

**Inter-relationship between Locus of control MOOC's retention,
MOOC's satisfaction among postgraduates**

A Thesis Submitted

**In Partial Fulfillment of the Requirements for the degree of
Master of Philosophy (M. Phil.)**

By

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for Women, Coimbatore-641043**

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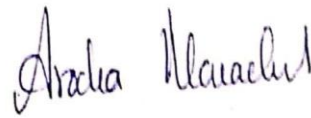
DECLARATION

I hereby declare that the dissertation entitled "**Inter-relationship between Locus of control, MOOC's retention and MOOC's satisfaction among postgraduates**" submitted to the Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore – 641043, in partial fulfilment for the degree of Master of Philosophy (M.Phil.) is the record of work carried out by **Nunna Amulya**, during the period from 2019 to 2021 under the supervision of **Dr. K. Arockia Maraichelvi**, M.Sc., M.Phil., Ph.D., Associate Professor, Department of Human Development, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, under my guidance and supervision, and that this work has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship, Titles in this University or any other University or other similar institute of Higher Learning.

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Signature of the Candidate

CERTIFICATE

I clarify that the dissertation entitled "Inter-relationship between Locus of control, MOOC's retention and MOOC's satisfaction among postgraduates" submitted for the degree of Master of Philosophy (M.Phil.) by NunnaAmulya , is the record of research work carried out by her during the period from 2019 to 2021 under my guidance and supervision, and that this work has not formed the basis for the award of any Degree, Diploma, Associate-ship, Fellowship or other Titles in this Universities or any other University or institute of Higher Learning.



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I. INTRODUCTION

In the current world, education is one of the very important aspects to gain knowledge and to achieve the goals of life. It also gives a vast number of opportunities for career growth. In past decades, due to inadequate availability of resources to learn a new skill, people have to travel to different places to learn it. After acquiring the skill, they come back to their native and spread the knowledge they learnt. This process continued through the years and a structured approach is made in reusable teaching.

The educational institutes tried to modify the education sector with the help of Information and Communication Technology (ICT) which resulted in a new trend in the field of education called Electronic Learning (e-Learning). Through this E-learning, strategy knowledge can be served to the masses. All across the world, various leading educational institutions are promoting E-learning by incorporating ICT tools in their teaching. Thus, using different media and the Internet to transform the teaching and learning processes has become the utmost priority for Indian Education Sector.

"E-Learning is the new pedagogy empowered by very fast developing digital technologies. E-Learning can be elaborated in simple terms as the provision of education or training people electronically, via the Internet" (Hannafin et.al., 2014). E-learning is also called Technology Enhanced Learning (TEL) because in the learning process technology is used to enhance the learning. So, it requires ICT resources like computers, e-mails, the internet and other social media resources.

Online education started in the early 1960s. From then on, it is constantly criticized for lack of good quality and the insufficiency of high-quality teachers. Even in the world's best universities and institutions, the attrition rates are still in double digits. When compared to face-to-face learning the attrition rates are 20–40% higher in online classes. Several studies are stating the importance of student support which helps in the successful completion of the online courses (Sharma, 2017).

According to the AISHE report (2017-18), India embraces an important position in the Global Education Industry with the topmost education institutes that provide good quality education. This explains that India has one of the biggest higher education systems in the world and there is still a lot of potential for further development in the education system. In Indian Higher Education Sector, a lot of Innovation and smart changes are essential to accept this big opportunity. According to the experts, the upcoming evolution of education in India will be reliant on online courses.

The Indian government took many practical measures in financial aspects to improve the e-Learning environment in India. Huge funds are invested to set the Internet booths in many rural areas with the purpose of better communication. The same setup is also used for e-learning initiative to help in providing formal education as well as informal and vocational training. The government and private sectors have taken many e-Learning initiatives and one prominent platform is SWAYAM. SWAYAM is a MOOC platform that facilitates various courses in India (AISHE 2017-18).

MOOC's can be defined as Massive Open Online Courses. As its name suggests, it is an e-learning platform to deliver learning content online. Any person with internet access can enrol in any of the course hosted by several educational institutions. It is free of cost to join a course and without any age limit. But sometimes to get the certificate the learners have to pay a little bit of amount.

Unlike classroom teaching, MOOC's has no fixed timings. The learners can attend the classes whenever they want. In a certain period, they have to complete the course. MOOC's can accommodate thousands of learners at a time which makes MOOC's special. The curriculum that is used for teaching might be identical to traditional teaching and the learning activities are restructured to facilitate the vast number of learners.

George Siemens and Stephen Downes started the initial MOOC in 2008. At the University of Manitoba, they introduced a course called "Connectivism and Connective Knowledge," for 25 students and an online class for 2,300 students from the general public at no cost.

Peer-to-peer learning was encouraged to manage a large number of students. By this approach, the instructor can distribute the responsibility of teaching throughout the class. The MOOC removes the barriers of learning by allowing the host institutions to open the course to a vast group of learners.

“MOOCs is considered as a disruptive technology which increased the learning experience of individuals, With the introduction of any new disruptive technology, things fundamentally change in due course of time” (Conole and Jacoby, 2014). With traditional universities yet to figure out a structured way for an inclusive education platform across age brackets, MOOC is undeniably a platform that can benefit masses, especially a segment of learners who have attained a level of formal education but seek avenues to acquire higher knowledge levels as it can be practically utilized in their work area while adding to their career advancements (Raffaghelli et al., 2015).

Professional development courses are more offered through online channels and participants accept these online courses as it provides flexibility in learning (Creed et al., 2015). MOOCs bring an immense degree of innovation trying technology and consumable content which enables working professionals to invest in skills keeping their talent and skill index high (Literat, 2015).

The special features of the MOOC make it important because the learner can choose their choice of subject. All the learning information is readily available and the learner can access the course anywhere with just a click. MOOC is helpful to the working people in many ways across the world who doesn't have any access to formal education or those who wants to enhance their professional skills to keep pace with time (Griffiths, 2013). Upon the introduction of any new learning model, a significant factor is on the wider population's adoption. MOOCs have cleared the hurdle, and it is obvious as we see the numbers reported by universities (Stevanović, 2014).

SWAYAM (Study Web of Active Learning by Young and Aspiring Minds) is a learning initiative started by the government of India. It is an Indian version of MOOC developed by the Ministry of Human Resource Development. SWAYAM encourages the learning process, without any barriers or limitations.

Various courses are available in English as well as in regional languages in the SWAYAM portal. The course module includes videos, E-texts, quizzes, assignments and weekly assessments etc. The learner can get the credits after the course completion (Vishnoi, 2014)

In India, some of the educational institutions included MOOCs in their curriculum and made it mandatory for the students to gain credits through MOOC. Accessing the Swayam portal is very easy. The learner has to register themselves in the portal after they can select their choice of course. There will be an announcement tab where the instructor will post the important announcements and there is a discussion forum for the learner to interact with the instructor or fellow learner regarding the course.

Retention can be defined as having the information stored in the long-term memory in such a way that whenever we want it can be readily retrieved, for example in response to standard prompts. In learning, retention can be defined as the successful completion of students' academic goals of degree attainment (Levitz, 2001). The range of direct involvement of students in the academics of their institutions is also termed as retention (Astin, 1984).

Even after having a flexible structure, MOOC has to deal with the low student retention rates. Nowadays there is a tremendous increase in student dropout rates. The MASIE Centre study (2003) had found that there is a 26 per cent dropout rate in e-learning which is higher than the classroom dropout rates. Martinez (2003) also stated 20–50 per cent dropouts in e-Learning and Ferguson (2012) reported an eye-popping rate of 80 per cent in his study. Halawa et.al. (2014) stated a dropout of 40-50 per cent in MOOC. Also, a confirmed report says that even in leading online platforms like SWAYAM, Coursera, Simplilearn, Quora etc. the same trend is being noticed. This shows that even today the situation is not different from the past ten years regarding completion rates.

In online learning, satisfaction is one of the significant evaluations for success. It is defined as a "perception of enjoyment and accomplishment in a learning environment" (Sweeney and Ingram, 2001). Student satisfaction is a short-term attitude that results from an evaluation of a student's educational

experiences. Student satisfaction is the subjective perspective, on the student part, of how well a learning environment supports academic success. Strong student satisfaction indicates appropriately challenging instructional methods that are serving to trigger students thinking and learning. Significant elements in student satisfaction are likely to concern the role of the instructor and students. These elements may be central to student learning (Winberg and Hedman, 2008).

Learning satisfaction includes the individual's feelings and attitudes towards the education process and the perceived level of fulfilment connected to the individuals' desire to learn, caused by the learning motivation (Chang and Chang, 2012). When a learner enjoys and achieves high performance in course, they will have the confidence to complete the course and likely to recommend the course to other learners (Liao and Liu, 2012; O'Brien and Renner, 2002)

The term Locus of control was first developed by the psychologist Julian B. Rotter. In his social learning theory (1954) he introduced this concept. After getting mentioned in the theory, the Locus of Control became so important in the field of psychology. The word Locus of control derived from a Latin word that means 'place' or 'location'.

According to a psychologist, Julian Rotter, "The locus of control is a dimension of personality; it helps to explain one's traits and behaviour". According to the thesaurus dictionary locus of control is a theoretical construct designed to assess a person's perceived control over his or her behaviour. The person with internal locus feels in control of events while with external locus feels that others have that control.

Based on their trust over the consequences of the events in their life, people are categorized into two categories as Internal or External Locus of control and it has to shift features that can be adapted through experiences. It is like an assessment of the range to which a person thinks himself answerable for the actions in his life or he thinks that it is the environment that controls his luck. Rotter in his social learning described Internal-external locus of control as an implementation perceived by the subject. When the subject holds himself responsible for the events in his life then he possesses an internal locus of control

when he holds fate, luck or environment responsible, then he possesses an external locus of control (Schultz and Schultz, 2011).

Locus of Control can be labelled as the extent to which people believe they have power over events in their lives. An individual who has an internal locus of control thinks that he can control or change the events and their consequences that happen in his life on the other hand an individual with an external locus of control thinks exterior forces accountable for everything that happens in his life.

The Internal type of locus of control is an individual trait that helps an individual to get to the path of success. People who possess an internal locus of control admits themselves responsible for outcomes whether it is good or bad. If they fail an exam, they never hold the exam or the question paper accountable for the failure instead they hold responsible and questions own self as “where did I go wrong”. They never think like: “I didn't find work because of the high unemployment rate in the country. Instead, they make all the possible efforts to pursue the opportunities in a better way. In brief, a person with an internal locus of control does not blame the outside factors and focuses on the solution.” These people

- counts themselves responsible for their actions.
- consider other people's opinions influence less
- perform better when they are allowed to work at their own pace
- works very hard to achieve things in life
- are confident and can face challenges
- are independent and happier

The external type of locus of control is quite opposite of the internal locus of control. The person with an external LOC blames external factors accountable for each and everything that happens to him. Rather than his efforts, he trusts in fate, luck or other factors. When something wrong happens in his life, he blames his fate or god instead of his actions. These people

- gives credit to fate or chance in the success or failure
- blames outside forces for all circumstances

- don't trust that their efforts can change their situation
- often feels hopeless or powerless in difficult situations

Several studies have stated that internal locus of control helps people to be successful. On the contrary, external locus of control makes people think that they are not responsible for the actions and consequences (April et al, 2012).

Learning is a process during which an information repository is processed, acquired, and emerged in a short time to make new information (Morales, 2009). Studies had proved that learning and performance are interconnected and are positively correlated with one another. "Learning brings benefits for the organization if it is performed by all members. It is required to develop a culture of continuous learning, taking responsibility, gaining value constantly, focusing on flexibility and adapting to increase the effectiveness of the organizational learning "(Kuru, 2007).

According to research, the locus of control has a positive effect on academic performance. If the students are internally motivated, they perform well in their academics. They will use their skills to perform better (Rahman, 2016). Students who have an internal locus of control often perform well in academics than the students. There is enough evidence that the Locus of control influences learning and academic achievement in a traditional classroom setting this study tries to find out the influence of the same in online courses.

Rationale of the study:

In learning, Massive Open Online Courses (MOOC) plays an important role. It has open access to learn from top-level instructors from all over the world. Even though MOOC's plays an important role in learning, the retention and the satisfaction rates are found to be low. Since MOOC's retention rates are becoming low, this study attempts to find out the factors affecting MOOC retention and satisfaction and how locus of control helps to complete the MOOC course. Because the psychological construct locus of control known to impact the learning. Online learning is a kind of self-directed learning and when the learner inner motivates himself it's easy for him to complete the course. There are studies on locus of control relating with the learning and academic achievement, but with

the online learning there are null. so this study tends to find out the influence of locus of control and MOOC factors on MOOC's retention and MOOC's satisfaction.

Objectives of this study:

Primary Objective:

- To infer the interrelationship between Locus of control, MOOC's retention and MOOC's satisfaction among postgraduates

Secondary Objectives:

- To study the influence of MOOC factors on the selected MOOC course by the respondents
- To assess the MOOCs retention level among the selected respondents
- To assess the influence of the selected demographic variables on MOOCs retention of the respondents
- To analyze the MOOCs satisfaction level among the selected respondents
- To analyze the influence of the selected demographic variables on MOOCs satisfaction of the respondents
- To explore the level of Locus of Control of the respondents
- To explore the influence of the selected demographic variables on the Locus of Control of the respondents
- To explore the influence of locus of control and MOOC's factors on MOOC's retention and satisfaction among postgraduates

II. REVIEW OF LITERATURE

The investigator reviewed as many studies as possible that are related to different aspects of the MOOC course and Locus of control. A literature review helps develop a better understanding, present a pragmatic view on the topic, helps avoid duplication of efforts in particular areas and provides rich insights on research techniques. The relevant literature of the study on "**Inter-relationship between Locus of control, MOOC's retention and satisfaction among postgraduates**" was reviewed under the following headings:

- A. MOOC - Origin and concept**
- B. Significant platforms of MOOC's**
- C. MOOC's - The most sought teaching pedagogy**
- D. MOOC's Factors – Course-related and technical**
- E. MOOC's retention and satisfaction**
- F. Psychological indicators of learner's engagement in MOOC's**
- G. Locus of control**
- H. Conceptual Framework of the Study**

A. MOOC - ORIGIN AND CONCEPT

In this digital era with rapidly changing trends, Information technology tools make us easy to obtain a great number of resources. ICT into teaching and learning offers significant potentials for a higher educational institution and opens a new challenge to educators through their capacity to facilitate new kind of education in the digital environment. Distance or online learning has been available for quite some time but in the last decade, the combination of technology and content usage, powered by internet brought innovation in learning which has reached masses. Today, new models of learning have emerged to address the growing demand for skill-building irrespective of age and academic background. Massive Open Online Courses (MOOCs) now have attained spotlight providing an alternative, informal and continuous method of learning (Bates, 2014). This is supported by rapid growth in information sharing through the internet and the availability of communication devices to build the skills of tomorrow (McAuley et al., 2010).

Alexander and David were the ones who first coined MOOCs as a Massive Open Online Course. George Siemens of Athabasca University and Downes of National Research Council, Canada (2008) are regarded as the fathers of MOOCs with the introduction of their first MOOC “Connectivism and Connective Knowledge” (CCK08) in 2008. They used different platforms like Wiki pages, Facebook groups, blogs, forums and other resources to engage students in the process of learning. There were 25 fee-paying in-campus students from the University of Manitoba and 2,300 other general students took this free online course. The course content was free and open through RSS feed, which meant that anyone could join and modify the content through collaborative tools without paying (Adebo and Ailobhio, 2017). Cormier and Alexander coined the name MOOC to describe this open online course at the University of Manitoba, Canada. The year 2012 was declared as the year of MOOCs by the New York Times (Pappano, 2012).

MOOCs may be the most important part of the new textbooks of the 21st century. The quality is still low but is rapidly improving. Massive Open Online Courses (MOOCs) are a recent addition to the range of online learning options. Many academics have taken interest in MOOCs recognizing the potential to deliver education around the globe on an unprecedented scale. Many leading Universities of the world like MIT, Stanford, etc. have joined hands with educational technologists to deliver quality education to a large number of learners who are geographically, culturally and often academically diverse through MOOCs (Liyanagunawardena, Adams and Williams, 2013).

Massive Open Online Courses (MOOCs) are distance learning courses that are open for any learner to enrol from teacher to student, from educated to non-educated and for everyone those who are education aspirants. MOOCs are growing rapidly in the mode of educational provision, holding the potential to open up access to world-class teaching and educational resources beyond geographical and social boundaries. MOOCs offered today are instructor drive online learning environments that offer videos, lecture, assessments, learning task for individual and provide a free educational resource for any student with

an internet connection (Hollands and Tirthalli, 2014) without the need to meet any formal entry requirements.

MOOCs is considered as an innovative technology which increases the learning experience of individuals (Conole, 2014). With the introduction of any new groundbreaking technology, things fundamentally change in due course of time (Jacoby, 2014). With traditional universities yet to figure out a structured way for an inclusive education platform across age brackets, MOOCs is undeniably a platform which can benefit masses, especially a segment of learners who have attained a level of formal education but seek avenues to acquire higher knowledge levels which can be practically utilized in their work area while adding to their career advancements (Raffaghelli et al., 2015).

Professional development courses are more offered through online channels and participants accept these online courses as it provides flexibility in learning (Creed et al., 2013). Also, MOOCs is a better way to offer corporate skill development opportunities to the working professionals because of its highly flexible and relevance attributes making these learner segment more effective and knowledgeable at their workplaces.

There are no barriers to learning through MOOCs as the information is readily available and accessible to everyone, everywhere and at any time with just a click of a button on the internet. In many ways, MOOCs is helping students and working professionals across continents and countries who either lacked access to formal education or those who already achieved milestones at graduation or higher levels and now desire to boost their professional skills to keep pace with time (Griffiths, 2013). Upon introduction of any new learning model, a significant factor is on the wider population's adoption and MOOCs has cleared the hurdle, especially if we see the numbers reported by universities, private MOOCs providers across the globe where millions of individuals have undergone MOOCs way of learning to satisfy their learning needs (Stevanović, 2014).

B. SIGNIFICANT PLATFORMS OF MOOC'S

Knowledge can be derived from a well-networked environment that inspires to build a theory termed as 'connectivism'. Triggered by the proliferation and adoption of technology, connectivism describes changes within the learning ecosystem. In 2008, Siemens and Downes partnered to build a new online learning format that is available to any individual interested to learn. This class is recognized as the first Connectivist MOOCs or cMOOCs with the course named as 'Connectivism and Connective Knowledge (Downes, 2008). cMOOCs by design promotes a connected learning environment where individuals can participate in the learning process. This model not only provided the cost advantage but also offered scale to accommodate a large number of individuals to collaborate among themselves, commence meaningful discussions, share their knowledge to assist others and add to the subject content. It also helped the group to network for their learning advantage (Joseph et al., 2013).

MOOCs are considered as an educational innovation (Cepeda et al., 2009). MOOCs offers a combination of different learning models like self-paced, synchronous and asynchronous. Different MOOCs providers are accredited for this behaviour. Like Udacity, a for-profit MOOCs provider provides self-paced and asynchronous learning as the course can be taken even after months and years of instructor publishing the course modules and not necessary to undergo a defined period.

On the contrary, MOOCs providers like Coursera and edX offer synchronous model as the learners have to complete the course modules within defined timelines. MOOCs also replicates the traditional model of online learning by providing videos and features of online conferences to a given group of learners. This is a synchronous learning model and interestingly, both Coursera and edX offer asynchronous learning as learners don't have to meet-up or assemble at a given time during the learning process (Poon, 2014).

In India, MHRD launched an indigenous platform of learning named SWAYAM which stands for Study Web of Active Learning by Young and Aspiring Minds for hosting the Indian version of MOOCs in 2014. It offers courses ranging into hundreds and they are those which are taught at school, college and

university level. The SWAYAM and SWAYAM Prabha platforms facilitate imparting education to all. The SWYAM program offers digital classrooms with the help of internet and satellite connectivity to the remotest corners in the country. SWAYAM is essentially a portal which has been formulated as a solution to the problem of difficult access to physical educational infrastructure and teachers along with study material and textbooks SWAYAM provides online study material to students free of cost and the courses will be taught via digital classrooms. The program is also likely to rope in foreign teachers for some courses. Furthermore, it can easily be integrated into one's formal traditional education. The system allows the transfer of credits that a college student earns from a course directly into their academic records. It also provides courses of vocational nature and also for those who want to study while continuing with their jobs. All courses are free in SWAYAM and the fee is only for issuing a certificate.

C. MOOC - THE MOST SOUGHT TEACHING PEDAGOGY

The following are the key characteristics of MOOCs which puts it on the most sought teaching.

- There is no entry requirement of all courses can be taken by anyone from anywhere online.
- These are usually run two or three times each year.
- These are generally led by pioneer academics and supported by teaching assistants.
- It typically requires 1-2 hours of study each week for around 5 weeks.
- These are self -directed. If anyone wants to follow the course materials complete the readings and assessments and get help from a large community of fellow learners through online forums.
- It could be affiliated with Universities and mostly free from the top 140 Universities all over the world. Universities offer certificates or statement of completion despite the fact that course is free but the credential costs money.
- It is user friendly for differently able persons also.

- Any subject or skills with a proper design can be taught via online education, including science, health, music and sports.
- It can be used as social support mean in regular open and distance learning program.
- It is learner-centric.
- Highly effective on the multimodal, media-rich online environment.
- It is a rich repository of relevant resources during and after the course.

D. MOOC'S FACTORS – COURSE RELATED AND TECHNICAL

Considering the fast growth in MOOCs adoption for learning (Porter, 2015), research into factors influencing learners to continue MOOCs and assess its effectiveness becomes essential to reveal practical insights and its sustainability (Merino, 2015).

Even though thousands of students across the world are enrolled in the various MOOC course but the retention rate is low and below 10 per cent (Breslow et.al., 2013) in different MOOC platform. Enrolled students can vary from active participants in all the aspects of the course, passive viewers for course content, samplers who only wish to engage with particular modules, to the merely curious, some of whom never even access the MOOC again after signing up for information about it.

High dropout rates are an ongoing problem for MOOCs. Most people who enrol are still just window shoppers. On the other side, the interactivity is lacking with the instructor (Khalil and Ebner, 2013).

Creating interactivity in MOOCs by creating a learning community is essential to the learning and success of the students. Therefore, many educators pointed out the importance of interactivity for high-quality MOOCs (Mcauley et al., 2010; Waard, 2011; Levy and Schrire, 2012; Fisher, 2012). They suggested that interaction and communication in MOOCs will help students to construct their knowledge and develop their learning network from the nodes and connections in the digital environment. Mak, Williams, and Mackness (2010) indicated that interaction in MOOCs assists students to develop their ideas, express themselves, establish a presence, and make thoughtful long-term relationships.

After a thorough analysis of the literature related to MOOC's success, ten factors were identified to be instrumental in deciding the learner's engagement in MOOC's. Wherein the learner is engagement, in turn, decides the success of MOOC. The indicators thus identified are explained with certain relevant studies in this section.

1. Course content

Any informational material that is required for participation or understanding content such as assigned readings, video recordings, exams, and any other material needed for learning is referred to as the course content.

