Attitudes and opinions of students towards the study of Introduction to Microcomputers and Applications course and how it affects their performance at SMCoSE

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***Abstract:** The purpose of this study was to determine the attitudes and opinions of students towards Introduction to Microcomputers and Applications (IMA) course as well as factors affecting their performance in this course. The study involved students from three different degree programs. A sample of hundred and twenty three (123) students were addressed via a questionnaire survey to provide their opinions on IMA course they did during their first year of study. The results of the study showed that majority of the students of which the study questions were based on had positive opinions and attitudes on the IMA course they studied during their first year while poor computer background, lack of computer facilities and big class size were the major reasons that caused performance to lag behind. Findings are expected to provide beneficial source of information to instructors in this course on how to handle students in a better manner so that the course may be more beneficial to students. Also it is expected to contribute to reinforcing positive attitudes and modifying negative ones, so as to strengthen appropriate attitude towards the course.*

***Key Words:** Computer, instructor, performance, attitude, opinion, student.*

1. INTRODUCTION:

Information communication technology (ICT) components have been introduced in learning institutions so as to engage students in dynamic and active learning as well as to assist instructors during marking, teaching, and practical sessions. This is so because there is an increasing trend of instructors handling large class sizes and most books related to ICT in libraries in several learning institutions are few, scarce and the majority of them are out of date. The impact brought forth by ICT has not just influenced learning institutions, but also other sectors and at homes. Several studies have revealed different opinions and attitudes of students related to ICT in the teaching and learning process.
Kinuthia and Dagada (2008) revealed that instructors found out that ICT is more effective when dealing with large classes as they met most of the diverse needs of large classes of students that otherwise would have been difficult to achieve with traditional methods of teaching. Such needs include the use of projectors, desktop computers for practical sessions and use of emails and social networks for communication purposes.

A study done by Chia (2005) found that, with ICT, students were more motivated toward learning, improved their skills in learning, and were able to learn more at any time, virtually anywhere. Another study was done by Wang (2007) showed that most students using ICT were highly motivated regardless of their cultural background differences. According to Craker (2006), students' knowledge of scientific concepts is largely affected by prior knowledge. Crawley and Black (1992) are of the opinion that when measuring students' attitudes towards science subjects then their attitude towards learning environment should be taken into consideration. George (2000) in his study states that lack of furniture fittings, laboratories and, equipment in classrooms are likely to contribute to misconceptions. Bajah (1998) is of the opinion that if students have negative attitudes towards science, then they are likely also to dislike the science courses and teachers. Such attitudes may contribute to lower performances.

A study done by Leuven et al. (2007) concluded that no evidence exists for a relationship between increased educational use of ICT and students' performance. In their study, they found that a consistently negative and marginally significant relationship between ICT use and some student achievement measures existed. They argue that students may use ICT to increase their leisure time such as playing online games, chatting and watching online movies resulting into less time to study. Such uses of ICT are likely to have a negative impact on performances rather than positive impact. Battle (1999) did a study related to the relationship between possessing a home computer and school performance. Their findings suggested that students having a computer at home for educational purposes do have better scores in reading and maths.

Penna et.el (2010) did an investigation in a primary school to check if opinions on computers are related to the effectiveness of computer usage in circumstances related to education. Finding revealed that positive opinion on

computers do not necessarily lead to higher learning capacity for producing the desired result in a computer-based educational environment in comparison to a traditional educational setting.

Impacts of utilizing ICT have been outlined as well as students' attitudes and opinions on the use of ICT. For positive impacts to be achieved, attitudes and opinions of students towards these ICT components have to be positive so that they can be convinced that they are really of benefit. By doing so, they will be in a better position to perform well in ICT courses as well as other courses. This study intends to find out students' attitudes and opinions from SMCoSE in IMA course, a course offered at the college for first- year students. The study also explores factors that affect students' performance in this course.

