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EMPOWERING ACCOUNTING EDUCATION: A STUDY ON MICROSOFT EXCEL KNOWLEDGE AND SKILLS

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ABSTRACT

Purpose - The aim of this research is to know the level of Microsoft (MS) excel knowledge and skills in the broad field of accounting education.
Design/methodology/approach - The survey questionnaire is designed as a research instrument and distributed to graduate students enrolled in an accounting course from Oman universities. 142 questionnaires were gathered using Google Forms and analyzed using the partial least-squares structural equations modeling (PLS-SEM) technique.
Findings - The findings show that both MS Excel knowledge and skills are most important and developing MS excel skills in accounting education suggest that the Omani accounting education system might do more to give opportunity for students to thrive in their future careers.
Research limitations/implications - The findings provide MS knowledge and skills of accounting graduates in Oman's higher educational institutions (HEIs). In particular, this study sheds light on the skills that accounting students want and how relevant these skills for Omani graduates.
Practical Implications - Some modifications to accounting education are proposed to enhance accounting students' MS skills.
Originality/value - Because there is a lack of specific research on MS excel knowledge and skills in accounting education in Gulf Cooperation Council (GCC) countries, this study contributes to the body of expertise on MS skills in GCC countries, especially in Oman.

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1. Introduction.

Microsoft (MS) excel consider one of the important programs of Microsoft company that is used in accounting education. Accountants deal with numeric values, so MS excel is a perfect fit for accounting data analysis to some extent. Modern accounting software can assist to reduce the need for spreadsheets, but it won't be able to eliminate them. Hence, the MS excel knowledge and skills of graduating students will enhance in their early professional careers. Information technology (IT) skills have often been cited as both curriculum flaws in accounting education and a lack of technical skills in the profession. Employers now consider MS excel skills to be the most important technical skill for

entry-level accountants (Rotondo, 2020). Accounting equations for cash flow statement preparation in excel are less prone to technical mistakes than worksheet alternatives (Donelan & Liu, 2021). Accounting graduate students do not have practical experience, but they do have textbook knowledge. According to Morshed (2021), professional experience in MS Excels is an important factor in practical accounting education. MS Excel is a unique and specific way that teachers and students can be used to express and understand accounting concepts in a practical manner. MS Excel's application in accounting education will be more beneficial in an e-learning environment. Accounting students' MS skills can be boosted by incorporating extensive use of MS Excel into the accounting curriculum (Thottoli 2020).

However, MS excel is a sophisticated program with a large number of user interface components, most of which are only used by a small percentage of users. Technology teaching is frequently claimed to be a crucial issue for twenty-first-century education (Baswara et al., 2020). Due to the obvious growing technological change and innovation, incorporating IT into the accounting curriculum can be difficult (Lee et al., 2018: Badua et al., 2011). Students, on the other hand, may lack the technical skills such as MS Excel skills, required to generate several accounting statements in a professional manner.

Though, there has been very little research in Oman to examine accounting students' MS Excel skills among university students in Oman. Accounting students did not have proficiency in preparing income statements, statements of financial position, cash flow statements, or equity shareholder's statements using MS excel tools (Thottoli, 2021; Thottoli & Ahmed, 2021).

The researchers were eager to comprehend and conduct this study because of the extent, challenges stated above, and lack of specific research on MS knowledge and skills in accounting education especially from Oman's perspective. Hence the aim of the current research is to know the level of MS Excel knowledge and skills in the broad field of accounting education.

2. Literature Review

Accounting firms emphasize the relevance of Excel skills among accounting students and graduates. Because many accounting graduates aim to work in the field, the topic of whether Excel should have a role in accounting education emerges. Ramachandran Rackliffe and Ragland (2016) meant to overcome those difficulties by researching skills' observations of Excel in accounting education. Many accounting professors have expressed dissatisfaction with the level of technical knowledge and skills exhibited by their new hires after they graduate from college. In order to be innovative from their first day on the job, accounting graduates and students must comprehend and master skills and subjects connected to technological developments, such as different software. Furthermore, other accounting-related skills and subjects, such as proficiency in a second language and problem-solving ability, may be required to function in today's diverse business world (Cory & Pruske, 2012). Because accounting students use Excel regularly, they must be aware of the vast range of excel features and capabilities available to them in order to succeed in their accounting studies. Students enter with varying levels of Excel knowledge, making it challenging to teach and design projects (Willis, 2016).

