



# The determinants of undergraduate accounting students' early participation in professional examinations

Omotola Adedoyin Ezenwoke, Uchenna Rapuluchukwu Efobi, Abiola John Asaley & Damilola Eluyela Felix |

To cite this article: Omotola Adedoyin Ezenwoke, Uchenna Rapuluchukwu Efobi, Abiola John Asaley & Damilola Eluyela Felix | (2020) The determinants of undergraduate accounting students' early participation in professional examinations, Cogent Education, 7:1, 1818411, DOI: [10.1080/2331186X.2020.1818411](https://doi.org/10.1080/2331186X.2020.1818411)

To link to this article: <https://doi.org/10.1080/2331186X.2020.1818411>



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.



Published online: 22 Sep 2020.



Submit your article to this journal [↗](#)



Article views: 351



View related articles [↗](#)



View Crossmark data [↗](#)



Received: 02 March 2020  
Accepted: 27 August 2020

\*Corresponding author: Damilola Eluyela Felix, Department of Accounting and Finance, Landmark University, Omu-Aran, Nigeria  
Email: [eluyela.damilola@lmu.edu.ng](mailto:eluyela.damilola@lmu.edu.ng)

Reviewing editor:  
May Cheng, Education University of Hong Kong, Hong Kong

Additional information is available at the end of the article

## PROFESSIONAL EDUCATION & TRAINING | RESEARCH ARTICLE

# The determinants of undergraduate accounting students' early participation in professional examinations

Omotola Adedoyin Ezenwoke<sup>1</sup>, Uchenna Rapuluchukwu Efobi<sup>1</sup>, Abiola John Asaleye<sup>2</sup> and Damilola Eluyela Felix<sup>3\*</sup>

**Abstract:** The quest for undergraduate Accounting students to obtain a professional certification early is being propagandised to boost chances upon graduation in securing well-paying job and enhancing a career path in Accounting. The study provides evidence on the idiosyncratic differences among students who are undergoing a professional programme while acquiring a first degree and students who only focused on the first degree. The study participants include 107 registered second-year Accounting students studying in Nigeria. Measures of personal characteristics, parental characteristics academic characteristic, prior academic performance, activities in leisure time, reading habits and current academic performance were used to ascertain the differences. The Independent Sample *T*-test and Binary logistics regression were used to analyse the data obtained from the survey, also copies of questionnaires were administered to the

### ABOUT THE AUTHORS

Omotola Adedoyin Ezenwoke holds a PhD in Accounting. She is a faculty of Covenant University, where she teaches Financial, Management Accounting and Accounting Information System courses at undergraduate and post-graduate level. Her research interests are in Accounting Education, Financial Reporting and Accounting Information System.

Uchenna Rapuluchukwu Efobi is a faculty in the College of Business and Social Sciences, and a Research Fellow at Centre for Economic Policy and Development Research, Covenant University, Nigeria. His PhD concerned International Trade and Finance in the SSA region.

Abiola John Asaleye obtained PhD Economics at Covenant University, Ota, Nigeria. Dr Asaleye is currently a faculty at Landmark University, Nigeria. His areas of interest are international economics, development economics and labour economics.

Eluyela Damilola Felix is a Lecturer in department of Accounting and Finance, Landmark University. He is an associate member of Association of Chartered Certified Accountants (ACCA). His research interest includes Corporate Governance, Financial Reporting and Environmental Accounting.

### PUBLIC INTEREST STATEMENT

Professional certification creates value to candidates. It provides an efficacious entry into practice as it offers a platform to expand network, upgrade skills, competence and stay informed about the changes, trends and rules of professional engagement. Identifying the idiosyncratic difference of undergraduate accounting students who seek professional certification in accounting early while pursuing a Bachelor's degree from those who pursue professional certification in accounting later or not at all is crucial to student involvement. Understanding these attributes based on the conclusion reached in this study will assist accounting educators to proffer a viable model on students' choice of participation. This research is deemed relevant as it highlights effects of personal characteristics, parental characteristics academic characteristic, prior academic performance, activities in leisure time, reading habits and current academic performance.

respondents. Our findings indicate that mother's field of qualification in the sciences, Grade point Average (GPA) before professional examinations and Cumulative Grade Point Average (CGPA) have a positive and significant influence on participation in the professional certification programme. We conclude that students' current academic achievements instil confidence to undergo more academic rigour.

**Subjects: Educational Research; Teaching & Learning; Continuing Professional Development**

**Keywords: professional; examination; certification; accounting; academic and performance; students**

### 1. Introduction

Possessing a professional certification in any given field differentiates an individual from an amateur. This is, however pivotal in today's career landscape where highest standard of expertise and engagement is required. The attainment of quality education just as prescribed in goal four of the sustainable development goal makes it imperative for students to seek professional qualification in addition to the University education. Professional certification bodies play roles, such as; examining and qualifying candidates, providing and enforcing codes of ethics for members, support client engagements (Payne, 2002).

In Accounting field, obtaining a professional qualification provides an efficacious entry into the accounting practice (Mihret et al., 2017). Undergoing a professional certification in accounting affords the candidate upon conclusion the opportunity to expand network and stay informed about the changes, trends and rules in the accounting profession. Besides the profits of professional accountancy to candidates, it also creates public value by making the Accounting profession continually to be in the front line of maintaining and protecting the quality of private and public financial reports (Jui & Wong, 2013). Professional certification closes the gaps hitherto left from the traditional school system that is vital to the practice of the accounting profession. It is claimed to upgrade the skill and competence of students as it focuses on a particular field that is essential for the practice of accounting.

In Nigeria, The Institute of Chartered Accountants of Nigeria (ICAN) and the Association of National Accountants of Nigeria (ANAN) are the two professionally recognised accounting bodies (Iyoha et al., 2010). The Accounting Technician Scheme of West Africa (ATSWA) operates under the Institute of Chartered Accountant of Nigeria (ICAN). Accounting Technician Scheme (ATSWA) intermediates for candidates who do not possess a bachelor degree in Accounting yet, to begin by writing all the twelve papers in ATSWA syllabus. Upon completion of the ATSWA examinations, candidates can proceed to write the second stage of professional examinations. However, for candidates that have obtained a Bachelor degree in Accounting, all which is required is to skip the ATSWA stages and proceed to write the professional examinations.

The quest for undergraduate students to be professionally certified while undergoing a Bachelor's degree has been on the increase. The argument that undertaking a professional certification program whilst acquiring Bachelor's degree are being propagandise to boost students' chances upon graduation in securing well-paying job, enhancing prestige amongst colleagues and advancing the chosen career path. However, this argument may be inconsistent considering the rigour of the professional certification which might be antithetical to students' first-degree academic performance.

Prior accounting literature associates awareness, motivations and readiness as perceived significant factors influencing students' decision for professional accounting education (Byrne & Flood, 2005; Byrne et al., 2012; Samsuddin et al., 2015). Other perceived factors identified in literature are the significant role of faculty and management (Anggraeni et al., 2018). In addition,

interest/ambition, parent desired, opportunities and salary scale constitute other perceived indicators influencing students' participation (Samsuri et al., 2016)

However, there is lack of empirical evidence highlighting the individual students' peculiarities influencing this choice before graduation. Also, while extant literature evaluates students' perception this study evaluates actual students' idiosyncratic features influencing participation. The idiosyncratic differences represent individual characteristics that distinguishes one student from another. These dispositions are seen in age, gender, behavioural pattern, ethnicity and ability. Previous studies situate that the idiosyncratic differences pose significant influence on students' academic performance (Brandmiller et al., 2020; Van der Kleij, 2019).

