

فصلنامه علمی و پژوهشی «بررسی‌های حسابداری»

سال چهارم - شماره ۱۴ و ۱۵ - زمستان ۱۳۷۴ و بهار ۱۳۷۵

ص ص ۲۰۰-۱۸۴

Problems of Using Computers in Accounting Education and Profession in Developing Countries: Case of IRAN¹

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Abstract:

Imported technology has always had special problems in developing countries thitself. In accounting field, one new problem is appeared too: 'nbalancedGrowth (Development) of accounting and computers". This problem, 'hough has had some of its effects on developed countries, but its effects on veloping countries have been more serious. This article concentrates on oblems of using computers in accounting education and profession in Iran

۱- تحقیقات مربوط به این مقاله در سال ۱۳۷۰ انجام شده و مقاله به کنفران بین‌المللی حسابداری که در سال ۱۹۹۲ در واشنگتن برگزار گردید، ارائه شده است. «طبعاً» تغییرات سالهای اخیر در زمینه آموزش کامپیوتر به دانشجویان حسابداری، م نظر قرار نگرفته است.

مؤلفه

before and after appearance of microcomputers and then argue some features of this problem in Iran.

Introduction

Slow growth of accounting has new aspects after appearance of MICROS (microcomputers) in accounting environment. Main - Frames had brought their special problems with themselves, but accountants were not involve in those problems directly. Even though accounting students in all grades seldom had a close relation with computers' hardware (because of their complexity and expensiveness). We can argue that one of the most important problems of MICROS appearance for accounting is "unbalanced growth". When we say "unbalanced growth" we mean that while accounting profession is moving like a trotois, which has closed its eyes and has no attention to accounting education and do not support it for enhancing accounting as a whole, the MICROS are emerged as a result of high speed growth in information technolgy.

Perhaps in the first view the appearance of MICROS has enabled most of the companies to buy and use one of them (because of their low prices) and it seems that it will increase the speed, accuracy and timeliness of accounting information; but since the required knowledge of computer software for matching the available accounting systems with widespread low priced hardware facilities has not grown (developed) too, a new

problem raised: matchig the available application packages with different companies' needs. It means that all purpose prepared packages which have not any direct relation with the needs of an specific company, have appeared, although the developers of these accounting systems (accounting softwares) attempt to match their systems with GAAP.

However, in this article we argue old and new problems of using computers in accounting, both (mainly in education). Research about the problems of using computers in accountion education is done by sending a questionnaire to the all of accounting departments in Iranian universities (10 universities). Major finding of this research is summarized in table 1 to 5. Anyway, arguments is divided into two directions:

1- General or old problems (which existed even before appearance of MICROS).

2- The problems which are related to appearance of MICROS.

General Problems

1- Disconnection of education and profession: Accounting curriculum in developing countries has never a proper relation with profession and its needs. A. A. A. (1975) has some important comments on this subject. Courses about computers and its application in accounting which are limited to one or two courses can not solve any problem. But, still, profession and

education continue their ways without looking each other.

Although corporations have been using main-frames and minicomputers (mid-ranges) for many years, but local academicians (education) have not indicated the way of using them in accounting systems, yet. But some multinational companies or professional regulators have done it.

2- Relations to AIS: Although there are some courses about computers or their applications, in accounting curriculum, but these courses must have a close relation with design of accounting information systems and there is not any courses about AIS in undergraduate accounting curriculum. Cushing (1982) argue that in most of accounting courses, the students are in place of accounting information's users, not producers of them.

3- Content of computer courses: Content of such courses in accounting curriculum include a little understanding of hardware (specially about main-frames and micros - only in recent years and in some universities), a little about flowcharts (in some universities, not at all), and an introduction to programming languages (in most cases only COBOL and FORTRAN). Only a few students in these courses have learned something about business application softwares like spreadsheets, database managers, or word processors.

4- *Problem of computer courses' instructors: While there is almost no referring to use of computers in accounting courses (although there are a lot of books which are accompany with computerized problems or diskettes, but local textbooks have not these features), in computer courses for accounting students, there are instructors who have a little knowledge of accounting. They only understand computers and just can teach them. In computer courses this gap move students from one academic or educational atmosphere to another one. Seldom an instructor has made a bridge for passing through this gap and made a connection between these two fields. Most of application examples in these courses have not any (or at least a proper) relationship with whatever students learned in other courses.*

5- *Problem of Micros appearance: Before appearance and vast using of microcomputers, students often had not a close relationship with computers. They used main-frames or minicomputers (which were settled on computer sites of universities) only through card - punch machines (which were settled in an off-site room). Still in spite of micros appearance, some universities are using those old methods of relationship between students and hardware. Students in most cases have no interaction with computers and will not be able to experience computers through trial and error. The result of these methods very cheap.*

