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LEARNERS SATISFACTION FACTORS IN NEUROLOGY RELATED MOOCs

Case
Study

Keywords

*Neurology,
Masive open online courses (MOOCs),
Satisfaction factors,
Teaching,
Learning*

Abstract

The aim of this article is to investigate the factors that are influencing student satisfaction in case of neurology related massive open online courses (MOOCs). We analyzed data collected from learners enrolled in 40 neurology related MOOCs, by manually looking for information in these courses reviews. The main identified satisfaction factors can be grouped into the following categories: content related factors: course content, additional materials, assignments, external research and teaching - learning related factors (teacher presentation techniques / style): engaging, clear, coherent, knowledgeable, sharing / explanation, interactive, excitement, considering student's needs, inspiring, sense of humor. Competences, skills and objectives pursued by neurology related MOOCs are also discussed. Analyzing these factors can be useful in new courses management (design and implementation) and also in understanding the needs (motivation, behaviors, perception) of 21st century learners interested in neurology related fields.

INTRODUCTION

MOOCs are open online courses available (online) globally for a large number of learners with Internet access (without considering social status, race), for low or no fees.

They are current a very important topic in higher education. Many topics related to MOOCs are subjects discussed in various research papers: successful and distinct course formats for MOOCs, identification of student archetypes, identification of prototypical trajectories of learner's engagement, anatomy of MOOCs courses, platforms, integrating MOOCs in educational space (Rodriguez 2012, Kizilcec 2013, Topirceanu 2017, Klobas 2014, Grosseck 2015)

Learner's satisfaction on MOOCs was an issue addressed by Aboshady 2015 among medical students from a developing country. The study is based on a questionnaire and the results showed that most students were satisfied with the overall experience, including video lectures, exams and assignments, quality of the presented materials and the technology used and less satisfied regarding student-student and student-instructor interactions. Learners perspectives was also studied in other research papers, revealing commonalities and differences in learner experiences, realities of open online learning are different from the hopes of open online learning, student motivations, learning perceptions and experiences towards MOOCs, learners' satisfaction with MOOCs (Park 2015, Veletsianos 2013, Zheng 2015, Gameel 2017)

This research focuses on the investigation of factors that are influencing learners satisfaction in the context of users who have enrolled in neurology related MOOCs.

MATERIALS AND METHODS

In order to investigate learners satisfaction factors we adopt a mixed research method that involves both quantitative and qualitative data analysis methods.

Firs we identify neurology related MOOCs by searching (using domain-specific keywords) on aggregator sites Class Central, MOOC List and other lists of medical related courses (WeObservatory, WeTelemed). Than we considered the reviews of the identified courses in order to gather information and gain understanding about learners interaction / experience with MOOCs environment (content, instructors, other learners). Content, additional materials, assignments, teaching - learning related features are identified and we investigate their impact / influence as factors of online learner's satisfaction. At the end of this research, in order to identify skills, objectives and other features of neurology

related MOOCs, the general descriptions of course and also descriptions of each work theme / week (where available) were analyzed (also manually).

RESULTS

We identified 40 neurology related MOOCs (until 28 september 2017), offered by providers Coursera, EdX, FeatureLan, Udemy, NPTEL and Independent. These courses have been included in topics such as biology, disease & disorders, personal development, health care, psychology / psychiatry, engineering / robotics, data analysis / artificial intelligence, programing, highlighting the multidisciplinary of this field. The course length ranged (IQR) from 5 to 8 weeks and assumed an effort ranged between 3 to 5 hours/week while the number of participants ranged from 89 to 1190. A detailed list of these courses can be found in the article written by Maniu & all 2017.

After analyzing the immense amount of data collected from these reviews (manually) we have identified and summarized features from learner's perspective under two main greatest concern themes: related to course content, additional materials, assignments and related to teaching - learning strategies.