R Sujatha and D Kavitha (2018) investigated that 31.8 per cent of the respondents completed some or none of the exercises/assessments in a MOOC course. A similar pattern (28.7%) was observed in reading or watching the content. This shows that these were likely to drop out of the course. An examination of the drop-out rates showed that the majority of the learners dropped out towards the middle of the course.

DeFreitas et al. (2015); Greene et al. (2015); Hone and Said (2016) a further analysis revealed that 69 per cent of the drop-outs quit the course half-way through or before. The effectiveness of a MOOC course depends on the quality of the content (Sugant 2014) and the extent to which the participants read/watch the content. This study found that the respondents who completed the course had read/watched 70 per cent of the course content. They also had finished 69 per cent of the exercises/assignments of the course.

Rai and Chunrao, (2016) investigated influencing factors of success and failure in MOOC general analysis of learner behaviour. Most of the factors of success or failure are purely individual as most of the learners are genuinely interested in finishing course, and most of such learners are fascinated by the reputation of universities, quality of courses, and deriving fun in solving challenging assignments.

Nawrot and Doucet (2014) reasons for high dropout has been investigated through the data which was collected through an online survey conducted

with 508 respondents. The analysis revealed that course content in attractiveness is one of the significant reasons for major withdrawal.

2. Course structure

The course structure refers to the choice of topics, language, the organization and sequencing of course content.

Adamopoulos (2013) collected data from 842 students enrolled in 133 courses offered by 30 universities in partnership with one of six different online providers and found that compared to other courses, there were lower estimated likelihoods of completion among MOOCs that were perceived to be more difficult, seemingly required more work, and were longer. However, there was a statistically significant interaction indicating that for more difficult courses, being self-paced, longer in duration, and having a higher workload led to higher probabilities of persistence.

Cassidy, Breakwell and Bailey (2014) investigated the influence of the course-related factors including workload and Task Design. The research has been carried out using four different groups of students with slight variation in the workload and task design. This exercise has been carried out in the MOOC environment. It was found that heavy workload provided in the course may influence the participants and thereby prohibits the engagement.

Carr, 2000; O'Brien, (2002) Online student retention has been suggested as one of the greatest weaknesses in online education and may be directly linked to the poor course structure.

Eom, Wen, and Ashill (2006) examined the effect of course structure within an e-learning context. Their research, using structural equation modelling in PLS with data from a sample of 397 online learners, found that course structure predicted user satisfaction.

Swan, (2001) investigated factors affecting student satisfaction in online courses. The result revealed that Course design and structure is one of the factors that significantly predict student's satisfaction and/or perceived learning in online courses.

According to Moore (1991), the course structure "expresses the rigidity or flexibility of the program's educational objectives, teaching strategies, and

evaluation methods” and the course structure describes “the extent to which an education program can accommodate or be responsive to each learner’s individual needs.”

3. Information delivery technology

Information delivery technology refers to the extra learning links, references, e-texts, audio and video quality (interesting components like animation, pictorial/graphical representation)

Bonafini, Chae, Park, and Jablokow (2017), studied the role of videos and discussion forums on MOOC completion. They found that that participant engagement in forums has a significant impact on the probability of MOOC completion (32%). Hence videos and discussion forums should be included, to foster interaction of the participants with the content as well as each other.

Guo, Kim, and Rubin (2014) assessed the influence of video lectures on student engagement. Student's engagement was measured based on the amount of time invested by the students in watching the video. From the analysis, it was found that the length of the video is the most significant factor of engagement. The shorter videos between 0-3 minutes are found to have the highest level of engagement.

4. Instructor

In the e-learning, if the learners are not supported and motivated by the instructor; the chances of failure are high. In these courses, the instructor commitment and interaction with the student helps the student to engage and understand his problems concerning the subject and his understanding. Because of such interactions; the student gets engaged with course content and his motivation gets built.

Adamopoulos (2013) collected data from 842 students enrolled in 133 courses offered by 30 universities in partnership with one of six different online providers. Using grounded theory with a diverse sample of participants from multiple MOOCs to analyze reviews, observe student interactions with the MOOCs, and interview participants themselves. He found that students’ perceptions of the instructor were the strongest predictor of the

likelihood of course completion, with student perceptions of the assignments and course material also showing positive relations.

Richardson and Swan (2003) focused on the relationship of social presence in online learning to satisfaction with the instructor. They found a positive correlation between students' perceptions of social presence and their perceptions of learning and satisfaction.

5. Activities and exercise

Course activities are all of the exercises, assignments, projects, discussions, and more that allow students to apply their learning and practice their mastery of material from a unit or module.

Wen, Yang, and Rose (2014) found that student motivation, measured by the percentage of posts per week, and cognitive engagement, measured by the level of language abstraction in forum posts, were significant predictors of dropouts. The results suggest that social interactions, which typically take place in discussion forums and posts in MOOCs, influence students' motivation to continue in the course or drop out.

6. Instructor support

Instructor support plays an important role to facilitate the course, to help the learners when they have doubt.

Mullen and Runnels (2006) found that student satisfaction with the course instructor was a strong predictor of overall student satisfaction in online learning. The distance education instructor is a primary predictor in student course satisfaction showing a high correlation with the performance of the instructor and overall course satisfaction (DeBourgh, 1999). The area most noted for student satisfaction was the instructor's responsiveness and involvement with the students themselves. Instructor availability in the measurement of time, as well as receptivity to the students' needs, holds great value in satisfaction determination.

Herbert (2006) supports a correlation between student satisfaction and instructor interaction with communication-based on identified student needs in the online environment. These studies provide a strong basis for further study of course satisfaction.

7. Instructor feedback

Instructor feedback refers to the timely feedback on assignments, exam, and helps students to check their understanding by questioning.

Herbert (2006) studied on student satisfaction and retention and found that the most highly ranked variable was faculty responsiveness to student needs, with a mean score of 6.62 out of a possible 7. The Herbert findings support researches indicating that regardless of the course delivery system, students have a certain level of expectation in the area of faculty interaction and support.

Eom, Wen, and Ashill (2006) examined 397 online learners using a structural equation model. Instructor feedback was found to affect learning outcomes; additionally, user satisfaction predicted learning outcomes.

Dick and Carey, (1990) instructor feedback intend to improve student performance via informing students how well they are doing and via directing students' learning efforts.

8. Instructor to learner interaction

Interaction between the instructor and learner who prepare the subject matter is the instructor to learner interaction. Interaction happens when an instructor delivers the information, provides feedback or simply encourages or guides the learner. It also takes place when a learner asks the instructor questions or communicates with him or her regarding the course.

Ramesh et al., (2013) took an effort to understand the level of learner engagement, also the influence of engagement in predicting the learner performance. Learner engagement is measured using online behavioural activities. like Posting on discussion forums, Subscribing/viewing/voting on content posted by others. It was found that Learner posting actively in the discussion forum can act as a good indicator of learner engagement.

Onah, Sinclair, and Boyatt (2014) specified that a high level of student engagement is linked with high-quality learning outcomes and tested the influence of discussion forum on course outcomes.

Peltier (2007) states that communication among students and between students and the instructor is an essential aspect of creating an effective learning environment.

9. Learner to learner interaction

Interaction between one learner and other learners, alone or in groups settings, with or without the real-time presence of an instructor is called learner to learner interaction.

Khalil and Ebner (2013) pointed out that the types of interaction happen in many different forms in the current MOOCs. "Student to student" interaction includes using social networks (like Facebook, Twitter, blogs, YouTube, or Google+) as well as discussion forums. "Student to instructor" interaction includes using quizzes, assignments, activities, and group projects. Whereas, little "student to instructor" interaction happens in MOOCs through announcements, guides, asking and answering questions, or participating in the discussion. They carried out that "student to student" interaction is the most type of interaction that is used in MOOCs.

Rose (2014) and Yang (2013) have conducted a survival analysis on a MOOC dataset to understand the social behaviours that might be related to student dropouts on a week-by-week basis. They found some aspects of peer interaction were closely related to student retention. Generally, students who engaged other students in the discussion and stayed in the discussion for a long period tended not to drop out.

Callaway (2012) concluded that "the right mix" of traditional instruction and online delivery could address the disparity. Concerning the satisfaction with e-learning, one might argue that "the right mix" would include the elements inherent in a hybrid model. As researchers found in this study, positive interaction, with the instructor and with fellow students seem to go hand-in-hand with student satisfaction. Hybrid instruction is one way to foster interaction while providing the element of convenience and the ability to learn at one's own pace.

10. Internet connectivity

It includes problems in accessing the course, compatibility issues (with operating systems, browsers or smartphones), network issues. All these issues add to their frustration and reduce engagement, the learning experience is disrupted and they will probably abandon the course.

Kleinman (2005) looked at improving the instructional design to maximize active learning and interaction in online courses. Over a period of ten years, Kleinman studied online communities of learning, concluding that an online environment which fosters active, engaged learning and which provides the interactive support necessary to help students understand what is expected, leads to a satisfied learning community.

Based on the above said 10 course-related and technical factors of MOOC's determine the success of MOOC's the studies relevant to all of the factors either as a whole or a separate entity is also discussed below.

E. MOOC'S RETENTION AND SATISFACTION

Retention is measured by the number of days between the start of the MOOC and the last day of activity by the student. MOOC retention rates are claimed to be low, under 7.5 percentage of the enrolled participants, which is widely discussed in the academic work (Jordan, 2014). Even though MOOCs have been broadly accepted, there is still plenty of room for improvement as far as the actual needs of students are considered. This is evident if we take into consideration that the student retention rates are very low (Clow 2013; Downes 2010; Knowledge Wharton 2013; Lewin 2013). Furthermore, retention is a topical issue within the context of MOOCs predecessor, since low retention rates of online education have been identified as a barrier to its expansion (Allen and Seaman, 2013).

Research has found several factors as influencing retention, including previous MOOC experience and more educational history (Greene, Oswald and Pomerantz, 2015) instructor accessibility and passion, helpful course resources and peer interaction (Marks, Sibley and Arbaugh, 2005; Hew, 2014). Similarly, Hone and El Said (2016) found that interaction with the instructor was a significant predictor of retention, as was MOOC content.

Motivation is particularly important for retention in MOOCs because participants generally are not required to complete the course, and lack of motivation is a primary reason for students dropping out of a MOOC (Khalil and Ebner, 2014). Intrinsic motivation entails pursuing a task for the satisfaction, engagement or interest that the task itself might provide. Extrinsic motivation entails pursuing a task for purposes beyond the task—for example, for pay or to earn a credential. Some earlier motivation theories saw these as wholly separate and even at odds with each other (Amabile, 1993; Deci, 1971), such that extrinsic motivation might undermine intrinsic desire to pursue an activity. Motivation impacts student engagement and outcomes (Lau and Roeser, 2002; Martin and Dowson, 2009).

Course design and structure is one of the factors that significantly predict student's satisfaction and/or perceived learning in online courses (Swan, 2001). Perceived learning has also been found as a significant predictor of students' satisfaction (Eom, Wen, and Ashill, 2006). Shen, Cho, Tsai, and Marra (2013) identified that the number of previous online courses taken, gender and grade level (undergraduate or graduate students) significantly predicted student's self-efficacy, which significantly predicted their satisfaction. Ke and Kwak (2013) reported that students with higher educational degrees felt less satisfied with online learning. It is also found that these students tend to be more satisfied with their interactions with teachers while less satisfied with online learning in general (Ke and Kwak, 2013).

Student's satisfaction in learning is important because it is often found to be positively correlated with learning outcomes. The quality of education depends on the quality of the materials and the modes of instruction and learning: inspiring lectures, audio-visual aids, demonstrations, books with deep ideas, engaging activities and long, small, meaningful discussions with intimates that probe your deepest beliefs. MOOCs are supposed to be online versions of university courses.

F. PSYCHOLOGICAL INDICATORS OF LEARNER ENGAGEMENT IN MOOC'S

Though there are very other direct factors that influence satisfactory learning in doing online courses, the psychological contributor towards perceived learning seems to be an important predictor.

Psychological indicators refer to thoughts, feelings and other cognitive characteristics that affect the attitude, behaviour and functions of the human mind. These indicators can influence how a person thinks and later affect his decisions and relations in his daily life. Psychological indicators lead to the dynamism of the human mind and their behaviours. People subconsciously refer to their psychological indicator to approach different life situations. There are many psychological indicators which directly or indirectly influence learning. Locus of control, self-regulation and self-efficacy, commitment, contentment etc are some of the explored indicators in learning. But in the context of the MOOC's only a few psychological indicators were analysed namely self-motivation, commitment, trust level and discontent.

In the educational system, psychological indicators which have been widely acknowledged by the researchers could be viewed as an important element in assessing students' academic failure (Lee and Shute, 2010; Zins, Bloodworth, Weissberg, and Wallberg, 2004). Few studies examining the influence of psychological indicators on the MOOC's retention and satisfaction were collated and presented below.

Maxwell et al. (2018) studied four MOOC implementations in healthcare education to conclude that course completion rates varied from 2% to 13%. This could be because, as the learners enrolled in the courses at zero cost and were not given course credit, their course commitment and engagement levels were low.

Rai and Chunrao (2016) made an effort to assess the factors influencing the success and failure of the MOOC course. It was concluded that certain pedagogical indicators like the instructor / Peer, engagement due to gamification, learning through discussion forum plays an effective role in course success. Apart

from pedagogical indicators, self-motivation (in terms of locus of control) was also found to play a vital role in the successful completion of MOOC.

Greene et al. (2015) conducted a case study looking at learner retention within a single MOOC. They collected survey data from participants who started this course and then looked at how this data predicted retention using survival analysis. They found participants with prior experience of MOOCs were less likely to drop out, as were older and more educated participants. Self-rated commitment to complete the course was the most statistically significant predictor of outcome.

Greene et al. (2015) found that older individuals who had work experience related to the MOOC topic and were more committed to earning a certificate planned to devote more hours to the MOOC. Besides, they were less likely to drop out. There is also some indication that when used for employment purposes, students are more likely to stay enrolled in MOOCs if it fits with their job and they receive a certificate for completing the course.

Xiong et al., (2015) has examined the relationship between the motivation, engagement and retention. Influence of motivation on engagement and retention was tested. The variable motivation was studied at three levels including intrinsic motivation, social motivation and extrinsic motivation. While the variable engagement was measured based on the learning activities like the number of e lecture videos watched, forum post, number of quizzes, and assignment completed. The variable retention was measured based on the number of the days between the start of the MOOC and last day of the activity by the student. Further analysis proved that motivation is the predictor of engagement which in turn is the strong predictor of retention.

Willging and Johnson (2004) established a series of factors that cause dissatisfaction in online students and contribute to their dropping out of courses. The main reason among these factors was the level of discontent—during the first levels of study—generated by discrepancies between personal or professional interests and the structure of the course, a low level of trust in distance education, doubts about successful communication online, and incompetence in using the virtual education software as an effective learning tool.

O'Brien and Renner (2002), had stated that the number of college students participating in online courses continues to increase despite the greater likelihood of failed retention and found that it is due to poor student satisfaction factors. More research is needed to understand factors that contribute to satisfaction and retention in the online environment. They also concluded that psychological variables play a significant role in student satisfaction and retention.

G. LOCUS OF CONTROL

Locus of control is a psychological concept that refers to how strongly people believe that they have control over the situations and experiences that affect their lives. This concept was developed by psychologist Julian Rotter (1966) as part of the Social Learning Theory. The main driving force of this theory is that personality represents an interaction of the individual with his or her environment, since, according to Rotter, the behaviour is influenced by both the individual and the environment.

Rotter (1966) defined locus of control as the extent to which individuals perceive they have control over the expectancies of reinforcement and are responsible for the outcomes, success and failures in their lives. He hypothesized that the development of a person's locus of control depends on his/her reinforcement history. In other words, people tend to connect their actions with the reinforcements (positive & negative) they have received over time.

Based on Rotter's (1966, 1975) research, the construct of locus of control can be measured on a continuum from high internal to high external. Most people tend to fall somewhere between these extremes. The characteristics of both internal and external Locus of control are explored below.

Internal Locus of control: Individuals with a strong internal locus of control are inclined to take more responsibility for the outcomes in their life and attribute their success or failure to their efforts and decisions. When these individuals reach a goal, they feel that they are responsible, and likewise, when they fail to reach a goal, they also accept responsibility.

External Locus of control: In contrast, individuals with an external locus of control orientation tend to believe that their efforts have little impact on the

amount of reinforcement they receive and that outcomes such as success and failures in their life are controlled by luck, circumstances, fate, or powerful others. They believe that what happens is beyond their control. They feel that no matter what they do, their successes and failures in life are predetermined (Rotter, 1966)

Rotter (1966) expanded on Bandura's concept of reciprocal determinism and developed the term locus of control to explain how individuals view their relationship to the environment. Locus of control is different from self-efficacy, which involves our belief in our abilities, and it refers to our beliefs in regards to the power we have over our own lives.

According to Rotter (1966), locus of control is a cognitive factor and refers to the extent to which individuals perceive that they have control over the expectancies of reinforcement and are responsible for the outcomes, success and failures in their lives. The driving force in Rotter's theory is that personality represents an interaction of the individual and the environment., the degree to which a person perceives events to be under his control (internal locus) or the control of external factors (external locus). Individuals with a high internal locus of control believe that outcomes such as success and failure are influenced by their efforts and that responsibility for whether or not they get reinforced ultimately lies with themselves.

On the other hand, individuals with an external locus of control believe that their efforts have little impact on the amount of reinforcement they receive and that outcomes such as success and failure in life are controlled by external factors such as luck, chance, fate, destiny, society or other forces beyond their control (Rotter, 1966).

Rotter (1954) believed that individuals with an internal locus of control experience typical shifts in expectations following success or failure. He suggested that people who succeed have increased expectancies following the success and decreased expectancies following failure. In contrast, he suggested that individuals with an external locus of control show more atypical expectancy shifts, and they tend to exhibit decreased expectancies of success following the success and increased expectations of success following failure.

Rotter's Model of Locus of control

Locus of control			
Internal locus of control	Typical shift in expectations	↑ ed expectations	↓ ed expectations
External locus of control	Atypical shift in expectations	↓ ed expectations	↑ ed expectations
		Success	Failure

Figure - 1

The concept of control plays an important role in several psychological theories such as Rotter's social learning theory, Seligman's (1975) probability analysis of control, Weiner's (1986) attributional analysis of motivation and emotion, theories of learned helplessness, and Bandura's (1977) self-efficacy theory.

Why relate the construct Locus of control with the retention and satisfaction on MOOCs?

Though the psychological attribute - Locus of control - is all about the belief of control of an individual over a happening, the present study wanted to investigate if the locus of control- either intrinsic or extrinsic- have an influence/control over the perceived online learning and how far it determines the retention rate and satisfaction level of the individual over the MOOCs that he/she had enrolled. Few significant studies that confirmed the relationship between Locus of control and academic achievement are given below.

Many studies showed that internal locus of control was positively related to students' learning achievement and their self-perception of competencies (Ames, 1992, Blumenfeld & Pokay, 1990, Gotfried 1990, Hofer, Yu and Pintrich, 1998, Wiegfield, et. al.1997).

Hill, (2013) identified five categories of MOOC students: no-shows, observers, drop-ins, passive participants and active participants. While

categorizing students based on student activity patterns is helpful for descriptive purposes, it provides little basis for understanding how a student's locus of control might influence different interactions with the course.

Nejati et al. (2012) investigated the relationship between locus of control and academic performance of the master 'students of the University of Yazd. Their findings indicated that locus of control is significantly related to the academic performance of the graduate students from their institution.

Yazdanpanah, Sahragard and Rahimi (2010) in their study investigated the relationship between locus of control orientation and academic achievement. The sample of their study consisted of 120 students studying English literature. The findings revealed that locus of control is a good predictor of the participants' academic achievement and the internals perform at higher levels of achievement than the externals.

Majzub, Bataineh, Ishak and Rahman (2009) examined the relationship between locus of control and academic achievement. Their findings revealed the existence of a relationship between locus of control and academic achievement and were in line with the finding of past studies.

Gifford, Briceno-Perriott and Mianzo (2006) observed individuals having a high external locus of control obtain significantly fewer grades than the ones having a high internal locus of control.

Twenge, Zhang and Im (2004) in an interesting longitudinal study looked at a new aspect of locus of control that is also related to achievement. Through two meta-analyses, they found that young Americans increasingly believe their lives are controlled by outside forces rather than their efforts. In other words, they became less internal. They stated the negative implications of the study, as externality is associated with poor achievement, helplessness, problems with stress management, decreased self-control and depression. Stating that many factors are influenced by internality and externality, this study further illustrated the importance of investigating locus of control concerning academic achievement. The construct locus of control has very well established its positive relationship with the academic achievement, the question of whether the same relationship exists in

online learning sets in. the study is an attempt to find out an answer for this question.

The construct locus of control refers to the extent to which individuals believe they are responsible for the outcomes in their lives, and is one of the three causal dimensions in the attribution theory, along with stability and controllability. People tend to search for the cause of an event or behaviour and attribute different reasons for outcomes. Similarly, learners in their course of study might search for reasons as to why they succeeded or failed at completing the course, and they might attribute these causes to personal reasons or environmental circumstances (Kluever and Green, 1998).

Martin and Dixon, (1994) examined college students and stated that students with an internal locus of control show more success in adjustment to college life than those with an external locus of control. Those students with an internal locus of control had above average college course grades (Kirkpatrick et al., 2008), and an internal locus of control generally predicts greater academic success overall. Further, when college students move from an external to an internal locus of control their grades tend to improve (Noel, Forsyth, and Kelley, 1987).

Hauri (1991) conducted a study to explore the psychological and motivational factors that predicted successful performance and found that successful performance can be strongly influenced by an internal locus of control.

Wilhite (1990) also stated that for students their locus of control may affect the extent to which they believe they can control the outcomes of their attempts in learning and that locus of control as a predictor of course achievement. Moreover, Lester (1992) stated that the locus of control cognitive style has many important implications for education and academic achievement.

Findley and Cooper (1983) conducted a religious review, on approximately 100 studies investigating the relationship between locus of control and academic achievement. Their review included studies of all ages and used explicit quantitative techniques for concluding and included all of the mediators suggested by the other reviewers. The authors of this review concluded that a) locus of control and academic achievement are significantly positively related, and b) the

magnitude of this relationship is small to medium. Based on the characteristics of the participants in the reviewed studies and the nature of the locus of control and academic achievement measures used as mediators for the investigation, it resulted that the relation tended to be stronger for adolescents than for adults and children, and the relation was more substantial among males than among females.

The term retention and satisfaction either intrinsic or extrinsic- is a strong psychological construct to be explored. Hence the study attempted to explore one such motivational aspect- the locus of control- towards MOOCs retention and satisfaction.

The above findings have confirmed that Locus of control is a strong predictor of academic achievement. This confirmation made the investigator assumed that the construct- Locus of control would have a significant influence on the MOOC's retention and satisfaction.