2.1 MS excel knowledge and accounting education

It is critical to choose the correct type of technology to employ within the classroom to promote familiarity with the use of technology in accounting. In general, policy statements on accounting education have urged for a greater emphasis on strengthening students' so-called IT soft skills in the hopes of producing more successful accounting graduates. The accounting education field of literature has largely remained silent on the question of whether IT soft skills can be successfully taught or fostered at the undergraduate level (Rebele & Pierre, 2019). Because ICT has advanced at a breakneck pace, the current era has been dubbed the information age. These rapid technology advancements result in major micro and macroeconomic shifts. Mobilization has become a key means in this day of rapid technological development when technological knowledge is the most important asset in the educational field (Berikol & Killi, 2021). According to Ahmed (2019), competency-based curriculum programs give students the knowledge, skills, and attitudes they need to succeed in the workplace. According to (Paras, 2019), students enrolled in the bachelor's in accounting are highly skilled in basic computer hardware and Microsoft office program. Financial accounting and financial statement analysis are among the skills students believe accounting graduates require, while employers value Microsoft excel program competence (Aryanti & Adhariani, 2020). Hence this study hypothesized that:

H_1: MS excel knowledge on general information have a significant impact on accounting education.

2.2 MS excel skills and accounting education

For accounting students, Excel skills are typically considered a basic technical ability. Lee et al. (2019) aimed to present a game-based method for teaching Excel shortcuts. Accounting professionals recently emphasized the relevance of IT and data analytic skills for accounting students to be successful in the field. Standard A5 requires all accounting departments with additional accreditation to incorporate a minimum degree of IT and data analytic skills into their courses to meet this requirement and Andiola et al. (2020) intended to report survey results of the Association to Advance Collegiate Schools of Business (AACSB) approved accounting department supervisors relating their practices in integrating IT into the accounting program. MS Excel's skills and distinctive traits have influenced students' accounting competence. Technical skills are increasingly being used to solve curriculum and skill gaps in the accounting profession (Rotondo, 2020). For jobs in auditing, finance, and credit analysis, accounting graduates with ICT skills, particularly Microsoft skills, are preferred (Osmani et al., 2020). Barac et al. (2020) highlighted those fundamental skills of MS excel in accounting education are closely linked to activity-based skills. Accounting graduates and their accounting software skills are critical to their careers (Osmani et al., 2020). In accounting education, technology skills are increasingly being identified as both curriculum flaws and professional skill gaps. MS Excel skills are currently considered the most significant technical competence for entry-level accountants by employers (Rotondo, 2020). Hence this study hypothesized that:

H_2: MS excel skills as an IT user have a significant impact on accounting education.

Accordingly, below logical framework (see Figure 1) was constructed to characterize the relationship between variables.

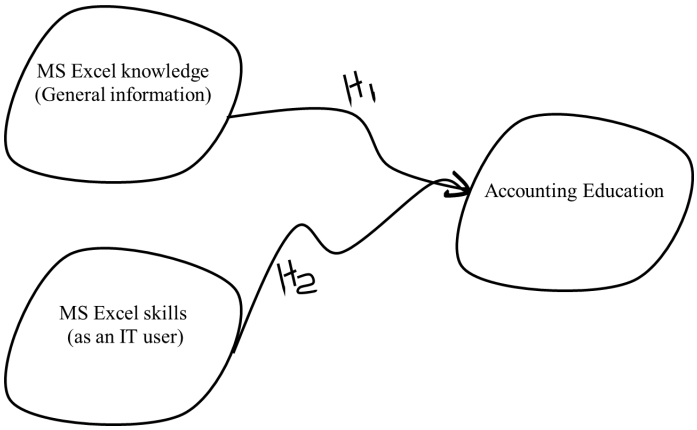

Figure 1: Schematic Diagram of Research Framework

3. Methodology

MS Excel is regarded as a fundamental program in the fields of information technology and accountancy. This study's data was gathered using a quantitative approach where the researcher created a questionnaire with a collection of questions and distributed it to accounting students from various universities in Oman to assess how the level of MS Excel skills will influence accounting education. The sample for this study consists of a modest number of accounting students enrolled in an accounting course. One of the challenges that arise in the formulation of a quantitative study is determining sample size. Sampling is a technique of units from the population (such as people, firms, and so on) so that the findings may be fairly applied back to the population from that they were selected by examining the sample (Arouna, 2004).

