



ONLINE COURSES FOR HIGH SCHOOL CHILDREN: ENROLLMENTS MATCHED BY ESCALATING ATTRITION RATES

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Article DOI: <https://doi.org/10.36713/epra10795>

DOI No: 10.36713/epra10795

ABSTRACT

Increased work at home opportunities, work place inaccessibility or difficulty in reaching distant work stations and the recent lock down have all converged to make online courses with its attendant spinoffs, an attractive alternative. In the age of knowledge revolution, the plethora of online courses on practically every conceivable subject seems to have spawned a deep seated hunger to expand horizons of knowledge and sharpen their skillsets so as to attain an unchallenged edge over their peers. This paper reviews the various online courses available in the market, the reasons why they take up these courses and also explores some of the reasons for the high rate of drop-offs and drop out of these courses. Three objectives have been set forth, and three hypothesis have been formulated which emerged from the literature review. A semi-structured questionnaire was created and tested both validity as well as reliability. Primary data obtained from the questionnaire was analysed using a combination of different tools of Statistical Package for Social Sciences. Both the null and alternative hypothesis were tested using the same package to arrive at certain cogent conclusions, summarised in the results and discussions section

KEYWORDS: Pedagogy, drop-offs, dropouts, enrollment, disengagement, attrition

1. INTRODUCTION

When Stephen Downes and his colleague, George Siemens first thought up of the grand idea of MOOCs (it was not then known as MOOCs) little did they realize that the little experiment would one day expand to a worldwide phenomena that would take the student community by storm. In fact the year 2012 heralded such an unprecedented “wave” of enrolment in MOOC courses that the New York Times called it the “Year of the MOOC”. But once the initial excitement and rush for registration was over, very soon students as well as the academic community at large realized that sustainability of MOOC courses was already, and would become an even greater issue in the years to come.

The word MOOCS stands for Massive Open online courses and was originally thought up of by Stephen Downes and his colleague, George Siemens for a unique and original course entitled “Connectivism and Connectivity Knowledge” in 2008.

Well known examples of such courses are Udacity, Coursera and edX which have grown both in size and popularity since their inception. However, despite the fact that MOOCS are a relatively new concept, they have proliferated into so many sub courses and sub branches that newcomers to these courses are quite confused. For example there is cMOOCS which stands for “Connectivist”, taken from the course first begun by Stephen Downes. There is also another variant called xMOOCS which is a more formal,

institutionalised version of MOOCS that has well defined objectives and a structure.

2. ENROLMENTS

2.1 Enrolment Internationally

When MOOCs was first launched it was such a tremendous success that the New York Times called it the “The year of the MOOCS” (Papanno, 2012). When ETMOOCS was launched, it boasted of 493 subscribed blogs, over 2000 registrants and many of the subscribers were from different countries. The article claimed that they were from over 80 countries. How authentic this is, is anybody’s guess, but it proves that at least in 2012, the courses proved to be very popular. That was the year when people all across the globe were warming up to the powerful possibilities of the Internet and world wide connectivity and were beginning to realise that Marshal McLuhans’ prediction of the world becoming a global village was not merely an idealistic fantasy, but was fast becoming a tangible reality. In all the continents and even in fairly remote islands, MOOCs were catching on like the proverbial wildfire.

But very soon, drop offs in some of these courses began to match the rate of enrolments. In the so called “Year of the MOOCS” itself, in Duke’s University, Coursera’s MOOC on BioElectricity had 12,000 registrants but 4,000 of these failed to login during the first week of the course. In this same course only 313 students (4% or registrants) from 37

countries completed all of the assignments and quizzes and were awarded certificates of completion¹.

In another paper, Here a MOOC, there a MOOC, Lewin (2013) noted that although MOOCs have enrolled millions of students around the world, most who enroll never start a single assignment and very few complete the course².

Internationally, in other countries also, once the initial enthusiasm had died out, interest began to wane. In one study the author quotes that the vast majority of students who do enroll in a course, do not complete it. And the figure is as high as 97% (MOOCs³). One of the reasons why this occurred was because in the initial years of MOOCs being launched, the mode of conducting classes and exams was not significantly different from the traditional universities and colleges. The style of teaching was very similar, plain blackboard/whiteboard teaching, very few illustrations and the

use of multimedia as a learning tool was minimal or completely missing.. Moreover, they had set timings for classes and periodic reviews and exams which were relatively inflexible. Students perceived very little difference between online classes and the usual face to face classes, disillusionment set in, and many dropped off.

2.2 Enrolment in India

It appears that enrolments in India have been more or less following the same trends as internationally. The figure below gives a macro picture of online courses and the number of students enrolled in them, across the world.