H. CONCEPTUAL FRAMEWORK OF THE STUDY

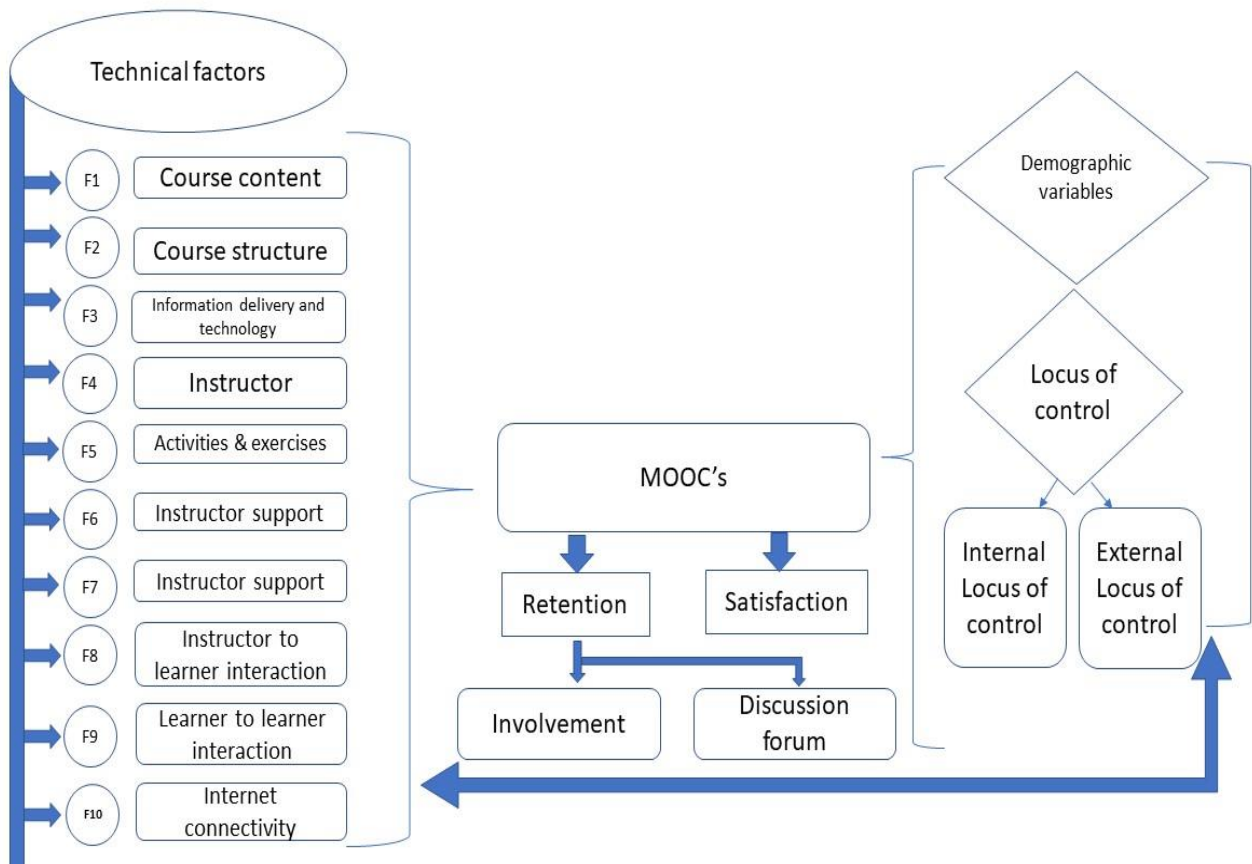


Figure- 2

The figure- 2 demonstrates the conceptual framework of the current study. This conceptual model illustrates the technical and psychological factors that theoretically affects the MOOC's retention and MOOC's satisfaction. The left side of the framework consists the ten technical and course related factors of MOOC and the right side shows the socio-demographic and psychological factors and with MOOC retention and MOOC satisfaction in the middle. In this study MOOC's retention and satisfaction are considered as dependent variables and technical factors of MOOC and locus of control as independent variables.

All the ten factors assumed to be highly influencing the dependent variables because when learners are satisfied with the course automatically their retention and satisfaction will increase. The independent factor locus of control were divided into seven categories starting from strong internal locus of control to strong external locus of control. People who are having more internal locus of control tend to have a personality to complete the goals despite the difficulties they may face. So we can assume that locus of control highly impacts the MOOC retention and satisfaction. The dependent variable, the MOOC retention are divided into two sub divisions namely involvement and discussion forum. This framework examines the relationship between all these variables with a particular emphasis on MOOC factors and locus of control with MOOC's retention and satisfaction.

III. METHODOLOGY

Research problem

Today, the whole education world is discussing electronic learning (e-learning) as a strategic resource that can be utilized in many areas with an increasingly diverse education. E-Learning can be defined as "the provision of education or training people electronically via the internet" (Hannafin et.al, 2014). Among the various approaches towards e-learning, Massive Open Online Course (MOOC) has become popular and it has taken a very prominent position in the education sector.

Amidst, its significance, the retention rate and the satisfaction level of the enrollers were found to be significantly low (lower than 7.5%) and it is the most widely discussed concern among academicians. In the process of discussions, course structure-related factors and technical factors were identified by several types of research that influence the retention rate and satisfaction level to a large extent.

The investigator of the current study is not completely convinced to assume that only the course-related and technical factors predict the success of learning in the MOOC platform. Like any other academic achievement, learning by MOOC's is assumed to be greatly influenced by personal traits / psychological constructs. But the researches that relate the personal traits / psychological constructs to the success of MOOC's is scarce.

Moreover, when the psychological factors are taken into account, the factor 'Locus of control' over MOOC's was nil. However, many studies had proved that the locus of control does have a significant influence on the academic achievement of the study in the physical environment. Hence, the study was an attempt to find out the influence of locus of control on the MOOC's retention and satisfaction. The problem statement of the current research is as given below.

As online learning in any form is self-directed learning, the psychological constructs matter more than the course-related or technical factors. Moreover, if the construct Locus of control does influence the academic achievement of students in offline learning why not the same influence the online learning.

Variables of the study:

The differentiation of variable of the present study is discussed and projected in Figure-3. MOOC's retention and MOOC's satisfaction are considered to be the dependent variable while MOOC factors and the Locus of control are assumed as independent variables. Age, class, the discipline of study, parent's education and occupation, family type and area of living are considered as extraneous variables.

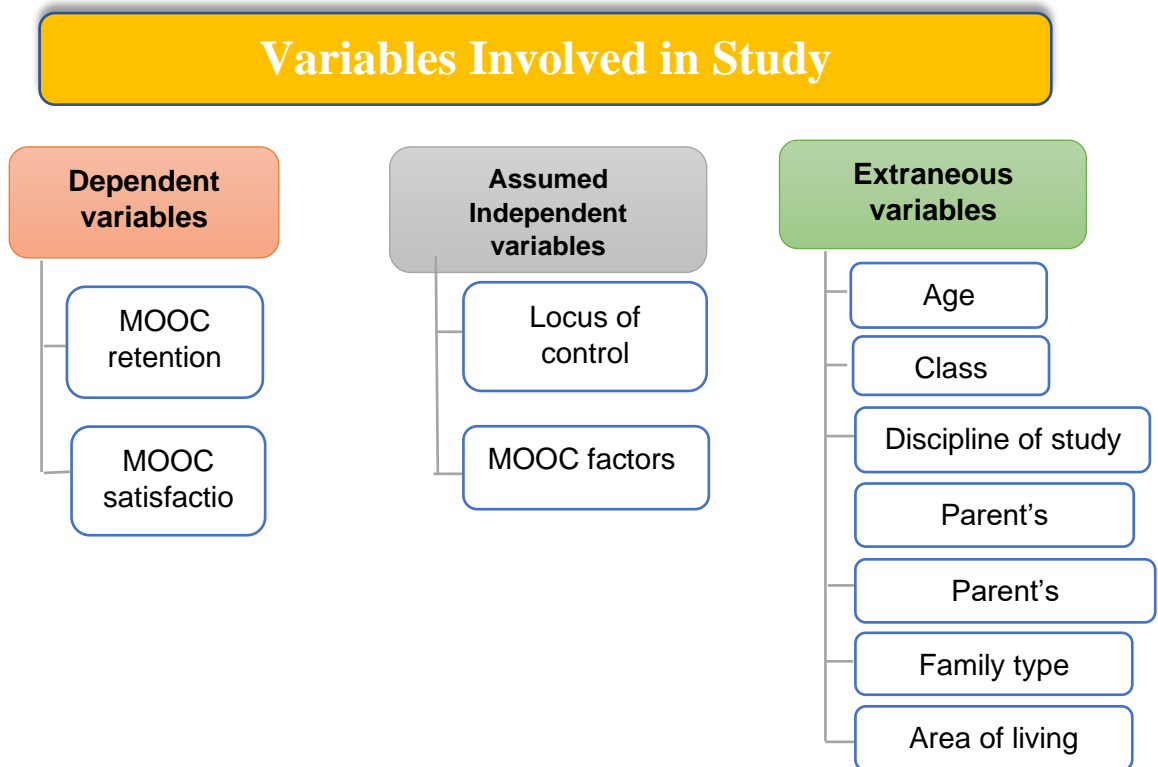


Figure-3

Design of the study

The exploratory design was adopted to investigate the "Inter-relationship between Locus of control, MOOC's Retention and Satisfaction among postgraduates".

Methodology:

The methodology is detailed under the following heads.

- A. Population and sampling
- B. Selection and formulation of tools
- C. Conduct of the study
- D. Analysis of data

A. POPULATION AND SAMPLING

Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore was the target area of the present investigation. The investigator selected Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore district for the following reasons:

- This institute is one of the HEI actively involved in credit transfer to the transcript through MOOC.
- The institute has got a well-coordinated network with the efforts of the nodal officer to resolve the students' issue in completion of the MOOC course.
- The institute is easily approachable and accessible. As the researcher, herself is a student of the said institute, the data collection was made simple and the investigator could get the full cooperation of the sample in the conduct of the study.

The identified institute for the study has incorporated MOOC's in its PG conceptual framework and made it mandatory for the students to earn a degree by procuring 2-4 credits through MOOC. To maintain homogeneity of the population only PG students of the said institute were considered for the research. However certain inclusion criteria were set to avoid noise in the data for effective statistical analysis. The criteria are

1. The sample should have completed at least one MOOC course by the time of data collection.
2. The sample should be willing to partake in research.
3. The completed MOOC course should be from the SWAYAM platform.

Based on the set criteria, out of 842 PG students enrolled in the identified HEI, only 580 students were found to fulfil the criteria and thus were considered as the sample for the current study. Out of 580 students, six students were filtered out due to incomplete form submission. So, the total sample accounted for 574 PG students. Hence the sampling techniques adopted was purposive sampling. The sample belonged to various schools of the institute as projected in Figure-4 and Table-I.

TABLE- I
DISTRIBUTION OF SAMPLE AMONG VARIOUS SCHOOLS OF THE
INSTITUTE

S.no.	School	Department	N	%
1	School of Home Science	Resource Management	20	3.45
		Food Service Management and Dietetics	24	4.14
		Food Science and Nutrition	32	5.35
		Textiles and Clothing	43	7.59
		Human Development	31	5.68
		Home Science Extension Education	10	1.72
		Total	160	27.9
2	School of Arts and Social Science	Economics	17	2.93
		Language	12	2.07
		English	18	3.10
		Music	13	2.24
		Psychology	30	5.18
		Total	90	15.7
3	School of Biosciences	Botany	35	6.38
		Zoology	26	4.48
		Biochemistry, Biotechnology and Bioinformatics	69	12.24
		Total	130	22.6
4	School of Physical Science and Computational Sciences	Mathematics	32	5.51
		Physics	31	5.35
		Chemistry	51	8.80
		Computer Science	32	5.51
		Information Technology	17	2.93
		Total	163	28.4
5	School of Commerce and Management	M.Com	1	0.17
		MBA	7	1.21
		MBA Information Technology	8	1.38
		MBA Tourism Management	15	2.59
		Total	31	5.4

Schools of HEI and Sample distribution

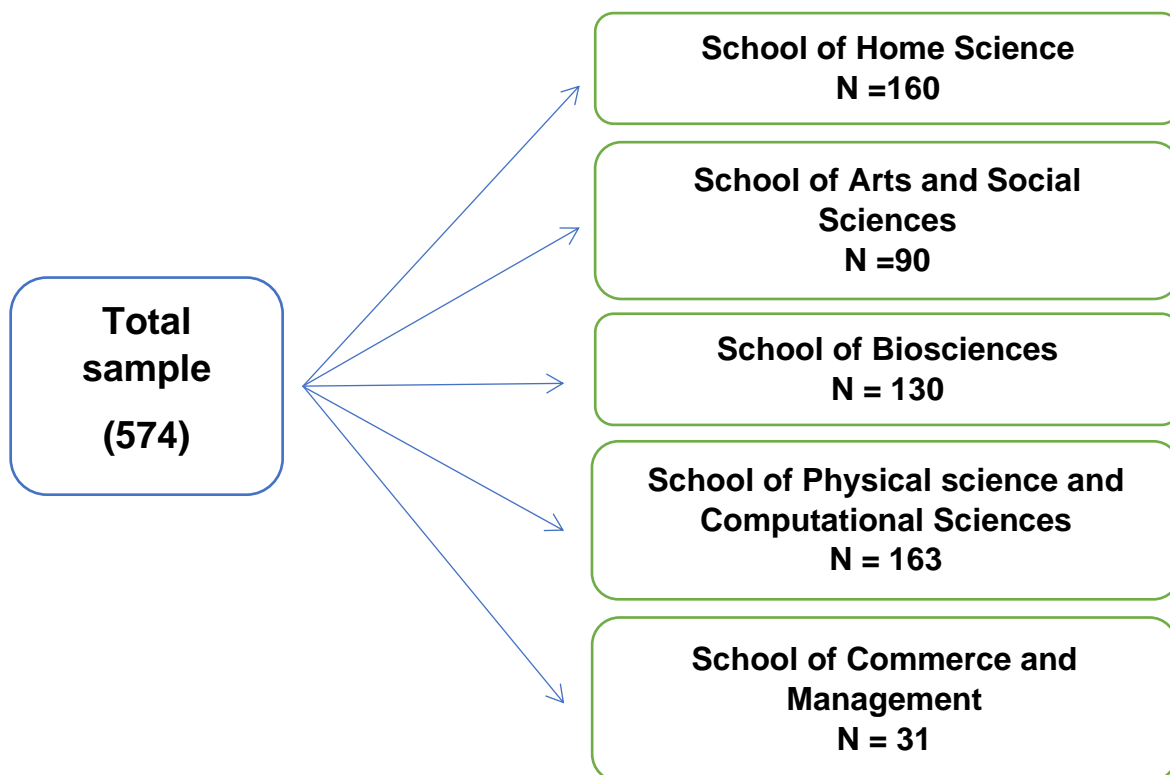


Figure – 4

Though the completion of one MOOC course is made mandatory for the PG students before their fourth semester, they had a bucket of choices to choose from as per their interests and needs. Annexure-I gives a detailed description of various courses chosen by the sample and their percentage. Among 43 PG MOOC's that was available during the study in the SWAYAM platform around 40 courses were chosen by at least one student.

Ethical Clearance

As a matter of ethics, the students were informed about the research through a simple written consent form. The sample was thus allowed to make a voluntary choice to participate in the study. The application form explaining the design and the protocols used in the research study was also subjected to Institutional Human Ethical Committees (IHEC) and was approved for the same with the approval number- AUW /IHEC /HD-19-20/XPD/38. The approval letter is given as Annexure-II.

B. SELECTION OF TOOLS

For the present study, the investigator decided to develop the appropriate tools. After accumulating relevant literature about the study, a set of tools were constructed to secure adequate information from the study sample. They are:

- i. General background questionnaire
- ii. General information on MOOC's
- iii. MOOC factors
- iv. MOOC's Retention scale
- v. MOOC's Satisfaction scale
- vi. Locus of Control scale

Class intervals were used to provide the score range for classification of levels of MOOC's course and technical factors scale, MOOCs Retention scale, MOOCs satisfaction scale, Locus of control scale. The percentage and frequency distribution analysis was used to provide summary information about the distribution, variability and central tendency of the variables.

i. General background questionnaire

The investigator constructed a simple questionnaire to elicit the background information of the sample which consists of age, class, the discipline of study, community, religion, family type, father's education, mother's education, father's occupation, mother's education and area of living.

ii. General information on MOOC's

The investigators constructed a questionnaire to elicit the general information regarding the MOOC courses that was completed by the respondent. This questionnaire consists of details such as if the respondent is first time MOOC's learner, the number of the MOOC courses enrolled, details of the course enrolled, mode of exam and the score or grade that they had procured.

iii. MOOC factors

This scale is used to assess the influence of course-related and technical factors on MOOCs and it had a total of 57 items. It is a modified version of Peltier et al. (2003) and Eom et al. (2006) used for the study titled "Virtual communities and the assessment of online marketing education" and "The Determinants of

Students' Perceived Learning Outcomes and Satisfaction in University Online Education: An Empirical Investigation”.

Thus modified 57 items were divided into 10 factors - course content (5 items), course structure (9 items), information delivery technology (6 items), instructor (6 items), activities and exercise (6 items), instructor support (5 items), instructor feedback (5 items), instructor to learner interaction (5 items), learner to learner interaction (5 items) and internet connectivity (5 items).

The mode of responses for each statement was in the form of strongly disagree, disagree, uncertainty, agree, and strongly agree. Responses were scored by awarding a score of “1,2,3,4 and 5” respectively. A score of 1 to 5 indicates the lowest to the highest degree of favourable practice towards the factors of MOOC course. The summed-up scores of each of the factors identified were categorized into three levels namely low, moderate and high indicating the level of influence of that particular factors towards MOOC learning. The range of scores as per the levels of each of the 10 factors is portrayed in Table II.

TABLE - II
CATEGORIZATION OF THE LEVEL OF FAVOURABLE PRACTICE
TOWARDS MOOC'S WITH THE SCOREBOARD

Factor No.	Factor	Score Range	Level
F1	Course content	5-11	Low
		12-18	Moderate
		19-25	High
F2	Course structure	9-20	Low
		21-32	Moderate
		33-45	High
F3	Information delivery & technology	6-13	Low
		14-21	Moderate
		22-30	High
F4	Instructor	6-13	Low
		14-21	Moderate
		22-30	High
F5	Activities and exercises	6-3	Low
		14-21	Moderate
		22-30	High
F6	Instructor support	5-11	Low
		12-18	Moderate
		19-25	High
F7	Instructor Feedback	5-11	Low
		12-18	Moderate
		19-25	High
F8	Instructor to learner interaction	5-11	Low
		12-18	Moderate
		19-25	High
F9	Learner to learner interaction	5-11	Low
		12-18	Moderate
		19-25	High
F10	Internet connectivity	5-11	Low
		12-18	Moderate
		19-25	High

iv. MOOCs Retention scale

A self-developed scale on MOOC's retention was used to assess the retention level of the postgraduates. The scale to assess retention level titled

“MOOC’s retention scale” had a total of 12 items. These 12 items were divided into two dimensions.

1. Involvement (6 items)
2. Discussion forum (6 items)

The mode of the response of the 6 items of the involvement was in the form of 100-80%, 80-60%, 60-40%, 40-20% and below 20%. On the other hand, the items of the dimension 'Discussion forum' were on a scale of always, often, occasionally, rarely and never. This distinction was due to the nature of the statements. The order of items and the response pattern of the items categorized within the above said two dimensions are given in Table III.

TABLE – III
DIMENSIONS OF MOOC’S RETENTION SCALE

S.NO	Dimensions	Item number	Total items	Response
1	Involvement	1,2,3,4,5,6	6	On a 5-point scale of 100-80% to < below 20%
2	Discussion forum	7,8,9,10,11,12	6	On a 5-Point rating scale of Always to Never

The score of each statement carries a maximum of 5 and a minimum of 1 score indicating the highest to the lowest degree of MOOCs retention. By summing up the discussion forum and involvement scores, the retention score was obtained. These scores were further categorized into 3 levels, namely low,

moderate and high so that the respondent's level of retention can easily be identified. The score range of these classifications is given in below Table-IV.

TABLE - IV
SCORE RANGE AND CATEGORIZATION OF THE LEVELS OF MOOC'S RETENTION

S.NO	Level of Retention	Score Range
1	Low	12-28
2	Moderate	29-44
3	High	45-60

v. MOOC's Satisfaction Scale

A self-developed scale on MOOC's satisfaction was used to assess the satisfaction level of the postgraduates. The scale to assess satisfaction level titled "MOOC's satisfaction scale" had a total of 10 items.

The mode of the response of the 10 items of the satisfaction was on a scale of strongly disagree, disagree, uncertainty, agree and strongly agree.

The score of each statement carries a maximum of 5 and a minimum of 1 score indicating the highest to the lowest degree of MOOCs satisfaction. By summing up all statements scores, the satisfaction score was obtained. These scores were further categorized into 3 levels, namely low, moderate and high so that the respondent's level of retention can easily be classified according to their scores. The score range of these classifications is given in Table V.

TABLE - V
SCORE RANGE AND CATEGORIZATION OF THE LEVELS OF MOOC'S SATISFACTION

S.NO	Level of Satisfaction	Score Range
1	Low	10-23
2	Moderate	24-37
3	High	38-50

Reliability of the MOOC's retention and satisfaction scales:

MOOC retention scale:

MOOCs retention scale of the present study focuses on how actively learners are involved in their learning and not confined only to the course completion status. Therefore, involvement and discussion in the forum were identified as two core components of MOOCs retention.

To establish reliability, the investigator shared the final tool with 38 postgraduates. After a period of ten days, the same MOOC's retention scale was again administered to the same participants. The Karl Pearson correlation was calculated to test reliability between test and re-test. It was found that reliability is excellent dimension wise and good for overall retention. Here coefficient value for the involvement dimension for MOOCs Retention is 0.930, the Discussion forum dimension is 0.920 and overall MOOCs Retention is 0.875.

**TABLE - VI
CORRELATIONS OF MOOC'S RETENTION SCALE**

S. No	Variables	MOOCs Retention - Involvement retest	MOOCs Retention - Discussion forum retest	Overall MOOCs retention retest
1	MOOCs Retention - Involvement	.930 .000	.440 .006	.857 .000
2	MOOCs Retention - Discussion forum		.920 .000	.749 .000
3	Overall MOOCs retention			.875 .000

MOOC's satisfaction scale:

A rating scale was constructed to measure the MOOC's satisfaction of the participants. This tool was developed to understand the participant's level of satisfaction in doing the MOOC course. Similarly, the investigator shared the MOOCs satisfaction questionnaire with the same 38 postgraduates. The Karl

Pearson coefficient value was found that the reliability is excellent as item wise and total as well. Here coefficient value for MOOCs Satisfaction is 0.904.

TABLE - VII
CORRELATIONS OF MOOC'S SATISFACTION SCALE

S. No	Variables	MOOCs Satisfaction retest
1	MOOCs Satisfaction	.904 .000

vi. Locus of Control Scale

This scale helps to know about the individual's locus of control. It is a standardized scale adapted from the book titled "Assess your personality" by MENSA the high IQ society. It is a self-administered scale. There is no fixed time limit. On average an individual takes 10 minutes to respond to all the items on the scale. The language is simple and easy to understand. The scale is a five-point scale. The respondents have to respond in terms of strongly agree, agree, not sure, disagree and strongly disagree respectively.