Precisely, the impact of students' characteristics in early participation in Accounting professional examination has not be highlighted in past literature. On another spectrum, undergraduate students involving in professional examinations have more work load than students not engaged in professional studies. Theoretically, there is no consensus on the implications of workload on performance. The multiple resource theory (MRT) stressed that multi-tasking will improve performance (Ganster & Rosen, 2013). On a contrary view, reduction of cognitive load has a positive significant impact on performance (Schnotz & Kürschner, 2007).

This study contributes to the understanding of professional certification amongst undergraduates accounting students. This is being demonstrated by highlighting the differences among students who are undergoing a professional certification programme while acquiring a first degree and students who only focused on acquiring a first degree based on cognitive load theory. The differences amongst these two groups of students are explored based on their personal characteristics, parental characteristics, prior academic performance, activities in leisure times, reading habits and current academic performance. To address the gap identified in the study specifically, the following research questions were formulated:

1a: Are older students highly probable to participate in ATSWA than Younger Students.

1b: Do female students significantly participate in ATSWA than male students.

1 c: Are there significant mean differences in the monthly allowance of ATSWA students versus non-ATSWA students

2a: Do Mothers' field of qualification in Commercial class significantly influence ATSWA participation compared to Science or Arts class

2b: Do Mothers' field of occupation in Commercial class significantly influence ATSWA participation compared to Science or Arts class

3a: Are there significant differences in the JAMB score of ATSWA Students vis-à-vis non-ATSWA Students.

3b: Do Students with an "A grade" in the Senior Secondary School Certification Examination (SSCE) Accounting subject more likely to participate in ATSWA than students with a C grade.

4: Are there differences in the activities performed by ATSWA student in their leisure time compared to non-ATSWA participants.

5a. Do students' who "rarely" read less likely to participate in ATSWA than students who "always" read.

5b: Are ATSWA participant more likely to read more in minutes than non-ATSWA students.

6a: Are there significant differences in the Grade Point Averages of the two groups of students (students who participated in ATSWA and students who did not participate in ATSWA) before ATSWA participation.

6b: Are ATSWA students more likely to have a higher Cumulative Grade point Averages (CGPA) than non-ATSWA students.

The rest of the paper is organised as follows. Section 2 critically review literature on personal characteristics differences, parental academic characteristic differences, prior academic performance, activities in leisure time, reading habits and current academic performance. Section 3 describes the research method, section 4 discusses the results and section 5 concludes.

## 2. Literature review

### 2.1. Personal characteristic differences

Personal features such age, level of income and gender can account for different intellectual decisions among group of students (John et al., 2018). In as much as these characteristics are not intellectual in nature, they can explain the reason for some variations in intellectual decisions. Among the factors that have been linked to cognitive features, attitudes to studying, approaches to learning, academic achievement, engagement in academic and non-academic activities, personality play a prominent role (Bottesi et al., 2018; Carvalho, 2016; Ehrtmann & Wolter, 2018). Students' age as an attribute of personality are associated with their cognitive development and academic maturity (Ebenuwa-Okoh, 2010). Academic maturity plays out when students can manage related academic activities effectively. Neither one should be compromised for the other. Older students are judged to be willing to commit to academic rigour than younger students (Zeegers, 2001).

Students' monthly allowance impacts on spending choice behaviour. Some studies have associated higher monthly allowance spending on social pleasure goods like beauty products, tobacco use and excessive purchase of energy drinks (Barnag, 2017; Erdem, 2015; Simanjuntak & Musyifah, 2016). Students' with lower monthly allowance on the other hand, may not have the luxury of receiving additional allowance required to purchase some of these social pleasure goods. This could be as a result of the financial commitment on other academic activities that they are involved in.

On gender differences, there are mixed findings of its effects on academic outcome. Some studies confirmed gender differences (Carvalho, 2016; Jabor et al., n.d.; Weis et al., 2013). For instance, Ehrtmann and Wolter (2018) notes that female did better than male in reading whilst the male did better than female in numeracy. Also, Carvalho (2016) findings show that females have higher achievement indicators than male. Meanwhile, others did not find significant gender differences (Abubakar & Dokubo Oguguo, 2011; Ebenuwa-Okoh, 2010; Fischer & Sliwka, 2018; Gibb et al., 2008). Against the background of previous researches that confirm the association of personal characteristics to cognitive developmental outcome.

### 2.2. Parental academic characteristic differences

It can be argued that children can potentially benefit from Parental resources (Erola et al., 2016; Harding, 2015). These resources include academic background, field of occupation, cultural, capital, social status, networks, economic and material resources (Erola et al., 2016). In addition to these, parents can pass down genetic makeup that influences children cognitive skills, non-cognitive traits and physical characteristics. All of which can contribute significantly to children outcome. In the like hood that a child will participate in an accounting professional examination while undergoing a first degree, parental support might play a huge role. This is drawn on the premise that the level of parents' education indicates educational qualifications and occupational choices.

Parents who have an accounting or commercial background may encourage their wards to pursue a professional Accounting certification on time than parents who are not. Empirically, parental education affects the choice of child's field of study. Also, it increases the chance of the child's choice of field of study between 10% and 20% (Georg & Bargel, 2017). More cogently, the role of mothers is pivotal to children academic choices and achievement (Zhao & Wang, 2014). Children with more educated mothers have higher academic expectations themselves (Augustine & Crosnoe, 2010).

### **2.3. Prior academic performance**

Prior academic performance is indicative of later academic performance (Asarta & Schmidt, 2017; Soares et al., 2015). One of the reasons responsible for this could be the confidence gained from previous academic success being a motivator in subsequent academic performance. Another reason is that prior academic success forms the prerequisite for advancement in a specific field. Empirically, several studies have found high correlation between prior academic performance and later academic performance (Deary et al., 2007; Mackintosh & Nicholas, 2011). For instance, Deary et al. (2007) found a strong correlation between intelligence at the age of 11 and educational achievement at the age of 16 in 25 academic subjects. While, (Mackintosh & Nicholas, 2011) revealed a 50% correlation between 11-year-olds' intelligence scores and later educational achievement at the age of 16.

### **2.4. Activities in leisure times**

Students' activities in leisure times include extracurricular activities. Participation in extracurricular activities exposes students to an environment of social network (Chiu & Lau, 2018). There is a significant body of literature linking extracurricular activity participation and positive educational outcomes. Specifically, a study indicates that greater educational aspirations is linked with extracurricular activities participation (White et al., 2018). Another study, associates high-grade points in school with participation in extracurricular activities (Knifsend & Graham, 2012). A longitudinal study of 10th graders report that greater participation in interscholastic and intramural sports and school-based activities (e.g. school band or chorus, student government) impacts on higher educational status two and four years later (Fredricks, 2012).

### **2.5. Reading habits**

Reading is an essential life skill and an active tool for learning (Erdem, 2015). Participating in a professional certification programme while undergoing a first degree can be a daunting task that will require a lot of learning to be successful in both. Acquiring knowledge through reading will play a major role in the learning process (Soliman & Neel, 2009). Due to the volume of information that is required to be assimilated, students may require to dedicate time periods for reading and cultivate reading habits. Previous researches have used items such as reading frequency, purpose of reading (Erdem, 2015) attitudes towards reading, reading hours (Al Husaini, 2013) reading resources (Soliman & Neel, 2009) to understand reading habits of university students. On the impact of students reading habits on academic achievement, Karadeniz and Can (2015) find a positive and significant correlation between the reading habits and grade points averages. Gao et al. (2018) posit that an improvement in reading skills will boost academic achievements. Odukoya et al. (2018) note that first-class students indicate higher rates of deeper study than third class students.