Content related features / factors

- Course content

Positive remarks to the course content are based on the degree to which the content was interesting, intriguing, well structured, well and clearly explained, with real life examples. The negative remarks are especially related to the way the material is presented, situations that have caused reproaches are those in which the material is only read, not explained and / or accompanied by images, videos, innapropriate or too virtual explanations etc. Also, undesirable / unpleasant situations have been reported in case of courses involving a multidisciplinary approach, requiring the use of techniques for data collection and analysis and / or mathematical computation (Table no. 1)

- Additional materials and assignments

The comments about additional materials and assignments highlight learners' dominant view that additional videos, tutorials, personal stories, books, quizzes, assignments, final reviewed essays, reviewing the work done by fellow students had a significant very good influence on learners reporting high quality experience and are also motivational inflences for further, longer learning (Table no. 2)

Teacher / instructor (teaching - learning) related features / factors

Teaching style of MOOCs instructors was the most common seen feature in reviews of neurology related MOOCs educational experience. Learners expressed expectations regarding teaching style / practice involving level of knowledge, engagement, enthusiasm / passion, sharing, coherence, intuition which the instructor should consider toward each / any of their teaching topic. The interactive approach, allowing sharing of learners experience and experts experience (others than instructor) is also considered a positive aspect. These are the features which led to highly positive remarks and positive academic experiences. There were a few cases in which the learners expressed negative remarks mainly caused by monotony, dry and boring, astonishing courses (table no. 3).

Competences / skills and objectives in neurology related MOOCs

After analyzing the data collected from general and specific courses description we have identified and summarized features from instructors / providers perspective regarding skills, objectives and other features of neurology related MOOCs. In the table below are presented only those aspects that have not been emphasized so far when we exposed learners perspective (table no. 4)

CONCLUSION

This research is providing a rich description of online learning experience of learners enrolled in neurology related MOOCs, emphasizing on factors that are influencing learner's satisfaction. Reviews of MOOCs, where available, are real sources of information for teachers / instructors regarding participants' feedback on the course, helping to create, improve or optimize (new) course preparation / teaching strategies. The fact that teaching style is the most common seen feature in reviews argues that staff engagement in online educational environment is of great importance for higher education system. We have not identified remarks of learner-learner interaction or learner-instructor interaction regarding learner's satisfaction.

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APPENDICES

Table No. 1

Course content factors

PRO	“very interesting information, a very intriguing course, a lot of interesting, fascinating information”
	“interesanting, everyday real life examples, well and clearly explained, applicable, well constructed, clear and easily, stimulating and highly informative, a lot of details”
	“rich, nice structured, interesanting, applied mathematical concepts”
	“concepts clearly presented, well explained, rigorous”
	“helpful, inspiring, very enjoyable”
	“the concepts it’s easy to follow”
	“Amazing Course Structure. I completely lost track of the fact that I am, originally a Mathematics Student”
	“If you are interested and willing to put in the time and effort .. is a wonderful course to get acquainted with basics of the central nervous system ... It’s amazing that we can have a course like this, of such detail, freely available these days. ”
CONS	“no examples, no photo of historic people (he/she) is talking about, just lines and many words”
	“mathematical parts .. which got complex, messy and seemed to be explained not as clear as in previous course. Some ecological, more experiment related examples could be useful to help understand mathematical operations and formulas”
	“mathematical models not easily to understand”
	“some drawbacks would be the lack of explanation on how to model or collect the data, which is probably too complicated to state in a online course anyway”
	“some explanations would have been much quicker to understand by Videos instead of verbal/textual explanations”
	“some explanations are just too virtual to be understood easily”
Other/both	“it will require a decent amount of hard work outside of watching the videos and reading the course notes, especially if you have had no background in human biology related subjects”
	“If you are not flexible or if you are not motivated enough, this course can easily discourage you more than encourage you into the exciting field of neuroscience”

Note. Course content factors extracted form learners reviews on identified neurology related MOOCs from Coursera, edX, FeatureLan, Udemy, NPTEL, Independent and/or aggregator sites Class Central, MOOC List

Table No. 2

Additional materials and assignments factors

PRO	“additional lab videos were fabulous, Introducing interesting books and personal stories were also helpful for learning, each video rather short (5-7min) helped me watching them whenever I had a time, many optional videos”
	“great supplementary resources (last for you months of reading on this topic)”
	“interesting guest lectures and tutorials”
	“includes short quizzes in each modules” / “after every section”
	“quizzes are a little tricky”
	“Multiple choice quiz within video was again useful to make sure I did not miss any points”
	“Assignments that demand your full attention”
	“This course was very unique in itself ! i.e It involved much more than just assignments. The final test which involved writing an essay which had to be peer reviewed was a good experience. Also reviewing the work done by fellow students have to be noted for it would be an amazing experience for anyone taking this course! I am very much looking for ward for such courses in future”

