients may yield misleading results (Cui, 2012). We decided to remove *LOW EXPECTATIONS* rather than *HIGH EXPECTATIONS* because of the former's low Cronbach's alpha. We use 0.30 in the canonical structure as the redundancy criterion and remove *TEAMWORK* and *AGE*. The discriminant function for *FEMALE* is significant (p-value  $<0.001$ ).

## 5. Discussion and conclusion

This study addresses the rarely researched topics of achievement goals for the accounting course and expectations of learning accounting, focusing on the role of gender. The importance of studying motivation-related gender effects has been accentuated by studies investigating gender differences in competitiveness (Croson & Gneezy, 2009), the perception of accounting as a masculine field, gender-role stereotypes (Bebbington et al., 1997; Carmona & Ezzamel, 2016; Haynes, 2017) and gender differences in career aspirations in accounting (e.g., Whiting & Wright, 2001). Consequently, in this paper, we maintain that it is essential to examine the gender effects in achievement goals, high and low expectations of learning accounting, and course performance in the first year of university studies in a business school. In addressing potentially gendered achievement goals and expectations, we can contribute to the accounting and education literature in many ways.

As the first contribution, this is the first study to scrutinise gender differences in students' achievement goals in the accounting context. To the best of our knowledge, Dull et al. (2015) is the only study to examine achievement-goal aspects in the accounting education context, but that study did not address gender differences in achievement goals. Bråten and Strømsø (2006) and Tempelaar et al. (2015) studied gender differences in achievement goals among business students generally, but they did not focus on accounting.

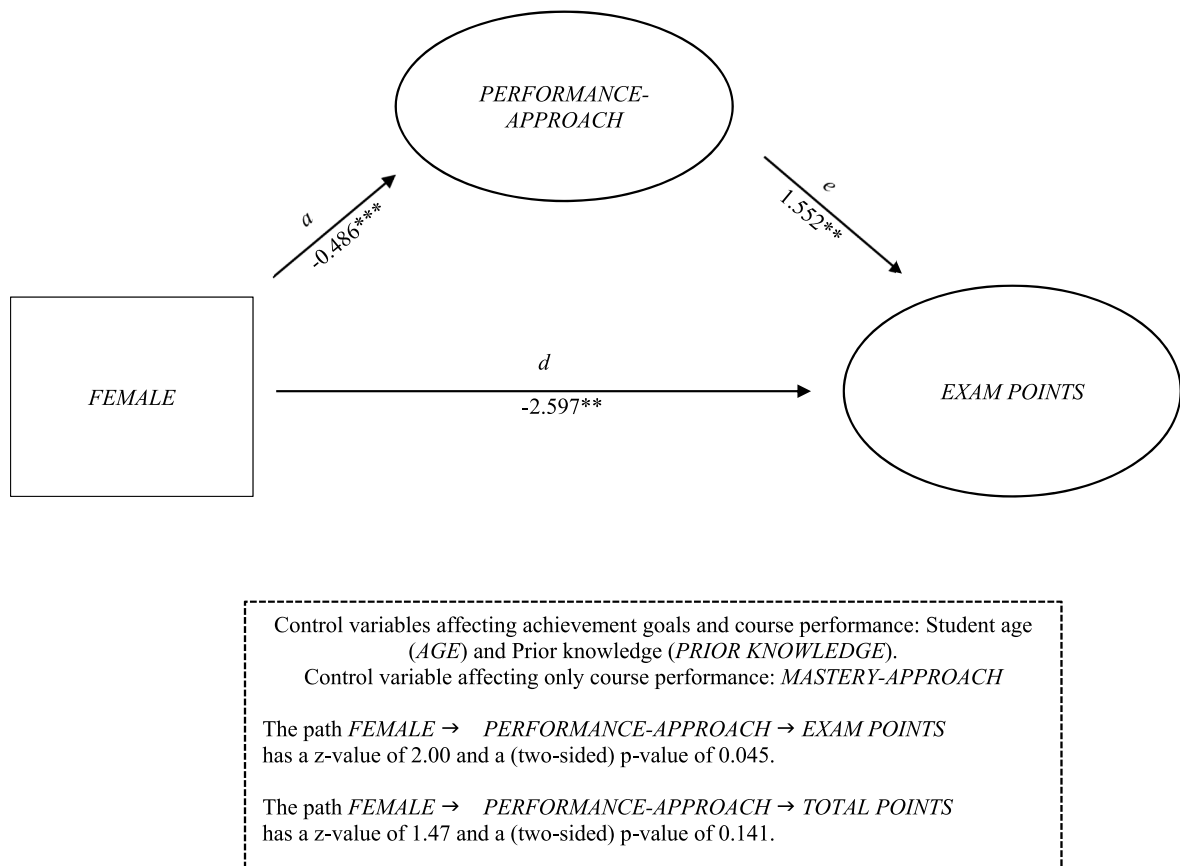


Fig. 4. Testing of RQ3.