### **2.6. Current academic performance**

Student confidence to undergo more academic rigour is influenced by their current academic performance (Fischer & Sliwka, 2018). Grade Point Average (GPA) is a valid predictor of undergraduate academic performance and competence (Houglum et al., 2005). Students with higher GPA are seen to have performed well academically compared to students with lower GPA (Xu & Sansgiry, 2018). Also, academic performance implies competence which indicates better knowledge comprehension. High knowledge comprehension will be required by Students who undergo an undergraduate degree program alongside a professional certification program for success to be

attained. Literature provides empirical results on the factors influencing GPA (Arco-Tirado et al., 2018; Gibbison et al., 2011; Grineski et al., 2016; Xu & Sansgiry, 2018). However, scanty studies exist on the association between GPA and students' competences. One of such study, Codier and Odell (2014) specifically demonstrates that total emotional intelligence correlates significantly with GPA. Also, Greiff et al. (2015) found a significant correlation between complex problem-solving skills and weighted mean grade score. Hence, the following research questions were put forward.

### **2.7. Theoretical underpinning**

Cognitive load theory hinges on human cognition. The human cognition has a working memory that is limited thus has capacity to process loads of information at a specific time. However, there exists a free remaining capacity in the human memory that can be directed to other things (Vasile et al., 2011). Furthermore, the concept of redline overload has been introduced as the point when individual crosses from a safe and effective work load combination to a dangerous and ineffective workload combination (Wickens, 2008).

In this work, we employed the cognitive load theory to model two groups of students. The first group being students who combine writing a professional examination while undergoing a first-degree program and students in the same class who only focused on the first-degree program. In line with the cognitive theory, working memory in humans are limited as such cognitive overload can result when working memory is not properly managed (Vasile et al., 2011). Also, cognitive overload weakens schema acquisition, later resulting in a lower performance (Sweller, 1988).

The first group is modelled to be students that might have an incidence of cognitive overload, being that they are saddled with varied and complex information from the two programmes instructional materials. We assume that this first group of students that participates in a professional certification programme while undergoing a first degree is faced with a daunting task that requires a lot of learning to be done in order to achieve success in the two programmes. The second group is modelled to be students that might not have an incidence of cognitive overload being that they are required to focus and be successful in only the undergraduate programme.

## **3. Method**

Our focus is to model what specific characteristics differentiate students who combine writing a professional examination while undergoing a first-degree program and students in the same class who only focused on the first-degree program. The students' *T*-test and the Binary logistic regression model were used to estimate the differences.

### **3.1. Participants**

The participants in this survey were 200 level students studying Accounting in a Private University in South-west Nigeria. All the 107 registered 200 level Accounting students were targeted for the survey.

### **3.2. Procedure**

Data were collected through a carefully structured multi-item scale questionnaire to obtain information from the participants. The questionnaire is structured in a way that gives the respondent the opportunity to rank items in a designated scale, choose from a list of options, and supply answers to some open-ended questions. The questionnaire comprises six sections. The six sections relate to the component of personal characteristics, parental characteristics, prior academic performance, leisure activities, reading habits, current academic performance. A total of 107 copies of the questionnaire were manually distributed for the survey. In order to get a good response rate, copies of the questionnaire were distributed after a class session. However, only 98 (92%) were filled and returned.

### **3.3. Measures**

The dependent variable is students' professional examination participation. '1' for participation and '0' for non-participation. The independent variables are personal characteristics, parental

characteristics, prior academic performance, activities in leisure times, reading habits and current academic performance.

### 3.3.1. *Personal characteristics*

Measures used to capture personal characteristics are age, gender, monthly allowance. Participants were asked to tick their gender; '1' for male and '2' for female. The exact age of the participants in numeric form was required. Allowance was captured using monthly upkeep allowance in Naira.

### 3.3.2. *Parental characteristics*

Parental characteristics were identified by parents' highest educational qualification, field of academic qualification and field of occupation. On parents' highest educational qualification, Participants were asked to tick from a list of options coded as '1' for primary school leaving certificate, '2' for senior school certificate examination (SSCE), '3' for Nigeria certificate of education 4' for diploma, '5' for Bachelor's degree, '6' for Master's degree, "7' for Doctoral degree. On field of parents' academic qualification, participants were required to tick from a list of options coded as '1' for Science, '2' for commercial, "3' for Arts and Humanities. On parents' field of occupation participants were required to write parents occupation. This was later coded for analysis as '1' for Science-related domain, '2' for commercial-related domain, '3' for Arts and Humanities related domain.

### 3.3.3. *Prior academic performance*

The overall scores in Joint Admission Matriculation Board (JAMB) and grades in Senior School Certification Examination (SSCE) were used for the study. For SSCE grade, prerequisite courses (Mathematics, English Language, Economics, Accounting, Biology and Commerce) required to study accounting in the Participants University were indicators of prior academic performance. The total score for JAMB is 400 and grades for SSCE are 'A1' for Excellent, 'B2' for Very good, 'B3' for Good, 'C4' for Credit 'C5 and C6' for Credit, 'D7 and E8' for Pass, 'F9' for Failure. This was coded for analysis as '1' for A, '2' for B, '3' for C, '4' for D, '5' for E and '6' for F

### 3.3.4. *Activities in leisure time*

Participants were required to tick from a list of 12 activities they involve in during their leisure time aside their academics. Also, they were required to rank the social activities ticked. The ranking was done on a scale of 1–12 with '1' being the most involved and '12' being the least involved. The social activities include; playing of games, watching of movies, watching television, listening to songs, gisting with friends, sleeping or resting, reading of non-academic literatures (novels, newspaper), taking pictures (selfies, photoshoots), hanging out with friends, social media engagement, sporting activities and blogging.

### 3.3.5. *Reading habits*

Questions on how participants evaluate themselves as a reader, reading frequency and daily reading time in minutes were indicators of reading habits. On reading evaluation, '1' denotes a 'good reader', '2' denotes an 'average reader' and '3' denotes a 'bad reader'. On reading frequency, '1' denotes 'always', '2' denotes 'most of the times', '3' denotes 'some of the times', '4' denotes 'rarely'.

### 3.3.6. *Current academic performance*

Measures of current academic performance include Grade point average (GPA) before ATSWA, GPA after ATSWA, Cumulative grade point Average (CGPA), Accounting score before ATSWA, Accounting score after ATSWA, Statistics score before ATSWA, Statistics score after ATSWA, Economics score before ATSWA, Economics score after ATSWA. The exact GPA and CGPA on a 5point scale were required.

## 4. **Presentation of results**

The first section reports the mean difference (independent sample *T*-test) of students who participated in ATSWA and those who did not participate in ATSWA. In view of the research questions



raised in this study, the second section addresses results from the Binary logistic regression. The result was based on the data in the six main constructs: personal characteristics, parental characteristics, prior academic performance, activities in leisure time, reading habits and current academic performance.

**4.1. Results from the independent sample t-test**

On the result from the independent sample T-test, the goal is to report if there is a statistical significant differences between the mean of the two groups of students. From the result, measures of gender and age do not show statistical significance. However, mean differences between ATSWA students and Non-ATSWA student are significant for monthly upkeep allowance (*p* value: 0.02) (see Table 1).