The study used a random sample, which is one of the probability sampling methods. Random sampling is the most often used method of sampling. The use of random sampling reduces bias. Individual variance within the sample is a trustworthy indicator of variance in the overall population, allowing for more precise results estimation (Sekaran, 2003).

The survey approach is used to choose a sample of 300 accounting graduating students in Oman as part of data collection. The distributed questionnaire received (as usable) 142 responses out of 300,

or 47.33 percent of the total. The method of partial least squares (PLS) was used to evaluate the data in this study. The current study used students enrolled in an accounting course to accomplish the study goals because these samples focused on accounting education by using MS Excel in their studies.

Reliability refers to the degree to which test measurements are error-free and achieve the expected results. Cronbach's alpha is the most common sort of internal consistency reliability coefficient (Hair et al., 1998). It is suggested, by Nunnally (1978), that a construct's reliability should be judged satisfactory if it is between 0.60 and 0.80 (see Table I).

Table I.
Reliability results

Constructs	Label	Loadings	Average Variance Extracted (AVE)	Cronbach's alpha	Composite Reliability
Accounting Education	AE1	0.822	0.689	0.887	0.917
	AE2	0.819			
	AE3	0.907			
	AE4	0.788			
	AE5	0.810			
MS excel knowledge	Excel_K1	0.907	0.816	0.944	0.957
	Excel_K2	0.925			
	Excel_K3	0.902			
	Excel_K4	0.884			
	Excel_K5	0.898			
MS excel skills	Excel_S1	0.729	0.643	0.921	0.935
	Excel_S2	0.822			
	Excel_S3	0.811			
	Excel_S4	0.829			
	Excel_S5	0.826			
	Excel_S6	0.793			
	Excel_S7	0.799			
	Excel_S8	0.802			

The questionnaire is based on constructs that have been tested in previous studies, adapted from Ahmed (2003), and have been altered to fit the framework of this investigation. Section A has five demographic questions, while Section B addresses accounting education, Section C addresses Microsoft Excel knowledge: (general information), and Section D addresses Microsoft Excel skills: (as a user of IT). From 1 to 5 (strongly disagree to strongly agree), a five-point Likert scale was utilized to rate the questionnaire's items.

4. Results

4.1 Demographic characteristics

The demographic features of the respondents (Table II) are based on 142 verified responses. Male respondents represent 27 (19.01 percent), while female respondents represent 115 (80.99 percent). The greatest group of respondents is within the age group of 21-40 years (99 or 69.72 percent). 130 or 91.55 percentage respondents are Omanis. 62 or 43.66 percent are under accounting major. 106 or 74.65 percentage are not graduated while 36 or 25.35 percentage respondents are graduated.

Table II.
Demographic characteristics

Item	Category	Count	%
Gender	Male	27	19.01
	Female	115	80.99
Age	<20	42	29.58
	21-40	99	69.72
	>40	1	0.7
Nationality	Omani	130	91.55
	Non-Omani	12	8.45
Major	Accounting	62	43.66
	Non-accounting	80	56.34
Graduation	Graduated	36	25.35
	Not Graduated	106	74.65

A collinearity diagnostics test, Variance inflation factor (VIF values), was performed to further verify multicollinearity. As indicated in Table III, the VIF values are less than 10, indicating that there is no multicollinearity issue (Pallant, 2010).