Although the number of MOOCs are comparatively less than say, in the United States, nevertheless the proportion of students enrolled in MOOCs in India is quite large.

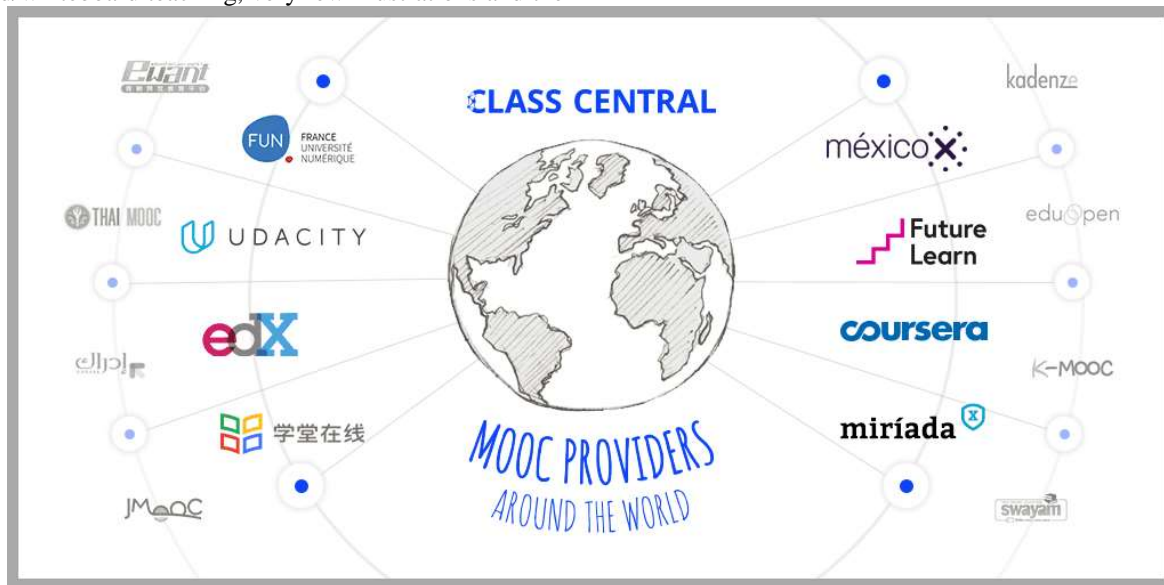


Fig 1. MOOC providers around the world

Source: <https://www.classcentral.com/report/moocwatch-15-moocs-lifelong-learners/>

In comparison to huge course providers like Coursera, Udacity, edX and others, the Indian Swayam portal is hugely popular and has a large subscriber base. However, little data exists on the retentivity of these courses, and how many stay on till the very end. Swayam maintains that there are 203 partnering institutes, 2,748 completed courses, 12,541,992 student enrollments, 915,538 exam registrations, and 654,664 successful certificates. It is evident from this statement that the the number of certifications issued as well as the completed courses falls far short of the massive number of student enrolments. This is more or less the same picture for other Indian MOOC providers like NPTEL, mooKIT, IITBombayX and many others.

It appears that, especially in the case of government funded or run courses like NPTEL and others, that they are more keen to present to the public, the extent of enrollment rather than reveal the high rate of attrition that accompanies enthusiastic enrollment

3. OBJECTIVES OF THE STUDY

Three objectives were specified at the commencement of

the research. These are:

Objective #1:

To assess the number of enrolments in schools for online courses

Objective #2:

To determine what attracts students to these courses. Curiosity or academic betterment?

Objective #3:

To gauge the rate of dropouts of students who enrol in online course

Findings that support or negate these objectives have been garnered through review of literature and through a semi-structured questionnaire

4. LITERATURE REVIEW

Numerous studies have been conducted on online courses and their efficacy along with reasons why students enrol in these courses, and some papers cite reasons why some courses are sustainable are some are not, and why many drop out of these courses. It is a sad fact that while several students in mixed age and gender groups enrol in these courses with enthusiasm and expectations, an almost equal number of



students drop out of these courses at a rapid rate. These have led to numerous debates on the effectiveness as well as viability of MOOCs and online courses, and the prevailing body of opinion is that extensive evidence points to the fact that these courses are excellent for the development of additional skill sets and to add to the existing body of knowledge but are a very poor and inadequate replacement for formal university education.