We enrich their findings by providing clear evidence that male students have a stronger performance-approach goal orientation than female students, whereas no gender differences were found in other achievement goals. More specifically, our findings show that among the students surveyed, the goal to outperform others is evident among men, implying that greater competitiveness drives male students' achievement goals.

We interpret that these gender differences in the performance-approach goal are driven by the context characterised by competitiveness (e.g., Bråten & Strømsø, 2006; Kelan & Jones, 2010; Adcroft, 2011; Lucas & Tan, 2013) and, importantly, perceptions of masculinity in accounting (Bebbington et al., 1997). Bråten and Strømsø (2006) and Tempelaar et al. (2015) found no gender differences among business school students in the goal to outperform others. A plausible explanation for this failure to find gender differences is their research setting, where various business school subjects were examined at the aggregate level without addressing accounting separately. We conjecture that men's goal to outperform others is accentuated when the context involves competitiveness, especially in a subject of study commonly characterised as masculine, such as accounting. That is, when the nature of a field is perceived as masculine, it may create more incentive to compete. It is worth noting that we found no gender differences in mastery-approach (the desired goal in higher education) or in avoidance goals (less-desired goals).

As the second contribution, we extend the achievement goal literature by being the first to examine the association between expectations of learning accounting and achievement goals and the mediating role of expectations in the gender differences in achievement goals. We provide evidence to show how gender differences in the performance-approach goal can be attributed to gender differences in expectations of learning accounting. This extends the literature addressing the link between gender and students' expectations of learning accounting (Duff & Mladenovic, 2015; Lucas & Meyer, 2005).

Specifically, we found that male students' expectations of learning accounting are significantly higher than those of female students. Further, the results of the path analysis suggest that the higher expectations of male students explain (mediate) their performance-approach goals. As a whole, we assume that the perceived masculinity of accounting (Bebbington et al., 1997) and competitiveness may explain the higher expectations of learning accounting among male students, which leads to the performance-approach goal.

Our third contribution stems from establishing a path from gender to course performance through the performance-approach goal. Accounting education studies have not addressed this path. Our study corroborates the findings of Doran et al. (1991) and Koh and Koh (1999) reporting that male students obtain better exam points than female students on an introductory accounting course. Importantly, we extend these studies by providing evidence that male students' greater preference for a performance-approach goal explains

**Table 4**  
Testing of mediation steps (n = 165).

Panel A. RQ2: Path: FEMALE → HIGH EXPECTATIONS → PERFORMANCE-APPROACH					
Subpath	Predictor	Dependent	Coefficient	p-value	Decision
					Retained
a	FEMALE	PERFORMANCE-APPROACH	-0.576	<0.001	
b	FEMALE	HIGH EXPECTATIONS	-0.100	0.050	
c	HIGH EXPECTATIONS	PERFORMANCE-APPROACH	1.394	<0.001	
Panel B. RQ2: Path: FEMALE → LOW EXPECTATIONS → PERFORMANCE-APPROACH					
Subpath	Predictor	Dependent	Coefficient	p-value	Decision
					Retained
a	FEMALE	PERFORMANCE-APPROACH	-0.576	<0.001	
b	FEMALE	LOW EXPECTATIONS	0.901	0.012	
c	LOW EXPECTATIONS	PERFORMANCE-APPROACH	-1.505	<0.001	
Panel C. RQ3: Path: FEMALE → PERFORMANCE-APPROACH → EXAM POINTS					
Subpath	Predictor	Dependent	Coefficient	p-value	Decision
					Retained
d	FEMALE	EXAM POINTS	-3.444	0.004	
a	FEMALE	PERFORMANCE-APPROACH	-0.576	<0.001	
e	PERFORMANCE APPROACH	EXAM POINTS	2.568	<0.001	
Panel D. RQ3: Path: FEMALE → PERFORMANCE-APPROACH → TEAMWORK					
Subpath	Predictor	Dependent	Coefficient	p-value	Decision
					Deleted
d	FEMALE	TEAMWORK	0.215	0.404	
a	FEMALE	PERFORMANCE-APPROACH	-0.576	<0.001	
e	PERFORMANCE APPROACH	TEAMWORK	0.188	0.153	
Panel E. RQ3: Path: FEMALE → PERFORMANCE-APPROACH → TOTAL POINTS					
Subpath	Predictor	Dependent	Coefficient	p-value	Decision
					Retained
d	FEMALE	TOTAL POINTS	-4.542	0.005	
a	FEMALE	PERFORMANCE-APPROACH	-0.576	<0.001	
e	PERFORMANCE APPROACH	TOTAL POINTS	3.071	<0.001	