2. PURPOSE OF THE STUDY:

The purpose of the study was:
   i.   To investigate attitudes and opinions of students in IMA course at SMCoSE.
   ii.   To examine factors affecting students' performance in IMA course at SMCoSE**.**

3. RESEARCH QUESTIONS:

This study addressed the following questions:
   i.   What are the attitudes and opinions of students in IMA at MSCoSE?
   ii.   What are the factors affecting students' performance in IMA course at SMCoSE?

4. SAMPLE AND SAMPLING TECHNIQUE:

The sample for this study comprised of 123 SMCoSE students. Of these, 46 students came from BSc. with Education-Chemistry and Biology (ECB), 40 students from BSc. Agricultural Economics and Agribusiness (AEA) and 37 from Informatics and Info mathematics (INF &INFMTH) degree programs.

5. METHOD:

A questionnaire was used that involved fourteen items. Items from questions one to eight were related to students' opinions and attitudes on IMA course and the remaining six were related to factors that affect students' performance in IMA course. Answers to the questionnaire involved strongly disagree (SDA), disagree (D), neither agree nor disagree (NAnD), strongly agree (SA) and agree (A). Level of favourably attitude, opinion or performance in a category was indicated by its total score.

6. RESULTS AND ANALYSIS:

6.1. Study question one: Results for study from each of the selected degree program are shown in crosstab below:

TABLE 1: To me, IMA was a simple course

DEGREE PROGRAM			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	0	8	0	4	25	37
		% within DEGREE PROGRAM	.0%	21.6%	.0%	10.8%	67.6%	100.0%
		% of Total	.0%	6.5%	.0%	3.3%	20.3%	30.1%
	ECB	Count	2	4	0	10	30	46
		% within DEGREE PROGRAM	4.3%	8.7%	.0%	21.7%	65.2%	100.0%
		% of Total	1.6%	3.3%	.0%	8.1%	24.4%	37.4%
	AEA	Count	3	15	2	2	18	40
		% within DEGREE PROGRAM	7.5%	37.5%	5.0%	5.0%	45.0%	100.0%
		% of Total	2.4%	12.2%	1.6%	1.6%	14.6%	32.5%
Total		Count	5	27	2	16	73	123
		% within DEGREE PROGRAM	4.1%	22.0%	1.6%	13.0%	59.3%	100.0%
		% of Total	4.1%	22.0%	1.6%	13.0%	59.3%	100.0%

From the table1, it's observed that majority of the students from the three groups either strongly agree or agree that IMA was a simple course. This is reflected in their course results where only 3.07% of INF & INFMTHS students, 3.61% of AEA students and 3.11% of ECB students failed IMA course, SUA (2017).

TABLE 2: I felt bored when IMA lecture was in progress

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	20	15	1	0	1	37
		% within DEGREE PROGRAM	54.1%	40.5%	2.7%	.0%	2.7%	100.0%
		% of Total	16.3%	12.2%	.8%	.0%	.8%	30.1%
	ECB	Count	17	19	2	4	4	46
		% within DEGREE PROGRAM	37.0%	41.3%	4.3%	8.7%	8.7%	100.0%
		% of Total	13.8%	15.4%	1.6%	3.3%	3.3%	37.4%
	AEA	Count	21	15	1	1	2	40
		% within DEGREE PROGRAM	52.5%	37.5%	2.5%	2.5%	5.0%	100.0%
		% of Total	17.1%	12.2%	.8%	.8%	1.6%	32.5%
Total		Count	58	49	4	5	7	123
		% within DEGREE PROGRAM	47.2%	39.8%	3.3%	4.1%	5.7%	100.0%
		% of Total	47.2%	39.8%	3.3%	4.1%	5.7%	100.0%

From the table 2, 17.4% of ECB students agreed or strongly agreed that they felt bored during IMA class sessions compared to 2.7% and 7.5% ratios agreed or strongly agreed by INF& INFMTHS and AEA students respectively.