When online courses such as MOOCs were first developed in Stanford, the number of enrolments were truly massive. In the artificial intelligence class introduced by Sebastian Thrun, one of the biggest pioneers of the MOOCs wave, the number of enrolments were 160,000. This figure was so large and unexpected that the New York Times dubbed 2012 as the “Year of the MOOC” (Haber, 2014). Soon after that, online courses spread like the proverbial wildfire and the number of courses as well as the enrolments were so huge that the term “MOOCs” was coined to indicate the “massiveness” of this movement. In India also, many online courses have been initiated to lure the skill oriented student to better his chances of surviving in a competitive market. Many research studies have been undertaken that list the different online and MOOC courses available, options available to the student, possible reasons for the boom in these courses, teaching pedagogy employed and other aspects of online courses, but few talk about the success rates of these courses, what are the factors that ensure sustainability and if there is a high rate of drop outs in these courses, then what could be some of the reasons for this.

Eighteen research papers and one eBook was reviewed for the topic in question. As expected different papers cited different reasons why students enroll in these courses, what enables them to adhere to such courses, and finally, if they do get disillusioned or change their mind, what are some of the factors that make them take such an abrupt decision. A very detailed study examining the factor of persistence in online courses has been done by Sawsen Lakhali, Hager Khechine, wherein they have divided determinants into three categories. These are related to students academic background (relevant experiences, skills, and psychological attributes), those on course design and institutional support and those associated with the environment. The aim of the paper was to verify if the technological factors of Venkatesh et al.(2003) could explain students’ persistence in online courses in higher education⁴. Other studies look at the phenomena of rapid enrollment and equally rapid drop-offs from the lens of theoretical models and/or framework. A paper by Scott and Johnson frame their literature review around two theories. One is Tinto’s student integration model and the other, Bean’s model of student departure. Both these theories attach considerable weightage to behavioral intention as well as persistence as the prime drivers of a crucial decision to leave or continue a course. The paper uses logistical regression analysis and Pearson’s correlation coefficient to arrive at their conclusions. Although this study is very comprehensive and very analytical, it is somewhat narrow in the application of their findings as samples were collected from a narrow geographic region and hence the influence of cultural environments cannot be integrated into their findings and

conclusions. Furthermore, the statistical tools and postulates as well as theoretical constructs used are very rigorous scientifically, but the final conclusions drawn are of limited use in determining all the factors that induce students to leave online courses randomly.

Other papers look at gender differences and whether persons belonging to any one gender are more prone to enrol in course and continue also then their counterparts of another gender.

Another comprehensive paper is presented by Iona Literat who rather than focusing on online courses in general, confines herself more to MOOCs which she considers as an “equalising force” in the domain of academics. The author then dwells at length on the issue of credits and credit transfers, pedagogy, internationalisation and finally ethical and legal issues. All these issues are considered from a very balanced perspective, but the paper is too broad ranging in its scope and tries to adopt a nutshell approach to a myriad different shades and hues of the MOOC institution. By trying to cover too many issues in too short a space, the author only briefly touches on numerous points and the reader is unable to grasp any one point in any great depth and clarity⁵.

Several authors discuss in great detail the pedagogy involved and whether this is instrumental in attracting students to online courses or more of a dissuasive force rather than a persuasive one. The subject is interesting as it presents challenges to both the one being taught as well as the one imparting information. Authors Alec Sithole et. al present some of the issues and challenges presented by online courses by faculty teaching online courses in higher education. As mentioned in the title, the paper deals extensively with challenges faced by both online as well as F2F (Face to face) instructors and course requirements as well as pedagogical modifications needed to adapt syllabi to the online medium⁶. They suggest the need for an extensive mentoring program and the method of study employed was to send online questionnaires to different faculty teaching online faculty in one state. Some of the issues the paper looks at are (i) large class sizes (ii) Disengagement with students (iii) Poor technical support and (iv) Social presence and some additional smaller scale problems. This study is very focused and very pertinent as pedagogy is certainly impacting the enrolments of students in different courses as well as influencing their decision to leave or remain in a course. This paper is well written and comes up with useful findings. But the fact that they used *snowball sampling* means that there could be some bias in the responses and also the fact that all the respondents were drawn from one state only leads to the possibility of the sample not being truly representational. The subject of challenges is of interest to many authors as well as teaching practitioners as evinced by another detailed study by Mansureh Kebritchi, Angie Lipschuetz, and Lilia Santiago in a paper entitled “Issues and Challenges for Teaching Successful Online Courses in Higher Education: A Literature Review”. The authors have conducted an extensive review of literature in which they have examined emerging issues from three perspectives - from the point of view of the learner, their expectations from these courses and their readiness to learn; from the POV of the Instructors - changes in faculty roles,



how instructors are adapting to the new technology and finally issues related to content and how content has to be modified and manipulated to suit the new medium⁷. The paper provides in depth information on the themes mentioned above, yet many examples or case studies have not been given of specific institutions facing such challenges. Some comparison between institutions which have successfully adapted to changing technologies, and some which have not, would have been helpful.