Table III.
Collinearity statistics

Label	VIF
AE1	2.162
AE2	2.201
AE3	3.385
AE4	2.378
AE5	2.636
Excel_K1	3.958
Excel_K2	4.355
Excel_K3	3.760
Excel_K4	3.085
Excel_K5	3.391
Excel_S1	1.778
Excel_S2	2.552
Excel_S3	2.297
Excel_S4	2.814
Excel_S5	2.559
Excel_S6	2.495
Excel_S7	2.398
Excel_S8	2.426

4.2 Descriptive Statistics

Table IV below describes descriptive statistics, the mean average of the dependent variables, accounting education, represents 3.411 with a standard deviation of 1.264. While for the independent variable, the level of MS excel knowledge and MS excel skills show an average of 3.704 and 3.288 respectively, and the standard deviation of levels of MS excel skills and MS excel knowledge shows 1.391 and 1.146 respectively. The mean scores of the variables appear somewhat higher than the middle of the five-point Likert scale, indicating that respondents' perceptions are stricter in connection to MS Excel knowledge and skills with accounting education.

Table IV.
Descriptive Statistics

Variables	**Mean**	**Standard Deviation**	***Min***	**Max**
Accounting Education	3.411	1.264	1.000	5.000
Excel_Knowledge	3.704	1.391	1.000	5.000
Excel_Skills	3.288	1.146	1.000	5.000

4.3 Discriminant Validity Construct

Discriminant validity refers to how different one latent construct's measures are from those of other latent constructs in the same model. A latent construct can, in general, exhibit greater variance with its indicators than other latent constructs. The total of the loading squared divided by the total number of items in the construct yields the average variance extracted, whereas the variance shared across two constructs corresponds to the square of the coefficient of correlation between the latter. So, the validity of discriminant, as explained by Fornell and Larcker (1981), for all other variables, the root of the square of each variable in its AVE must be compared to the variables' associations. The results of discriminant validity can be seen in Table V.

Table V.
Discriminant Validity

Variables	**Accounting Education**	**Excel_Knowledge**	**Excel_Skills**
Accounting Education	0.830		
Excel_Knowledge	0.791	0.903	
Excel_Skills	0.668	0.600	0.802

Henseler et al. (2015) propose the heterotrait-monotrait ratio (HTMT) of correlations as a more trustworthy measure to evaluate discriminant validity in PLS-SEM. Table VI shows the PLS values of the HTMT fall within the recommended range and meet the lowest value of HTMT.

Table VI.
Heterotrait-monotrait (HTMT) ratio

	Accounting Education	Excel_Knowledge	Excel_Skills
Accounting Education			
Excel_Knowledge	0.846		
Excel_Skills	0.732	0.631	

R Square (R^2) is used to evaluate the structural model, also known as the inner model, for endogenous components. Evaluating the model with PLS, that start by observing the R2 for latent endogenous constructs variable. In the current study, endogenous constructs variable accomplishes R2 value of 0.684 (confirm substantial value) which has further shown 68.4% of the variance in accounting education can be designated by two factors of accounting education, which are levels of MS excel skills and MS excel knowledge. The PLS results of R Square and R Square Adjusted are depicted in Table VII.

Table VII.
R square

	R Square	R Square Adjusted
Exogenous Variables -> Endogenous (Accounting Education)	0.684	0.680

Cross-loading can be used to evaluate a model's discriminant validity. The discriminant validity of each construct is assessed based on the cross-loading results, and the validity is deemed fair and adequate if the unit score of every construct is higher than the unit score of the other constructs (Farrell, 2010). The study's results verify that the validity of the entire constructs between the cross-loading state is at a sufficient level because each construct's item value is higher than the item scores for the other constructs, as shown in Table VIII.

Table VIII.
Cross loading results

Label	**Accounting Education**	**Excel_Knowledge**	**Excel_Skills**
AE1	0.822	0.781	0.519
AE2	0.819	0.721	0.512
AE3	0.907	0.716	0.569
AE4	0.788	0.458	0.565
AE5	0.810	0.543	0.626
Excel_K1	0.683	0.907	0.522
Excel_K2	0.764	0.925	0.495
Excel_K3	0.679	0.902	0.557
Excel_K4	0.716	0.884	0.544
Excel_K5	0.726	0.898	0.594
Excel_S1	0.648	0.624	0.729
Excel_S2	0.550	0.483	0.822
Excel_S3	0.580	0.553	0.811
Excel_S4	0.486	0.414	0.829
Excel_S5	0.506	0.402	0.826
Excel_S6	0.440	0.402	0.793
Excel_S7	0.489	0.429	0.799
Excel_S8	0.515	0.463	0.802

4.4 Hypothesis Testing

The results of the hypothesis testing are shown in Table IX (Path Coefficients), and both hypotheses are supported. The result revealed that MS excel knowledge of general information has a significant impact on accounting education where it was $P<0.001$, $t=10.251$. Similarly, the findings showed that the MS excel skills as an IT user have a significant impact on accounting education where it was $P<0.001$, $t=4.723$.