6- *Problem of continuing in trained subjects: What is learned in computer courses by students has no direct relation with their other courses in accounting curriculum and it dose not continue in next courses of undergraduate or graduate levels. In some cases a young instructor continue these learned subjects in other courses like "Quantitative Methods in Accounting" or "Statistics" in undergraduate level, and "AIS" in graduate levels. In addition, learned subjects in computer courses often are not used in professional environment and future field works of students.*

All of the above problems which had been existed even before appearance and widespread of MICROS, did reduce the efficiency and effectiveness of computers in accounting curriculum and decreased the ability of using these learnings, to the lowest degree.

Appearance of MICROS has brought additional problems with itself. The wonderful growth of computer technology specially in 1980's could lead to a "Revolution" in accounting education and accounting information system design, because the basic responsibility or role of accountants is design and application of systems which process accounting and financial data. Although some evidences of an "evolution" in accounting education by using MICROS is seen in developed countries, specially in USA, but still it remains a long distance to a "revolution". We can see some aspects of this evolution in

appearance of accounting textbooks with a software or a set of problems or test banks accompanied by, so far students and instructors will involve in the computers duringj education of accounting.

Some professional software developers presented educational versions of application softwares besides the professional ones. These packages help effective use of computers and professional packages by students when they will be graduated.

Also a lot of books about using microcomputers in managerial accounting, financial management, cost accounting or such fields have been written, which show practically application of some well - known software like Lotus 1-2-3 or dBase III plus in accounting problem solving. But, how these books can be used as a main text for accounting courses?, This is still a serious question.

Developing countries like Iran can welcome to this "evolution" but after prevailing over some problems which are added to the previous general problems. These new problems have changed the face of previous ones in some cases. The most important problems in educational environment of Iran are as follows:

1- Again instructors' problems: Most important problems in relation to accounting instructors which can stop (or slow) the trend of the "evolution" (i.e. moving toward effective application

of computers in accounting education) are as follows:

a) *High average of instructors' age* - This is a problem because most of accounting departments' members will resist against any change and don't welcome to an educational revolution (even an evolution) in accounting. Most of them have not any attention to MICROS (although it entered to their departments); so how can they expected to encourage using computers in accounting education and profession.

b- *Primitive training* - Most of instructors have been graduated when there was no close relationship between computers (specially micros) and AIS. They graduated many years before appearance of MICROS and they haven't an understanding about it. They had learned a little about some programming languages like FORTRAN or COBOL, and since there was a long time of doing and learning about, the computers have been forgotten for a long time by them.

c- *Lack of computer courses for instructors* Since there is no serious attempt for inform the accounting instructors about new features of using computers in accounting field, it is not expected any change in their attitudes about computers.

2- *Hardware problems*: An important problem which can reduce the efficiency of even proper curricula and instructors is lack of proper equipment for using by students and instructors. Lack of facilities includes cases such as follows:

a- Lack of proper local books in computer application in accounting.

b- Insufficient number of the computers for using by students.

c- lack of equipped classrooms with proper hardware facilities.

3- Accounting curriculum problems: Still accounting curricula is based on teaching some programming languages like FORTRAN and COBOL, and students only relate to main-frames and understand a little about them in computer courses. Some of instructors are using MICROS in teaching those programming languages or some micro-based softwares, but the contents of these changes in computer courses are not related to curricula. Some of such changes are as follows:

a- Teaching some simple and all purpose languages like BASIC instead of FORTRAN or COBOL, so the instructors can teach all aspects and capabilities of these softwares in one course.

b- Teaching a business application software like LOTUS 1-2-3, dBASE III plus, SMART, WORDPERFECT and so on instead of FORTRAN and COBOL.

c- Introduce some features of Operating Systems like MS-DOS instead of teaching about main-frames, hardware.

But there is no organized plan for inserting educational materials in curriculum and this function is delegated to

individual tact, therefor the problem still is remained.

4- Students problems: Students are usually interested in computers and its applications. Most of customers (students) of short term microcomputer courses, outside the universities (which are directed by some computer service firms) are college students. But in spite of students' attachment in computer courses which are accompany by computer application, some problems such as followed do not permit the growth this anxiousness and will become obstacles:

- Lack of MICROS facilities (hardware and software)*
- Lack of suitable curricula in the way of encouraging or requiring computer application in accounting education.*
- Lack of good understanding about requiring computer application in accounting education.*
- Lack of good understanding about English for effective use of software and its manual or any original English textbook.*

B- Profession's Problems in Using Computers:

Unbalanced Growth of accounting and computer technology in developing countries has added some special problems to previous ones (in using computers in accounting profession). The problems of using computers in accounting profession before appearance of MICROS were as follows:

- 1- Lack of legal acceptance of computer - based accounting*

systems and financial reports.