5. RESEARCH DESIGN

5.1 Survey Instrument

The survey instrument consisted of two sections. Section-A was used to elicit demographic and candidate profile data. This was so to obtain a general background of the respondent, and for later sections where information such as gender would prove very useful in presenting genderwise break up and analysis of data. The second section (Section-B) consisted of two sub parts - the first part consisted of multiple choice questions with four options. Out of these questions, nine were closed ended questions and the last viz tenth question was an open ended question. The second part was a 5-point psychometric Likert scale designed to test behavioural intentions of candidates to join or not join online courses, as well as trying to gauge motivations to take up courses, for retention of a particular course, and if they decide to drop out, what could be the possible reasons for opting out of a course. Responses of the scaled questionnaire section, after the questions were tested for validity, both convergent as well as discriminant validity. The instrument was also tested for reliability, with Cronbach's Alpha as the determining test statistic using SPSS. After the survey instrument was rigorously tested in both counts, remaining constructs were analysed using a variety of statistical techniques using Statistical Package for Social Sciences.

5.2 Sample size and Sample Collection

Initially a sample size of 300 was planned (an online sample size collector suggested the figure of 340), but as most of the students were preparing for exams, very few responded to the questionnaire, despite the fact that it was online. The survey instrument was sent to 200 students but of this large number only 98 responded. Two questionnaires contained several errors and missing data, so those were excluded and finally only 96 respondents selected for testing (n=96). The questionnaire was sent to four schools - two government and two private so that representative data could be obtained and there would be a mix of income backgrounds so that one could determine whether earned income and desire to spend was really one of the deciding factors in opting for a course or were other variables that needed to be considered. The questionnaire was distributed online, with responses mailed back to the researcher's email id. After the samples were

collected, data was tabulated in the form of an excel sheet. Data was cleaned and checked for missing responses. The open ended questions were then separated from the close ended questions. Close ended questions were analysed using the help of SPSS, while the open ended questions were analysed through the use of software for analyzing qualitative data. Analysis of open ended questions are enumerated in the Results and Discussion section.

5.3 Hypothesis

Extensive review of current, national and international journals, as well as extant literature led to the tentative formulation of four research questions. Out of the five research questions, three null hypothesis were developed which were tested, using descriptives and frequency analysis in SPSS.

Research Questions

- R1. What is the student's awareness about online courses?
- R2. How many students enroll in online courses
- R3. What motivates them to join an online course?
- R4. What motivates them to stay on and complete a course
- R5. Do more male students drop out of a course or female students

Since the scope of distribution of the online questionnaire was limited and sent to a limited number of students it was felt, it would not be helpful to determine how many join online courses, since the survey was *not* being conducted at a macro level where the questionnaire could be distributed to a very large number of respondents. Hence research question #2 was dropped out of being considered as relevant to the development of a hypothesis. Furthermore, it was felt that both questions R#3 and R#4 could be clubbed together to develop a single hypothesis and this is what was done.

5.4 Research Hypothesis

1. H_0 : Most students have little knowledge of online courses
2. H_0 : Almost all students will drop out of a course a short while after joining it
3. H_0 : More male students drop out of a course, than female students

6. RESULTS AND DISCUSSION

6.1 Demographical Data

It was found that out of the data of 96 respondents, that 56 were male and 40 were female (See fig.2 below) and for age wise frequency distribution, the greatest majority of students were in the age group 17-18. In this age group, 34 respondents were of age 17 and 23 were of 18 years of age.