Table 4 illustrates the results of our examination of the three steps that, according to Baron & Kenny (1986), establish mediation. The last column of the table shows the decision based on the three steps, whether the path was retained for actual mediation test or whether it was deleted from the further analysis, as the steps failed to indicate that there was sufficient basis for mediation test. The first column on the left shows the subpath (as presented in Fig. 1) under examination. According to Baron & Kenny (1986), all of the three subpaths have to be statistically significant as a prerequisite of a mediation test. For example, the first potential mediation based on RQ2 is presented in Panel A: the path FEMALE = > HIGH EXPECTATIONS = > PERFORMANCE-APPROACH. Baron & Kenny (1986) require that (1) FEMALE has to be a significant predictor of PERFORMANCE-APPROACH, (2) FEMALE has to be a significant predictor of HIGH EXPECTATIONS and (3) HIGH EXPECTATIONS has to be a significant predictor of PERFORMANCE-APPROACH. If all of the three significant associations exist, the decision is to retain the mediation path for the actual mediation test. Otherwise, the mediation path is deleted. This procedure is repeated for all potential (eight) mediation paths of RQ2. However, as we can see from Fig. 2, FEMALE is not correlated with MASTERY-APPROACH, PERFORMANCE-AVOIDANCE and MASTERY-AVOIDANCE (that is, the subpath a in Fig. 1), and thereto Baron & Kenny (1986) can be satisfied only in the case of paths FEMALE = > HIGH EXPECTATIONS = > PERFORMANCE-APPROACH (Table 4, Panel A) or FEMALE = > LOW EXPECTATIONS = > PERFORMANCE-APPROACH (Table 4, Panel B). Concerning RQ3, there are in total 12 potential mediation paths. However, path a (please see Fig. 1) is significant only when FEMALE is a predictor of PERFORMANCE-APPROACH. Therefore, we present in the above Table three paths that have the possibility to satisfy Baron & Kenny (1986). Steps required for the mediation are: FEMALE = > PERFORMANCE-APPROACH = > EXAM POINTS (Panel C), FEMALE = > PERFORMANCE-APPROACH = > TEAMWORK (Panel D), and FEMALE = > PERFORMANCE-APPROACH = > TOTAL POINTS (Panel E). The letters a, b, c, d and e denote the paths presented in Fig. 1.

(mediates) this association. When we use alternative modes of assessment, teamwork or total points as measures of course performance, we find no mediation effect. Consequently, our study contributes to the literature by showing that the role of the achievement goal as a mediator between gender and course performance depends on the mode of assessment.

To interpret our findings, we consider whether the mode of assessment (one component of the learning environment) favours certain qualities, attributes and knowledge, which on average benefit men more than women. Some prior studies have suggested that men prefer exams as an assessment method, whereas women prefer coursework (e.g., Furnham & Chamorro-Premuzic, 2005) and are better in collaborative learning (e.g., Curseu et al., 2018). Hence, we conjecture that the assessment of the course may have had some impact on our findings. Although various modes of assessment (exam and teamwork) were used in the course, somewhat more emphasis was placed on the course exam points (maximum 60/106 points), which may slightly favour those adopting the performance-approach goal. Collectively, the assessment and context features, competitiveness and the perception of accounting as a masculine field may constitute the underlying drivers of the gender differences in course performance. This is because the greater competitiveness of men may enhance their performance, leading to higher exam points; male students' performance is driven by the

desire to outperform others, especially in the masculine field of accounting.