There were no significant differences in the mean of students who participated in ATSWA and students who did not participate in ATSWA for all measures of parental characteristics (see Table 2).

Mean differences in students' prior Academic performance is statistically significant for JAMB Score (*p* value: 0.02), SSCE economics grade (*p* value: 0.03) and SSCE Commerce grade (*p* value: 0.04). While mean differences in SSCE Maths grade, SSCE English grade, SSCE Accounting grade and SSCE Biology grade is not statistically significant (see Table 3).

There were no significant differences in the mean of students who participated in ATSWA and students who did not participate in ATSWA for all measures of activities in leisure time (see Table 4).

Measures of reading habits such as reading evaluation, frequency of reading were statistically significantly different for ATSWA Participant and ATSWA non-participant. While daily reading in minutes is not statistically significantly different for ATSWA Participant and ATSWA non-participant (see Table 5).

All the measures of current academic performance were statistically significant except for Economics score after ATSWA (*p* value: 0.73). The measures that were statistically significant include, GPA before ATSWA (*p* value: 0.00), GPA after ATSWA (*p* value: 0.03), CGPA (*p* value: 0.00) Accounting score before ATSWA (*p* value: 0.00), Accounting score after ATSWA (*p* value: 0.00), Statistics score before ATSWA (*p* value: 0.00), Statistics score after ATSWA (*p* value: 0.03), Economics score before ATSWA (*p* value: 0.01), Economics score after ATSWA (*p* value: 0.73) (see Table 6).

**4.2. Results from binary logistics regression**

In view of the research questions raised, this section reports results from binary logistic regression to model the probability of ATSWA participation. The coefficient of female is positive but not statistically significant in the participation of ATSWA. (coefficient: 0.229, *p* value: 0.796). The result

**Table 1. Independent sample T-tests on personal characteristics**

| Measures  | ATSWA Students |          | Non-ATSWA Students |          | t     | df    | p value |
|-----------|----------------|----------|--------------------|----------|-------|-------|---------|
|           | Mean           | Std Dev  | Mean               | Std Dev  |       |       |         |
| Gender    | 1.78           | 0.42     | 1.66               | 0.48     | 1.27  | 96.00 | 0.21    |
| Age       | 18.33          | 0.76     | 18.32              | 0.59     | 0.09  | 75.00 | 0.93    |
| Allowance | 30625.00       | 10530.29 | 38692.31           | 18000.59 | -2.30 | 82.00 | 0.02*   |

\* = significant at 0.01 and 0.05 levels.

**Table 2. Independent sample T-tests on parental characteristics**

|                                 | ATSWA Students |         | Non-ATSWA Students |         | t     | df    | p Value |
|---------------------------------|----------------|---------|--------------------|---------|-------|-------|---------|
|                                 | Mean           | Std Dev | Mean               | Std Dev |       |       |         |
| Father's Qualification          | 5.65           | 0.73    | 5.72               | 0.91    | -0.37 | 78.00 | 0.71    |
| Mother's Qualification          | 5.29           | 0.94    | 5.42               | 0.90    | -0.60 | 80.00 | 0.55    |
| Father's Field of Qualification | 1.78           | 0.71    | 2.10               | 4.46    | -0.42 | 86.00 | 0.67    |
| Mother's Field of Qualification | 1.76           | 0.76    | 2.02               | 0.75    | -1.61 | 87.00 | 0.11    |
| Father's Occupation field       | 1.72           | 0.94    | 1.67               | 0.79    | 0.30  | 85.00 | 0.77    |
| Mother's Occupation field       | 1.73           | 1.24    | 2.14               | 1.36    | -1.44 | 86.00 | 0.15    |

**Table 3. Independent sample T-tests on prior academic performance**

|                       | ATSWA Students |         | Non-ATSWA Students |         | t     | df    | p Value |
|-----------------------|----------------|---------|--------------------|---------|-------|-------|---------|
|                       | Mean           | Std Dev | Mean               | Std Dev |       |       |         |
| JAMB Score            | 231.87         | 22.20   | 221.35             | 19.30   | 2.40  | 88.00 | 0.02*   |
| SSCE Maths grade      | 1.85           | 0.83    | 2.13               | 0.74    | -1.65 | 83.00 | 0.10    |
| SSCE English grade    | 2.35           | 0.49    | 2.46               | 0.61    | -0.83 | 81.00 | 0.41    |
| SSCE Accounting grade | 1.60           | 0.72    | 1.89               | 0.75    | -1.66 | 73.00 | 0.10    |
| SSCE Economics grade  | 1.86           | 0.74    | 2.24               | 0.68    | -2.28 | 78.00 | 0.03*   |
| SSCE Biology grade    | 2.11           | 0.69    | 2.44               | 0.73    | -1.88 | 62.00 | 0.07    |
| SSCE Commerce grade   | 1.53           | 0.78    | 1.95               | 0.91    | -2.07 | 72.00 | 0.04*   |

\* = significant at 0.01 and 0.05 levels.

shows that females are 1.257 times more likely to participate in ATSWA than their male counterparts though, not significant. Therefore, the hypothesis that female students are significantly more likely to participate in ATSWA than male students is not supported. The coefficient for Age is positive and significant (coefficient: 1.146, *p* value: 0.091), supporting hypothesis 1b. This implies that the probability to participate in ATSWA is higher as age increase by a unit.

The coefficient for mothers' field of qualification in commercial is positive and not statistically significant in the participation of ATS (coefficient: 1.194, *p* value: 0.184). Although students whose mother field of qualification is in commercial are 3.299 times more probable to participate in ATSWA examinations than students whose mother's field is in Arts and Humanities. Thus, the hypothesis that mothers' field of qualification in Commercial class significantly influences ATSWA participation compared to Science or Arts class is not supported. The coefficient for mothers' field of qualification in science is positive and significant in the participation of ATSWA (coefficient: 1.978, *p* value: 0.048). These results indicate that students whose mother field of qualification is in science are 7.230 times more probable to participate in ATS examinations than students whose mother's field is in Arts and Humanities. The coefficient for JAMB score is negative but not statistically significant (coefficient: -0.005, *p* value: 0.841). This implies that as JAMB score increase by one unit the probability to participate in ATSWA reduces by 0.005. The coefficient for SSCE accounting "A" grade is positive but not statistically significant in the participation of ATSWA (coefficient: 0.339, *p* value: 0.783). This result indicates that students who score an "A" grade in SSCE accounting course are 1.403 times more likely to participate in ATSWA than those that score a "B" grade. The coefficient for SSCE accounting "C" grade is negative but not statistically significant in the participation of ATS (coefficient: -0.479, *p* value: 0.691). This result indicates that students who score a "C" grade in SSCE accounting course are 0.620 times less likely to participate in ATSWA than those that score a "B" grade. Participants who specify to read "always" are 27.571 times more likely to participate in ATSWA than those that specify to read "rarely". The coefficient for this is positive and not statistically significant (coefficient: 3.317, *p* value: 0.160). Participants who specify to read "most of the times" are 16.152 times more probable to participate in ATSWA than those that specify to read "rarely". The coefficient for this is positive and not statistically