TABLE 3: I disliked the way how the IMA instructor was conducting lecture sessions

			SD	D	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	16	15	1	5	37
		% within DEGREE PROGRAM	43.2%	40.5%	2.7%	13.5%	100.0%
		% of Total	13.0%	12.2%	.8%	4.1%	30.1%
	ECB	Count	24	18	0	4	46
		% within DEGREE PROGRAM	52.2%	39.1%	.0%	8.7%	100.0%
		% of Total	19.5%	14.6%	.0%	3.3%	37.4%
	AEA	Count	20	14	2	4	40
		% within DEGREE PROGRAM	50.0%	35.0%	5.0%	10.0%	100.0%
		% of Total	16.3%	11.4%	1.6%	3.3%	32.5%
Total		Count	60	47	3	13	123
		% within DEGREE PROGRAM	48.8%	38.2%	2.4%	10.6%	100.0%
		% of Total	48.8%	38.2%	2.4%	10.6%	100.0%

Table 3 reveals that 83.7% of INF & INFMTHS students, 91.3% of ECB students and 85.0% of AEA students, either disagree or strongly disagree that they disliked the way how IMA instructors were conducting lecture sessions.

TABLE 4: IMA class sessions were interesting

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	1	1	1	15	19	37
		% within DEGREE PROGRAM	2.7%	2.7%	2.7%	40.5%	51.4%	100.0%
		% of Total	.8%	.8%	.8%	12.2%	15.4%	30.1%
	ECB	Count	0	0	0	18	28	46
		% within DEGREE PROGRAM	.0%	.0%	.0%	39.1%	60.9%	100.0%
		% of Total	.0%	.0%	.0%	14.6%	22.8%	37.4%
	AEA	Count	1	4	1	14	20	40
		% within DEGREE PROGRAM	2.5%	10.0%	2.5%	35.0%	50.0%	100.0%
		% of Total	.8%	3.3%	.8%	11.4%	16.3%	32.5%
Total		Count	2	5	2	47	67	123
		% within DEGREE PROGRAM	1.6%	4.1%	1.6%	38.2%	54.5%	100.0%
		% of Total	1.6%	4.1%	1.6%	38.2%	54.5%	100.0%

Table 4 shows that 91.9% of INF & INFMTHS students, 100% ECB of students, and 85% of AEA students agreed or strongly agreed that IMA class session were interesting. This goes in proportionate with results in table two where few students from the three categories felt bored during class sessions.

TABLE 5: I did not see IMA relevance to my everyday life and society

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	26	10	1	0	0	37
		% within DEGREE PROGRAM	70.3%	27.0%	2.7%	.0%	.0%	100.0%
		% of Total	21.1%	8.1%	.8%	.0%	.0%	30.1%
	ECB	Count	30	14	0	2	0	46
		% within DEGREE PROGRAM	65.2%	30.4%	.0%	4.3%	.0%	100.0%
		% of Total	24.4%	11.4%	.0%	1.6%	.0%	37.4%
	AEA	Count	30	8	0	0	2	40
		% within DEGREE PROGRAM	75.0%	20.0%	.0%	.0%	5.0%	100.0%
		% of Total	24.4%	6.5%	.0%	.0%	1.6%	32.5%
Total		Count	86	32	1	2	2	123
		% within DEGREE PROGRAM	69.9%	26.0%	.8%	1.6%	1.6%	100.0%
		% of Total	69.9%	26.0%	.8%	1.6%	1.6%	100.0%

Table 5 above shows that 5.0% of AEA students and 4.3% of ECB students did not see IMA as relevance to their everyday life and society. No student from INF& INFMTHS agreed or strongly agreed with this opinion. The small portion coming from these students may be due to the fact that this course not being their speciality.