On the whole of 25 items, the minimum score is 25 and the maximum is 125. The scale has 12 positive items that mark the internal locus of control. The scoring of these items varies from a maximum of 5 points for the response of strongly agree and one point for the other extreme strongly disagree. Since the positive items are related to the internal locus of control, the higher the score on the scale the more internally oriented the individual will be.

The other 13 items of the scale are negative items that relate to the external locus of control. The scoring of these items is just the reverse of internal locus. In other words, the scoring is just 1 for strongly agree and on the 5-point scale, 5 points are given for strongly disagree. Since the negative items are related to the external locus of control, the lower the score on the scale the more externally oriented the individual's locus of control will be. Table -VIII and Table – IX portrays the distribution of positive and negative items in the Locus of control scale and their scoring schemes and Interpretations of the scale respectively.

TABLE- VIII
DISTRIBUTION OF POSITIVE AND NEGATIVE ITEMS IN LOCUS OF CONTROL SCALE AND THEIR SCORING SCHEMES

Types of items	Locus of control	Item No.	Total Items
Positive items	Internal locus of control	1,4,5,8,12,15,16,17,18,20,23,24	12
Negative items	External locus of control	2,3,6,7,9,10,11,13,14,19,21,22,25	13

TABLE - IX
INTERPRETATIONS OF SCORES OF LOCUS OF CONTROL SCALE

Score range	Locus of control
25-30	Strong external locus of control
31-45	Moderate external locus of control
46-60	Mild external locus of control
61-74	Neither internal nor external locus of control
75-95	mild internal locus of control
96-110	Moderate internal locus of control
111-125	Strong internal locus of control

C. CONDUCT OF THE STUDY

The current study was carried out in two phases, as below.

i. Rapport building

Rapport building was an important endeavour of the present study since it is seen as the degree of acceptance and cooperation on the part of the participation in the research project (Blohm, 2007). Therefore, stupendous efforts were made to establish a good rapport with the concerned authority of the

participant college. Investigator approached the Registrar and discussed the study in brief, its significance and details regarding its procedure of data collection and its implication. The investigator conveyed the need for the study by explaining the current scenario of the problem faced by the instructor and learners on the MOOC course.

Before collecting the data, the investigator approached the postgraduates and oriented the study in brief about the type of information that is being acquired and its purpose, how they were expected to fill in the datasheet. They were also oriented about the potential benefits of the study. Enough instructions were given to respondents about how to fill in the Background Information Questionnaire, General information about MOOC's, MOOC's Retention scale, MOOC's Satisfaction scale, MOOC technical factors scale, Locus of Control Scale.

ii. Collection of data

Data collection is the most important part of any research. The primary data for its research study was collected using the selected tools from the selected respondents in a single phase. The investigator distributed the questionnaires to the respondents who are willing to fill them. The investigator cleared the doubts asked by the respondents during the session. Certain detailed instructions were given to the respondents as mentioned in the tools enclosed as Appendix-I

The investigator collected the required information from the respondents in the allotted time and place. Before answering the questions, the respondents were requested to read carefully and understand the questions and respond accordingly in the space provided for responses. They were requested to be honest with their answers. The total testing time for all six questionnaires is approximately 50-60 minutes.

D. ANALYSIS OF DATA

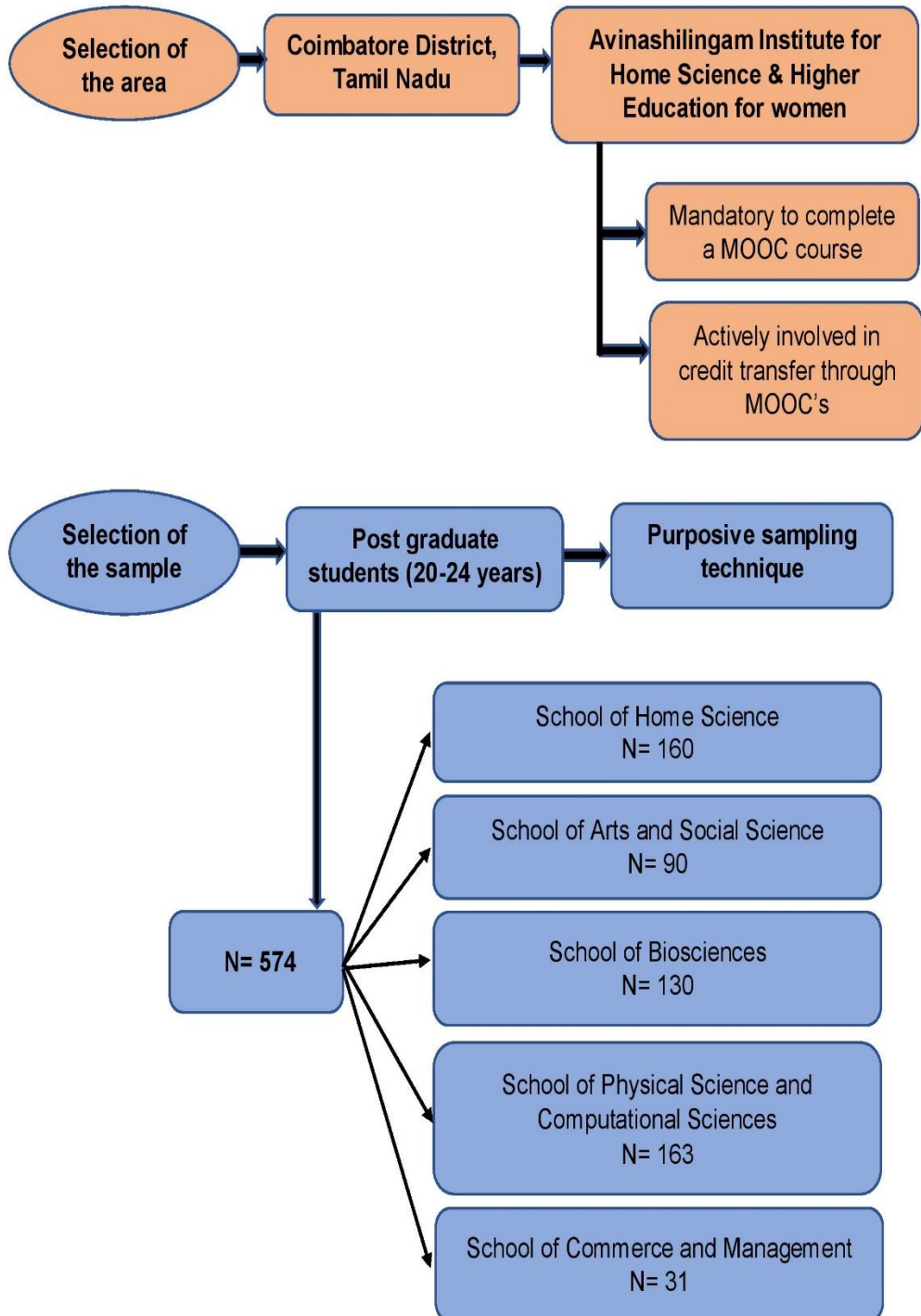
The collected information was consolidated, coded, scored and tabulated accordingly providing raw data which were made ready to analyze. The raw data which was entered into the MS excel were imported to SPSS software and analyzed statistically to yield the desired results. Class intervals, frequency distribution count and percentage analysis, normality test, Mann Whitney U-test,

Kruskal Wallis, Pearson correlation and regression analysis revealed the relationship between the independent and dependent variables considered in the study.

1. **Class interval-** was used to provide the score range of classification of levels of Locus of control, MOOC's satisfaction, MOOCs retention and MOOC course and technical factors. The frequency distribution count and percentage analysis were used to provide summary information about the distribution, variability and central tendency of the variables.
2. **Normality- Test** is done to determine whether the data are normally distributed or not. The non-parametric test was used as the data did not meet the assumptions of the parametric test.
3. **Mann Whitney U- test** was performed to determine whether two assumed independent variables have an impact on either of the two dependent variables. It was used to examine differences in Locus of control, MOOC's satisfaction, retention and MOOC course and technical factors individually concerning few socio-demographic variables which have two groups.
4. **Kruskal Wallis- Test** produces a one-way analysis of variance for a quantitative dependent variable by a single factor (independent) variable. In the present study, this test was employed to find out the impact of socio-demographic variables which has three or more group on Locus of control, MOOC's satisfaction, retention and MOOC course and technical factors.
5. **Correlation- Test** was performed to determine the degree to which a relationship exists between two or more variables. Karl Pearson Correlation performed to examine the inter-relationship between MOOCs Retention, MOOCs Satisfaction, MOOC course and technical factors, Locus of control among postgraduates.
6. **Regression analysis-** was used to understand whether the MOOCs retention and MOOCs satisfaction could be predicted by the MOOC factors and psychological indicator of learning, the Locus of control.

For all the statistical tests, the level of significance tested at .05 and .01 levels of significance. If the results are significant, it is denoted by '*' (.05), '**' (.01) and superscript of 'NS' in the value (if not significance).

METHODOLOGY AT A GLANCE



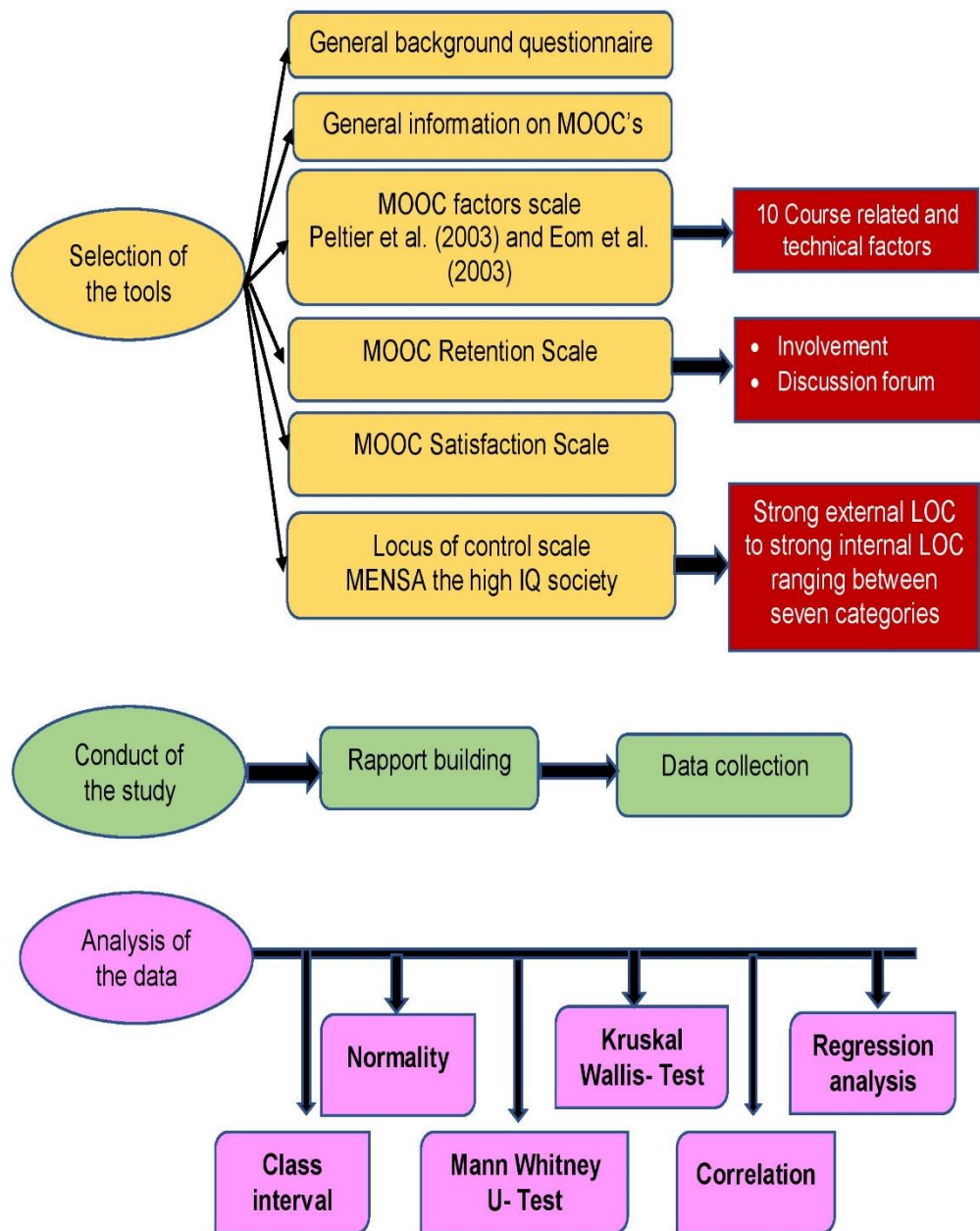


Figure- 5

IV. RESULTS AND DISCUSSION

Massive Open Online Courses (MOOC) are the digital platform of learning for the interested people, regardless of their living area, resulting in a more diverse student base with open access to learning. Since MOOC's retention rates are becoming low it is important to find out the factors affecting MOOC retention and satisfaction and how Locus of control helps to complete the MOOC course. Several studies proved that locus of control has an influence on offline learning, this study was carried out to find the interrelationship between dependent (MOOC's retention and MOOC's satisfaction) and independent variables (MOOC factors and Locus of control).

A total of 574 Postgraduate students (who completed at least one MOOC course by the time of data collection) from an institute in Coimbatore, Tamilnadu were selected as participants of the study. The investigator used four questionnaires to conduct the study i.e., General background questionnaire to elicit the socio-demographic details of the respondents, MOOC factors scale (Modified version of Peltier et al. (2003) and Eom et al. (2006)) to know the influence of MOOC's course-related and technical factors, Self-constructed MOOC's Retention scale and MOOC's satisfaction scale to know the MOOC's retention level and satisfaction level and Standardized Locus of control scale from the book titled "Assess your personality" by MENSA - the high IQ society to assess the Locus of control of the respondents. The collected data was analyzed by suitable statistical measures using SPSS software.

The findings of the study on "Inter-relationship between Locus of control, MOOC's retention and MOOC's satisfaction among postgraduates" are presented under the following headings.

- A. General profile of the selected respondents**
- B. Effect of MOOC factors on the MOOC course enrolled by the respondents**
- C. MOOC's Retention level among the respondents**
- D. MOOC's Satisfaction level among the respondents**
- E. Locus of Control of the respondents**

F. Influence of Locus of control and MOOCs factors on MOOC's retention and MOOC's satisfaction

G. Relationship between dependent (MOOC's Retention and MOOC's Satisfaction), and independent (MOOC factors and Locus of control) variables

A. GENERAL PROFILE OF THE SELECTED RESPONDENTS

Collecting and analyzing the background information of the selected respondents is an important task in every research. General information of the respondents comprises of their age, class, programme, religion, community, family type, area of living, their parent's education and occupational status. This information provides data regarding the respondents. The demographic profile helps in determining if the selected individuals are a representative sample of the target population in the process of generalizing results. The demographic profile of the respondents was discussed under two heads as given below.

a. Personal Profile of the selected respondents

b. Educational and occupational status of the selected respondents' parents

a. Personal profile of the selected respondents

The personal information of the selected sample paves the base of any effective study. Table X represents the personal information of the respondents including age, class, the discipline of study, religion, community, family type and area of living.

TABLE- X
PERSONAL INFORMATION OF THE SELECTED RESPONDENTS

Variable	Category	N=574	%
Age	20 years	95	16.6
	21 years	261	45.5
	22 years	167	29.1
	23 years	41	7.1
	24 years	10	1.7
Class	1 st year of PG	291	50.7
	2 nd year of PG	283	49.3
Discipline of study	Home- Science	160	27.9
	Arts and Social Sciences	90	15.7
	Biosciences	130	22.6
	Physical and Computational Sciences	163	28.4
	Commerce and Management	31	5.4
Religion	Hindu	507	88.3
	Muslim	36	6.3
	Christian	28	4.9
	Others	3	0.5
Family type	Nuclear	477	83.1
	Joint	97	16.9
Area of living	Urban	296	51.6
	Rural	278	48.4

The table shows that the sample consisting of 574 respondents were in the age range of 20-24 years. The highest percentage of 45.5 per cent belonged to 21 years of age followed by 22 years (29.1%) and 20 years (16.6%). And the least number of respondents were in their 23rd and 24th year (7.1 and 1.7% respectively). The class-wise distribution of the respondents clearly shows that half of the respondents (50.7%) were in their 1st year and the remaining half (49.3%) in the 2nd year of their postgraduate programme.

The discipline-based distribution of the selected respondents, an important variable of the study, was categorized based on the broad discipline of the programme enrolled by the respondents as there were 41 PG programmes in the selected institute. The respondents were equally distributed more or less within the School of Physical and Computational Sciences and School of Home-Science with 28.4 per cent and 27.9 per cent respectively. The remaining 22.6 per cent and 15.7 per cent of the respondents belong to the School of Bioscience and School of Arts and Social Sciences and the least number of the respondents (5.4%) were enrolled in the programmes offered by the School of Commerce and Management.

A vast majority of the respondents (88.3%) were Hindus and only a less proportion of them was Muslims (6.3%) followed by Christians (4.9%). Hence the ratio of Hindus to other religions was approximately 8:1.

The table also illustrates the type of family the respondents hail from. A great majority of them were from the nuclear family (83.1%). Which explains that one out of every 5 respondents were from a joint family and that shows the vanishing trend of the joint family system.

Tracing the area of living of the selected respondents, more than half of them hailed from urban area (51.6%), and the remaining 48.4 per cent were dwellers of rural regions.

b. Education and Occupational status of selected respondents' parents

Table- XI portrays the educational and occupational status of the selected respondent's parents.

TABLE- XI
EDUCATIONAL AND OCCUPATIONAL STATUS OF THE SELECTED
RESPONDENTS' PARENTS

Variable	Category	N=574	%
Father's education	Non-literate	14	2.4
	Primary	131	22.8
	Secondary	255	44.4
	Graduate	138	24.1
	Postgraduate	36	6.3
Mother's education	Non-literate	20	3.5
	Primary	166	28.9
	Secondary	253	44.1
	Graduate	94	16.4
	Postgraduate	41	7.1
Father's occupation	Government	83	14.5
	Private	220	38.3
	Unemployed	39	6.8
	Business	232	40.4
Mother' occupation	Government	42	7.4
	Private	72	12.5
	Homemaker	442	77.0
	Business	18	3.1

Looking at the data of educational qualification of the selected respondents' parents, a great number of fathers (44.4%) have had completed secondary level of education followed by the graduate level of education (24.1%). The remaining 28.9 per cent of them had studied up to the primary level. However, 7.1 per cent of respondents' father have had completed their postgraduate level of education. It is disheartening to note that 2.4 per cent of respondents' fathers did not have any formal education. Looking at the mother's data, similarly, with fathers, more mothers (44.1%) have had completed secondary level education followed by the primary level of education (28.9%), graduate-level of education (16.4%), and Post-graduation (7.1%). However, compared to fathers, the non-literate mothers were more in number accounting for 3.5 per cent.

Glancing at the data of the occupational status of selected respondents' parents, it is clear that a great majority of fathers (40.4%) were having their own business and a majority of mothers (77%) were homemakers. Thirty-eight per cent of the fathers were working in the private sector and 14.5 per cent were working in the government sector. However, 6.8 per cent of fathers were unemployed. Among the working mothers, 12.5 per cent of them were working in a private firm, and the remaining 7.4 per cent were in the government sector. However, 3.1 per cent of mothers were having their own business.

B. EFFECT OF MOOC FACTORS ON THE MOOC COURSE ENROLLED BY THE RESPONDENTS

MOOC factors scale was used to assess the influence of 10 identified MOOC factors on the particular MOOC course selected by the respondents. This scale is a modified version of Peltier et al. (2003) and Eom et al. (2006) factors scale. This scale has a total of 57 statements. The scores of each statement range from 1 to 5 indicating strongly disagree to strongly agree respectively. Further, the score was categorized into three levels for each factor namely low, moderate and high indicating the level of influence of that particular factor towards MOOC learning.

This section of the results represents the findings of MOOC's factors - Course-related and Technical and its concurrent discussion as represented in Table XII.

TABLE- XII
LEVEL OF INFLUENCE OF MOOC FACTORS ON THE MOOC COURSE
ENROLLED BY THE RESPONDENTS

Factor	Level	Score Range	Mean	S.D
F1 - Course content	Low	5-11	19.770	3.130
	Moderate	12-18		
	High	19-25		
F2 - Course structure	Low	9-20	35.484	5.658
	Moderate	21-32		
	High	33-45		
F3 - Information delivery & technology	Low	6-13	23.331	3.907
	Moderate	14-21		
	High	22-30		
F4 – Instructor	Low	6-13	23.822	4.045
	Moderate	14-21		
	High	22-30		
F5 - Activities and exercises	Low	6-13	23.405	4.223
	Moderate	14-21		
	High	22-30		
F6 - Instructor support	Low	5-11	18.449	3.978
	Moderate	12-18		
	High	19-25		
F7 - Instructor Feedback	Low	5-11	19.137	3.475
	Moderate	12-18		
	High	19-25		
F8 - Instructor to learner interaction	Low	5-11	18.087	3.996
	Moderate	12-18		
	High	19-25		
F9 - Learner to learner interaction	Low	5-11	18.693	3.704
	Moderate	12-18		
	High	19-25		
F10 - Internet connectivity	Low	5-11	17.754	3.506
	Moderate	12-18		
	High	19-25		

A glance into the above data shows the mean score of 10 MOOCs factors on the enrolled MOOC course and the level of influence with its score range. The mean score of each of the MOOC factor indicates the level of influence based on the score range. Among all the 10 factors, it is observed that the factors course

content, course structure, information delivery and technology, instructor, activities and exercises and instructor feedback influence the completion of MOOC course at a higher level. The other remaining factors i.e., instructor support, instructor to learner interaction, learner to learner interaction and internet connectivity moderately influences the course completion.

However, looking into each factor the mean value of course content was 19.770 with S.D \pm 3.130, which shows that respondents perceived that the content of the course such as assigned readings, video recording, mode of exam, learning material etc. do facilitate their completion of the course. For the second factor, the course structure, the mean value was 35.484 with S.D \pm 5.658 and it indicates that the topic, of course, objectives, recap and summarize materials, organisation and sequence of the course do matter significantly towards course completion.

Further looking into the third factor, i.e. information delivery and technology, the mean score was 23.331 and S.D \pm 3.907. It may be interpreted that the respondents were satisfied with the quality of the video and audio, e-text, extra links and reference etc. The fourth factor, the instructor himself/herself procured a mean score of 23.822 with S.D \pm 4.045 and predicted that the respondents were satisfied with instructor knowledge, style of presentation, teaching methods, interaction with the learners for clearing the doubt.

Again in a closer look into the table, the fifth factor, i.e. activities and exercise obtained a mean score of 23.405 with S.D \pm 4.223 and can be interpreted that the exercises, assignments that check the understanding of the course have a significant influence over the course completion. The sixth factor with a high level of effect was the instructor support (mean = 18.449 and S.D \pm 3.978), wherein the learner getting clarified by the instructor in case of doubts accounts to course completion.