**Table 4. Independent sample T-tests on activities in leisure time**

|                              | ATSWA Students |         | Non-ATSWA Students |         | t     | df    | p Value |
|------------------------------|----------------|---------|--------------------|---------|-------|-------|---------|
|                              | Mean           | Std Dev | Mean               | Std Dev |       |       |         |
| Sleeping or resting          | 2.88           | 1.89    | 3.19               | 2.62    | -0.60 | 84.00 | 0.55    |
| Watching movies              | 3.16           | 2.23    | 2.81               | 2.37    | 0.68  | 87.00 | 0.50    |
| Social media                 | 3.24           | 1.94    | 3.20               | 2.02    | 0.09  | 72.00 | 0.93    |
| Reading of novel, newspapers | 3.34           | 2.84    | 4.19               | 3.76    | -0.98 | 58.00 | 0.33    |
| Listening to Songs           | 3.64           | 2.16    | 3.45               | 2.67    | 0.33  | 84.00 | 0.74    |
| Playing of games             | 4.09           | 2.97    | 3.67               | 3.08    | 0.52  | 63.00 | 0.60    |
| Taking selfies, photoshoot   | 4.25           | 3.20    | 5.64               | 3.84    | -0.91 | 28.00 | 0.37    |
| Gisting with friends         | 4.52           | 2.41    | 3.58               | 2.43    | 1.60  | 70.00 | 0.11    |
| Sporting activities          | 4.71           | 2.69    | 3.59               | 3.42    | 0.79  | 27.00 | 0.44    |
| Hanging out with friends     | 4.88           | 2.62    | 3.95               | 2.71    | 1.19  | 53.00 | 0.24    |
| Blogging                     | 5.32           | 2.60    | 4.58               | 3.54    | 0.80  | 50.00 | 0.43    |
| Watching Television          | 5.91           | 3.02    | 4.61               | 2.81    | 1.31  | 42.00 | 0.20    |

**Table 5. Independent sample T-tests on reading habits**

|                          | ATSWA Students |         | Non-ATSWA Students |         | t     | df    | p Value |
|--------------------------|----------------|---------|--------------------|---------|-------|-------|---------|
|                          | Mean           | Std Dev | Mean               | Std Dev |       |       |         |
| Reading evaluation       | 1.40           | 0.50    | 1.66               | 0.51    | -2.45 | 96.00 | 0.02*   |
| Frequency of reading     | 2.38           | 0.78    | 2.79               | 0.75    | -2.55 | 94.00 | 0.01*   |
| Daily reading in minutes | 220.69         | 121.96  | 199.53             | 101.61  | 0.82  | 73.00 | 0.42    |

\* = significant at 0.01 and 0.05 levels

**Table 6. Independent sample T-tests on current academic performance**

|                             | ATSWA Students |         | Non-ATSWA Students |         | t    | df    | p Value |
|-----------------------------|----------------|---------|--------------------|---------|------|-------|---------|
|                             | Mean           | Std Dev | Mean               | Std Dev |      |       |         |
| GPA before ATS              | 4.39           | 0.43    | 4.00               | 0.56    | 3.70 | 96.00 | 0.00*   |
| GPA after ATS               | 4.27           | 0.73    | 3.91               | 0.84    | 2.20 | 96.00 | 0.03*   |
| CGPA after ATS              | 4.31           | 0.56    | 3.93               | 0.67    | 2.97 | 96.00 | 0.00*   |
| Accounting score before ATS | 80.98          | 9.27    | 75.20              | 9.65    | 2.94 | 94.00 | 0.00*   |
| Accounting score after ATS  | 72.58          | 11.87   | 64.02              | 12.58   | 3.38 | 95.00 | 0.00*   |
| Statistics score before ATS | 69.88          | 12.15   | 58.89              | 17.55   | 3.41 | 94.00 | 0.00*   |
| Statistics score after ATS  | 78.46          | 11.73   | 71.75              | 15.78   | 2.25 | 92.00 | 0.03*   |
| Economics score before ATS  | 70.08          | 8.02    | 65.40              | 8.47    | 2.72 | 93.00 | 0.01*   |
| Economics score after ATS   | 54.55          | 14.79   | 53.60              | 12.18   | 0.35 | 96.00 | 0.73    |

\* = significant at 0.01 and 0.05 levels.

significant (coefficient: 2.782, *p* value: 0.168). Participants who specify to read “some of the times” are 19.453 times more likely to participate in ATSWA than those that specify to read “rarely”. The coefficient for this is positive and not statistically significant (coefficient: 2.968, *p* value: 0.140). The coefficient for daily reading in minutes is positive but not statistically significant (coefficient: 0.003, *p* value: 0.497). This means that the probability to participate in ATSWA increases as daily reading in minutes increases by one unit. The coefficient for GPA before ATSWA is positive and significant (coefficient: 5.450, *p* value: 0.001). This result supports hypothesis 5a. The implication of this is that

as GPA before ATSWA increase by a unit, the probability of participating in ATSWA increases. Thus, as GPA before ATSWA increase students are 232.770 times more likely to participate in ATSWA. The coefficient for CGPA is positive and statistically significant (coefficient: 2.621, *p* value: 0.006). This implies that as CGPA increases by one unit the probability to participate in ATSWA increases (see Table 7).

**Table 7. Logistic regression for gender, age, mother’s field of qualification, mother’s occupation field, JAMB score, SSCE accounting grade, frequency of reading, daily reading in minutes, GPA before ICAN and CGPA**

|                                 | B       | S.E.  | Wald   | df    | <i>p</i> Value | Exp(B)  |
|---------------------------------|---------|-------|--------|-------|----------------|---------|
| Gender                          |         |       |        |       |                |         |
| Male (RC)                       |         |       |        |       |                |         |
| Female                          | 0.229   | 0.885 | 0.067  | 1.000 | 0.796          | 1.257   |
| Age                             | 1.146   | 0.679 | 2.853  | 1.000 | 0.091*         | 3.146   |
| Mother’s Field of Qualification |         |       |        |       |                |         |
| Arts and Humanities (RC)        |         |       |        |       |                |         |
| Science                         | 1.978   | 1.001 | 3.903  | 1.000 | 0.048*         | 7.230   |
| Commercial                      | 1.194   | 0.899 | 1.764  | 1.000 | 0.184          | 3.299   |
| Mother’s Occupation field       |         |       |        |       |                |         |
| Science (RC)                    |         |       |        |       |                |         |
| Commercial                      | 2.649   | 1.723 | 2.365  | 1.000 | 0.124          | 14.141  |
| Arts and Humanities             | -0.179  | 0.896 | 0.040  | 1.000 | 0.842          | 0.837   |
| JAMB score                      | -0.005  | 0.024 | 0.040  | 1.000 | 0.841          | 0.995   |
| SSCE Accounting grade           |         |       |        |       |                |         |
| “B” grade (RC)                  |         |       |        |       |                |         |
| “A” grade                       | 0.339   | 1.230 | 0.076  | 1.000 | 0.783          | 1.403   |
| “C” grade                       | -0.479  | 1.205 | 0.158  | 1.000 | 0.691          | 0.620   |
| Frequency of reading            |         |       |        |       |                |         |
| Rarely (RC)                     |         |       |        |       |                |         |
| Always                          | 3.317   | 2.360 | 1.976  | 1.000 | 0.160          | 27.571  |
| Most of the times               | 2.782   | 2.017 | 1.902  | 1.000 | 0.168          | 16.152  |
| Sometimes                       | 2.968   | 2.012 | 2.176  | 1.000 | 0.140          | 19.453  |
| Daily reading in minutes        | 0.003   | 0.004 | 0.460  | 1.000 | 0.497          | 1.003   |
| GPA before ATSWA                | 5.450   | 1.682 | 10.496 | 1.000 | 0.001*         | 232.770 |
| CGPA                            | 2.621   | 0.948 | 7.638  | 1.000 | 0.006*         | 13.754  |
| Constant                        | -15.027 | 4.709 | 10.183 | 1.000 | 0.001          | 0.000   |

\* = significant at 0.01 and 0.05 levels.

