



## Lack of Competence in Using Microsoft Excel by Accounting Students

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### Abstract

A proficiency in spreadsheet applications is one of the most valued technological skills required by employers of business accounting graduates. However, it has been widely reported that business students'/graduates' proficiency in spreadsheet applications is inadequate. The current report examined the competencies of accounting students in Microsoft (MS)-Excel spreadsheet in a Ghanaian Polytechnic. Three hundred students were randomly contacted and evaluated using a semi-structured questionnaire that assessed students' self-perceived competencies in copy and paste, move and copy worksheets, graphics, sort and filter data, pivot tables, macro, export data, HLOOK-Up, VLOOK-Up, if functions using MS-Excel with regards to 13 basic spreadsheet tasks and 11 accounting-specific tasks. Only 18.4% and 14.4% of the students indicated that they could perform all the basic spreadsheet and accounting-specific tasks examined. In addition, a majority (i.e., > 50%) of the students indicated that they could perform only four of the basic spreadsheet functions and only one of the accounting-specific tasks examined. It was observed that the current curriculum and training in spreadsheet of the Polytechnic was inadequate, which may explain the observed low self-competency ratings. There is a need to revise the current curriculum by integrating spreadsheet into the teaching and learning of relevant courses.

**Keywords:** Excel spreadsheet, information and communication technology, self-perceived competency, polytechnic, accounting students

### Introduction

Spreadsheet applications are the most commonly used financial software in business organisations (Ansari & Block, 2008). They are used to perform a variety of tasks including cost benefit analysis scenarios, preparation of management and financial reports, financial and investment analysis, capital budgeting, variance analysis, tax calculations, basic record keeping, payroll calculations, audit working paper generation, financial modelling and tax calculations, as well as solve many complex business problems (Baxter, 2006; Baker & Sugden, 2007; Sugden & Miller, 2011). Spreadsheet applications have been rated as the most important technological skills required of accounting graduates (Burnett, 2003; Johnson, Bartholomew & Miller, 2006; Awayiga, Onumah & Tsamenyi, 2010; Ling, 2010; Elsaadani, 2015). Besides that, employers in this information age usually stipulate that employees be proficient and competent in the use of many information and communication technology (ICT) skills including MS-Excel spreadsheet.

As employer or industrial demand for spreadsheet skills increase, so also must the supply of such skills increase. Though educational institutions have tried to design teaching curricula in tandem with emerging technological changes, employers have expressed their position about the fact that accounting graduates are not well equipped with the ICT skills demanded of their profession (Johnson, Bartholomew and Miller, 2006; Bui & Porter, 2010;). There is ample evidence from both the developed countries (Stoner, 2009; Grant, Malloy, & Murphy, 2009; Harun Rasit, Rosli & Ibrahim, 2012) and developing countries (Rhodes, 2012; Wessel, 2007) to suggest that business students' and graduates' proficiency in spreadsheet is inadequate as compared to their proficiency in other ICT skills. In an information age where enormous emphasis is placed on the computer literacy of graduates, one expects that the supply of educational curriculum must be tailored to meet the skill demands of industry. Thus, a primary question of concern is: to what extent have educational institutions prepared graduates to meet the demands of the current labour market?

Polytechnics are established to provide a career-focused education and training that meets the skill demands of industry. Unlike traditional universities, polytechnics provide graduates with a background enriched in practice more than theory (Nsiah-Gyabaah, 2005). Thus, accounting graduates from the polytechnics are expected to have a competency level adequate to meet the demands of the labour market. A continuous assessment of polytechnic graduates' competencies in relation to industrial demand is imperative to inform the polytechnic about the extent which the core objective of polytechnic education is attained (Adjei, Nyarko, & Nunfam, 2014; Aboko & Obeng, 2015). However, more than two decades after the introduction of polytechnic education in Ghana, only few studies have somewhat assessed the competency level of graduates from the Polytechnic (Adjei, Nyarko, & Nunfam, 2014; Nunfam, Adjei, & Padi, 2015; Aboko & Obeng, 2015).

To the best of our knowledge, there has been no published study to date that assessed the proficiency in MS Excel spreadsheet of accounting students in Ghana. The objective of this preliminary study was to assess the self-perceived competencies in MS-Excel spreadsheet of accounting students in a Polytechnic in Ghana.