Similarly, the results of the remaining factors, namely, instructor feedback (mean = 19.137 and S.D \pm 3.475), instructor to learner interaction (mean = 18.087 and S.D \pm 3.996), learner to learner interaction (mean = 18.693 and S.D \pm 3.704) and internet connectivity (mean = 17.754 and S.D \pm 3.506) also reveals that the MOOC completion as perceived by the respondents were moderately influenced

by timely feedback, self-evaluation assessments; raising the question in the discussion forum, an immediate response from the instructor; providing opportunities to interact with other learners;

Kuo et al. (2013) determined that learner-instructor interaction and learner-content interaction combined with technology efficacy are valid indicators of students' positive perceptions. However, Battalio (2007), using a criterion approach and argued that a positive course rating requires effective learner-instructor interaction. Mahmood and Malik (2012) argued that teaching presence plays the most critical role in how students evaluate online learning. The effectiveness of a MOOC course depends on the quality of content and the extent to which the participants read/watch the content. Lack of student-teacher bonding, feedback and peer-interaction were identified as inherent weaknesses that led to drop-outs after enrolment (Sugant 2014). The collated literature directly or indirectly supports the present findings

C. MOOCs' RETENTION LEVEL AMONG THE RESPONDENTS

Presently the whole education world is discussing Electronic Learning (e-Learning) as a strategic resource that can be utilized in many areas with increasingly diverse applications. Massive Open Online Course (MOOC) is an E-learning where learner of any age can enrol into a course of their own choice. Internet connection is the only needed aspect in MOOC learning. However, the retention rate when compared to the enrolment rate in MOOC learning, as already denoted, is in double digits only. Because of this fact, the investigator attempted to study the nature of MOOCs retention among the selected postgraduates. The findings were discussed under the following subsequent headings.

- a. MOOCs retention among the selected respondents
- b. Influence of class, family type and area of living on MOOCs retention among the respondents.
- c. Influence of age, the discipline of study, parent's education and occupation on MOOCs retention among the respondents

a. MOOCs retention among the selected sample

This section of the study reveals the findings of MOOCs retention level among the selected postgraduates.

TABLE- XIII
LEVEL OF RETENTION IN LEARNING MOOCS

Particulars				Descriptive analysis	
Level	Score range	N	%	Mean	S.D
Low	12-28	61	10.63	37.9791	7.48072
Moderate	29-44	421	73.35		
High	45-60	92	16.02		

Distribution of respondents based on their level of retention in learning MOOCs

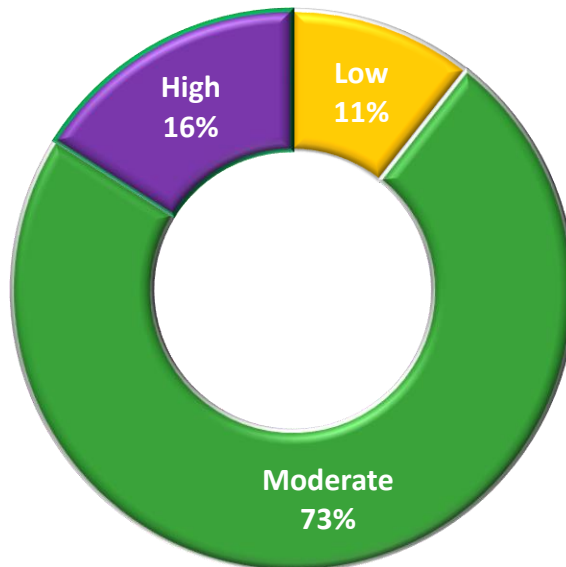


Figure - 6

In a total of 574 respondents, 61 of them representing 10.63 per cent of the sample reported a low level of retention in learning MOOCs. These learners are not much interested to interact with the instructor or the peer learners or didn't watch or complete all the videos or assignments that were posted. In other words, the possibility of dropping out from the course was 100 per cent.

As we can see from the figure, a larger group of learners (73%) were found to possess a moderate level of retention in learning the MOOC course in which they were enrolled. They are the learners who were partially involved in the course. They are neither active participants nor inactive ones. There is a chance

that their retention level may decrease. Hence the possibilities of dropping out from the course were at their maximum.

Moreover, only 92 students reported having a high level of MOOC retention. In other words, these learners are very much interested to learn from the course that they have enrolled and they had completed all the posted videos, assessments, activities and exercises. They also had reported having better interaction with the instructor or the peer learners and were able to actively raise questions in the discussion forum.

The mean value of the respondents on MOOC's retention was 37.9791 with a standard deviation of ± 7.48072 . That indicates that the MOOCs retention levels of the selected respondents in summation were at a moderate level.

Sujatha and Kavitha (2018), while investigating the learner retention in the MOOC environment, found that 31.8 per cent of the respondents completed some or none of the exercises/assessments in MOOC. A similar pattern was observed in reading or watching the content. Hence, the possibility of dropping out from the course was at its maximum. An examination of the drop-out rates showed that the majority of the learners dropped out towards the middle of the course.

Hence, the low and moderate level learners needs have to be focused and further studies were recommended to be done towards analyzing the technical and non-technical factors influencing the retention and formulate vulnerable solutions in the online platform to resolve the issues.

b. Influence of class, family type and area of living on MOOCs retention

Table XIV summarizes the results of Mann Whitney U test which shows the nature of the relationship between the dependent variables i.e., MOOCs retention with independent variables – class, family type and area of living.

TABLE- XIV
INFLUENCE OF CLASS, FAMILY TYPE AND AREA OF LIVING ON MOOCS
RETENTION AMONG POSTGRADUATES

Variable	Group	N	Mean score	Z	P-value
Class	1 st year	291	303.79	-2.389*	.017
	2 nd year	283	270.75		
Family Type	Nuclear	477	289.80	-.768 ^{ns}	.443
	Joint	97	275.73		
Area of living	Urban	296	300.68	-1.967*	.049
	Rural	278	273.47		

*: Significant at 5% level NS: Not significant

Comparison of mean scores on MOOC's retention

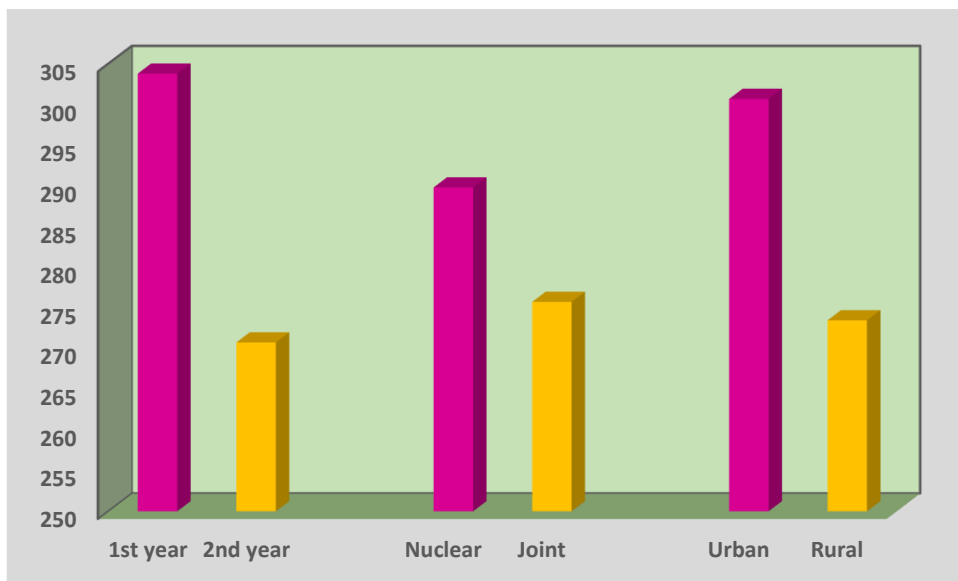


Figure - 7

The table reveals the influence of the socio-demographic variables on MOOCs retention. Looking into the first variable i.e., class, the figure reveals that the mean score of 1st year (303.79) was expressively higher than the 2nd year respondents (270.75). Further, the Mann Whitney U test resulted in a Z value of -2.389 and p-value = .017 ($p < 0.05$) that indicates a five per cent significant

variance in MOOCs retention for their year of study in PG. It could be derived that the 1st year's retention level is slightly higher than the 2nd years.

Further analysis, had shown that many of the 2nd year postgraduates had enrolled for the second course in MOOC's as the institutes' curriculum framework has made it mandatory to complete a MOOC course in their 1st year.

The second variable i.e., family type, the figure shows that the mean score of the respondents belonging to the nuclear family was 289.80 and is greater than the respondents from joint family (275.73). The Mann Whitney U test resulted in, Z value = -.768, p-value = .443 ($p > 0.05$), indicates that the family type does not influence MOOCs retention among the respondents. However, it is derived that the retention level of the respondents from the nuclear family is slightly higher than the respondents from the joint family. The reason may be attributed to the other additional commitments a respondent might have in a joint family, that does not allow her to complete the course.

For the third variable i.e., Area of living, the data reveals that the mean score of urban area respondents was 300.68 and rural respondents were only 273.47. The Mann Whitney U test resulted in, Z value = -1.967, p-value = .049 ($p < 0.05$). In other words, the MOOC's retention was significantly predicted by the area of living of the respondents. It could be derived that the retention level of the respondents from the urban area is significantly higher than the respondents from the rural area. The respondents from the urban area have greater accessibility to gadgets and internet connection in comparison to rural area respondents.

c. Influence of age, the discipline of study, parent's education and occupation on MOOCs retention among postgraduates

Table XV summarizes the results of the Kruskal Wallis H test which shows the nature of the relation of the dependent variable i.e., MOOCs retention with certain independent variables such as age, the discipline of study, father's education, mother's education, father's occupation and mother's occupation.

TABLE- XV
INFLUENCE OF AGE, DISCIPLINE OF STUDY, PARENT'S EDUCATION
AND OCCUPATION ON MOOCS RETENTION AMONG THE SELECTED
POSTGRADUATES

Variable	Groups	N	Mean score	chi-square	df	p-value
Age	20	95	318.49	7.240 ^{NS}	4	.124
	21	261	275.74			
	22	167	278.12			
	23	41	322.06			
	24	10	315.05			
Discipline of study	Home-Science	160	293.70	15.531*	4	.004
	Arts and Science	90	344.16			
	Bioscience	130	264.01			
	Physical and Computational Sciences	163	286.45			
	Commerce and management	31	289.66			
Father's Education	Non-literate	14	236.14	10.475*	4	.033
	Primary	131	261.00			
	Secondary	255	285.17			
	Graduate	138	308.82			
	Post-graduate	36	338.69			
Mother's Education	Non-literate	20	325.25	6.656 ^{NS}	4	.155
	Primary	166	270.06			
	Secondary	253	289.31			
	Graduate	94	316.22			
	Post-graduate	41	262.70			
Father's Occupation	Government	83	308.20	2.184 ^{NS}	3	.535
	Private	220	280.55			
	Unemployed	39	269.54			
	Business	232	289.70			
Mother's Occupation	Government	42	323.92	3.560 ^{NS}	3	.313
	Private	72	263.60			
	Homemaker	442	287.65			
	Business	18	305.86			

*: Significant at 5% level NS: Not significant

Comparison of mean scores of the respondents on MOOC's retention as against independent variables

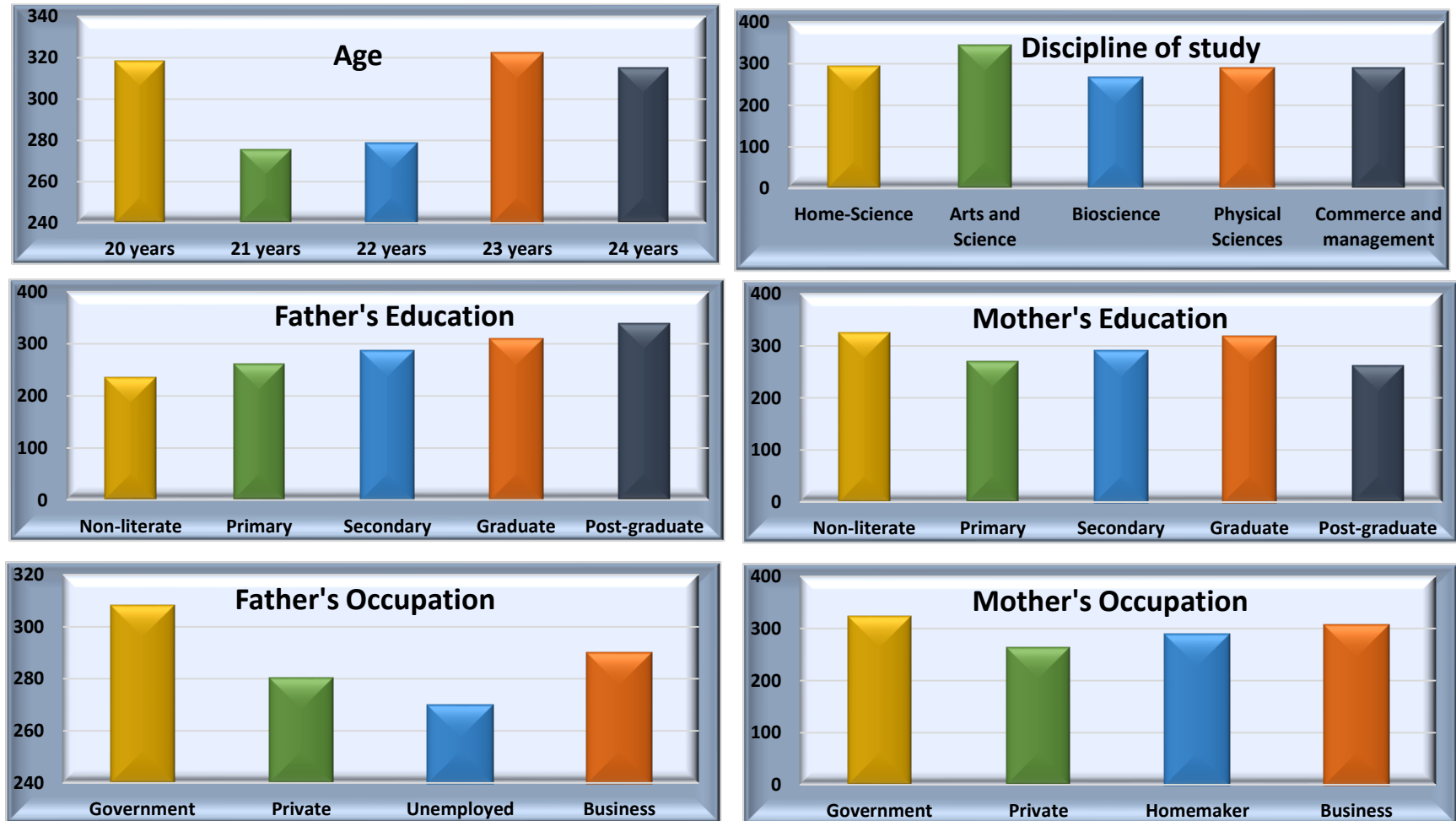


Figure - 8

Having an insight into the effect of age on respondent's MOOCs retention, the chi-square value of 7.247, p-value = .124 ($p > 0.05$) revealed that age is completely an independent factor that can determine MOOC's retention. However, looking into the mean score of the respondents for the five categories of age as shown by the figure, it was revealed that the respondent's in their 23rd year had a higher level of MOOCs retention followed by 20-year-old respondents though not statistically significant.

As already denoted as the number of programmes that the respondents had enrolled in were large, they were categorized based on their discipline of study. A part of the table, that portrays the data of the respondents mean score on MOOC retention with that of the discipline of the study had a chi-square value of 15.531 and p-value = .004 ($p < 0.05$). In other words, the discipline of study does not significantly influence the level of MOOC retention. However, looking into the mean score of the respondent from different schools as portrayed in the figure, the respondents from the Arts and Social Sciences procured a higher mean score on MOOCs retention (344.16), followed by Home Science (293.70). The respondents of Physical & Computational Sciences and Commerce & Management had more or less similar mean score (286.45 and 289.66) respectively with the least score by the respondents of BioSciences (264.01).

As depicted by the figure, the mean scores of the fathers who obtained educational qualification up to postgraduate were 338.69 which is highest when compared to other mean scores of the fathers with other educational qualification. The mean values of the fathers whose educational qualification is graduation were 308.82 followed by secondary (285.17), primary (261.00) and Non-literate with the least mean score (236.14). However, from the findings of the test results, chi-square value = 10.475, p-value = .033 ($p < 0.05$) indicates that there is a 5% of significant difference between the MOOC's retention regarding the father's education of the respondents, which means there is an increase in the respondents MOOCs retention level when the father is more educated.

Exploring the mother's education on respondent's MOOCs retention gave the chi-square value = 6.656, p-value = .155 ($p > 0.05$) which reveals that there is no significant difference between the MOOC's retention concerning the mother's

education of the respondents. However, looking into the mean scores of the respondents, the postgraduates whose mothers are non-literate had the highest mean of 325.25 and the mothers with post-graduation with the least mean score of 262.70. It reveals that the MOOCs retention level of the respondents whose mother is less educated is higher than the others.

Looking into the figure, the respondents of fathers who are working in the government sector had the highest mean score of 308.20 and those who are unemployed with least mean score of 269.54 which reveals that the MOOCs retention level of the respondents whose father is working in the government sector is slightly higher than the others. The chi-square value = 2.184, p-value = .535 ($p > 0.05$) revealed that there is no significant difference between the MOOCs retention and father's occupation of the respondents.

Similarly, like fathers, the mean score of respondents of mother's who are working in the government sector (323.92) had procured a slightly higher mean score on MOOCs retention than the others. However looking into the mean values of the respondents' mothers who are having their own business was 305.86, homemaker (287.65) and private was 263.90 respectively. The chi-square value = 3.560, p-value = .313 ($p > 0.05$) revealed that there is no significant difference between the MOOCs retention concerning the mother's occupation of the respondents.

D. MOOCS SATISFACTION AMONG THE SELECTED SAMPLE

As dependency on technology is increasing day by day, the education sector has also started utilizing e-resources to their maximum. The trend of technology from blackboard to smartboard, traditional classroom to smart class and e-learning are some of the greatest newly evolved strategic e-resources in the education system. Massive Open Online Course (MOOC) a new form of online learning has opened up new educational opportunities to the global audience where instructor deliver the learning content virtually and learner access from anywhere, anytime. Though online education is growing fast, it is not without worry as student retention is the greatest weakness (Carr, 2000; O'Brien, 2002) and which is directly linked to poor course satisfaction. Poor satisfaction is

one of the factors which influence the success of online learning. In this context, the researcher has attempted to find out the nature of MOOCs satisfaction which is presented and discussed under the following sub-heads.

- a. MOOCs satisfaction among the selected respondents
- b. Influence of class, family type and area of living on MOOCs satisfaction among the respondents
- c. Influence of age, the discipline of study, parent’s education and occupation on MOOCs satisfaction among the respondents

a. MOOCs satisfaction among the selected sample

This section of the study reveals the findings of MOOCs satisfaction level among postgraduate in table XVI.

TABLE- XVI
DISTRIBUTION OF RESPONDENTS BASED ON THEIR LEVEL OF SATISFACTION IN LEARNING MOOC’S

MOOCs satisfaction level				Descriptive statistics	
Level	Score Range	N	%	Mean	S.D
Low	10-23	24	4.18	37.447	6.568
Moderate	24-37	213	37.11		
High	38-50	337	58.71		

Level of satisfaction in learning MOOCs

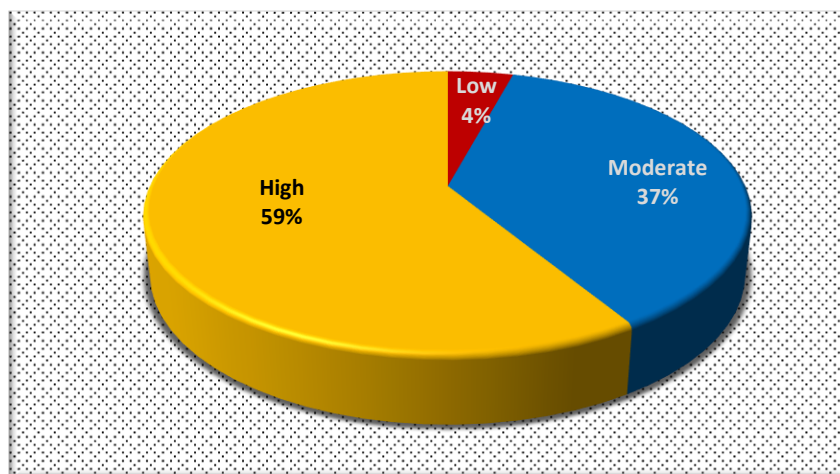


Figure - 9

MOOC satisfaction's mean score of 37.447 with S.D ± 6.568 had validated that the level of satisfaction of its learners was moderate to high on an average. More than half of the postgraduates (58.71%) reported a high level of satisfaction in learning through MOOCs. However, the figure shows that 37 per cent of the postgraduates had reported that their satisfaction in learning MOOCs was only moderate owing to several reasons. As we can see the level of satisfaction for the majority of the postgraduates in learning through MOOCs in its lowest side of satisfaction, which means that the mean score on satisfaction though appreciable, is at its danger zone of falling back to moderate level of satisfaction.

The reasons stated for their high to moderate level of satisfaction were as given i) knowledge they gained from the course ii) felt that the course was as effective as face to face course iii) were satisfied with the mode of exam and iv) The experiences make them more interested to continue to take another MOOC course in future. Subsequently, 4.18 per cent of the postgraduates who have had a low level of satisfaction in MOOCs learning did not find much reason for attaining an appreciable satisfaction.

The present finding was concurrent with the finding of a study conducted by Rabin, et al. (2020), where it was found that the participants were more satisfied than dissatisfied with the MOOC learning. Another similar result was also reported by Shubina (2016) where she investigated learner satisfaction in MOOC in Udacity, Edex and Coursera platforms and found that the overall satisfaction level is above average.

Hannan and Ebner (2013) conducted a general study regarding the satisfaction of MOOC participants and found that 65 per cent of participants reported that they were satisfied with their MOOCs.

b. Influence of class, family type and area of living on MOOCs satisfaction among the respondents

The below Table XVII portrays the descriptive statistics and analysis finding of the Mann Whitney U test which reveals the nature of the relationship of the dependent variables i.e., MOOCs satisfaction with the independent variables-class, family type and area of living.