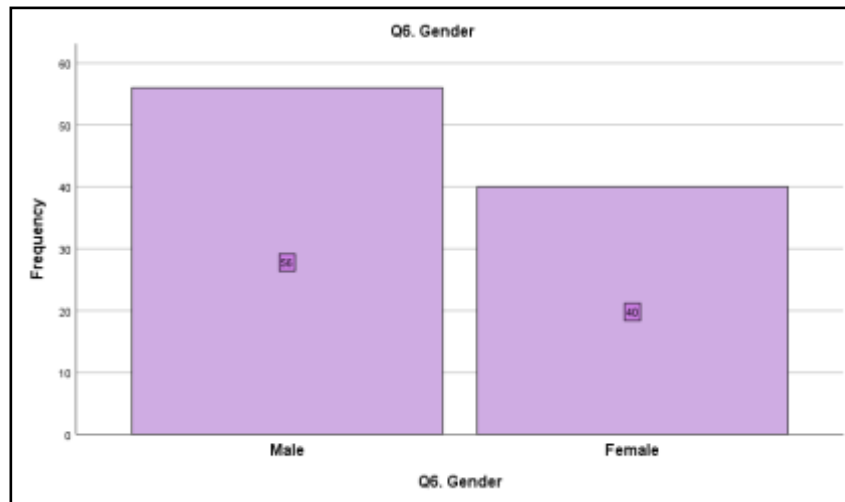


Fig 2. Gender Distribution of Target Group

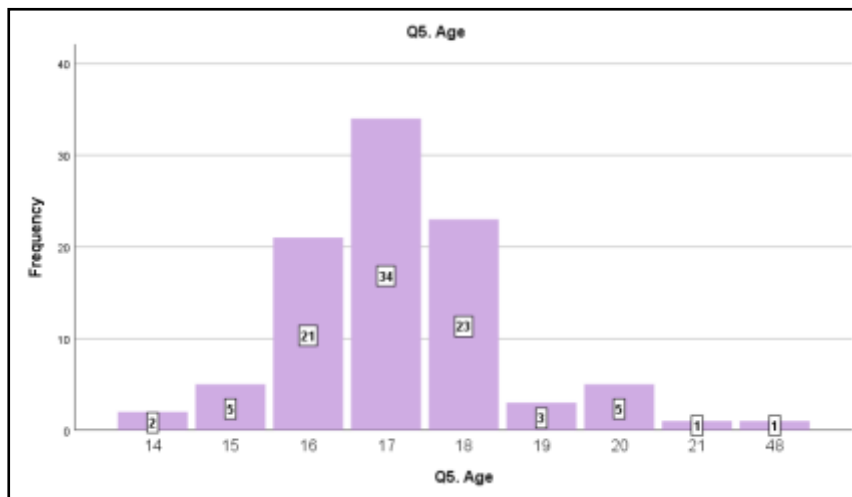


Fig 3. Age-wise Distribution of Target Group

6.2 Testing of Hypothesis

To test the first hypothesis, Questions Q.1, Q.2, Q.3 and Q.5 were analysed as they were designed specifically to address

the issue of quantum of enrolment. Below is presented visually the results that emerged.

1. H_0 : Most students have little knowledge of online courses

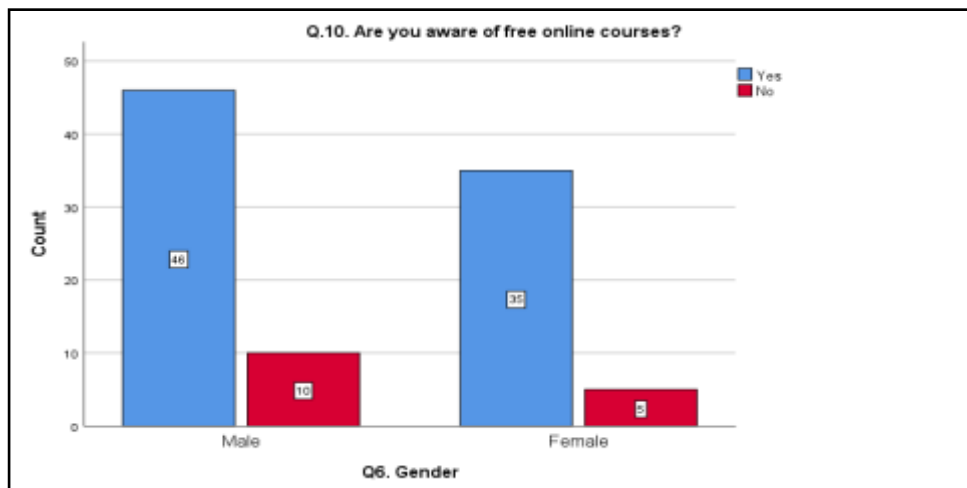


Fig 4. Gender responses to awareness of online courses

Q10. Are you aware of several free online courses.
Cross tabulation

Count		Q10. Are you aware of several free online courses		Total
		Yes	No	
Q6. Gender	Male	46	10	56
	Female	35	5	40
Total		81	15	96

Table 1. Gender responses to awareness of online courses

Q11. Have you ever enrolled in any of the courses that you heard about?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	61	63.5	63.5	63.5
	Yes	35	36.5	36.5	100.0
	Total	96	100.0	100.0	