TABLE 6: IMA questions were too difficult to answer

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	15	18	3	0	1	37
		% within DEGREE PROGRAM	40.5%	48.6%	8.1%	.0%	2.7%	100.0%
		% of Total	12.2%	14.6%	2.4%	.0%	.8%	30.1%
	ECB	Count	10	26	3	3	4	46
		% within DEGREE PROGRAM	21.7%	56.5%	6.5%	6.5%	8.7%	100.0%
		% of Total	8.1%	21.1%	2.4%	2.4%	3.3%	37.4%
	AEA	Count	6	23	1	1	9	40
		% within DEGREE PROGRAM	15.0%	57.5%	2.5%	2.5%	22.5%	100.0%
		% of Total	4.9%	18.7%	.8%	.8%	7.3%	32.5%
Total		Count	31	67	7	4	14	123
		% within DEGREE PROGRAM	25.2%	54.5%	5.7%	3.3%	11.4%	100.0%
		% of Total	25.2%	54.5%	5.7%	3.3%	11.4%	100.0%

Table 6 above shows that a quarter of AEA students agreed that IMA questions were difficult to answer.

TABLE 7: I felt free to ask IMA questions to my instructor

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	2	4	4	12	15	37
		% within DEGREE PROGRAM	5.4%	10.8%	10.8%	32.4%	40.5%	100.0%
		% of Total	1.6%	3.3%	3.3%	9.8%	12.2%	30.1%
	ECB	Count	4	12	2	8	20	46
		% within DEGREE PROGRAM	8.7%	26.1%	4.3%	17.4%	43.5%	100.0%
		% of Total	3.3%	9.8%	1.6%	6.5%	16.3%	37.4%
	AEA	Count	2	4	5	9	20	40
		% within DEGREE PROGRAM	5.0%	10.0%	12.5%	22.5%	50.0%	100.0%
		% of Total	1.6%	3.3%	4.1%	7.3%	16.3%	32.5%
Total		Count	8	20	11	29	55	123
		% within DEGREE PROGRAM	6.5%	16.3%	8.9%	23.6%	44.7%	100.0%
		% of Total	6.5%	16.3%	8.9%	23.6%	44.7%	100.0%

Table 7 shows that ECB students had the least freedom to ask IMA instructor questions related to the course while INF & INFMTHS had the most freedom.

TABLE 8: Knowledge required from IMA has helped

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	1	0	0	30	6	37
		% within DEGREE PROGRAM	2.7%	.0%	.0%	81.1%	16.2%	100.0%
		% of Total	.8%	.0%	.0%	24.4%	4.9%	30.1%
	ECB	Count	0	0	2	20	24	46
		% within DEGREE PROGRAM	.0%	.0%	4.3%	43.5%	52.2%	100.0%
		% of Total	.0%	.0%	1.6%	16.3%	19.5%	37.4%
	AEA	Count	0	2	0	26	12	40
		% within DEGREE PROGRAM	.0%	5.0%	.0%	65.0%	30.0%	100.0%
		% of Total	.0%	1.6%	.0%	21.1%	9.8%	32.5%
Total		Count	1	2	2	76	42	123
		% within DEGREE PROGRAM	.8%	1.6%	1.6%	61.8%	34.1%	100.0%
		% of Total	.8%	1.6%	1.6%	61.8%	34.1%	100.0%

Table 8, shows that 5% of AEA students and 4.3% of ECB students either strongly agree or agree that the knowledge they acquired from IMA was helpful. This question is almost equivalent to questions 5 and similar results were obtained. The only surprise came from INF & INFMTHS students where 1 student strongly disagreed that the knowledge they acquired from IMA was helpful.

6.2. Study Question two: Results for study from each of the selected degree programs are shown in crosstabs below.

TABLE 9: We had enough computers for doing practical sessions in IMA

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	4	13	4	3	13	37
		% within DEGREE PROGRAM	10.8%	35.1%	10.8%	8.1%	35.1%	100.0%
		% of Total	3.3%	10.6%	3.3%	2.4%	10.6%	30.1%
	ECB	Count	21	22	1	0	2	46
		% within DEGREE PROGRAM	45.7%	47.8%	2.2%	.0%	4.3%	100.0%
		% of Total	17.1%	17.9%	.8%	.0%	1.6%	37.4%
	AEA	Count	27	10	0	0	3	40
		% within DEGREE PROGRAM	67.5%	25.0%	.0%	.0%	7.5%	100.0%
		% of Total	22.0%	8.1%	.0%	.0%	2.4%	32.5%
Total		Count	52	45	5	3	18	123
		% within DEGREE PROGRAM	42.3%	36.6%	4.1%	2.4%	14.6%	100.0%
		% of Total	42.3%	36.6%	4.1%	2.4%	14.6%	100.0%

Table 9, shows that 45.9% of INF & INFMTHS students, 93.5% of ECB students and 92.5% AEA students thought that they did not have enough computers for practical sessions.