2- Lack of local accounting standards in the way of leading accountants and fitting local needs and furthermore lack of a public acceptance of one specific kind of imported standards. It has caused incompatibility of EDP systems in business enterprises and they have been processing their data, based on different accounting procedures. This problem has led to a variety of accounting systems which are imported by local branches of multinational companies. These systems are fitted to needs of guest countries instead of local needs.

3- Most of auditors were not familiar with EDP auditing and there was not a serious attempt to training them. In many cases the auditors not only have not an understanding of EDP auditing but also they do not know anything about computers' hardware.

4- Accounting firms often have not had computer facilities (main-frames or minicomputers) and haven't had any inclination for using computers in auditing.

5- Disconnection of education and profession has had a vast dimension in auditing. The auditing courses in accounting curricula have not a close relation with local professional auditing. Then auditors' experiences in working with computers, if any, have not referred to education, and universities did not refer theoretical matters of auditing EDP systems to profession.

All of the mentioned problems relate to accounting firms as

one section of profession, but other firms have additional problems in using computers such as follows:

1- Lack of proper manual accounting systems in most of companies which is a result of the lack of local accounting standards or low knowledge and training. This led to inattention to computers or using computers in an incompatible manner.

2- Lack of managers who are aware of requirement of proper information systems as a base for correct decision making. This fact caused less attention to power and capabilities of computers in providing timely and correct information.

3- Lack of anxious accountants who are familiar with computers has caused improper growth of computerized accounting applications in companies. Usually there was not proper attention to capabilities of computers.

4- Lack of proper hardware facilities as a result of mentioned problems and expensiveness of Main - Frames and Minicomputers which need experienced and well trained personnel and users too.

5- Fear of EDP systems - Since computers provide information with high speed and accuracy, most of peoples (including accountants and managers) think nobody can perform a computer fraud and furthermore auditing of EDP systems are simpler than manual ones. This could be a psychological reason of not welcoming to computers in accounting profession. Other aspect of this fear may be

economical. Since they think they can not manipulate their revenue and expenses digits in EDP systems.

After appearance of MICROS and availability of powerful hardware facilities in a vast range and very low required investment on it, some new problems have added to old ones:

a) Appearance of software companies which do nothing more than matching one or two specific accounting software with some legal and tax requirements and users needs. These companies which usually have not sufficient knowledge of accounting, are increasing violation in accounting profession. Since each of them is familiar with one or two specific software, they increase number of different accounting systems and plurality of them. It doesn't matter if they have sufficient knowledge of accounting, but they only think about money making. After some time we will confront with a wide plurality of accounting systems which no one of them are compatible with our local needs and law. This means nothing than "An AIS Jungle". This is a result of low priced microcomputers' software and hardware. That jungle is misleading managers in decision making to a dark and rainy way instead of leading them to the correct path.

b) Purchasing low priced MICROS by managers is not performing in a correct manner. In most cases they have not proper attention to their informational needs. Unfortunately the use of MICROS usually is not accompany with sufficient

knowledge and expertise, and today, using of computers or computer LAN is a tool of ambitiousness of companies which has a lot of cost for them than a proper information system for the best decisions.

	No	Yes
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- Using application software in computer courses	6	4
- Voluntary training about using computers in accounting	7	3
- Special emphasis on accounting application in computer courses	5	5
- Emphasis on MICROS or DOS in computer courses	6	4
- Using computer in accounting courses	7	3
- Encouraging computerized accounting materials for accounting courses by Department	6	4
- Teaching only FORTRAN or COBOL in computer courses	4	6

Table 1- curriculum problems (for 10 accounting departments)

- Average of instructors'age	45 Years	
	NO	Yes
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- Computer courses instructors' experience in accounting field	9	1
- Any attempt to enhancing accounting instructors' knowledge in computers	7	3
- Availability of computers for instructors in accounting department	6	4

Table 2- instructors problems

	very useful	useful	little useful	not useful
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1- Short-term training in Microcomputers and DOS	5	2	1	--
2- Training instructors in computer-service firms	2	1	2	--
3- Using tutorial packages by instructors	2	--	2	2
4- Giving one PC to every instructor	10	--	--	--
5- Unlimited use of computer lab time by instructors	5	2	--	--

Table 3- recommendations about methods of promoting instructors' knowledge about computers

	VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
1- High age average	2	1	3
2- Limited training in COBOL or FORTRAN	3	4	1
3- Not available computers for instructors in spite of their interest in	7	2	1
4- Inattention to development in computer application in acc.	7	2	1
5- Need for spending much more time for performing classworks	1	4	1
6- Lack of some side facilities like proper books and software	4	1	2
7-English language as an obstacle	3	2	.3

Table 4- major constraints for effective use of computers by accounting instructors

	No	Yes
- Separate computer lab in accounting dept.	7	3
- Using Main-Frame or Minicomputers (outside located)	4	6
- Using Microcomputers	6	4
- Direct relation between students and computers	5	5
- Classes with computers facilities (at least one computer for one or two student(s))	10	--
- Classes equipped with only one MICRO for instructor	6	4
- Computer library in department	6	4
- Subscription of computer or MIS/AIS publications	9	1
- Acquisition of accounting books with diskettes	5	5

Table 5- computer facilities in accounting department

Conclusions:

Development of computer science can be a good news for accounting education and profession. This is true for both developed and developing countries. If accountants be able to match the development of accounting technology (as an information system) with computer technological progress (as a tool for that information system), we can hope to emerge a revolution in accounting education and profession.

However Iran and other developing countries must get rid themselves of some important problems before doing anything. If they don't so, this revolution will be destroyer than be instructor. Solving these problems certainly will help more effective application of computers in accounting (education and

profession):

1- *Lack of local accounting standards as the most important problem. Even, matching imported standards with local needs is better than lack of standards.*

2- *Lack of effective relations between education and profession.*

3- *Lack of proper uniform manual systems as a result of the lack of local standards.*

4- *Authorized nonprofessionals! These are companies which have not any knowledge of accounting and they are presenting accounting softwares to market.*

5- *Lack of legal acceptability of computer - based accounting.*

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خلاصه مقاله انگلیسی:

مشکلات کاربرد کامپیوتر در حوزه دانش و حرفه حسابداری (مورد ایران)

دکتر محمد عرب مازاریزی

این مقاله که در سال ۱۳۷۰ (۱۹۹۲) برای ارائه به کنفرانس بین المللی حسابداری در واشنگتن، بر پایه تحقیقی پیرامون مشکلات کاربرد کامپیوتر در محیطهای آموزشی و حرفه حسابداری در ایران تهیه شده است.

رشد پر شتاب تکنولوژی انفورماتیک (IT) در دهه ۱۹۸۰ و انقلابی که نامش از ظهور کامپیوترهای کوچک (Microcomputers) در صنعت انفورماتیک و اطلاع رسانی بود، موضوع و مشکل تازه‌ای را مطرح ساخت که آن را به «رشد نامتوازن» تعبیر کرده‌ایم. منظور از رشد نامتوازن، عدم توازن در رشد و پیشرفت دانش و حرفه حسابداری با پیشرفت تکنولوژی داده‌پردازی است. از آنجا که گسترش سریع، قیمت ارزان و تکنولوژی فوق‌العاده مدرن داده‌پردازی امروزه استفاده از کامپیوترها را در تمامی سازمانها گریزناپذیر ساخته است و با توجه به آنکه دانش و حرفه حسابداری دچار تحولی درخور این رشد پرشتاب در ابزارهای اصلی سیستمهای اطلاعاتی حسابداری نشده است، مشکلات تازه‌ای در هر دو عرصه دانش و حرفه حسابداری پدید آمده است.

ورود کامپیوترهای کوچک به محیطهای دانشگاهی که ضرورتی اجتناب ناپذیر در طول یک دهه اخیر بوده است، کامپیوتر را از اتاقهای در بسته و سالنهای کامپیوتری به روی میز دانشجویان آورده و در تماس مستقیم با ایشان قرار داده است.

نتایج این تحقیق که پرسشنامه‌های مربوط به آن برای تمامی گروههای حسابداری در دانشکده‌ها و دانشگاههای رسمی مربوط در سراسر کشور ارسال شد، نشان می‌دهد که علی‌رغم در دسترس بودن کامپیوتر، مشکلات زیادی برای کاربرد و استفاده اثربخش از آن وجود دارد. حرفه حسابداری نیز با ورود کامپیوترهای کوچک به عرصه پردازش داده‌ها نیازمند تحولات تازه‌ای در چگونگی به کارگیری سیستمهای مکانیزه و بهبود این قبیل سیستمهاست. مجموعه‌ای از مسایل جدیدی که به نوعی به رشد نامتوازن یاد شده باز می‌گردد، در این مقاله مورد اشاره قرار گرفته است.