Table 2. Frequency responses of course enrolment

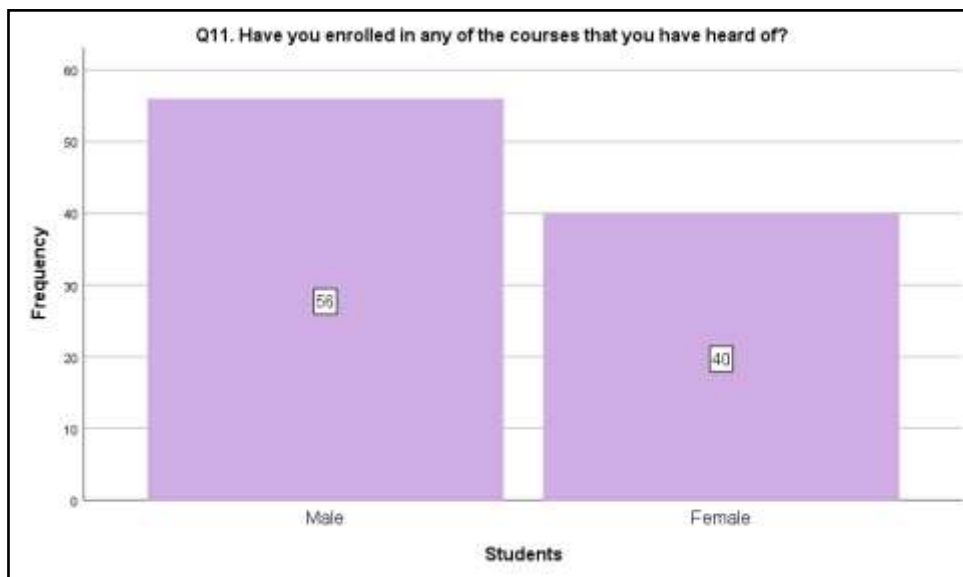


Fig 5. Male-female enrollment in online courses

Hypothesis #2

H_0 : Almost all students will drop out of a course a short while after joining it

In order to test this hypothesis, responses to questions #4, #6, and in the Likert Scale section, Section C, #3 and #10 will be tested and tabulated in the graphical analysis below.

Q13. What was the motive for enrolling in this course?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Free of cost	22	22.9	22.9	22.9
	No time lost in travel	14	14.6	14.6	37.5
	Curiosity about the Subject	22	22.9	22.9	60.4
	added qualification	25	26.0	26.0	86.5
	Not enrolled	13	13.5	13.5	100.0
Total		96	100.0	100.0	