## Methodology

This cross-sectional study was conducted among a random sample of 300 graduating students who have pursued a Higher National Diploma (HND) programme in Accountancy at Koforidua Polytechnic in Ghana. As part of their training, these students had taken mandatory courses and training in Computer Literacy that included MS-Excel spreadsheet. In addition, students took a course in Management Information System but the syllabi of this course did not provide any training in MS Excel spreadsheet or accounting software. Each student was evaluated using a semi-structured questionnaire for their self-perceived competencies in MS-Excel spreadsheet. MS-Excel was chosen for this study because it is the most basic and commonly used spreadsheet package in business. Students were asked to rate their competencies (on a two-point scale – ‘able’ and ‘not able’) in MS-Excel spreadsheet with regards to (i) basic spreadsheet functions/tasks (ii) Accounting-specific tasks. Thirteen ‘basic spreadsheet functions’ were assessed: copy and paste, special paste commands, move and copy worksheets to other worksheet, algebraic commands, If function, graphics, import data, export data, merging spreadsheet files, macro, HLOOK-Up, VLOOK-UP, pivot tables, and sorting and filtering data. In addition, 12 ‘accounting-specific tasks’ were assessed: operating budgets, managing reports, modelling, basic record keeping, variance analysis, capital budgets, financial accounts, drawing financial ratios, tax calculations, depreciation schedules, CVP, payroll calculations. The MS Excel basic spreadsheet functions and accounting-specific tasks included in the study were adapted from Coy et al. (1998) and modified based on their contemporary relevance. Participation in the study was voluntary and based entirely on informed consents. The results were presented as frequencies and percentages. All statistical analysis was performed using MS-Excel spreadsheet tool for Windows.

## Results

Out of the 300 questionnaires distributed, 278 were returned, out of which 28 were incomplete leaving 250 complete and evaluable questionnaires – a response rate of 83.3%. The results of students’ own assessment of their ability to perform various ‘basic spreadsheet functions’ are indicated in Table 1. Out of the 13 ‘basic spreadsheet functions’ assessed, four could be performed by a majority of the students: copy and paste, special paste commands (98% of the students), algebraic commands (67.2% of the students), move and copy worksheets to other worksheet (82.4% of the students) and merging spreadsheet files (52.4% of the students).

Overall, only 46 (18.4%) of the students indicated that they could perform all the 13 spreadsheet functions while four (1.6%) of the students indicated that they could not perform any of the ‘basic spreadsheet functions’ at all (not shown in the table).

**Table 1 Students’ ability to perform various spreadsheet functions using Excel (n=250).**

Excel task	Able	Not able
Copy and paste, special paste commands	232(98.2)	18(7.2)
Move and copy worksheets to other worksheet	206(82.4)	44(17.6)
Algebraic commands	168(67.2)	82(32.8)
If function	119(47.6)	131(52.4)
Graphics	79(31.6)	171(68.4)
Import data	75(30.0)	175(70.0)
Export data	62(24.8)	188(75.2)
Merging spreadsheet files	131(52.4)	119(47.6)
Macro	46(18.4)	204(81.6)
HLOOK-Up	104(41.6)	146(58.4)
VLOOK-UP	99(39.6)	151(60.4)
Pivot tables	57(22.8)	193(77.2)
Sorting and filtering data	87(34.8)	163(65.2)

Data are presented as frequencies (outside bracket) and percentages (inside bracket).

Table 2 shows the results of students’ self-rating of their competencies in ‘Accounting-specific’ spreadsheet tasks. With the exception of basic recording keeping task (for which only 61.6% of the students indicated they could perform), the remaining tasks (i.e. operating budgets, managing reports, modelling, variance analysis, capital

budgets, financial accounts, drawing financial ratios, tax calculations, depreciation schedules, CVP, payroll calculations) could not be performed by a majority (52.4%-85.2%) of the students.

Only 37 (14.8%) of the students indicated they could perform all the 12 tasks examined while 45 students (i.e., 22.2%) indicated they could not perform any of the tasks at all (not shown in the table).