From a practical point of view, our study sheds light on fundamental aspects of challenging and changing the learning environment of business schools' accounting courses. Any learning environment should be designed to be inclusive and not biased towards the learning orientation and expectations of any gender. While female students enter university with a somewhat higher level of prior knowledge, it is alarming that according to our results, they consider accounting a less attractive learning prospect than do their male counterparts. We conjecture that this is due to the perception of accounting as a masculine field. Haynes et al. (2017, p. 116) point out that given 'the masculine history of the [accounting] profession, stereotypes may be difficult to shift ...'. If stereotypes could be changed, women might be encouraged to compete in stereotypically male tasks (Niederle & Vesterlund, 2011). The first-year introductory accounting course can be pivotal in this regard. That is, it can encourage or discourage students from further study of accounting (Duff & Mladenovic, 2015, p. 325).<sup>17</sup> Hence, accounting educators in business schools should actively strive to mitigate any potential harmful gender role stereotypes regarding the accounting field. The lower exam performance of female students resulting from their less competitive goal-setting orientation is a worrying problem. It merits consideration in designing accounting education that should ensure all students equal chances to perform well.

Next, we will present potential remedies for the negative implications of gendered expectations and achievement goals in studying accounting, addressing both gender role stereotypes in accounting and gender differences in competitiveness. Strengthening support from peers and faculty is essential for gender inclusivity (Looze et al., 2018) and for mitigating competitive pressure particularly perceived by females (Niederle & Vesterlund, 2010). Peer tutoring, for example, may be effective in providing support for students by creating a realistic perception of accounting. Further, a more equal number of males and females in business schools may alleviate the gender gap in competitiveness because 'the gender composition of a group influences the individual's willingness to compete' (Niederle & Vesterlund, 2011, p. 622). Business schools could also implement practices to increase the number of female top-ranked faculty members to alleviate the gender imbalance (e.g., Treviño et al., 2017).

Considering the introductory accounting course learning environment, Mladenovic (2000) suggests that alignment (cf. Biggs, 1996) is the most effective approach in changing students' perceptions of accounting. Accordingly, improving the alignment of objectives, curriculum, teaching methods and assessments from the perspective of gender neutrality and inclusivity could successfully alleviate gender differences in expectations, goal setting and performance. Following the ideal of an aligned gender-neutral course environment, an assessment method with more emphasis on collaboration and group projects could be used to mitigate the consequences of gender differences. Gender neutrality can also be enhanced by communicating how both males and females are able to succeed in the profession.<sup>18</sup> Such success could be brought to the attention of students using gender-balanced panel discussions by accounting professionals. As suggested by Niederle and Vesterlund (2011, p. 623), 'particularly successful may be institutions that simultaneously improve women's beliefs about their relative performance and increase the comfort they experience when competing'. In summary, there are various ways in which gender-specific aspects could be taken into consideration when accounting educators design their courses.

Our paper is subject to some limitations. First, we use biological gender as our independent variable, as is commonplace in the education literature. Nevertheless, it has been pointed out in the literature that gender is not necessarily binary or fixed. Hence, it would be fruitful to consider an individual's endorsement of masculine and feminine personality traits (e.g., Bebbington et al., 1997; Paver & Gammie, 2005). We agree with Severiens and Ten Dam (1997), who suggest that scholars could alternatively account for the gendered attributes and behaviours which the students have learned throughout their lifetimes by using constructed gender (i.e., gender identity) instead of just biological gender.

Second, we limit our study to students' achievement goals in an introductory accounting course. Our research could be extended by using our research design to cover other accounting courses. Future scholars could also extend our cross-sectional approach by addressing the dynamism of goal-orientations and expectations in longitudinal studies. Such dynamism may take many forms. For example, gender differences in risk-taking and competitiveness may diminish with experience, profession (Croson & Gneezy, 2009; Whiting & Wright, 2001) and age (Flory et al., 2018). Research has found that gender-specific achievement goal-orientation can change over time (e.g., D'Lima et al., 2014). Moreover, Ferreira and Santoso (2008) show that students' positive and negative perceptions of studying accounting may change to some extent during their studies. Finally, regarding course performance, both Doran et al. (1991) and Koh and Koh (1999) found that gender differences decrease over time, that is, during the later study years.<sup>19</sup>