Table 3. Frequency tabulation of reasons for enrolling in a course

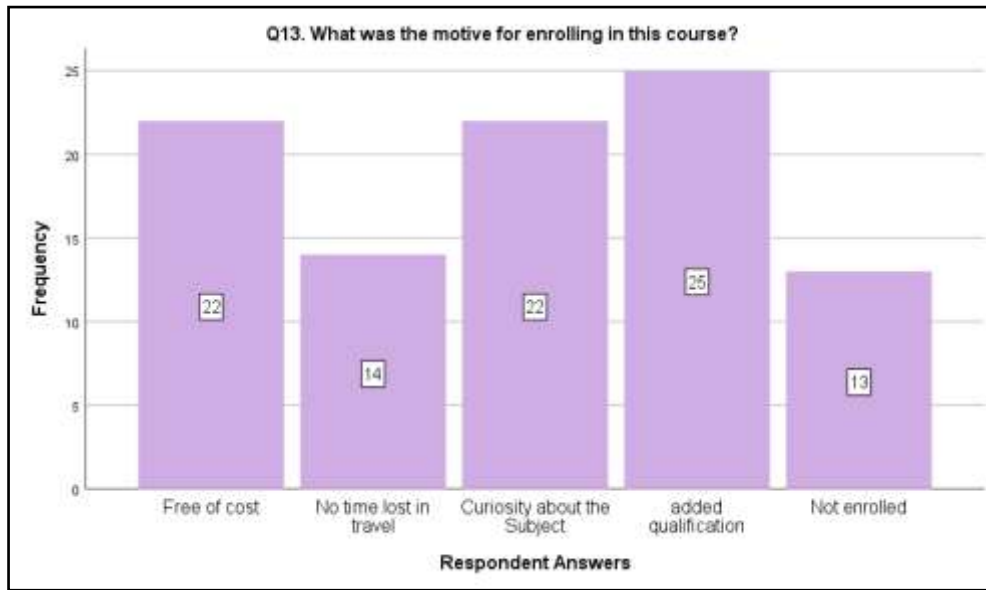


Fig 6. Reasons cited for enrolling in a course

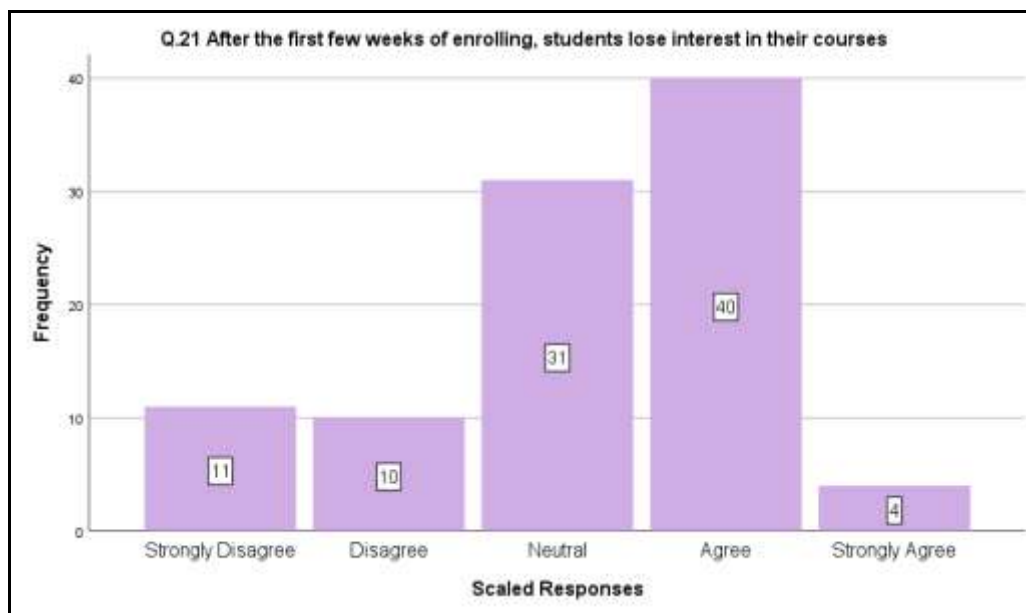


Fig 7. Scaled responses for leaving/not leaving a course

Q.21 After the first few weeks of enrolling, students lose interest in their courses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	11	11.5	11.5	11.5
	Disagree	10	10.4	10.4	21.9
	Neutral	31	32.3	32.3	54.2
	Agree	40	41.7	41.7	95.8
	Strongly Agree	4	4.2	4.2	100.0
	Total	96	100.0	100.0	

Table 4. Frequency responses of loss of interest in course

Hypothesis #3

H_0 : More male students drop out of a course, then female students

In order to test this hypothesis, responses to questions #8, #9, and in the Likert Scale section, Section C, #3 will be tested (in SPSS) and the results are plotted below.

Q16. Greatest barrier to students taking up such courses? Crosstabulation

Count		Q6. Gender		Total
		Male	Female	
Q16. Greatest barrier to students taking up such courses?	Certificate not recognized	8	5	13
	Not enough time	36	23	59
	Limited variety of subjects	4	6	10
	No certification	8	6	14
Total	56	40	96	