**Table 2. Students' ability to perform various Accounting tasks using Excel spreadsheet (n=250).**

<b>Accounting Task</b>	<b>Able</b>	<b>Not able</b>
Operating budgets	107(42.8)	143(57.2)
Managing reports	70(28.0)	180(72.0)
Modelling	52(20.8)	198(79.2)
Basic record keeping	154(61.6)	96(38.4)
Variance analysis	92(36.8)	157(63.2)
Capital budgets	72(28.8)	178(71.2)
Financial accounts	115(46.0)	135(54.0)
Drawing financial ratios	69(27.6)	69(72.4)
Tax calculations	64(25.6)	64(74.4)
Depreciation schedules	50(20.0)	200(80.0)
CVP	37(14.8)	213(85.2)
Payroll calculations	119(47.6)	131(52.4)

Data are presented as frequencies (outside bracket) and percentages (inside bracket).

## Discussion

In this study, Accounting students' self-perceived competencies in MS-Excel spreadsheet were assessed. Thirteen 'basic spreadsheet functions' and 12 'accounting-specific' were assessed. Only 18.4% and 14.4% of the students indicated that they could perform all the basic spreadsheet and accounting-specific tasks respectively. In addition, a majority (i.e., > 50%) of the students indicated that they could perform only four of the basic spreadsheet functions and only one of the Accounting-specific tasks examined. Only 18.4% and 14.4% of the students indicated that they could perform all the basic spreadsheet and accounting-specific tasks examined. In addition, a majority (i.e., > 50%) of the students indicated that they could perform only four of the basic spreadsheet functions and only one of the Accounting-specific tasks examined.

The findings of this study are consistent with many other studies. For instance, a study among students in a public university in USA revealed that the students' self-perceived knowledge and skill in MS Excel spreadsheet tasks such as copy and merge cells, create formulas using the sum functions, and create formulas using the If function was low (Grant, Malloy and Murphy, 2009). In addition, the results of that study showed that the majority of the students (70%) could perform only two out of the nine MS Excel spreadsheet tasks examined. Harun Rasit, Rosli and Ibrahim (2012) assessed the self perceived knowledge and skill of three groups of first-year accounting students in a Malaysian university, and found that two of the groups did not demonstrate sufficient competence in basic MS Excel spreadsheet functions such as sorting and filtering data, format cells, graphics, apply basic MS Excel functions, and draw pie charts. However, studies in other populations – Egypt (Elsaadani, 2015) and USA (Guy and Lownes-Jackson, 2010) – have revealed contrasting results, suggesting that accounting graduates are competent in the use of MS Excel spreadsheet. Differences in the educational curriculum and mode of training might account for the inconsistent findings in the different reports.

MS Excel spreadsheet has more complicated and powerful functions which require repeated use to commit to memory (Grant, Malloy, & Murphy, 2009). Students' competency in MS Excel has been found to be low compared with their competency in other MS office packages (Grant, Malloy, & Murphy, 2009; Guy and Low-Jackson, 2010). The generally low self-competence rating in MS Excel observed in the current study could, in part, be attributed to insufficient training since students were introduced to the use of MS Excel spreadsheet only in their first year. Although the students took additional ICT-related courses during the senior years, the course syllabi did not provide any further training in MS Excel spreadsheet or accounting software. Thus, current curriculum and training in ICT in the Polytechnic appears to be inadequate to equip students for the world of work. This calls for a revision of the current curriculum. MS Excel spreadsheet functions should be integrated into the teaching and learning of Accounting courses where necessary. Professional accounting bodies and industry should be involved in the design of teaching curriculum for the polytechnic.

Although the teaching and learning curricula currently employed in all the Ghanaian polytechnics are similar, the findings of the current study cannot be generalized. Thus, a large sampled study involving students from all the Polytechnics in Ghana is required to possibly establish the real state of the problem. The current study adopted only

a self-assessment approach, which could not assess students' actual abilities. Further studies are required to test the actual proficiency of students in MS Excel.

## Conclusions

A unique feature of Polytechnic education is that it is designed with an outlook that is intended to provide graduates with technical training and skills development relevant for industrial demands and the world of work. Thus, continuous assessment of the competencies of polytechnic graduates in relation to industrial demand is important for evaluating the effectiveness of polytechnic education. The findings of the study demonstrate that there may be gaps in terms of teaching and learning of MS Excel spreadsheet as an ICT tool in the Polytechnic. Pragmatic steps should be taken to ensure that the mandate of the polytechnic is implemented with the support of relevant stakeholders.

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