Third, using data from a single country and a single university reduces the generalisability of the findings. However, investigating potential gender differences requires a research setting with a high level of gender equality in order to address the concern that major inequalities would bias the findings. Finland offers such a setting because among the Nordic countries, gender equality is at a higher level than in other countries (Looze et al., 2018). While we examine gender differences in achievement goals for an introductory accounting course in a largely gender-balanced setting, future research could examine this research question in a setting where

<sup>17</sup> For example, Mladenovic (2000) examines how the design of the introductory accounting course could facilitate students' development of realistic perceptions of accounting.

<sup>18</sup> Indeed, females show stronger performance than men in many areas of financial management. For example, prior studies have found associations between female CFOs and better bank loan prices (Francis et al., 2013), greater accounting conservatism (Francis et al., 2015), and fewer operations-related lawsuits in firms where women have more power in top management (Adhikari et al., 2019).

<sup>19</sup> In general, although some studies do suggest gender differences in accounting course performance in the later study years (e.g., Bible et al., 2007; Gammie et al., 2003; Gracia & Jenkins, 2003; Mutchler et al., 1987; SurrIDGE, 2009), several studies report no gender differences (e.g., Fallan & Opstad, 2014; Fogarty & Goldwater, 2010; Keef & Roush, 1997; Paver & Gammie, 2005; Tickell & Smyrniotis, 2007).

equality is not as advanced as it is in the Nordic countries.

Fourth, scholars have suggested that individual-level social support systems related to support from family, student peers and schools may be essential in creating gender equality (Looze et al., 2018). Accordingly, future studies could extend our study by addressing how the various support systems influence students' goal orientation and course performance rather than gender per se.

Fifth, in our study, we focus on gender as a factor explaining achievement goals and expectations of learning. As a limitation, we acknowledge that our structural model could benefit from additional variables beyond our reach. Namely, studies have shown that achievement goals can be associated with personality (see e.g., Payne et al., 2007; Bibb et al., 2008), culture (e.g., in terms of race/ethnicity/nation of origin) (see Zusho & Clayton, 2011), upbringing (Singhal & Misra, 1994) and familial positioning (birth order/only-child influence) (Carette et al., 2011). In a similar vein, students' expectations of studying different disciplines may be related to personality (Pike, 2006), culture (Auyeung & Sands, 1997), upbringing (Tan & Laswad, 2006) and familial positioning (Morales, 1994).

Finally, although the sample size is sufficient for our analysis, we acknowledge that with a larger sample, statistical associations would potentially be stronger. However, we would like to point out that the sample of more than 1700 observations in the additional tests of course performance is clearly a large sample. Also, future qualitative research could provide further insights into gender differences in students' competitiveness and motivation for studying introductory accounting. Overall, the gender-driven differences documented in this study should be addressed in future research to identify potential reasons and remedies for them.

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## Appendix

Variable definitions	
Variable:	
FEMALE	Equals 1 if the student is female, and zero if the student is male.
PERFORMANCE-APPROACH	Latent CFA construct represented by the performance-approach goal items based on responses to the inventory AGQ-revised (Elliot & Murayama, 2008).
MASTERY-APPROACH	Latent CFA construct represented by the mastery-approach goal items based on responses to the inventory AGQ-revised (Elliot & Murayama, 2008).
PERFORMANCE-AVOIDANCE	Latent CFA construct represented by the performance-avoidance goal items based on responses to the inventory AGQ-revised (Elliot & Murayama, 2008).
MASTERY-AVOIDANCE	Latent CFA construct represented by the mastery-avoidance goal items based on responses to the inventory AGQ-revised (Elliot & Murayama, 2008).
HIGH EXPECTATIONS	Latent CFA construct represented by the high expectations of learning accounting items (adopted from Duff & Mladenovic, 2015).
LOW EXPECTATIONS	Latent CFA construct represented by the low expectations of learning accounting items (adopted from Duff & Mladenovic, 2015).
EXAM POINTS	Exam points from the final exam of the introductory accounting course (max 60 points).
TEAMWORK	The total teamwork points (max 26 points).
TOTAL POINTS	The total course points (max 106 points).
PRIOR KNOWLEDGE	High school grade point average (max 40).
AGE	Student age (years).

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