Table 10 shows that 21.6% of INF & INFMTHS students, 13.0% of ECB students and 22.5% AEA students thought that their instructor lacked innovation, encouragement and resources to work with.

TABLE 11: Our class size was too big for students to fully pay attention to the lecture sessions

			SD	D	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	9	14	3	11	37
		% within DEGREE PROGRAM	24.3%	37.8%	8.1%	29.7%	100.0%
		% of Total	7.3%	11.4%	2.4%	8.9%	30.1%
	ECB	Count	4	8	16	18	46
		% within DEGREE PROGRAM	8.7%	17.4%	34.8%	39.1%	100.0%
		% of Total	3.3%	6.5%	13.0%	14.6%	37.4%
	AEA	Count	5	3	10	22	40
		% within DEGREE PROGRAM	12.5%	7.5%	25.0%	55.0%	100.0%
		% of Total	4.1%	2.4%	8.1%	17.9%	32.5%
Total		Count	18	25	29	51	123
		% within DEGREE PROGRAM	14.6%	20.3%	23.6%	41.5%	100.0%
		% of Total	14.6%	20.3%	23.6%	41.5%	100.0%

Table 11, shows that 85% of AEA students, 73.9% of ECB students and 37.8% of INF & INFMTHS students either strongly agree or agree that they had a big class size for them to pay full attention to lecture sessions.

TABLE 12: My computer background was poor when I started my degree program

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	2	7	2	14	12	37
		% within DEGREE PROGRAM	5.4%	18.9%	5.4%	37.8%	32.4%	100.0%
		% of Total	1.6%	5.7%	1.6%	11.4%	9.8%	30.1%
	ECB	Count	3	9	0	11	23	46
		% within DEGREE PROGRAM	6.5%	19.6%	.0%	23.9%	50.0%	100.0%
		% of Total	2.4%	7.3%	.0%	8.9%	18.7%	37.4%
	AEA	Count	6	5	0	17	12	40
		% within DEGREE PROGRAM	15.0%	12.5%	.0%	42.5%	30.0%	100.0%
		% of Total	4.9%	4.1%	.0%	13.8%	9.8%	32.5%
Total		Count	11	21	2	42	47	123
		% within DEGREE PROGRAM	8.9%	17.1%	1.6%	34.1%	38.2%	100.0%
		% of Total	8.9%	17.1%	1.6%	34.1%	38.2%	100.0%

Table 12 shows that over 70% from all the categories agree or strongly agree that they had poor computer background when they started their degree programs.

TABLE 13: I do not think I spent much time studying IMA compared to other courses

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	5	16	4	1	11	37
		% within DEGREE PROGRAM	13.5%	43.2%	10.8%	2.7%	29.7%	100.0%
		% of Total	4.1%	13.0%	3.3%	.8%	8.9%	30.1%
	ECB	Count	2	12	14	2	16	46
		% within DEGREE PROGRAM	4.3%	26.1%	30.4%	4.3%	34.8%	100.0%
		% of Total	1.6%	9.8%	11.4%	1.6%	13.0%	37.4%
	AEA	Count	7	14	2	2	15	40
		% within DEGREE PROGRAM	17.5%	35.0%	5.0%	5.0%	37.5%	100.0%
		% of Total	5.7%	11.4%	1.6%	1.6%	12.2%	32.5%
Total		Count	14	42	20	5	42	123
		% within DEGREE PROGRAM	11.4%	34.1%	16.3%	4.1%	34.1%	100.0%
		% of Total	11.4%	34.1%	16.3%	4.1%	34.1%	100.0%

Table 13, reveals that 42.5% of AEA students, 39.1% of ECB students and 32.4% of INF & INFMTHS students don't think they spent much time studying IMA course compared to other courses.