## 5. Discussion

In the acquisition of quality education as pointed out in goal four of the sustainable development goals, the study provides empirical results on mean differences and model the probability of students' participation in ATSWA versus non-participation in ATSWA. Based on the results from the regression model we discuss the following. Gender does not significantly affect the participation of ATSWA. This suggests that the choice to participate in ATSWA is based on student's strong internal motivation rather than gender. This finding aligns with previous studies that do not find gender differences in academic outcome (Abubakar & Dokubo Oguguo, 2011; Eбенуwa-Okoh, 2010; Fischer & Sliwka, 2018; Gibb et al., 2008). Maturity in age is significant to ATSWA participation. This is consistent with the argument that older students are judged to be willing to commit to academic rigour than younger students (Zeegers, 2001). Students who did not participate in the ATSWA examinations have a higher monthly allowance than students who participated. Owing to this, lower monthly allowance by students who participate in ATSWA could be that parents/guardians have directed funds that could have been giving in allowance to fund the professional certification of their wards. Another dimension to this, could be that students with higher monthly allowance would be prone to be involved in spending on social pleasures as such might not be able to take up other rigorous academic commitment like writing a professional examination. Previous studies note that students between 12 and 24 age group receiving higher monthly allowance are significantly probable to be involved in social pleasures such as; online shopping, purchase of beauty products and tobacco use (Awwadh Al-Otaibi et al., 2015; Barnq, 2017; Simanjuntak & Musyifah, 2016).

From the study, parents of the two groups averagely have high levels of education (first and second degrees.). On the field of specialisation, parents of the two groups are dominantly in the science and commercial field than arts and humanities. Just as previous studies, it is clear that parental academic pedigree are pivotal to children academic choices and achievement (Georg & Bargel, 2017; Zhao & Wang, 2014). Thus, students with mothers having academic qualification in science are more likely to participate in ATSWA than those with mothers having academic qualification in arts and humanities.

Prior academic performance has been found to predict continued academic performance (Harackiewicz et al., 2008). This is evident in this study as students who participated in ATSWA had better scores and grades in their prior education than students who did not participate in ATSWA. This means that prior academic performance can be a booster to engage in more academic development scheme.

On students' involvement in social activities in leisure ATSWA students tend to be more involved in social activities like sleeping or resting, reading of novels and newspaper, taking selfies and photoshoot. While non-ATSWA students tend to be more involved in social activities like watching movies, social media engagement, listening to songs, playing of games, gisting with friends, sporting activities, hanging out with friends, blogging, watching television. The indication of this is that ATSWA students are more involved in personal leisure activities while non-ATSWA students are more involved in interpersonal leisure activities.

Differences in students' reading pattern are statistically significant for reading evaluation and frequency of reading. From the mean, ATSWA students adjudged themselves as better readers than non-ATSWA students. On frequency of reading, ATSWA student tends to read most of the times than non-ATSWA students. This signal at least that reading is sacrosanct to learning (Erdem, 2015; Gao et al., 2018; Soliman & Neel, 2009).

Students who participated in ATSWA perform academically better than students that did not participate in ATSWA. The results suggest that participation in ATSWA is significantly influenced by current academic performance. This finding supports literature on the

significant influence of grade point averages on students' competencies (Codier & Odell, 2014; Greiff et al., 2015).

## 6. Conclusion

In this paper, we provide empirical evidence on individual students' peculiarities as it influences the choice of participating in professional examination before graduation. We used survey responses to model undergraduate Accounting students who wrote Accounting Technician scheme West-Africa (ATSWA) along sides, another equivalent group of student who did not participate in the examination. The study examined six main factors relating to these individual students' peculiarities. They are; personal characteristic differences, parental academic characteristic differences, prior academic performance, activities in leisure time, reading habits and current academic performance.

The first key conclusion to be drawn from the results is that students that participate in ATSWA are influenced by current academic performance (GPA) and these students are more likely to have an increase in their current CGPA than those who do not participate. Also, students' whose mother's field of educational qualification in science are significantly more prone to participate in ATSWA than those in commercial/social sciences or Arts/Humanities. There are some other important additions to this conclusion. First, students who participated in ATSWA have lower monthly allowance than students who did not participate in ATSWA. Second, ATSWA students tend to be more involved in personal leisure activities like sleeping or resting, reading of novels and newspaper, taking "selfies" and "photoshoot". While non-ATS students tend to be more involved in interpersonal social activities like watching movies, social media engagement, listening to songs, playing of games, gisting with friends, sporting activities, hanging out with friends, blogging, watching television. Third, ATSWA students adjudged themselves as better readers than non-ATS students. Fourth, ATSWA students have higher JAMB score on the average but, as JAMB score increases the probability to participate in ATS diminishes.

This study contributed to the body of knowledge by examining how individual student peculiarities like personal characteristics, parental characteristics, prior academic performance, activities in leisure time, reading habits and current academic performance affect the choice of professional certification amongst undergraduates accounting students. A few improvements may be undertaken by future research in this area. This includes: assessing of other individual students' peculiarities. Moreover, it would be interesting to extend the data to other institutions in Nigeria.

### Acknowledgments

The authors are grateful to Covenant University for providing funding for the article publication.

### Funding

The Authors are grateful to Covenant University for providing funding for the article publication.

### Author details

Omotola Adedoyin Ezenwoke<sup>1</sup>  
E-mail: [omotola.ezenwoke@covenantuniversity.edu.ng](mailto:omotola.ezenwoke@covenantuniversity.edu.ng)

ORCID ID: <http://orcid.org/0000-0002-7441-0403>

Uchenna Rapuluchukwu Efobi<sup>1</sup>  
E-mail: [uchenna.efobi@covenantuniversity.edu.ng](mailto:uchenna.efobi@covenantuniversity.edu.ng)

ORCID ID: <http://orcid.org/0000-0003-2499-4655>

Abiola John Asaleye<sup>2</sup>  
E-mail: [Asaleye.abiola@lmu.edu.ng](mailto:Asaleye.abiola@lmu.edu.ng)

ORCID ID: <http://orcid.org/0000-0002-8391-3774>

Damilola Eluyela Felix<sup>3</sup>  
E-mail: [eluyela.damilola@lmu.edu.ng](mailto:eluyela.damilola@lmu.edu.ng)

ORCID ID: <http://orcid.org/0000-0002-3080-6385>

<sup>1</sup> Department of Accounting, Covenant University, Ota, Nigeria.

<sup>2</sup> Department of Economics, Landmark University, Omu-Aran, Nigeria.

<sup>3</sup> Department of Accounting and Finance, Landmark University, Omu-Aran, Nigeria.

### Citation information

Cite this article as: The determinants of undergraduate accounting students' early participation in professional examinations, Omotola Adedoyin Ezenwoke, Uchenna Rapuluchukwu Efobi, Abiola John Asaleye & Damilola Eluyela Felix, *Cogent Education* (2020), 7: 1818411.