Note. Additional materials and assignments factors extracted form learners reviews on identified neurology related MOOCs from Coursera, edX, FeatureLan, Udemy, NPTEL, Independent and/or aggregator sites Class Central, MOOC List

Table No. 3

Instructor related features

PRO	“passionate, elan, personal anecdotes and humor, providing a wide, yet detailed scope, great natural teacher, teaching style keeps one focused and interested”
	“teaching style is informal and engaging, explains you a lot of things in a simple way, clear, coherent and highly engaging way”
	“Engaging, fun, sense of humor, Sharing”
	“Great intuition and explanation, very knowledgeable”
	“has a rare gift to explain complicated things in easy and fun way. Learning with her/him is pure joy”
	“many examples and illustrations of what she/he explains, which make the course really alive”
	“examples of your everyday life, which make it easiest to memorize”
	“eye opener”
	“It goes from too simple to very complex in few seconds”
	“Great overview of a really cool field, gives nice intuitions for ideas”
	“explaining the concepts and ideas of the topic, rather than just reading lots of formulas”
	“interactive approach, allowing you to both share your own experiences ... and learn from experts.”
	“I now feel a desire to research”
	“it raised my interest to keep learning more”
“is an excellent instructor, and his knowledge and enthusiasm are wonderful. His style is more „professorial”, so those who need to be „entertained” to learn might have to muster their own discipline”	
CONS	“no emotion, no excitement delivered by the professor, no eye contact almost 99 % with the camera (we the students) – is looking down in laptop, is MONOTONE no pause no diction, presentation is problematic, teaching technique of using past research to explain, they may be great in the lab, but keep them out of the classroom”
	“lecturer’s delivery is dry and boring, lecture is delivered like a core dump without considering the needs of the students, who may be taking the class for various reasons”
	“astonishing”

Note. Instructor related features extracted from learners reviews on identified neurology related MOOCs from Coursera, edX, FutureLearn, Udemy, NPTEL, Independent and/or aggregator sites Class Central, MOOC List

Table No. 4

Competences / skills and objectives of courses

“Our students have different backgrounds; therefore, I have adapted and simplified the course to allow all students to understand the interdisciplinary content . This course will help you to start your progress in the field of Neuroeconomics and to further develop your skills during other more advanced courses and trainings in the future. The main goal of this lecture is to help you read and understand results of Neuroeconomics papers. ”
“The physiology of the brain is very complex and takes years to learn as research is new everyday. ”
“We’ll invite you to build up a neuron, piece by piece, using interactive simulations , and we’ll take you on field trips in and around Harvard and Boston, bring you into the lab, and show you how to conduct DIY neuroscience experiments on your own. ”
“ Documentaries focusing on cutting-edge topics in neuroscience will take you inside labs, hospitals and research institutions around Harvard, MIT and Boston, and quiz banks will allow you to test your knowledge on your own time”
“Each lesson will be media- and content-rich and will challenge you to master material with interactive segments that depend on your feedback to move forward in the lesson. Lessons will also be filled with beautiful animations, documentaries and DIY experiments that allow you to explore the richness and complexity of the brain. Our forums will provide you with a place to meet other students around the world. You can learn from each other as well as discuss questions with members of our team during office hours”
“This course includes video-based lectures and demonstrations, interviews with real research psychologists and a plethora of practice questions to help prepare you for exam”
“ Leading neuroscientists will give tours of their labs, describe their research, and explain their data analytic techniques. You will have the chance to explore actual data collected in these researchers’ labs. ”
“The content is delivered by 18 experts in the field of dementia including neuroscientists, health scientists,

clinicians, dementia care professionals and people living with dementia.

Participants will have an opportunity to engage with the material via video clips, **activities, games, scenarios** and quizzes. Furthermore, they will have an **opportunity to meet an international network of peers online to discuss the key issues** surrounding dementia”

“To illustrate how an interdisciplinary approach helps to understand child development you will see how researchers from various disciplines and backgrounds study child development at Utrecht University. These scientists will give a look in their field of knowledge and their collaboration with colleagues, to illustrate how the theory you will learn translates to practice”

Note. Competences / skills and objectives extracted from general and specific courses description of identified neurology related MOOCs from Coursera, edX, FutureLan, Udemy, NPTEL, Independent and/or aggregator sites Class Central, MOOC Lis