TABLE 14: Class time was too limited for computer practices in the laboratories

			SD	D	NAnD	SA	A	Total
DEGREE PROGRAM	INF & INFMTHS	Count	1	4	3	14	15	37
		% within DEGREE PROGRAM	2.7%	10.8%	8.1%	37.8%	40.5%	100.0%
		% of Total	.8%	3.3%	2.4%	11.4%	12.2%	30.1%
	ECB	Count	2	6	4	16	18	46
		% within DEGREE PROGRAM	4.3%	13.0%	8.7%	34.8%	39.1%	100.0%
		% of Total	1.6%	4.9%	3.3%	13.0%	14.6%	37.4%
	AEA	Count	1	3	2	19	15	40
		% within DEGREE PROGRAM	2.5%	7.5%	5.0%	47.5%	37.5%	100.0%
		% of Total	.8%	2.4%	1.6%	15.4%	12.2%	32.5%
Total		Count	4	13	9	49	48	123
		% within DEGREE PROGRAM	3.3%	10.6%	7.3%	39.8%	39.0%	100.0%
		% of Total	3.3%	10.6%	7.3%	39.8%	39.0%	100.0%

Table 14 shows that more than 78% from all groups agreed or strongly agreed that they had no enough time to practice computer concepts in the laboratory.

7. DISCUSSION:

Result of analysis using percentage shows that majority of opinions and attitudes of students towards IMA course were as follows:

IMA was a simple course, students did not feel bored during class sessions, students were satisfied with the way the instructors were conducting the lecture sessions, IMA sessions were interesting, IMA course was relevance to everyday life and society, IMA questions were not difficult to answer, students felt free to ask questions to their instructors, and knowledge gained from IMA has been of help. It is important to note that a good number of students do possess personal computers these days compared to past years. This gives them the opportunity to interact more with computers, access online notes and gets that sense of satisfaction and allows them to ask or inquiry of ICT issues. This among other reasons is likely to have contributed to positive attitudes and opinions of students mentioned above. The last six tables from table 9 to table 14 were related to performance factors. Results show that performance was negatively affected by few computers in the laboratory to work with, big class size particularly to ECB and AEA students, poor computer background and limited class time for computer practices, were the main contributors.

8. CONCLUSION:

This study conducted a descriptive survey research on the opinions and attitudes of SMCoSE students towards IMA course. Findings from this investigation showed that majority of student's possessed generally positive attitudes and opinions towards the course. In slim cases, we did have students displaying indifference towards the course. Also, it was revealed that there is a large student population than the available computers to work with during practical sessions. Despite investing heavily in ICT; SUA still does not match the available computer facilities compared to the number of students to be accommodated.

9. RECOMMENDATIONS:

The study showed that students at SMoSE have positive attitude and opinions towards IMA course. But on the other hand, concerns have been raised on the computer facilities to work with during their studies.
In order to reduce the deficits caused by factors affecting students' performance in IMA at exhibiting, the following was recommended:
  i.   SUA authority should allow students to do their practical exercises in groups as opposed to the current policy where a single computer can be utilized by a single student which causes instructors to handle multiple sessions taking few minutes per session.
  ii.   SUA authority should think of expanding their computer facilities in the near future.
  iii.   First-year students should take a crash two-week program related to IMA to familiarize themselves with computers before taking the official course. This can be achieved by involving donors and stakeholders who can help to fund this programme so that instructors can be motivated to handle the programs and students be paid two week allowances during those two weeks.

10. LIMITATIONS OF THE STUDY:

The study was conducted only on 123 students all from SMCoSE from three different degree programs. Thus generalisations cannot be made to the remaining degree programs. Reported results and findings are not static. They

may be quite different at another time or in other cultural settings. Thus additional surveys need to be conducted on larger samples to generalize the obtained findings. By no means, the factors in the questionnaire are the only ones that exist. There are more that have been left out.

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