### References

- Abubakar, R. B., & Dokubo Oguguo, O. (2011). *Age and gender as predictors of academic achievement of college mathematics and science students*. <http://www.hrmars.com/admin/pics/186.pdf>
- Al Husaini, Z. A. E. (2013). Knowledge, attitude and practice of reading habit among female medical students, Taibah University. *Journal of Taibah University Medical Sciences*, 8(3), 192–198. <https://doi.org/10.1016/J.JTUMED.2013.09.004>
- Angraeni, B. D., Aulia, S., & Kartikasari, D. (2018). Perception of accounting students over professional certification exam: Case study on accounting studies of vocational UI. *KnE Social Sciences*. <https://doi.org/10.18502/kss.v3i11.2819>
- Arco-Tirado, J. L., Fernández-Martín, F., Ramos-García, A. M., Littvay, L., Villoria, J., & Naranjo, J. A. (2018). A counterfactual impact evaluation of a bilingual program on students' grade point average at a spanish university. *Evaluation and Program*



- Planning*, 68, 81–89. <https://doi.org/10.1016/J.EVALPROGPLAN.2018.02.013>
- Asarta, C. J., & Schmidt, J. R. (2017). Comparing student performance in blended and traditional courses: Does prior academic achievement matter? *Internet and Higher Education*, 32, 29–38. <https://doi.org/10.1016/j.iheduc.2016.08.002>
- Augustine, J. M., & Crosnoe, R. (2010). Mothers' depression and educational attainment and their children's academic trajectories. *Journal of Health and Social Behavior*, 51(3), 274–290. <https://doi.org/10.1177/0022146510377757>
- Awwadh Al-Otaibi, A., Bin Ibrahim, F., Rampal, L., Aishah Hassan, S., & Ibrahim, N. (2015). Prevalence of tobacco use and its socio-demographic determinants among Saudi female school adolescents in Jeddah. *Malaysian Journal of Medicine and Health Sciences*, 11. [http://www.medic.upm.edu.my/dokumen/FKUSK1\\_Article\\_5.pdf](http://www.medic.upm.edu.my/dokumen/FKUSK1_Article_5.pdf)
- Barng, K. (2017). Elementary schools students' use of beauty products and makeup behavior. *ProQuest*, 20(4B), 2861–2868. <https://search.proquest.com/docview/1963403138?pq-origsite=gscholar>
- Bottesi, G., Martignon, A., Cerea, S., & Ghisi, M. (2018). Worry and associated cognitive features in Italian university students: Does gender make a difference? *Personality and Individual Differences*, 126, 38–43. <https://doi.org/10.1016/j.paid.2018.01.016>
- Brandmiller, C., Dumont, H., & Becker, M. (2020). Teacher perceptions of learning motivation and classroom behavior: The role of student characteristics. *Contemporary Educational Psychology*, 101893. <https://doi.org/10.1016/j.cedpsych.2020.101893>
- Byrne, M., & Flood, B. (2005). A study of accounting students' motives, expectations and preparedness for higher education. *Journal of Further and Higher Education*, 29(2), 111–124. <https://doi.org/10.1080/03098770500103176>
- Byrne, M., Flood, B., Hassall, T., Joyce, J., Arquero Montañó, J. L., González González, J. M., & Tourna-Germanou, E. (2012). Motivations, expectations and preparedness for higher education: A study of accounting students in Ireland, the UK, Spain and Greece. *Accounting Forum*, 36(2), 134–144. <https://doi.org/10.1016/J.ACCFOR.2011.12.001>
- Carvalho, R. G. G. (2016). Gender differences in academic achievement: The mediating role of personality. *Personality and Individual Differences*, 94, 54–58. <https://doi.org/10.1016/J.PAID.2016.01.011>
- Chiu, C. Y., & Lau, E. Y. H. (2018). Extracurricular participation and young children's outcomes in Hong Kong: Maternal involvement as a moderator. *Children and Youth Services Review*, 88, 476–485. <https://doi.org/10.1016/J.CHILDYOUTH.2018.03.051>
- Codier, E., & Odell, E. (2014). Measured emotional intelligence ability and grade point average in nursing students. *Nurse Education Today*, 34(4), 608–612. <https://doi.org/10.1016/J.NEDT.2013.06.007>
- Deary, I. J., Strand, S., Smith, P., & Fernandes, C. (2007). Intelligence and educational achievement. *Intelligence*, 35(1), 13–21. <https://doi.org/10.1016/J.INTELL.2006.02.001>
- Ebenuwa-Okoh, E. E. (2010). Influence of age, financial status, and gender on academic performance among undergraduates. *Journal of Psychology*, 1(2), 99–103. <https://doi.org/10.1080/09764224.2010.11885451>
- Ehrmann, L., & Wolter, I. (2018). The impact of students' gender-role orientation on competence development in mathematics and reading in secondary school. *Learning and Individual Differences*, 61, 256–264. <https://doi.org/10.1016/J.LINDIF.2018.01.004>
- Erdem, A. (2015). A research on reading habits of university students: (Sample of Ankara University and Erciyes University). *Procedia - Social and Behavioral Sciences*, 174, 3983–3990. <https://doi.org/10.1016/J.SBSPRO.2015.01.1145>
- Erola, J., Jalonen, S., & Lehti, H. (2016). Parental education, class and income over early life course and children's achievement. *Research in Social Stratification and Mobility*, 44, 33–43. <https://doi.org/10.1016/J.RSSM.2016.01.003>
- Fischer, M., & Sliwka, D. (2018). Confidence in knowledge or confidence in the ability to learn: An experiment on the causal effects of beliefs on motivation. *Games and Economic Behavior*, 111, 122–142. <https://doi.org/10.1016/J.GEB.2018.02.005>
- Fredricks, J. A. (2012). Extracurricular participation and academic outcomes: Testing the over-scheduling hypothesis. *Journal of Youth and Adolescence*, 41(3), 295–306. <https://doi.org/10.1007/s10964-011-9704-0>
- Ganster, D. C., & Rosen, C. C. (2013). Work stress and employee health. *Journal of Management*, 39(5), 1085–1122. <https://doi.org/10.1177/0149206313475815>
- Gao, Q., Wang, H., Mo, D., Shi, Y., Kenny, K., & Rozelle, S. (2018). Can reading programs improve reading skills and academic performance in rural China? *China Economic Review*, 52, 111–125. <https://doi.org/10.1016/J.CHIECO.2018.07.001>
- Georg, W., & Bargel, E. (2017). Parental qualifications as determinants of university entrance and choice of a field of study in Germany. *European Journal of Higher Education*, 7(1), 78–95. <https://doi.org/10.1080/21568235.2017.1265777>
- Gibb, S. J., Fergusson, D. M., & Horwood, L. J. (2008). Effects of single-sex and coeducational schooling on the gender gap in educational achievement. *Australian Journal of Education*, 52(3), 301–317. <https://doi.org/10.1177/000494410805200307>
- Gibbison, G. A., Henry, T. L., & Perkins-Brown, J. (2011). The chicken soup effect: The role of recreation and intramural participation in boosting freshman grade point average. *Economics of Education Review*, 30(2), 247–257. <https://doi.org/10.1016/J.ECONEDUREV.2010.09.003>
- Greiff, S., Fischer, A., Stadler, M., & Wüstenberg, S. (2015). Assessing complex problem-solving skills with multiple complex systems. *Thinking & Reasoning*, 21(3), 356–382. <https://doi.org/10.1080/13546783.2014.989263>
- Grineski, S. E., Clark-Reyna, S. E., & Collins, T. W. (2016). School-based exposure to hazardous air pollutants and grade point average: A multi-level study. *Environmental Research*, 147, 164–171. <https://doi.org/10.1016/J.ENVRES.2016.02.004>
- Harackiewicz, J. M., Durik, A. M., Barron, K. E., Linnenbrink-Garcia, L., & Tauer, J. M. (2008). The role of achievement goals in the development of interest: Reciprocal relations between achievement goals, interest, and performance. *Journal of Educational Psychology*, 100(1), 105–122. <https://doi.org/10.1037/0022-0663.100.1.105>
- Harding, J. F. (2015). Increases in maternal education and low-income children's cognitive and behavioral outcomes. *Developmental Psychology*, 51(5), 583–599. <https://doi.org/10.1037/a0038920>
- Houglum, J. E., Aparasu, R. R., & Delfinis, T. M. (2005). Predictors of academic success and failure in a pharmacy professional program. *American Journal of Pharmaceutical Education*, 69(3), 43. <https://doi.org/10.5688/aj690343>