TABLE- XVII
INFLUENCE OF CLASS, FAMILY TYPE AND AREA OF LIVING

Variable	Group	N	Mean score	Z	p-value
Class	1 st year	291	316.39	-4.241**	.000
	2 nd year	283	257.80		
Family Type	Nuclear	477	288.80	-.417 ^{ns}	.676
	Joint	97	281.11		
Area of living	Urban	296	285.90	-.239 ^{ns}	.811
	Rural	278	289.21		

**: Significant at 1% level NS: Not significant

Comparison of mean scores on MOOC's satisfaction

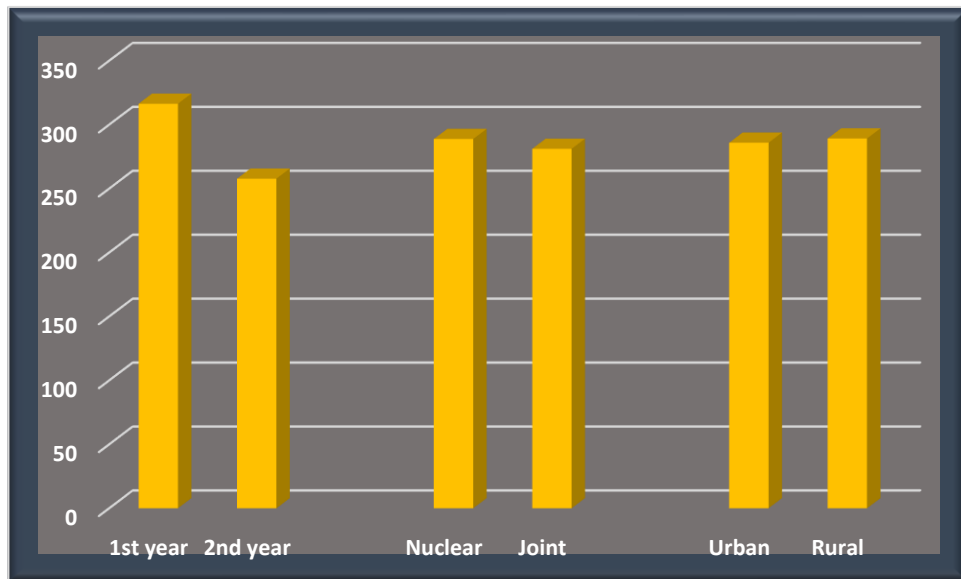


Figure – 10

In the findings of the present study, the mean scores of 1st-year students were 316.39 which was comparatively higher when compared to the 2nd years (257.80). The Mann Whitney U test results, Z value = -4.241, p-value = .000 (p<0.01) indicates that there was a 1 per cent significance between MOOCs satisfaction concerning the class of study. Mean scores of 1st year and 2nd years indicated by the figure reveals that the 1st year students are more satisfied than 2nd year students.

Having an insight into the family type i.e. nuclear and joint, the mean scores of respondents hailing from nuclear family was 288.80 and joint family was 281.11. Further the test results, Z value = $-.417$, p-value = $.676$ ($p < 0.01$) indicates that there was no significant difference between MOOCs satisfaction regarding their family type.

The Mann Whitney U test results, Z value = $-.239$, p-value = $.811$ ($p > 0.05$) indicates that there was no significant difference between MOOCs satisfaction concerning their area of living too. However, looking into the mean scores of the area of residence i.e. urban and rural, the data reveals that the mean score of urban respondents is a little less than the rural respondents (285.69 vs 289.48).

c. Influence of age, the discipline of study, parent's education and occupation on MOOCs satisfaction among postgraduates

The below Table XVIII and Figure - 10 portrays the descriptive statistics and analysis finding of the Kruskal Wallis H test which reveals the nature of the relation the dependent variables i.e., MOOCs satisfaction with independent variables- age, the discipline of study, father's education, mother's education, fathers occupation and mother's occupation.

TABLE- XVIII
INFLUENCE OF AGE, DISCIPLINE OF STUDY, PARENT'S EDUCATION
AND OCCUPATION ON MOOCS SATISFACTION AMONG THE SELECTED
POSTGRADUATES

Variable	Groups	N	Mean score	chi-square	df	p-value
Age	20	95	308.15	4.645 ^{NS}	4	.326
	21	261	279.79			
	22	167	278.77			
	23	41	309.00			
	24	10	350.35			
Programme	Home-Science	160	290.61	39.119**	4	.000
	Arts and Science	90	261.39			
	Bioscience	130	246.75			
	Physical and Computational Sciences	163	301.58			
	Commerce and management	31	444.11			
Father's Education	Non-literate	14	360.14	5.833 ^{NS}	4	.212
	Primary	131	272.20			
	Secondary	255	281.07			
	Graduate	138	305.34			
	Post-graduate	36	292.10			
Mother's Education	Non-literate	20	306.65	1.095 ^{NS}	4	.895
	Primary	166	294.02			
	Secondary	253	280.31			
	Graduate	94	292.38			
	Post-graduate	41	284.95			
Father's Occupation	Government	83	277.11	1.333 ^{NS}	3	.721
	Private	220	281.46			
	Unemployed	39	301.92			
	Business	232	294.52			
Mother's Occupation	Government	42	274.68	.536 ^{NS}	3	.911
	Private	72	292.31			
	Homemaker	442	287.19			
	Business	18	306.86			

** : Significant at 1% level NS: Not significant

Comparison of mean scores of the respondents on MOOC's satisfaction as against independent variables

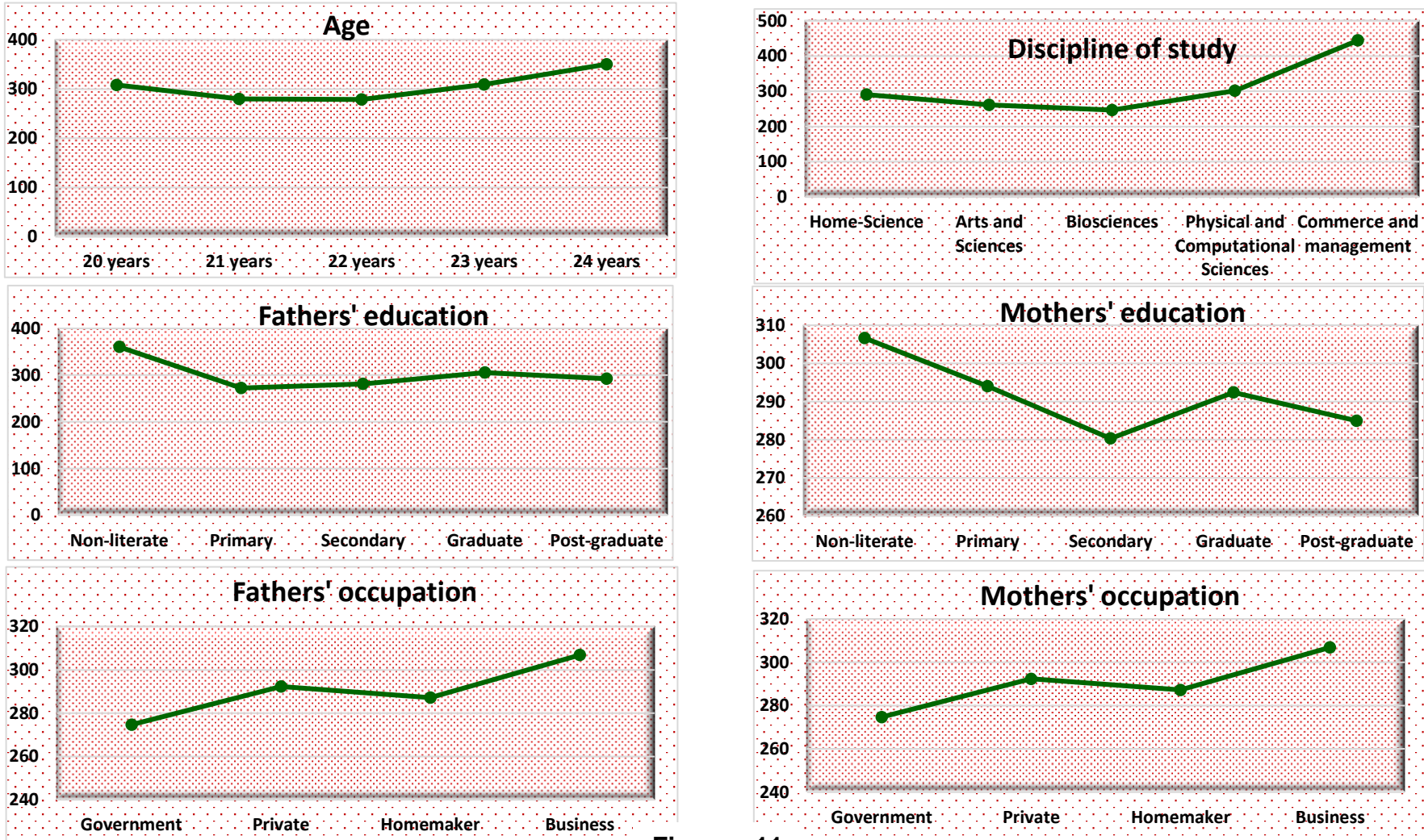


Figure - 11

Having an insight into the effect of age on respondent's MOOCs satisfaction, the chi-square value of 4.645, p-value = 0.326 ($p > 0.05$) revealed that age is completely an independent factor and cannot determine MOOC's satisfaction. However, looking into the mean score of the respondents for the 5 categories of age distribution, the figure shows that the respondent's in their 24th year had a higher level of MOOCs satisfaction followed by 23-year-old respondents though not statistically significant.

When looking into the discipline of study, the difference in mean score between the disciplines revealed that Commerce and management (444.11) procured the highest mean score followed by Physical science and computational sciences (301.58), Home Science (290.61), Arts and Science (261.39), Biosciences (246.75). The results of chi-square value = 39.119, p-value = 0.000 ($p < 0.01$) which suggest that there was a 1 per cent level of significance between MOOCs satisfaction and the discipline of study. An significant point to be noted is that MOOC retention was not at its highest among the students of Commerce and management and that had been shown in the previous section. Hence further probe is essential to sort out the contradiction.

Having an insight into father's education on MOOCs satisfaction, the mean scores of the respondents whose fathers are non-literate was 360.14 and the fathers who are educated till primary was 272.20, secondary (281.07), graduate (305.34) and postgraduate (292.10). Further, the findings of the Kruskal Wallis test, chi-square value = 5.833, df = 4, p-value = .212 ($p > 0.05$) suggested that there was no significant difference between father's education and MOOCs satisfaction.

Similarly looking into mother education on MOOCs satisfaction the chi-square value = 1.095, p-value = .895 ($p > 0.05$) suggested that there was no significant difference between mother's education and MOOCs satisfaction. The mean scores of the respondents whose mothers are non-literate were 306.65, and the least was with the respondents of mothers with post-graduation (284.95).

A closer view into the father's occupation towards the MOOCs satisfaction shows the respondents' whose fathers were unemployed procured the highest mean score (301.92) and those working in the government sector got the least

mean score of 277.11. Even though there are differences between the mean scores, the findings of chi-square value = 1.333, df = 3, p-value = .721 ($p > 0.05$) reveals that there were no significant differences between the satisfaction level among the selected respondents concerning the variation of their father's occupation.

Similarly looking into the mother's occupation towards the MOOCs satisfaction unlike father's occupation, the respondent's mothers who are having their own business got a highest mean score of 306.86. However, looking into the mean values of the mothers who are working in private was 292.31 followed by homemaker was 287.19 and government (274.68). The chi-square value = .536, p-value = .911 ($p > 0.05$) indicates that there were no significant differences between the satisfaction among the selected respondents concerning the variation of their mother's occupation.

E. LOCUS OF CONTROL OF THE RESPONDENTS

Locus of control (LOC) is a personality indicator that influences the expectations of the people about the outcomes of every day. According to a psychologist, Julian Rotter, "The locus of control is a dimension of personality; it helps to explain one's traits and behaviour". Locus of Control can be described as, "The extent to which people believe that they have power over events in their lives." Several studies proved that the locus of control is one of the constructs which significantly influences academic achievement. It is a proven fact that it could influence learning in students when the learning happens in face to face teaching. However, this study was an attempt to identify the influence locus of control on learning through MOOC. The results of this section are hammered under the following heads

- a. Appraisal of locus of control among selected postgraduates
- b. Influence of class, family type and area of living on locus of control.
- c. Influence of age, the discipline of study, parent's education and occupation on locus of control.

a. Appraisal of locus of control among selected postgraduates

Table number- XIX reveals the selected respondents' locus of control either internal or external within various levels ranging from mild to strong.

TABLE-XIX

TYPE OF LOCUS OF CONTROL AMONG POSTGRADUATES

Level	Score range	N	%	Mean	SD
Strong internal locus of control	111-125	0	0	76.0610	6.31335
Moderate internal locus of control	96-110	4	0.7		
Mild internal locus of control	75-95	354	61.7		
Neither internal nor external locus of control	61-74	205	35.7		
Mild external locus of control	46-60	11	1.9		
Moderate external locus of control	31-45	0	0		
Strong external locus of control	25-30	0	0		

Distribution of respondents based on the type of Locus of Control

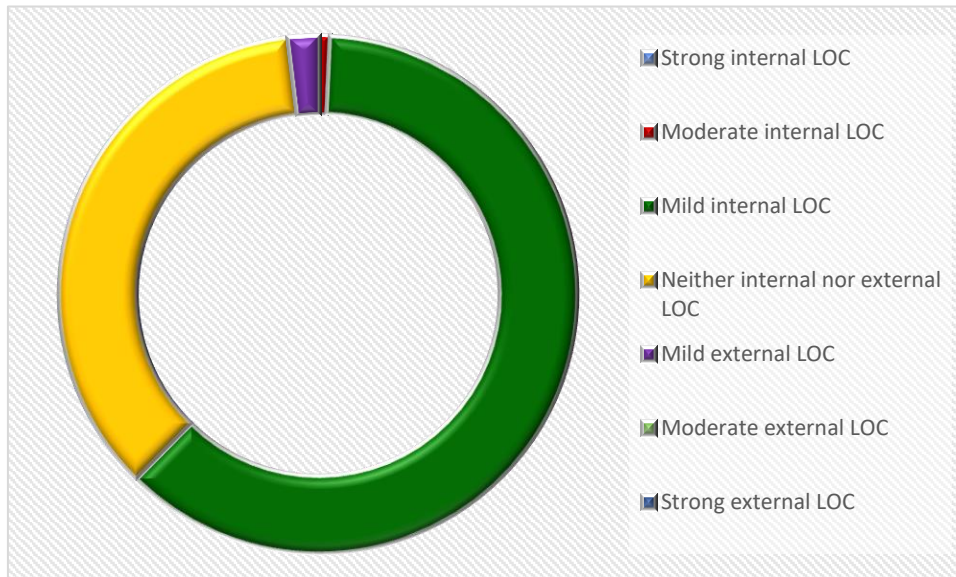


Figure – 12

In a total of 574 respondents, only 4 students representing 0.7 per cent of the sample were having a moderate internal locus of control. In other words, they

are very sure that they can control their life but they also realize that in life some situations are beyond their control. Their confidence helps them to overcome difficulties and they are also sensible enough to know when to give up.

The table also indicates that a larger group of respondents (61.7%) were having a mild internal locus of control. They are inclined to assume that they've things under control but they have severe doubts. They are conscious that there are situations when they feel overcome by events. They are optimistic but simply hurt by harsh reality.

More than 200 respondents representing 35.7 per cent of the sample were found to have neither internal nor external locus of control. They critically doubt their capability to deal with situations and suspect that a lot of their life is beyond their control. Any optimistic emotions they've are very fragile certainly, and they're uncomfortably aware that they repeatedly fail.

Only 11 respondents representing 1.9 percentage were having a mild external locus of control. They have a quite pessimistic outlook and feel that more often they are managed by occasions rather than vice versa. They would like to be more in control but possess little confidence that they could bring it off.

Among the selected respondents, as indicated by both the table and figure, none of the respondents falls under the categories of strong internal locus of control, moderate external locus of control and strong external locus of control. The mean value of the respondents on Locus of control was 76.0610 with a standard deviation of ± 6.31335 . That indicates that the majority of the chosen postgraduates possess a mild internal locus of control.

The present findings were supported by Samayalangki (2018) who found that the majority (67.25 %) of the college-going students have had an average level of Internal Locus of Control, which enlightens the fact that the majority of the students believe that their success or failure depends on their oneself, integrity, alienation and ego control.

However, one other study by Hosseini et al. (2016) found that only 29.8 per cent of participants were found to have an internal locus of control. Hence further studies to verify the factual figures are recommended.

b. Influence of class, family type and area of living on locus of control among postgraduates

Table number- XX reveals the effect of selected respondents class, family type and area of living on locus of control.

TABLE- XX
INFLUENCE OF CLASS, FAMILY TYPE AND AREA OF LIVING ON LOCUS OF CONTROL AMONG POSTGRADUATES

Variable	Group	N	Mean score	Z	p-value
Class	1 st year	291	291.51	-.589 ^{NS}	.556
	2 nd year	283	283.37		
Family Type	Nuclear	477	284.04	-1.109 ^{NS}	.267
	Joint	97	304.49		
Area of living	Urban	296	292.01	-.674 ^{NS}	.501
	Rural	278	282.70		

NS: Not significant

Comparison of mean scores of LOC based on the independent variables

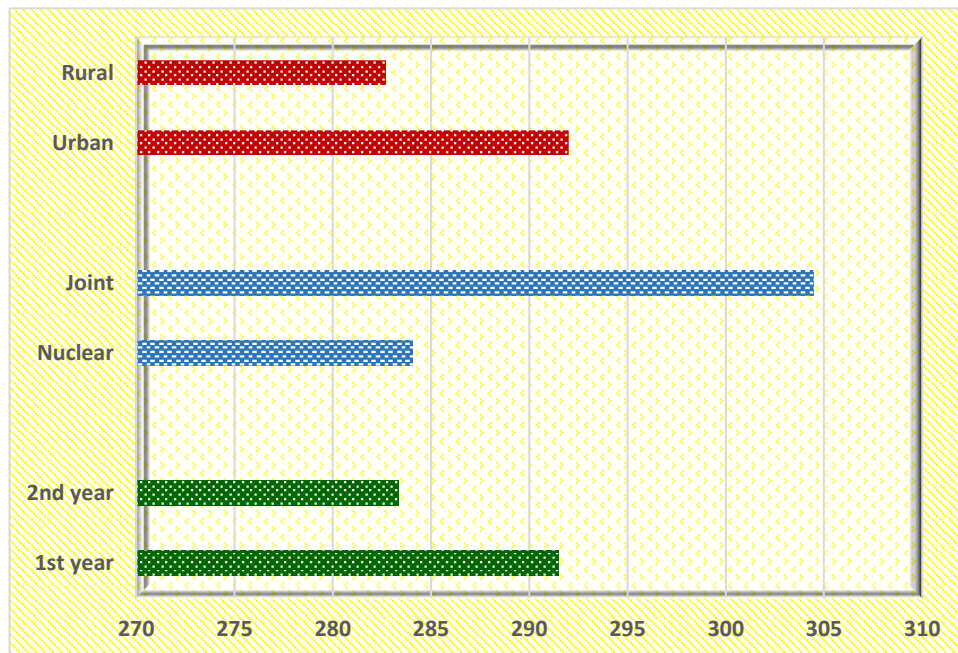


Figure - 13

Glancing into the above table on the psychological indicator i.e., Locus of control concerning their class, the differences in mean scores between the two group of respondents showed that the mean scores of 1st years were 291.51 and 2nd year was 283.37. Further, the Mann Whitney U test results, Z value = -.589, p-value = .556 ($p>0.05$) indicates that there is no significant difference in the respondents' locus of control concerning their class of study. It could be derived from the figure that the 1st year's locus of control is slightly higher and hence internal when compared to their counterparts.

The Mann Whitney U test results of the respondent's LOC concerning their family type gave Z value = -1.019, p-value = .267 ($p>0.05$). The mean scores of the joint family respondents were 304.49 and nuclear family respondents were 284.04. It may be interpreted that the respondents from joint family are more internally aligned with their locus of control concerning the students hailing from joint family but the differences between the mean scores are not statistically significant.

Looking into the respondent's LOC concerning their area of living indicates that the area of living does not have any significant influence on the respondents' locus of control. The difference in mean scores between urban and rural respondents was at its minimum and hence the Mann Whitney U test results, Z value = -.674, p-value = .501 ($p>0.05$) shows no significant association.

c. Influence of age, the discipline of study, parent's education and occupation on locus of control

To analyze the influence of age, discipline of study, parent's education and occupation on locus of control, the Kruskal Wallis H test was employed to compare the mean scores of respondent's LOC regarding the above stated independent variables and results are given in the below Table XXI.

TABLE-XXI

INFLUENCE OF AGE, DISCIPLINE OF STUDY, PARENT'S EDUCATION AND OCCUPATION ON LOC AMONG THE SELECTED POSTGRADUATES

S.no	Variable	Groups	N	Mean score	chi-square	df	p-value
1	Age	20	95	268.89	6.372 ^{NS}	4	.173
		21	261	301.32			
		22	167	284.28			
		23	41	247.82			
		24	10	336.80			
2	Programme	Home-Science	160	283.00	11.823*	4	.019
		Arts and Science	90	331.09			
		Bioscience	130	300.46			
		Physical and Computational Sciences	163	260.15			
		Commerce and Management	31	273.63			
3	Father's Education	Non-literate	14	290.50	4.093 ^{NS}	4	.394
		Primary	131	269.81			
		Secondary	255	287.60			
		Graduate	138	292.51			
		Post-graduate	36	330.82			
4	Mother's Education	Non-literate	20	240.72	3.959 ^{NS}	4	.412
		Primary	166	278.52			
		Secondary	253	287.50			
		Graduate	94	300.48			
		Post-graduate	41	316.91			
5	Father's Occupation	Government	83	252.64	9.156*	3	.027
		Private	220	276.50			
		Unemployed	39	327.67			
		Business	232	303.65			
6	Mother's Occupation	Government	42	302.37	0.624 ^{NS}	3	.891
		Private	72	279.62			
		Homemaker	442	286.83			
		Business	18	300.72			

*: Significant at 5% level NS: Not significant

Comparison of mean scores of the respondents on LOC based on independent variables

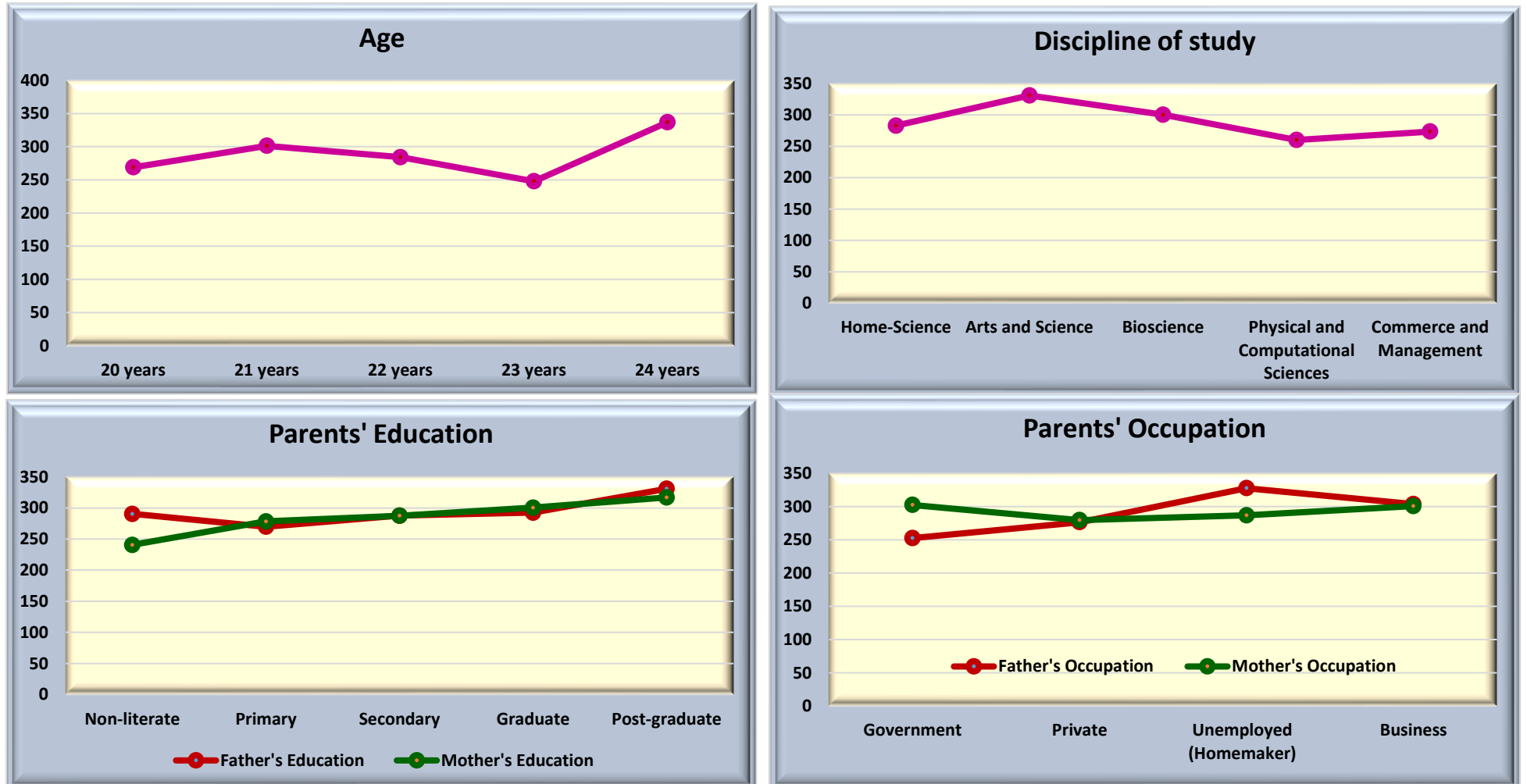


Figure - 14

The above table depicts the effect of the socio-demographic variables i.e., age, the discipline of study, father's education, mother's education, father's occupation and mother's occupation on the respondents' Locus of control. Regarding age, the respondents in their 24th year has a good locus of control with a mean score of 336.80 followed by the respondents aged 21 years (301.32). They were followed by 22-year-old respondents (284.28) and then 20-year-olds (268.89). The least score was procured by 23-year-old students (247.82) and hence they are said to be not in full control over the outcomes of events that happen in their life. However, the chi-square value = 6.372, p-value = .173 ($p > 0.05$) indicates that age is an independent factor of locus of control. The mean scores as expressed in the figure indicates that the older the age, the good control over the situations in life.