Table IX.
Path Coefficients

Hypotheses	Path	Path coefficient β	Standard error	t-value	P Values	Decision
H_1	Excel_Knowledge -> Accounting Education	0.610	0.060	10.251	0.000	Supported
H_2	Excel_Skills -> Accounting Education	0.302	0.064	4.723	0.000	Supported

Note: Significance levels: *** P < 0. 001 (t >3.33), **p < 0. 01 (t >2.33), *p < 0.05 (t >1.605) (based in one tailed test)

The used SEM model is described in Figure 2. β coefficient is used to show how strongly two latent variables are associated when they are connected. With p < 0.001, all findings are significant.

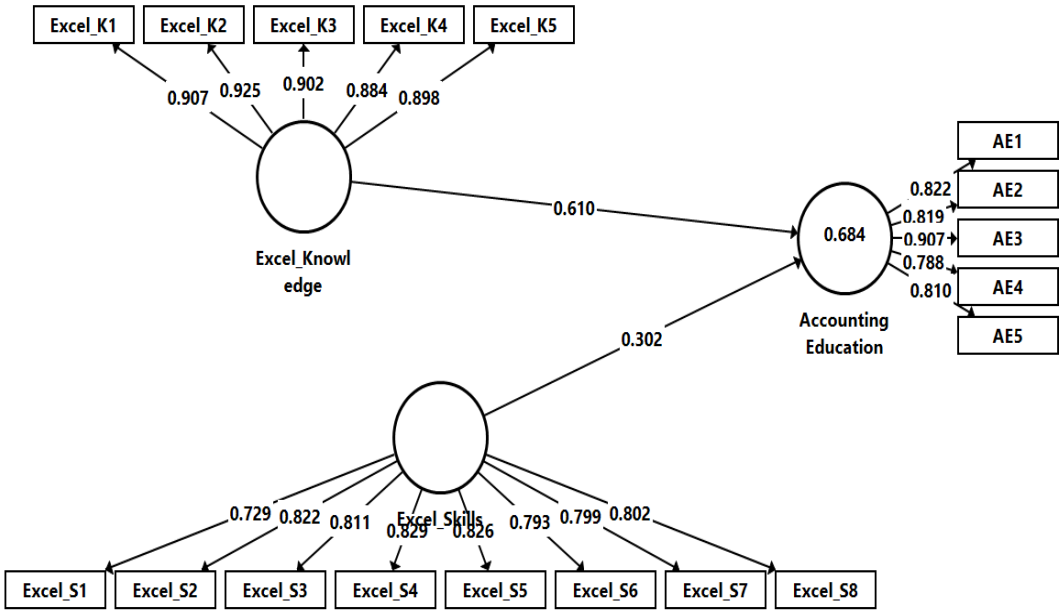

Figure 2. Study results

5. Discussion

In this research, the two independent variables, MS excel knowledge of general information and MS excel skills as an IT user have had a strong relationship with a dependent variable, accounting education which is commemorated by a high average score (Table IV).

5.1 Impact of the levels of MS excel knowledge (general information) on accounting education

MS Excel's knowledge of general information variables is pretty good, indicating that MS Excel will help to improve the quality of accounting education. The Omani accounting students' familiarity with MS Excel will boost their dedication to accounting subjects. The researcher's initial consideration was MS Excel knowledge (general information) on accounting education. The path coefficient (Table IX) above illustrates a close connection between MS excel knowledge (general information) on accounting education where it was β 0.610, p<0.001, and t=10.251. The results of the current study are supported by some past studies. Thottoli, (2020) found that accounting students' MS Excel knowledge and skills have a significant impact on accounting education. Lee et al. (2019) suggested that it is possible for teachers and students to work together to co-create knowledge about Excel shortcuts and

their use in the context of accounting. The students know that MS Excel is used for arithmetical calculations, and preparing ledgers, graphs, and financial statements. MS Excel can automate efficiently to process large quantities of data relevant to business tasks. They believe that MS Excel can be used to record accounting transactions for micro, small and medium enterprises.