- Iyoha, F. O., Oyerinde, D., Iyoha, F. O., & Oyerinde, D. (2010). Accounting infrastructure and accountability in the management of public expenditure in developing countries: A focus on Nigeria. *Critical Perspectives on Accounting*, 21(5), 361–373. <https://doi.org/10.1016/j.cpa.2009.06.002>
- John, T. M., Badejo, J. A., Popoola, S. I., Omole, D. O., Odukoya, J. A., Ajayi, P. O., Aboyade, M., & Atayero, A. A. (2018). The role of gender on academic performance in STEM-related disciplines: Data from a tertiary institution. *Data in Brief*, 18, 360–374. <https://doi.org/10.1016/j.dib.2018.03.052>
- Jui, L., & Wong, J. (2013). Roles and Importance of Professional Accountants in Business | IFAC. <https://www.ifac.org/news-events/2013-10/roles-and-importance-professional-accountants-business>
- Karadeniz, A., & Can, R. (2015). A research on book reading habits and media literacy of students at the faculty of education. *Procedia - Social and Behavioral Sciences*, 174, 4058–4067. <https://doi.org/10.1016/J.SBSPRO.2015.01.1155>
- Knifsend, C. A., & Graham, S. (2012). Too much of a good thing? How breadth of extracurricular participation relates to school-related affect and academic outcomes during adolescence. *Journal of Youth and Adolescence*, 41(3), 379–389. <https://doi.org/10.1007/s10964-011-9737->
- Mihret, D. G., Alshareef, M. N., & Bazhair, A. (2017). Accounting professionalization and the state: The case of Saudi Arabia. *Critical Perspectives on Accounting*, 45, 29–47. <https://doi.org/10.1016/J.CPA.2017.03.001>
- Mackintosh, N. J., & Nicholas, J. (2011). *IQ and human intelligence*. Oxford University Press. <https://global.oup.com/academic/product/iq-and-human-intelligence-9780199585595?cc=us&lang=en&>
- Odukoya, J. A., Omole, D. O., Atayero, A. A., Badejo, J. A., Popoola, S. I., John, T. M., & Ucheaga, E. (2018). Learning attributes of summa cum laude students: Experience of a Nigerian university. *Cogent Education*, 5, 1. <https://doi.org/10.1080/2331186X.2018.1426675>
- Payne, M. (2002). The role and achievements of a professional association in the late twentieth century: The British Association of social workers 1970–2000. *British Journal of Social Work*, 32(8), 969–995. <https://doi.org/10.1093/bjsw/32.8.969>
- Samsuddin, M. E., Khairani, N. S., Wahid, E. A., & Sata, F. H. A. (2015). Awareness, motivations and readiness for professional accounting education: A case of accounting students in UiTM Johor. *Procedia Economics and Finance*, 31, 124–133. [https://doi.org/10.1016/S2212-5671\(15\)01139-9](https://doi.org/10.1016/S2212-5671(15)01139-9)
- Samsuri, A. S., Arifin, T. R., & Hussin, S. B. (2016). Perception of undergraduate accounting students towards professional accounting career. *International Journal of Academic Research in Accounting*, 6(3), 78–88. <https://ideas.repec.org/a/hur/ijaraf/v6y2016i3p78-88.html>
- Schnotz, W., & Kürschner, C. (2007). A reconsideration of cognitive load theory. *Educational Psychology Review*, 19(4), 469–508. <https://doi.org/10.1007/s10648-007-9053-4>
- Simanjuntak, M., & Musyifah, I. (2016). Online shopping behavior on generation Y in Indonesia. *Global Business and Finance Review*, 21(1), 33–45. <https://doi.org/10.17549/gbfr.2016.21.1.33>
- Soares, D. L., Lemos, G. C., Primi, R., & Almeida, L. S. (2015). The relationship between intelligence and academic achievement throughout middle school: The role of students' prior academic performance. *Learning and Individual Differences*, 41, 73–78. <https://doi.org/10.1016/j.lindif.2015.02.005>
- Soliman, M. M., & Neel, K. F. (2009). The reading habits of medical students at Medical College King Saud University. *Journal of Taibah University Medical Sciences*, 4(2), 115–122. [https://doi.org/10.1016/S1658-3612\(09\)70100-3](https://doi.org/10.1016/S1658-3612(09)70100-3)
- Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257–285. [https://doi.org/10.1207/s15516709cog1202\\_4](https://doi.org/10.1207/s15516709cog1202_4)
- Van der Kleij, F. M. (2019). Comparison of teacher and student perceptions of formative assessment feedback practices and association with individual student characteristics. *Teaching and Teacher Education*, 85, 175–189. <https://doi.org/10.1016/j.tate.2019.06.010>
- Vasile, C., Marhan, A.-M., Singer, F. M., & Stoicescu, D. (2011). Academic self-efficacy and cognitive load in students. *Procedia - Social and Behavioral Sciences*, 12, 478–482. <https://doi.org/10.1016/J.SBSPRO.2011.02.059>
- Weis, M., Heikamp, T., & Trommsdorff, G. (2013). Gender differences in school achievement: The role of self-regulation. *Frontiers in Psychology*, 4, 442. <https://doi.org/10.3389/fpsyg.2013.00442>
- White, T., Scott, L. D., & Munson, M. R. (2018). Extracurricular activity participation and educational outcomes among older youth transitioning from foster care. *Children and Youth Services Review*, 85, 1–8. <https://doi.org/10.1016/J.CHILDYOUTH.2017.11.010>
- Wickens, C. D. (2008). Multiple resources and mental workload. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 50(3), 449–455. <https://doi.org/10.1518/001872008X288394>
- Xu, Q., & Sangsiry, S. S. (2018). Association between physical activity and grade point average among a cohort of pharmacy students in didactic years. *Currents in Pharmacy Teaching and Learning*, 10(3), 333–339. <https://doi.org/10.1016/J.CPTL.2017.11.007>
- Zeegers, P. (2001). Approaches to learning in science: A longitudinal study. *The British Journal of Educational Psychology*, 71(Pt 1), 115–132. <https://doi.org/10.1348/000709901158424>
- Zhao, J., & Wang, M. (2014). Mothers' academic involvement and children's achievement: Children's theory of intelligence as a mediator. *Learning and Individual Differences*, 35, 130–136. <https://doi.org/10.1016/J.LINDIF.2014.06.006>



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format.

Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

**Cogent Education (ISSN: ) is published by Cogent OA, part of Taylor & Francis Group.**

**Publishing with Cogent OA ensures:**

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

**Submit your manuscript to a Cogent OA journal at [www.CogentOA.com](http://www.CogentOA.com)**