Table 5. Gendered Frequency responses to barriers in taking up online courses

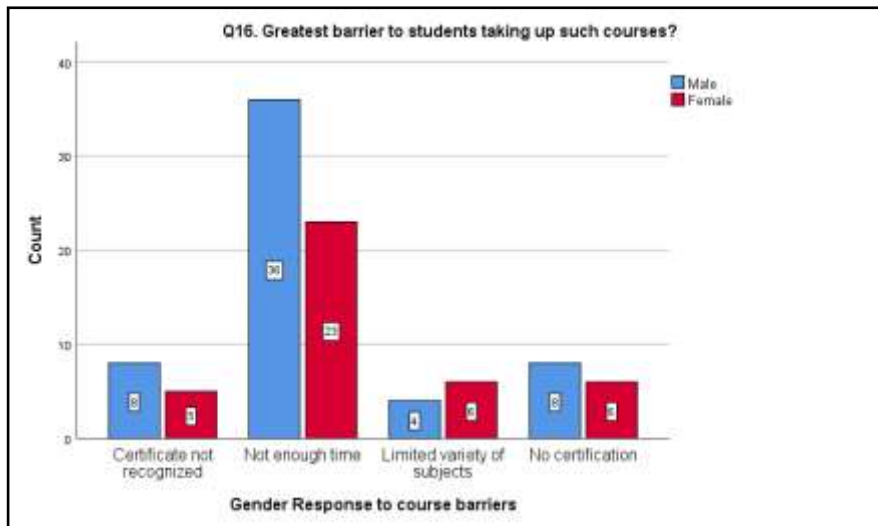


Fig 8. Gendered responses to barriers in taking up online courses

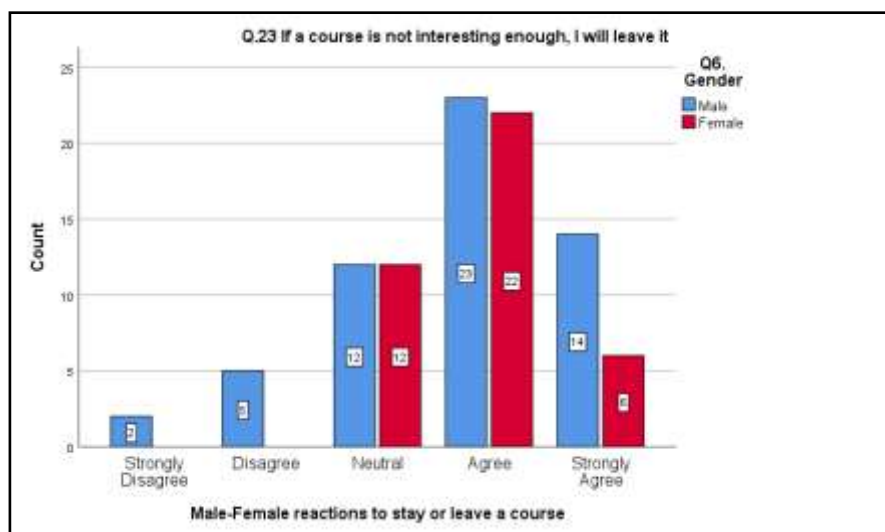


Fig 9. Likert Scale Gender reactions to staying or leaving on online course



SUMMATIVE ASSESSMENT – TESTING OF HYPOTHESIS

To test Hypothesis H₁, viz how many students enrolled in online courses in their respective schools, a direct question was asked to them if they enrolled in an online course or not. It was found that out of the 96 respondents, 56 male students had enrolled in a course and 40 female students had taken up such a course. Enrolments were more in the case of male students as they were also better informed than female students about the existence of such courses, what were the prerequisites for joining such a course etc. It was found that 46 male students out of the population universe had some partial if not full knowledge of these courses, whereas only 35 female students had some knowledge of online courses. 10 male students were unaware of the existence of these courses and in the case of females, only 5 admitted ignorance. In terms of overall percentages, 36.5 percent enrolled in courses and 63.5 percent although they were aware, that most of the courses were free did not enrol in any online courses.

For Hypothesis H₂, the null hypothesis was stated that “almost all students would drop out of a course, after joining it”. To test this, a direct question was posed in the Likert scale section, whereas in the other section, viz Section B, the motives of staying or leaving a course were assessed, based on the assumption that if the student was demotivated, he or she would sooner or later leave the course. This is supported by many previous studies conducted both in India as well as internationally where it was found that the rate of attrition (in some countries) was as high as 97 %. A direct question in the Likert scale section which asked the students if they would leave the course if they did not find it interesting, resulted in 41.7% agreeing to it and 32.3% staying neutral to the question. 22.9% of respondents when questioned on their motive for enrolling in a course stated that they did so because it was free of cost and exactly the same percent said that they did so simply out of curiosity. Most of them wished to join a course for added qualifications (26%) and in another question when asked what were some of the factors that made them lose interest in a course, it was found that boring talking heads was the primary reason for them losing interest, and then finally opting out of a course, both for male as well as female respondents. 23 male and 16 female cited this as the main reason and other reasons such as lack of feedback, obsolete content or absence of supporting audio-visual material constituted the remaining possible reasons for rejection of online courses.

With regard to Hypothesis 3, H₃, where an attempt was made to generate gendered responses to the different barriers to take up online courses, it was found that the time factor predominated over all other reasons. 36 males and 23 females said that they did not have enough time, and in another similar question, 23 of males stated that if the course was not interesting, they would leave it, and 22 females selected “Agree” to this question.

In the analysis of open ended questions, many mentioned “No certification” as one of the main reasons why online courses did not attract them. A few students said since many of the courses were conducted by citizens of foreign countries, the accent was difficult to follow and the level of

complexity of language was high. Most felt that the language of the courses needed to be simplified and that they would greatly benefit if courses could be conducted in the local language. To test Hypothesis H₁, viz how many students enrolled in online courses in their respective schools, a direct question was asked to them if they enrolled in an online course or not. It was found that out of the 96 respondents, 56 male students had enrolled in a course and 40 female students had taken up such a course

7. CONCLUSION

Both the common man as well as the researcher are only too well aware, that online courses, have seen a stupendous growth in recent years. The onset of the pandemic with its “stay at home” ramifications has only propelled the online courses forward with increased fervour and intensity. Whether prospective course enrollers, join up for online courses out of curiosity (in our study 21.2% joined out of sheer curiosity) or for other reasons, the fact remains that the number of courses as well as their students are multiplying almost on a daily basis. Our study conducted on four schools, three private and one government, proved fairly conclusively, that it is not just University students alone who join such courses for added qualifications or better employment prospects, but awareness of such courses is increasing amongst school students, and many of them are eager to tap into the latent potential of online courses, hoping to gain that extra slight, but significant, competitive edge over their peers. As the country moves into the 5G era, poor connectivity will very soon become a thing of the past. And then it is only to be expected that online courses of all sorts, professional, semi-professional and for the hobbyist, are going to witness a boom of near epic proportions.

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