5.2 Impact of the levels of MS excel skills as an IT user on accounting education

The levels of MS Excel skills on the other hand have a foundation and effectiveness in accounting education among Omani students.

The researcher's further consideration was MS excel skills as an IT user in accounting education. The path coefficient (Table IX) above illustrates a close connection between MS excel skills as an IT user in accounting education where it was β 0.302, $p<0.001$, and $t=4.723$. The results of the current study are supported by some past studies. Leitner-Hanetseder et al. (2021) highlighted the need for more research on IT skills for accountants in the digital age required. That should be of interest to organizations that provide efficient accounting education using the latest technologies. Brink and Stoel (2019) concluded that communication and data interpretation skills are preferred over specific technical or statistical expertise. These MS skills point to an intermediary role for accountants who might have to convert analytical activity into business language. Omani students believe that some MS excel skills that have an important part of their accounting education. It is essential for each accounting student to know at least open and save a workbook, to use all the functions available in MS Excel under the “home” tab, to use all the functions available MS Excel under the “insert” tab, to use all the functions available in MS Excel under “page layout” tab, to use all the functions available in MS Excel under “formulas” tab, to use all the functions available in MS Excel under “data” tab, to use all the functions available in MS Excel under “review” tab and to use all the functions available in MS Excel under “view” tab.

6. Conclusion

By integrating MS Excel into accounting education, there is an even greater potential for recently graduated students to begin their early careers in a more effective and efficient manner, as it is essential for accounting students to learn accounting concepts in a comprehensive way. Due to the widespread usage of MS Excel features by organizations (Thottoli, 2020), it is essential for students to master it as part of their university studies and they want to use it in their future careers. However, accounting students do not possess adequate MS Excel knowledge and skills (Thottoli, 2021). In the broad field of accounting education, this research study offers an understanding of the level of MS Excel knowledge and skills. This study urges that all Omani students receive the advanced level of MS Excel skills. this study may be useful for higher education institutions in reviving university curricula by making advanced level compulsory MS Excel courses required for the accounting curricula. In particular, this study sheds light on the skills that accounting students want and how relevant these skills are for Omani graduates. Because there is a lack of specific research on MS excel knowledge and skills in accounting education in GCC countries, this study contributes to the body of expertise on MS skills in GCC countries, especially in Oman. Hence, some modifications to accounting education are proposed to enhance accounting students' MS skills. The results of the study showed a significant relation between MS Excel knowledge (general information) levels and accounting education. Likewise, the levels of MS excel skills as an IT user in accounting education also have a strong relationship with accounting education. The findings indicate that knowing MS Excel skills is an excellent contribution to enhancing accounting education.

7. Implications

The implications of the technology transfer model show that some latent structure in the university curricula of countries like Oman is influenced by cultural, educational, and other factors in accounting. Such change may aid us in better understanding which elements of technology-enhanced accounting education may be appropriate for particular nations, depending on the characteristics suggested by the dimensions discovered through factor analysis. Another implication is that the MS Excel skills in the early career of accounting students in the country are a significant driver of their sophisticated technology career competency. From a researcher's perspective, the study's results show how reliable technology-enabled accounting education is helping to explain the faculty in the college or universities. In practical terms, the authors will be better able to advise HEIs and private universities

on the issues they need to address in order to excel in quality education on MS Excel knowledge and skills in accounting education.

8. Limitations of the study

The primary objectives of the current study were to determine the direct impact of MS Excel knowledge and skills on accounting education, specifically accounting courses. One specific geographic region—Oman—was the focus of this study. As a result, the research's conclusions are only relevant in the Omani context.

This study suggests more issues for discussion, including researching accounting software, the internet of things (IoT), and the roles of analytical skills of accounting students, especially in GCC countries. On the other hand, employing the given findings, qualitative research on accounting software or MS excel education can be carried out. The article suggests a different direction for research on simulation labs by applying case studies among accounting students.

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