Among the five discipline of study that the respondents were enrolled in, the respondents of Arts and Sciences (331.09) procured the highest mean score, closely followed by BioScience (300.46) and Home Science (283.00). The least scorers were the respondents from and Physical and Computational Sciences (260.15). The chi-square value = 11.823, p-value = .019 ($p < 0.05$) revealed that there is a 5 per cent significant association between the Locus of control and the discipline of the study of the respondents.

The chi-square value = 4.093, p-value = .394 ($p > 0.05$) and the chi-square value = 3.959 and p-value = .412 ($p > 0.05$) relevant to fathers educational status and mothers educational status respectively revealed that revealed that the parents' educational status does not significantly determine the respondents' locus of control. However, the mean scores of the respondents vary. The figure portrays that the higher the education of parents more internal the respondent are. The higher educational status of parents and hence better occupational status and income would have given the confidence to the children in believing that they hold the key to their fate and are most likely to take action to change the situation when needed.

The data about the father's occupation on the respondent's Locus of control resulted in chi-square value = 9.156, p-value = .027 ($p < 0.05$) and stated five per cent

significance difference. Hence father's occupation could influence the respondents LOC. Further analysis of the mean scores states that the respondents of unemployed fathers are more internal in their locus of control followed by respondents of fathers involved in the business. The least score was procured by the respondents whose fathers were in government jobs. The contradiction between the higher educational status of fathers and unemployed fathers having children with an internal locus of control has to be further probed for reasons.

Unlike fathers occupational status the respondents of mothers who are working in the government sector (302.37) secured a higher mean score followed by business (300.72). However, the chi-square value = 0.624, p-value = .891 ($p > 0.05$) revealed that there is no significant association between the Locus of control of respondents and the mother's occupation.

F. INFLUENCE OF LOCUS OF CONTROL AND MOOCS FACTORS ON MOOCS RETENTION AND SATISFACTION AMONG POSTGRADUATES

Several psychological factors play a very significant role in predicting the level of satisfaction and completing the enrolled online programs. Many researchers have proven the fact that locus of control strongly influences the learning and academic achievement of students in offline and traditional face-to-face education mode with the assumption, that it could hold the same influences in the online mode of education. The present study was conceived to explore how locus of control and MOOCs factors influence MOOCs retention and MOOCs satisfaction of the selected respondents. Hence linear regression and multiple regression analysis were conducted to examine the psychological factor (Locus of control) and MOOCs factors (10 factors) with MOOCs retention and satisfaction. The results yielded from the analysis were reported and discussed subsequently under the following heads:

- a. Influence of locus of control on MOOCs retention and MOOCs satisfaction
- b. Influence of MOOCs factors on MOOCs retention and MOOCs satisfaction

a. Influence of Locus of control on MOOCs retention and satisfaction

Linear regression was carried out to reveal the nature of the relation of the dependent variable – MOOCs retention and MOOCs satisfaction - with that of the independent variable – Locus of control – and the Table presents the computation on the same.

TABLE - XXII
INFLUENCE OF LOCUS OF CONTROL ON MOOC’S RETENTION AND SATISFACTION

Variables	Unstandardized coefficient		Standardized Coefficient	T	p value	R	R Square	F	Sig
	B	Std. Error	Beta						
MOOC’s Retention									
(Constant)	34.287	3.778							
Locus of control	.049	.050	.041	.981 ^{ns}	.327	.041	.002	.962 ^{ns}	.327
MOOC’s Satisfaction									
(Constant)	33.677	3.317							
Locus of control	.050	.043	.048	1.141 ^{ns}	.254	.048	.002	1.302 ^{ns}	.254

Dependent variable – MOOCs Retention and MOOC satisfaction; Independent variable – LOC; ns – Not significant

After the data was checked for certain assumptions, linear regression was used to understand whether the MOOCs retention and MOOCs satisfaction could be predicted by the psychological indicator of learning, the Locus of control.

The linear regression of Locus of control on MOOC’s Retention gave $R^2 = .002$, $F = .962$, and $p > 0.05$. The R^2 value revealed that 0.2 per cent of the variance that exists in MOOC’s retention scores of the postgraduates is explained by Locus of control, but not significant. The t value and p-value of locus of control ($t = .981$, $p > 0.05$) also indicate that the locus of control does not influence the MOOC's retention.

Similarly, the table shows that the analysis of variance of regression data produced an ‘F’ value (1.302) that is not significant and hence locus of control do not influence the MOOCs satisfaction. The R^2 value revealed that 0.2 per cent of the variance that exists in MOOCs satisfaction scores of the postgraduates is explained

by Locus of control. Similarly, like retention, the t value and p-value of locus of control ($t= 1.141$ $p >0.05$) indicated that the psychological construct locus of control is not a significant predictor of the MOOC's satisfaction. Though the psychological indicator-the locus of control do influence academic achievement in offline learning, its influence on online learning is not affected as per the current study. An in-depth analysis is needed to ascertain the reason.

Nejati et al. (2012) found that locus of control is significantly related to the academic performance of graduate students. Moreover, the study of Gifford, Briceno-Perriott and Mianzo (2006) observed that the students with an external locus of control acquired fewer grades than the students with a high internal locus of control. Wang and Newlin (2000) found a significant difference between online learners (those who enrolled for web-based classes in Psychology) and conventional learners (those who enrolled for face-to-face classes). Online learners exhibited a greater external locus of control than their counterparts in conventional courses. Though few studies that could determine the characteristics of online learners are done, more studies are needed on the same arena and the finding of the present would contribute to the literature in stating that the Locus of control does not influence MOOCs retention in the SWAYAM platform.

b. Influence of MOOCs factors on MOOCs retention and MOOCs satisfaction

To determine the strength of the relationship between MOOC factors and MOOC retention and again between MOOC factors and MOOC satisfaction, multiple regression analysis was carried out and the findings pertinent to it is discussed under the following two heads.

- i. MOOC factors and MOOC retention
- ii. MOOC factors and MOOC satisfaction

i. MOOC factors and MOOC retention

To ascertain the impact of the independent variables the MOOC's factors (specific to the identified 10 factors) on the dependent variable (MOOC's retention), the stepwise multiple regression was performed and is shown in table number XXI.

TABLE- XXIII
INFLUENCE OF MOOC FACTORS ON MOOC'S RETENTION

Variables	Unstandardized coefficient		Standardized Coefficient	T	p value	R	R Square	F	Sig
	B	Std. Error	Beta						
MOOC's Retention									
(Constant)	27.284	2.218							
Course content	.338	.156	.141	2.166*	.031	.237	.056	3.355	.000
Course structure	.001	.100	.001	.007 ^{NS}	.995				
Information delivery & technology	-.056	.152	-.029	-.366 ^{NS}	7.15				
Instructor	-.034	.142	-.019	-.243 ^{NS}	.808				
Activities and exercise	-.020	.130	-.011	-.156 ^{NS}	.876				
Instructor support	.224	.130	.119	1.722 ^{NS}	.086				
Instructor feedback	-.083	.172	-.039	-.484 ^{NS}	.629				
Instructor to learner interaction	-.132	.112	-.071	-1.179 ^{NS}	.239				
Learner to learner interaction	.262	.130	.130	2.017*	.044				
Internet connectivity	.086	.116	.040	.746 ^{NS}	.456				

*-significant at 5% level NS: Not significant

A thorough glance at the table makes it clear that the MOOC's factors put together yielded a correlation coefficient (R) of 0.237 with R^2 being 0.056 and the analysis of variance of regression data produced an F value of 3.355 and $P = .000$. Hence it is confirmed that there lies a strong relationship between the predictor variables (10 MOOC factors put together) and the outcome variable (MOOC retention). Moreover, the R^2 value revealed that there was a 5.6 per cent variance in the retention score of the postgraduates and was explained by the selected MOOC factors.

Further looking into each predictor, it is evident that only the course content ($t = 2.166$, $p < .05$) and the learner to learner interaction ($t = 2.017$, $p < .05$) contribute significantly towards MOOC retention. The beta value in the table indicates the impact of the independent variables (MOOC factors) on the dependent variable (MOOC retention). The variable with the highest beta value is considered the most dominant predicting value. The beta value of course content came out to be 0.141 and learner to learner interaction as .130 which helps to infer that the course content is the most predominant predicting factor when compared to the whole list of MOOC's factors.

Hone and El Said (2016) explored factors that which affects the MOOC retention. Their study focused on the MOOC factors namely experiences with other learners, student experiences with the course instructor, and experiences with the design features of the course. They found that especially instructor interaction and course content are significant factors for students. If the students are not satisfied with these factors it may become barriers to their learning and ultimately retention. The present finding is partly in concurrence with the above-stated study in showing that course content being a predominant predicting factor.

ii. MOOC factors and MOOC satisfaction

Table XXIV ascertains the impact of independent variables (10 MOOC factors) on the dependent variable (MOOC satisfaction) using stepwise multiple regression.

TABLE-XXIV
INFLUENCE OF MOOC FACTOR ON MOOC'S SATISFACTION

Variables	Unstandardized coefficient		Standardized Coefficient	T	p value	R	R Square	F	Sig
	B	Std. Error	Beta						
MOOC's satisfaction									
(Constant)	12.579	1.652							
Course content	.461	.116	.220	3.969**	.000	.566	.321	26.606	.000
Course structure	.277	.075	.239	3.714**	.000				
Information delivery & technology	-.047	.113	-.028	-.416 ^{NS}	.678				
Instructor	-.196	.106	-.120	-1.852 ^{NS}	.065				
Activities and exercise.	.165	.097	.106	1.709 ^{NS}	.088				
Instructor support	.248	.097	.150	2.561*	.011				
Instructor feedback	.222	.128	.117	1.727 ^{NS}	.085				
Instructor to learner interaction	-.067	.083	-.041	-.801 ^{NS}	.424				
Learner to learner interaction	-.073	.097	-.041	-.750 ^{NS}	.453				
Internet connectivity	.087	.086	.047	1.015 ^{NS}	.310				

*-significant at 5% level NS: Not significant

The table authenticates that all the 10 MOOC factors put together were significant predictors of the dependent variable (MOOC satisfaction). The independent variables yielding a correlation coefficient (R) of 0.566 and R^2 at 0.321, analysis of variance of regression F at 26.606 and $P < .01$ shows that there lies a strong relationship between predictor variables (MOOC factors) and the outcome variable (MOOC satisfaction). The R^2 value of 0.321 indicates the variation in MOOC satisfaction being explained jointly by MOOC factors as an aggregate.

As we can see from the coefficients, it is evident that three of the MOOC factors contribute significantly to MOOC satisfaction. Course Content with $t = 3.969$ $p < 0.01$, course structure with $t = 3.714$ and $p < 0.01$, Instructor support with $t = 2.561$ and $p < 0.05$ were the most contributing predictors to the MOOC satisfaction among the selected postgraduates. As the variable with the highest Beta value is considered as the most dominant predicting factor, the table infers that the course structure (.239) is the most dominant predicting factor followed by course content (.220).

Peltier, Drago and Schibrowsky (2007) choose to investigate the role of six specific dimensions, drawn from the literature that is perceived to contribute to the efficiency of online education. These dimensions were (1) instructor support and mentoring, (2) course content, (3) course structure, (4) student-to-student interaction, (5) information technology and (6) instructor-student. Their analysis revealed that course content, instructor support and mentoring played a substantial role and can be regarded as the most important barriers or success factors if positively experienced - to students' learning experiences. The present study also confirms the above-stated finding.

After analysing the impact of MOOC factors on MOOC retention and MOOC satisfaction, one common thing to be noticed is that though all the 10 factors aggregately predict the outcome variables, the course content was found to be one major predictor in predicting both MOOC retention and satisfaction. Pertinent to the present study, the dependent variables (MOOC retention and MOOC satisfaction) has to be clearly understood from a different perspective. MOOC retention is a measure of whether a learner retains in the course and

completes it, whereas MOOC satisfaction is a measure indicating their satisfaction in learning or having learnt the course. The retention might be affected by the compulsion to complete the registered course to earn a degree. But satisfaction is a measure of contentment.

G. RELATIONSHIP BETWEEN DEPENDENT (MOOC'S RETENTION AND MOOC'S SATISFACTION), AND INDEPENDENT (MOOC FACTORS AND LOCUS OF CONTROL) VARIABLES

The previous section dealt with the strength of the relationship between the predictor variables (MOOC factors and Locus of Control) and the outcome variables (MOOC retention and MOOC satisfaction). However, the nature of the relationship was also examined within and between the dependent and independent variables.

Several psychological factors play a very significant role in predicting the level of satisfaction and completing the enrolled online courses. It was with the assumption that Locus of Control (LOC) might be one such personality indicator influencing the pace of MOOC learning since it influences the expectations of the people about the outcomes of every day. The Karl Pearson- correlation analysis was employed to find out the inter-relationship between MOOC's retention, satisfaction, MOOC's factors, and locus of control are discussed below.

TABLE- XXV

CORRELATION BETWEEN MOOC'S RETENTION, SATISFACTION, LOCUS OF CONTROL AND MOOC FACTORS

Variables	MOOC's retention			MOOC satisfaction	Locus of control	MOOC factors									
	involvement	Discussion forum	Overall Retention			F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
involvement		.380**	.817**	.253**	.011 ^{NS}	.220**	.198**	.183**	.159**	.188**	.180**	.156**	.116*	.152**	.182**
		.000	.000	.000	.799	.000	.000	.000	.000	.000	.000	.000	.005	.000	.000
Discussion forum			.823**	.139**	.046 ^{NS}	.111*	.082*	.093*	.129*	.091*	.135**	.118*	.074 ^{NS}	.180**	.077 ^{NS}
			.000	.001	.274	.008	.050	.026	.002	.026	.001	.005	.077	.000	.066
Overall Retention				.227**	.041 ^{NS}	.193**	.160**	.161**	.162**	.163**	.182**	.160**	.108**	.191**	.143**
				.000	.327	.000	.000	.000	.000	.000	.000	.000	.010	.000	.001
MOOC Satisfaction					.048 ^{NS}	.494**	.501**	.448**	.418**	.479**	.420**	.448**	.303**	.351**	.337**
					.254	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Locus of control						.009 ^{NS}	.016 ^{NS}	.003 ^{NS}	-.016 ^{NS}	-.013 ^{NS}	-.010 ^{NS}	-.053 ^{NS}	-.011 ^{NS}	.001 ^{NS}	.032 ^{NS}
						.829	.699	.944	.701	.761	.809	.209	.786	.979	.450

** - significant at 1% level, * - significant at 5% level, NS: Not significant

F1 = Course Content, F2= Course structure, F3= Information delivery & technology, F4= Instructor, F5= Activities and exercise, F6= Instructor support, F7= Instructor feedback, F8= Instructor to learner interaction, F9= Learner to learner interaction, F10= Internet connectivity

The first part of the table shows that the first dimension of Mooc's retention i.e. involvement is significantly correlated with the discussion forum ($r = .380$), overall retention ($r = .817$) as well as MOOC satisfaction ($r = .253$). Similarly, the second dimension of MOOC retention i.e. Discussion forum also is significantly correlated with overall retention ($r = .823$) and MOOC satisfaction ($r = .139$). The coefficient of correlation between the overall MOOC's retention and MOOC's satisfaction ($r = .227$, $p = .000$) was also significantly associated. The positive correlation value of all these variables confirms the assumption that the higher the level of retention higher the level of satisfaction in learning MOOCs among the postgraduates.

From the results, the Locus of control correlated with MOOC's retention gave $r = .041$ and MOOC's satisfaction gave $r = .048$. Correlating the two dimensions of MOOC retention separately and together with that of the locus of control, vividly portrays that the locus of control does not correlate statistically with that of the dependent variables - MOOC retention and MOOC satisfaction. Though the studies stated that the locus of control influences academic achievement when it comes to learning through MOOC's it does not correlate.

When we look in to the MOOC factors among all the ten MOOC factors, i.e., course content ($r = .193$, $p = .000$), course structure ($r = .160$, $p = .000$), information delivery and technology ($r = .161$, $p = .000$), Instructor ($r = .162$, $p = .000$), activities and exercise ($r = .163$, $p = .000$), instructor support ($r = .182$, $p = .000$), instructor feedback ($r = .160$, $p = .000$), instructor to learner interaction ($r = .108$, $p = .010$) learner to learner interaction ($r = .191$, $p = .000$), internet connectivity ($r = .143$, $p = .001$) were found associate significantly at one per cent level with MOOCs retention.

Similarly, all the ten MOOC factors i.e., course content ($r = .494$, $p = .000$), course structure ($r = .501$, $p = .000$), information delivery and technology ($r = .448$, $p = .000$), Instructor ($r = .418$, $p = .000$), activities and exercise ($r = .479$, $p = .000$), instructor support ($r = .420$, $p = .000$), instructor feedback ($r = .448$, $p = .000$), instructor to learner interaction ($r = .303$, $p = .010$), learner to learner interaction ($r = .351$, $p = .000$), internet connectivity ($r = .337$, $p = .001$) were found to be positively and significantly correlated with MOOCs satisfaction. It can be assumed that all the ten factors have a significant effect on MOOCs retention as well as satisfaction. As already indicated, the factor locus of control was found to be thoroughly researched with academic performance and achievement offline, its influence online is just a new

attempt. However, one trait called self-efficacy which is close to the locus of control in some of its attributes was renewed for its effect on retention in research.

Hauri (1991) tried to find out the psychological and motivational factors which predicted successful academic performance and found out that internal locus of control is a strong predictor of successful academic performance. Hosseini et al. (2016) conducted a cross-sectional study on "Locus of Control or Self-esteem; which one is the Best Predictor of Academic Achievement in Iranian College Students". They concluded that there was a significant correlation between self-esteem, locus of control and academic achievement of the students.

The table of correlation also indicates that a few MOOC factors namely Instructor, Activities and exercises, Instructor support, instructor feedback and instructor to learner interaction have got a negative correlation value, though not significant. The negative value states that the more internal the respondent is, the MOOC factor exerting an influence over MOOC learning is at its minimum.

To conclude, though the MOOC's retention level was high with only among 16 per cent of the participants, the satisfaction level was at its maximum among 58.71 per cent of them. Whilst, the demographic variables i.e., class, area of living, the discipline of the study and fathers education significantly influences the retention level and only class and the discipline of the study influences MOOC's satisfaction significantly. While categorizing the respondents based on the type of LOC that they possess. It was found that more than half of the respondents have had a mild internal locus of control. The demographic variables like the discipline of the study and father's occupation influence the locus of control. Moreover, LOC was found to be an independent factor of MOOC retention and satisfaction. Though the locus of control was found to be an independent factor of MOOC learning, further studies can be conducted to find out other psychological constructs that influence MOOC's retention and satisfaction.

V. SUMMARY AND CONCLUSION

Massive Open Online Courses popularly known as MOOC's have experienced rapid development and achieved significant attention from learners, educators and practitioners. Although MOOCs have been widely accepted, they have been affected by the high drop-out rate. Locus of control is a personality indicator that influences the expectations of the people concerning outcomes of every day. Many studies had proved that the locus of control is significantly influencing academic achievement. The present study was designed to investigate the influence of Locus of control - either internal or external and MOOC's factors on MOOC's Retention level and Satisfaction level of the individual over the MOOCs that they had enrolled. Therefore, the current study on "Inter-relationship between Locus of control, MOOC's retention and MOOC's satisfaction among postgraduates" was conducted. By thorough analysis of literature, the proposed study carried out to assess the following objectives.

- To study the influence of MOOC factors on the selected MOOC course by the respondents
- To assess the MOOCs retention level among the selected respondents
- To assess the influence of the selected demographic variables on MOOCs retention of the respondents
- To analyze the MOOCs satisfaction level among the selected respondents
- To analyze the influence of the selected demographic variables on MOOCs satisfaction of the respondents
- To explore the level of Locus of Control of the respondents
- To explore the influence of the selected demographic variables on the Locus of Control of the respondents
- To explore the influence of locus of control and MOOC's factors on MOOC's retention and satisfaction among postgraduates

For the present study, 574 postgraduate students from Avinashilingam Institute for Home Science and Higher Education for Women situated in Coimbatore district, Tamil Nadu state were selected through the purposive sampling method. A set of 6 tools were used to secure adequate information required for the study namely the General background questionnaire, General information on MOOC's, MOOC factors scale, MOOC's Retention scale, MOOC's Satisfaction scale and Locus of control scale. The primary analysis of the collected data provided the results of learners Locus

of control, MOOC's retention and MOOC's satisfaction. For the main analysis, Class intervals, frequency and percentage analysis, normality test, Mann Whitney U-test, Kruskal Wallis, Pearson correlation and regression analysis were used to test the relationship between the selected variables.

The key findings of the present study were:

Key findings of the study

A. General profile of the selected adolescents

- ❖ Age-wise distribution - the highest percentage of 45.5 per cent belonged to 21 years of age
- ❖ Among the total respondents, half of the respondents (50.7%) were in their 1st year and the remaining half (49.3%) in the 2nd year of their postgraduate programme.
- ❖ Based on the course selected by the respondents 28.4 per cent are from Physical and Computational Sciences, 27.9 per cent from School of Home-Science, 22.6 are from School of Bioscience and 15.7 are from School of Arts and Social Sciences and only 5.4 per cent are from the School of Commerce and Management.
- ❖ The majority of adolescents were Hindu (88.3%).
- ❖ The majority of the respondents (83.1%) were from nuclear family and the remaining were from joint family.
- ❖ 51.6 per cent of respondents are from the urban area and the remaining are from rural areas.
- ❖ Fathers of respondents were found to have better educational status than their mothers comparatively.
- ❖ The majority of fathers (40.4%) were having their own business and a majority of mothers (77%) were homemakers

B. Effect of MOOC factors on the MOOC course enrolled by the respondents

- ❖ Ten course-related and technical factors were used to measure the satisfaction of the respondents. The mean and SD value of all the then factors namely, course content (19.770 and S.D \pm 3.130), course structure (35.484 and S.D \pm 5.658), information delivery and technology (23.331 and S.D \pm 3.907), instructor (23.822 and \pm 4.045), activities and exercise (23.405 and S.D \pm

4.223), instructor support (18.449 and \pm 3.978), instructor feedback (19.137 and \pm 3.475), instructor to learner interaction (mean \pm 3.996), learner to learner interaction (18.693 and \pm 3.704) and internet connectivity (17.754 and \pm 3.506) explains that the respondents were very much satisfied with all the factors of the selected MOOC course.

C. MOOCs' RETENTION LEVEL AMONG THE RESPONDENTS

- ❖ The majority number respondents are having a moderate level of MOOC's retention (73.5%) and 16.02 per cent are having a high level and only 10.63 per cent are having a low level of retention.
- ❖ The 1st year postgraduates are having a better retention level than the 2nd years and the z- value -2.389 reveals that there is a 5 per cent significant difference between the respondents class and their MOOC's retention level.
- ❖ Z value -.768 reveals that there is no significant difference observed between the nuclear and joint family of the respondents regarding their retention level.
- ❖ Respondents' area of living has a 5 per cent significance difference on the retention level with a z value of -1.967.
- ❖ Among all the selected socio-demographic variables, the discipline of study, father's education have a 5 per cent significant difference and the other variables i.e, age, mother's education, father's occupation and mother's occupation doesn't have any influence on the retention level.

D. MOOC's satisfaction among the selected sample

- ❖ Even though most of the respondents' retention is at a moderate level but more than half of the respondents i.e., 58.71 per cent satisfaction is at a high level and only 4.18 per cent found to have a low level.
- ❖ With the Z value of -4.241 and chi-square value of 39.119, the demographic variables namely class and programme are found to have a significant influence on respondent's satisfaction at 1 per cent level and family type, area of living, age, father's education, mother's education, father's occupation and mother's occupation doesn't found to have any significant influence.

E. Locus of control of the respondents

- ❖ Respondent's locus of control was categorized into 7 levels starting from strong internal locus of control to strong external locus of control. The mean value 76.0610 and SD \pm 6.31335 of the respondents indicates more than half of the

respondents were found to have a mild internal locus of control, 35.7 per cent found to have neither internal nor external locus of control, 1.9 per cent found to have a mild external locus of control and least 0.7 per cent found to have a moderate internal locus of control. No one found to fall in the levels of strong internal, moderate external and strong external locus of control.

- ❖ Looking into the socio-demographic variables namely programme and father's occupation found to have 5 per cent significance level with the locus of control with the chi-square value of 11.823 and 9.156 and class, family type, area of living, age, father's education, mother's education and mother's occupation doesn't have any influence on respondents locus of control.

F. Influence of locus of control and MOOC's factors on MOOC's retention and satisfaction among postgraduates

- ❖ Regression analysis revealed that the psychological indicator locus of control doesn't found to have any significant influence on the respondent's MOOC's retention as well as MOOC's satisfaction.
- ❖ The multiple regression analysis gave the R 0.234, R² 0.056 and F value 3.355. Among all the ten factors with the t value 2.166 and 2.017 the factors namely, the course content and learner to learner interaction were found to be strong predictors of MOOC's retention at 5 per cent level and with the beta value of 0.141, the course content became the most predominant factor of retention.
- ❖ When looking into MOOC's satisfaction multiple regression analysis gave R 0.566, R² 0.321 and F at 26.606. Course Content with t = 3.969 p < 0.01, course structure with t = 3.714 and p < 0.01, Instructor support with t = 2.561 and p < 0.05 were the most contributing predictors to the MOOC satisfaction and with the beta value of .239 course structure became the most predominant predictor of MOOC's satisfaction.

G. Relationship between MOOC's retention and MOOC's satisfaction with MOOC factors and locus of control

- ❖ The first dimension of the MOOC's retention i.e., involvement is significantly correlated with the discussion forum (r= .380), overall retention (r= .817) as well as MOOC satisfaction (r= .253). and the second-dimension discussion forum also is significantly correlated with overall retention (r= .823) and MOOC satisfaction (r= .139). The overall MOOC's retention and MOOC's satisfaction (r= .227, p=.000) was also significantly correlated.

- ❖ Correlating the two dimensions of MOOC retention separately and together with that of the locus of control shows that the locus of control does not correlate statistically with MOOC retention as well as MOOC satisfaction. Even though insignificant locus of control correlated with MOOC's retention gave $r = .041$ and MOOC's satisfaction gave $r = .048$.
- ❖ All the ten MOOC factors have a significant influence on MOOC's retention as well as with MOOC's satisfaction.

Limitations of the study

Though the current study had much strength, the study also has various limitations which few significant were listed below.

- Due to the limitation in the sample size, the findings of the current study would not be able to generalize to the population.
- The respondents selected from the Coimbatore district and only one institute.
- Only female participants were selected
- All the age groups are not included in the study

Recommendations for further study

- The current study focussed on only one psychological indicator- Locus of control. Future studies can focus on other indicators which promote learning
- The study is only the users of the SWAYAM platform. In the future, other studies can focus on other MOOC's platforms.
- Intervention programmes can be conducted for those who are having less MOOC's retention, MOOC's satisfaction and locus of control towards the external level.
- Further studies can include the other socio-demographic variables.

Conclusion:

For those people who wants to be a lifelong learner, the MOOC's will allow learning without limitations. Due to its low barriers to entry, it helps the people who do not have time for face-to-face learning, can't afford the traditional teaching, those who want to add an extra skill to their curriculum etc... Providing a hugely diverse place for ideas is one of the MOOC's important contribution. This platform gives opportunities for the learners to share their knowledge with a wider audience instead of listening only. Through this study, we understand that the MOOC factors highly influence the learner's retention and satisfaction level. When the instructors consider the online

learning factors automatically the learning will be improved. In this study even though the respondent's satisfaction level is high but the retention level is moderate only. Several studies proved the effective role of locus of control in learning. However, the current study observes that the personality indicator locus of control does not influence the MOOC's retention and satisfaction.

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Annexure- I
List of the MOOC courses selected by the respondents

S.no.	Courses	N= 574	%
1	Academic writing	11	1.89
2	Advanced constitutional law	6	1.03
3	Analogical technique	4	0.68
4	Basic advertisement	1	0.18
5	Biomolecules-structure and function	40	7.06
6	Biostatistics	1	0.18
7	Brand management	31	5.35
8	Cell texture technology	16	2.75
9	Communication technology	4	0.68
10	City and metropolitan planning	11	1.89
11	Communication aided drug designing	11	1.89
12	Computer networks	18	3.10
13	Creative planning	1	0.18
14	Cyber security	5	0.86
15	Dairy and food process and product technology	18	3.10
16	Digital media and society	1	0.18
17	Early childhood care and education	209	36.55
18	Enhancing soft skills and personality	9	1.55
19	Food microbiology and food safety	3	0.52
20	Functional foods and nutraceutical	6	1.03
21	Functional foods and management	4	0.68
22	Human growth and development	3	0.52
23	Inclusive education	1	0.18
24	Information and communication technology	2	0.35
25	Integrated waste management	8	1.38
26	Introduction to essential of marketing	11	1.89

27	Introduction to forensic science and police organization	2	0.35
28	Introduction to proteomics	1	0.18
29	IT fundamentals	1	0.18
30	Landscape designing	6	1.03
31	Learning instruction	3	0.52
32	Organizational behaviour	19	3.10
33	Post-colonial literature	2	0.35
34	Programming in C	18	3.28
35	Psychology of language	1	0.18
36	Solid hazardous waste management	24	4.31
37	Students assessments and evaluation	2	0.35
38	The psychology of language	4	0.68
39	Tissue engineering	2	0.35
40	Tourism planning and sustainable development	54	9.49

Annexure-II

INSTITUTIONAL HUMAN ETHICS COMMITTEE



Avinashilingam

Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3
of UGC Act 1956) Re-accredited with 'A+' Grade by NAAC.
Recognised by UGC Under Section 12 B
Coimbatore-641 043, Tamil Nadu, India

Chairman

Dr. S. Rameshlingam
Principal, PSG Institute
of Medical Sciences
& Research, Coimbatore

Member Secretary

Dr. S. Uma Mageshwari
Professor & Head,
Department of Food Service
Management & Dietetics

Members

Mr. K. Arulmoli (Legal Expert)
Dr. Subhashini K. Sripathi
Dr. A. Saraswathy
Ms. D. Kavitha
Dr. S. Muthulakshmi
Dr. G. Victoria Naomi
Dr. Judith Justin
Dr. Anitha Subash

20th January 2020

To
Ms. Nunna Amulya
Department of Human Development
Avinashilingam Institute for Home Science and
Higher Education for Women
Coimbatore – 641 043

Dear Nunna Amulya,

Ref: Your proposal No. IHEC/19-20/HD/38 entitled "Inter Relationship between Locus of control, MOOC's retention and MOOC's satisfaction among postgraduates" submitted for approval to the IHEC on 30.10.2019.

The Institutional Human Ethics Committee of our University hereby grants approval to your research proposal No. IHEC/19-20/HD/38 entitled "Inter Relationship between Locus of control, MOOC's retention and MOOC's satisfaction among postgraduates" submitted by you. The Approval number for the same is AUW/ IHEC/HD-19-20/XPD/38.

We wish you all the best in your research endeavours.

Regards,

S. Uma Mageshwari
Dr. S. Uma Mageshwari
Member Secretary





From

Dr. K Arockia Maraichelvi
Associate Professor and Head,
Department of Human Development,
Avinashilingam Institute for Home Science and Higher Education for Women,
Coimbatore-43.

To

The Registrar,
Avinashilingam Institute for Home Science and Higher Education for Women,
Coimbatore-43.

Through

The Dean, School of Home Science

Madam

Subject: Requesting permission for data collection – Reg.

This is to bring to your kind attention that Miss **Nunna Amulya** and **Nongthombam Shimran Devi**, M.Phil scholars of Department of Human Development pursuing under the guidance of Dr. Arockia Maraichelvi and Dr. Mutum silpa Devi respectively, would like to conduct study on MOOC's retention and satisfaction in relation to certain personality traits. In this connection, I would like to request you to kindly permit them to conduct the survey among the PG students of our esteemed Institution, since our institute made MOOC as a compulsory for completing the postgraduate degree.

I would also like to mention that the data collection will be done without causing any inconvenience for our college work and the collected data will be kept confidential and used for research propose only.

Yours sincerely,

Arockia, Maraichelvi.

HOD HD

As per VC Memo
see mission

29/10/19

VC/R/4/116
24.10.19
Sub to VC Memo
S. Karthi
23/10/19
Registrary
Per m s HD but include outside other 152
Prerna
24/10/19

Annexure III
Background Information (BGI)

Please fill in the following entries:

1. Name:

2. Age:

3. Class:

Course:

4. Religion:

Hindu

Muslim

Christian

Others

5. Community:

a) General / Unreserved

b) OBC

c) Schedule Caste

d) Schedule Tribe

6. Family type:

Nuclear

Joint

7. Father's education:

Illiterate

Primary

Secondary

Graduate

Postgraduate

8. Mother's education:

Illiterate

Primary

Secondary

Graduate

Postgraduate

9. Father's occupation:

Government

Private

Unemployed

Business

10. Mother's occupation:

Government

Private

Homemaker

Business

11. Area of residence:

Urban

Rural

Annexure IV

SWAYAM MOOC Factors Scale

Instruction: For each of the following statements, tick (✓) mark in the appropriate box which depicts your answer the best) keeping the recently completed MOOC course in mind. Be sure not to omit any items.

Item	Strongly disagree	Disagree	Uncertainty	Agree	Strongly agree
Course content					
1. The course content is well defined.					
2. The course had effectively challenged me to think.					
3. Course assignments/ assessments were interesting and stimulating.					
4. The course content was up-to-date with developments in the field.					
5. Student evaluation techniques such as assignments and exam were related to the learning objectives of the course.					
Course Structure					
6. The course objectives and procedures were clearly communicated.					
7. The course material was organized into logical and understandable components.					
8. Recap & summarize component of course made learning easier.					
9. Introduction component of course structure was very clear.					

10. The course covered the expected content.					
11. The language was easy to understand.					
12. The course work helped me understand concepts more clearly.					
13. The course provided an appropriate balance between instruction and practice.					
14. The course was organized in a way that helped me understand well.					
Information Delivery Technology					
15. The content of this course was effectively communicated.					
16. Extra learning links and references were provided.					
17. The videos have got interesting components like animation, pictorial/ graphical representation.					
18. The quality of the video is good.					
19. The audio quality of the course makes me attentive					
20. The e-text from the course content is useful to clarify the doubts					
Instructor					
21. The instructor was knowledgeable about the course.					
22. The instructor was actively involved in facilitating this course.					

23. The instructor stimulated students with very much liked face-to-face courses.					
24. Instructor's style of presenting is captivating.					
25. The instructor communicated clearly and was easy to understand.					
26. The instructor's teaching methods were effective.					
Activities and exercises					
27. The Activities and exercises of the course were easy to do.					
28. The Activities and exercises in this course helped me to check my understanding.					
29. Completion of assignments helped in extra learning					
30. The instructor grades consistently with the evaluation criteria.					
31. The tests and assessments accurately assessed what I have learned in this course					
32. The tests and assessments were reflective of the course					
Instructor support					
33. The instructor played an important role in facilitating learning in this course					
34. The instructor contributed to the					

discussions in the course.					
35.The instructor was helpful when learners had problems.					
36.I have interacted with the instructor in the course.					
37.The instructor emphasized relationships between and among topics.					
Instructor Feedback					
38.The instructor was responsive to students concerns					
39.The instructor provided timely feedback on assignments, exam or projects.					
40.Question to check our understanding was given now and then.					
41.The question had constructive feedback with right answer marked.					
42.The self-learning videos had components like single knowledge assessment test for self-evaluation.					
Instructor to learner interaction					
43.I feel free to ask question throughout the course					
44.The instructor responded to my question.					
45.The instructor was accessible to me.					

46. I felt free to express and explain my own views throughout the course.					
47. I was able to make comments.					
Learner to learner interaction					
48. Discussion forum contributed significantly to this course					
49. Discussion initiated was appropriate for course purpose.					
50. Learner's interactions were a learning component of this course.					
51. This course provided an opportunity to learn from other learners.					
52. I was given sufficient opportunity to interact with other students on this course					
Internet connectivity					
53. I have access to a computer or mobile with an internet connection					
54. I have enough internet plan to regularly attend the classes					
55. I have the freedom to access and use the course resource and materials with the university Wi-Fi.					
56. I access to the content through Swayam mobile app was easier than desktops/ laptops					
57. Faced problems with internet connectivity.					

Annexure V
MOOCs Retention Scale

1. How many MOOC course have you enrolled for the odd semester 2019-20?

- a) 1
- b) 2
- c) 3
- d) 4

2. Details of the course currently enrolled (odd sem 2019-20)

S.NO	Name of the course	Weeks	Credits
1			
2			
3			
4			

3. Are you a first time MOOC learner?

- a) Yes
- b) No

If no, details of the course already enrolled / completed

S.NO	Name of the course	Completed	Grade / Score
1			
2			
3			
4			

4. Please answer the following questions keeping a MOOC course which you recently completed in mind.

Involvement in the course

S.no	Questions	100-80%	80-60%	60-40%	40-20%	Below 20%
1	Do you watch all videos					

	that are uploaded?					
2	How many videos do you watch the second time?					
3	Do you read all the text materials that are uploaded?					
4	How many text materials do you read second time?					
5	How many graded assessment you completed?					
6	How many subjective assignments you completed?					

Involvement

S.NO	Discussion forum	Always	Often	Occasionally	Rarely	Never
1	How often do you interact with the course coordinator?					
2	How often do you interact with the peer learner?					
3	How often do you raise question in the discussion forum?					

4	How often do you answered the question asked by the peer learner?					
5	How often do you look into the Announcement tab					
6	How often do you look into your progress in the portal					

Proctored Exam

Sl.no.	Question	Yes	No
1	Enrolled for exam		
2	Completion of the exam		
3	Mode of exam CBT/Paper pencil/Combination		
4	Results		

Annexure VI

“MOOCs Satisfaction Scale”

Instruction: For each of the following statements, tick the number of 5 – point scale (1 = Never, 5 = strongly agree). There are no right and wrong answers, so don't spend lot of time on any one item. Put a mark in the appropriate box which depicts your answer the best. Be sure not to omit any items.

Item	Strongly disagree	Disagree	Uncertainty	Agree	Strongly agree
1. I am Satisfied by learning in MOOC					
2. I feel online course are as effective as face to face course.					
3. I would recommend this course to other students					
4. I would like to take MOOC course again in the future					
5. I am satisfied with the level of knowledge I gain through the MOOC course.					
6. I felt it is easier way too earn credit in MOOC					
7. Learning through MOOC is a delightful experience					

8. The feedback after the exercises helped me feel rewarded for my effort					
9. So much effort is not needed to complete the MOOC course					
10. I am satisfied with the mode of exam.					

Annexure- VII

Locus of control scale

Instruction: Mark each of the following statements on a scale of 1 to 5 where 1= strongly agree, 2= Agree, 3= Not sure, 4= Disagree, 5= Strongly disagree. There are no right and wrong answers, so don't spend lot of time on any one item. Put a mark in the appropriate box which depicts your answer the best. Be sure not to omit any items.

S. No	Item	1	2	3	4	5
1.	I am the captain of my life.					
2.	I can't fight against rules and regulations.					
3.	Government is there to solve our problems					
4.	I can achieve anything if I try hard enough					
5.	I seldom admit defeat.					
6.	I do believe in free will.					
7.	Fate plays an important part in my life.					
8.	I prefer to fight my own battles.					
9.	Issues in the modern world are often too complex to understand fully.					
10.	I Sometimes feel unable to cope.					
11.	At work I like to be told exactly what to do.					
12.	I would like to conduct an orchestra.					
13.	Astrology has a profound influence on our lives.					
14.	I frequently pray over my problems.					
15.	I like to be left to get on with things.					
16.	I am confident about the course my life is taking					
17.	Destiny plays no part in my life.					
18.	Taking orders irritates me.					
19.	I defer to my elders and betters.					

20.	If you want something done properly, you have to do it yourself.					
21.	We often need help and advice from our superiors.					
22.	I like to be part of an organization.					
23.	I admire cats for their independence.					
24.	I enjoy working independently.					
25.	I like someone else to check my work before it's finished.					

Annexure-VIII



Avinashilingam Institute for Home Science and Higher Education for Women
 (Deemed to be University under category 'A' by MHRD, U.S. of UGC Act 1956)
 Re-accredited with 'A' Grade by NAAC, Recognised by UGC Under Section 12B
 Coimbatore - 641 043, Tamil Nadu, India

APPLICATION FOR SEEKING PERMISSION FOR EXTENSION OF RESEARCH PROGRAMME
 (M.Phil / ~~Ph.D.~~ RESEARCH WORK)

(THIS FORM MUST BE COMPLETED BY THE SCHOLAR, SUPERVISOR AND DEAN, AND SUBMITTED TO THE CONTROLLER OF EXAMINATIONS THROUGH PROPER CHANNEL)

SECTION I - To be completed by the Scholar

Name of the Scholar		Nunna Amblya		
Roll Number	19MPHD F005	<input checked="" type="checkbox"/> Full time / Part time		
Department / School	Human Development			
Institute	Avinashilingam Institute for Home Science & Higher Education for women			
Address for Communication	68, Ramalingam colony, Beside Blessigs ladies hostel			
	Mobile No: 9110562528	Email Id: amnya.nunna97@gmail.com		
Title of the Thesis (in Block Letters)	INTER-RELATIONSHIP BETWEEN LOCUS OF CONTROL, MOOC'S RETENTION AND SATISFACTION AMONG POST GRADUATES			
Name of the Supervisor and Address	DR. K. AROKIA MARAJCHELVI Associate Professor Department of Human Development			
Present Qualification: M.Sc., / M.Phil. <input checked="" type="checkbox"/>				
Date & Year of Registration	Part I Completed Date & Year	Part II Pre Synopsis indicated at the time of registration	Part II Probable date for Submission of thesis (without any deviation)	Discontinued in studies, if any / Period
02-07-2019	21-12-2019	21-12-2019	3 rd Jan 2020	NA

No. of Permissions so far obtained for

Extension beyond the scheduled period:

✓

ONE / TWO / THREE / FOUR (please tick)

Specify the Permission and fee paid

Extension Permitted (Ref. No./Date)	Period Permitted		Fec Paid (with No. & Date)	Any deviation has been made AC/BOM approval obtained so far
	From	To		
First Time	1-2-2021	31-7-2021		
Second Time				
Third Time				
Forth Time				
Fifth Time				

SECTION - 1A

Fellowship if obtained:	YES / NO	
If Yes, Name of the Sponsor/Address:		
Details of Date of Start & Date of Closure	From:	To:

N. Amulya 12-1-2021
Signature of the Student with Date

SECTION 2 - To be completed by the Supervisor

Name of the Supervisor: K. Anandha Mani

Department / School: School of Home Science

No. of Candidates Guided so far: M.Phil: 04 Ph.D: 02

Period of Extension recommended: From... Feb. 2021 To... June 2021

Justification for the delay in submission of thesis / pre-synopsis: Data collection was delayed due to Cond-19

No. of review meetings conducted so far:

Signature of the Supervisor: Anandha Mani 12/1/21

N. Amulya 12/1/21
Signature of the Dean:

COE's Remarks: Manu 18/1/2021

G. P. Prasantha
Director (R&C): 18/1/2021